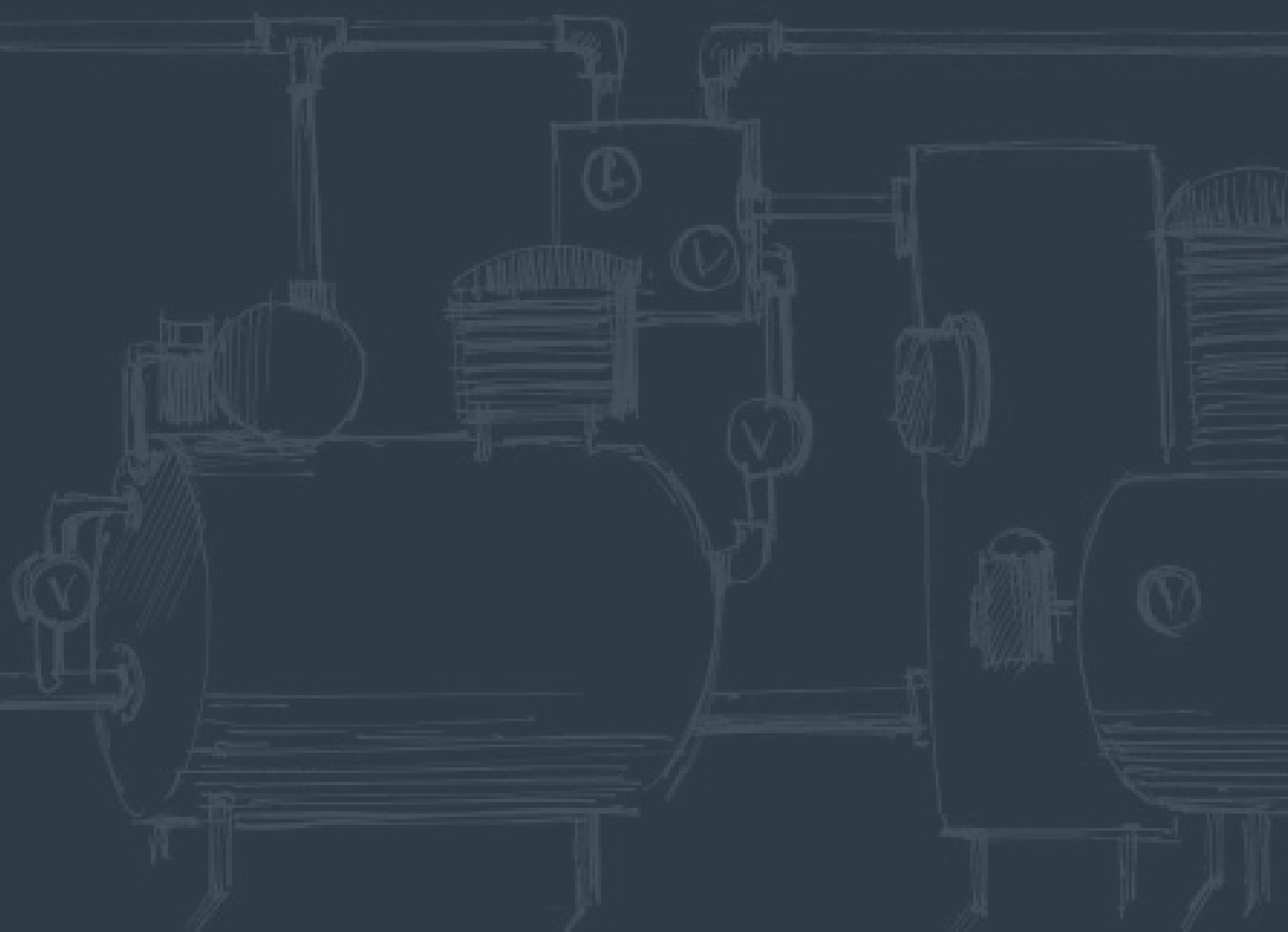


# Catalogue 2013

# AKO





# AKO

AKO the leading company in comprehensive Regulation and Control of Industrial and Commercial Refrigerated facilities in the Refrigeration, Construction and Industrial sector.

- Current workforce of over 140 employees, completely customer oriented
- More than 8,000 m2 for our Headquarter and Warehouse
- A company with over 30 years of growth
- 14% of our turnover is invested in R&D&i
- Product portfolio >3.000 equipments and >500 projects
- ISO9001 Quality Assurance and ISO14001 Environmental Management Systems
- Presence in over 90 countries and international projects
- We design, manufacture and supply solutions for markets using international standards

With over 140 employees, AKO has a strong 30-year track record in the international market with subsidiaries in USA and Mexico. We do business in over 90 countries, and one of our top goals is increasing and consolidating our international presence.

AKO strives and offers the best quality performance and equipment. All of their units are handled and designed in a safe manner to:

- Optimize energy efficiency in our installations
- Integrate the best solutions and equipment at the installation
- Ensure health, safety, and respect to the environment

All in a safe and reliable manner.

At AKO we believe in the future. We partner with our clients to develop joint engineered solutions and allocate every year 14% of sales to R&D.

# Preserving the cold chain and the trust chain



Go for our experience in Temperature Regulation and Control

## CAMCtrl Basic

All under control



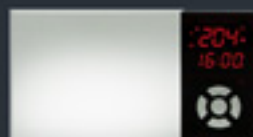
## PROPlus Basic

Power and control in one device



## CAMRegis Basic

All the information you need, without any drawbacks



## PROPlus 3PH

Maximum functionality for three-phase power systems



## CAMGas

Maximum safety, minimum maintenance costs



## AKOCable

Frost protection for cold facilities



# AKO

+ information:  
[www.ako.com](http://www.ako.com)  
Tel. (+34) 902 333 145

Certified Company:  
Quality System ISO 9001  
Environmental System ISO 14001

Negative Cold Room	Positive Cold Room	Work Halls	Compressor Racks	Refrigeration Cabinets
<b>Datalogger</b>	<b>Thermometer</b>	<b>Datalogger</b>	<b>Alarms</b>	<b>Thermometer</b>
 CAMRegis Temperature and humidity loggers	 AKOControl Darwin The most suitable and flexible range of temperature and humidity control	 CAMRegis Temperature and humidity loggers	 CAMGas Gas Leak Detection Alarm	 AKOControl Darwin The most suitable and flexible range of temperature and humidity control
 CAMRegis Temperature and humidity loggers (2channels)	<b>Datalogger</b>	 CAMRegis Temperature and humidity loggers (2channels)		
 CAMAlarm Trapped person alarm	 CAMRegis Temperature and humidity loggers (2channels)	<b>Alarms</b>	 CAMGas Gas Leak Detection Alarm	
 CAMGas Gas Leak Detection Alarm	<b>Alarms</b>	 CAMGas Gas Leak Detection Alarm		
 COMBIAlarm Gas leak detector + Trapped person alarm	 COMBIAlarm Gas leak detector + Trapped person alarm			

## Integral solution for refrigerated facilities

For optimum safety in refrigeration, **AKO** recommends:

- Negative Cold Rooms:  
CAMRegis, CAMRegis Basic, CAMAlarm, CAMAlarm Basic, CAMGas, COMBIAlarm
- Positive Cold Rooms:  
AKOControl Darwin, CAMRegis, CAMRegis Basic, CAMGas
- Work Halls:  
CAMRegis, CAMRegis Basic, CAMGas.
- Compressor Racks:  
CAMGas
- Refrigeration Cabinets:  
AKOControl Darwin.

FAMILY

<p><b>AKOSoft</b> Software GSMAlarm Webserver Accesories</p>	<p>Pág. 10</p>	<p><b>AKOCable</b> Constant Wattage Parallel Cable and Element Self-regulating Parallel Cable Series Cable Drum, Tank and Compressor Heaters Accesories</p>	<p>Pág. 51</p>
<p><b>AKODuo</b> DUOControl DUOVision DUODrive Accesories</p>	<p>Pág. 13</p>	<p><b>AKOKit</b> Kit for Pipes Kit for Tanks and Hopper Walls Kit for Underfloor Heating Kit for Roofs and Drainage Channels Solutions for Refrigeration</p>	<p>Pág. 67</p>
<p><b>AKOControl</b> Thermostats, Small Format Temperature Controllers, Standard Panel Temperature Controllers, 4 relaysMural PID Controllers Temperature Controllers, wall Mounting Temperature Controllers, DIN Rail Mounting Large Frontal Temperature Controllers AKOSOL- Solar Energy Thermometers Industrial Control AKOTIM - Modular Controls (HACCP) Compressors Pack Controls Probes and Accessories</p>	<p>Pág. 16</p>	<p><b>AKOPro</b> PROPlus– Electrical Panels for cold room stores and condensers PROPlus3PH – Electrical and Electronic Panels for three phase condensing units &amp; evaporators PROMet – Metal Line Electrical Panels</p>	<p>Pág. 72</p>
<p><b>AKOCam</b> CAMCtrl – Controllers for Cold Room Stores CAMRegis – Data-loggers CAMAlarm – Alarms for Cold Room Stores CAMGas – Gas Leak Detector COMBIAAlarm – Gas Leak Detector + Trapped Person Alarm CAMCombi – Controllers+ Data-loggers for Cold Room Stores</p>	<p>Pág. 43</p>	<p><b>AKOElec</b> Alarms for Lifts Detectors and Timers AKOTUBOS – Protectors for Fluorescent Lamps</p>	<p>Pág. 77</p>
		<p><b>AKONivel</b> Switches for Liquids Switches for Solids Liquid Control Relays</p>	<p>Pág. 82</p>
		<p>General contitions of sale</p>	<p>Pág. 87</p>

## LIST OF REFERENCES

Reference	Family	Pack	Page	Reference	Family	Pack	Page	Reference	Family	Pack	Page
AKO-10123	1510	10 Us.	25	AKO-15226	1530	6 Us.	31	AKO-15652-C	1510	1 U.	75
AKO-10223	1510	10 Us.	25	AKO-15227	1530	6 Us.	31	AKO-15653	1510	1 U.	75
AKO-10323	1510	10 Us.	25	AKO-1530	1530	5 Us.	38	AKO-15658	1510	1 U.	75
AKO-1212	2110	100 m (A)	56	AKO-15301A	1530	1 U.	38	AKO-15659	1510	1 U.	75
AKO-12192	2190	1 U.	52	AKO-15401	1535	1 U.	29	AKO-156632	1510	1 U.	50
AKO-12193	2190	1 U.	53	AKO-15402	1535	1 U.	29	AKO-15673	1510	1 U.	50
AKO-1221	2120	100 m (A)	55	AKO-15403	1535	1 U.	29	AKO-15680	1510	1 U.	75
AKO-1222	2190	50 m (A)	58	AKO-15410	1535	1 U.	28	AKO-15681	1510	1 U.	75
AKO-1224	2190	50 m (A)	58	AKO-15413	1535	1 U.	28	AKO-15682	1510	1 U.	75
AKO-1228	2190	50 m (A)	58	AKO-15415	1535	1 U.	28	AKO-15683	1510	1 U.	75
AKO-122906	2190	1 U.	56	AKO-15460	1535	1 U.	28	AKO-15703	1590	10 Us. (B)	46
AKO-1232	2190	50 m (A)	58	AKO-15463	1535	1 U.	28	AKO-15704	1590	48 Us. (B)	46
AKO-1234	2190	50 m (A)	58	AKO-15465	1535	1 U.	28	AKO-15721	1590	1 U.	46
AKO-1236	2190	50 m (A)	58	AKO-15430	1535	1 U.	28	AKO-15724	1590	1 U.	45
AKO-1238	2190	50 m (A)	58	AKO-15437	1535	1 U.	28	AKO-15725	1590	1 U.	45
AKO-1246	2190	50 m (A)	58	AKO-15440	1535	1 U.	27	AKO-15740	1570	1 U.	46
AKO-13012	1510	12 Us.	19	AKO-15450	1535	1 U.	27	AKO-15742	1570	1 U.	46
AKO-13020	1510	12 Us.	19	AKO-15451	1535	1 U.	29	AKO-15750	1570	1 U.	46
AKO-13023	1510	12 Us.	19	AKO-15452	1535	1 U.	29	AKO-15752	1570	1 U.	46
AKO-13112	1510	12 Us.	19	AKO-15453	1535	1 U.	29	AKO-15780	1570	1 U.	46
AKO-13120	1510	12 Us.	19	AKO-15480	1535	1 U.	28	AKO-15782	1570	1 U.	46
AKO-13123	1510	12 Us.	19	AKO-15487	1535	1 U.	28	AKO-17609	1550	1 U.	76
AKO-14540	1510	1 U.	37	AKO-15490	1535	1 U.	27	AKO-17610	1550	1 U.	76
AKO-14602	1510	10 Us.	23	AKO-15561	1590	10 Us.	41	AKO-17611	1550	1 U.	76
AKO-14605	1510	12 Us.	23	AKO-155801	1590	10 Us.	41	AKO-17612	1550	1 U.	79
AKO-14610	1510	10 Us.	24	AKO-155802	1590	10 Us.	41	AKO-17613	1550	1 U.	76
AKO-14612	1510	10 Us.	24	AKO-155803	1590	10 Us.	41	AKO-17614	1550	1 U.	76
AKO-14615	1510	12 Us.	23	AKO-155807	1590	10 Us.	41	AKO-17615	1550	1 U.	76
AKO-14632	1510	10 Us.	24	AKO-155815	1590	5 Us.	41	AKO-17616	1550	1 U.	76
AKO-14641	1510	10 Us.	25	AKO-15582	1590	1 U.	44	AKO-17617	1550	1 U.	76
AKO-14642	1510	10 Us.	25	AKO-155830	1590	1 U.	44	AKO-17618	1550	1 U.	76
AKO-14721	1530	12 Us.	29	AKO-15584	1590	1 U.	41	AKO-17619	1550	1 U.	76
AKO-14722	1530	12 Us.	33	AKO-15585A	1590	1 U.	41	AKO-17620	1550	1 U.	76
AKO-14723	1530	12 Us.	36	AKO-15586	1590	100 m. (B)	40	AKO-17621	1550	1 U.	76
AKO-D14724	1530	12 Us.	30	AKO-15587	1590	1 U.	41	AKO-17622	1550	1 U.	76
AKO-D14726	1530	12 Us.	30	AKO-15590	1590	12 Us.	37	AKO-17623	1550	1 U.	76
AKO-D14726-C	1530	12 Us.	30	AKO-155908	1590	10 Us.	40	AKO-17624	1550	1 U.	76
AKO-14727	1530	12 Us.	30	AKO-15595	1590	5 Us.	41	AKO-1901	1550	50 Us. (B)	66
AKO-D14728	1530	12 Us.	33	AKO-15599	1590	1 U.	38	AKO-1903	1550	30 Us. (B)	66
AKO-D14729	1530	12 Us.	30	AKO-15601	1590	1 U.	41	AKO-21202	1550	1 U.	15
AKO-D14729-C	1530	12 Us.	30	AKO-15602	1590	1 U.	41	AKO-21203	1550	1 U.	15
AKO-14801	1530	10 Us.	31	AKO-15613	1510	1 U.	44	AKO-21204	1550	1 U.	15
AKO-14901	1590	48 Us.	41	AKO-156131	1510	1 U.	44	AKO-21006	1560	1 U.	15
AKO-14902	1590	48 Us.	41	AKO-15626	1510	1 U.	44	AKO-21012	1560	1 U.	15
AKO-14903	1590	48 Us.	41	AKO-15633	1510	1 U.	44	AKO-21018	1560	1 U.	15
AKO-14906	1590	24 Us.	41	AKO-156331	1510	1 U.	44	AKO-21701	1560	1 U.	15
AKO-14910	1590	120 Us. (B)	40	AKO-156332	1510	1 U.	50	AKO-21901	1560	1 U.	15
AKO-14915	1590	1 U.	41	AKO-15640	1510	1 U.	73	AKO-21902	1560	1 U.	15
AKO-14917	1580	6 Us.	41	AKO-15645	1510	1 U.	73	AKO-21904	1580	1 U.	15
AKO-14931	1580	10 Us.	46	AKO-15648	1510	1 U.	73	AKO-5006	1580	1 U.	11
AKO-14918	1580	10 Us.	41	AKO-15650	1510	1 U.	75	AKO-5008	1580	1 U.	11
AKO-15223	1530	6 Us.	33	AKO-15651	1510	1 U.	75	AKO-5010	1580	1 U.	11
AKO-15224	1530	6 Us.	32	AKO-15651-C	1510	1 U.	75	AKO-5011	1580	1 U.	11
AKO-15225	1530	6 Us.	31	AKO-15652	1510	1 U.	75	AKO-52037	1580	1 U.	52

## LIST OF REFERENCES

Reference	Family	Pack	Page	Reference	Family	Pack	Page	Reference	Family	Pack	Page
AKO-52047	1580	1 U.	52	AKO-53172	3310	6 Us.	83	AKO-71245	2120	-	57
AKO-52042	1580	1 U.	12	AKO-53173	3310	18 Us.	83	AKO-71248	2120	-	57
AKO-52043	1580	1 U.	12	AKO-53181	3310	12 Us.	83	AKO-71250	2120	-	59
AKO-52061	4200	5 U.	47	AKO-53182	3310	12 Us.	83	AKO-71251	2120	-	59
AKO-520611	4200	1 U.	47	AKO-53183	3310	12 Us.	83	AKO-71252	2120	-	59
AKO-52066	4200	5 U.	47	AKO-53184	3310	12 Us.	83	AKO-71253	2120	-	59
AKO-520661	4200	1 U.	47	AKO-53185	3310	12 Us.	83	AKO-712545	2110	100 m (A)	53
AKO-52062	4200	1 U.	47	AKO-53186	3310	12 Us.	83	AKO-71255	2120	-	59
AKO-52063	4200	5 Us.	47	AKO-53187	3310	12 Us.	83	AKO-71258	2120	-	59
AKO-520631	4200	1 U	47	AKO-53188	3310	12 Us.	83	AKO-71261	2120	-	59
AKO-52064	4200	5 Us.	47	AKO-5330	3320	12 Us.	86	AKO-71263	2120	-	59
AKO-520641	4200	1 U.	47	AKO-5335	3320	6 Us.	86	AKO-71265	2120	-	59
AKO-52201	4200	4 Us.	48	AKO-5404C	4400	12 Us.	78	AKO-71267	2120	-	59
AKO-522014	4200	4 Us.	49	AKO-54041A	4400	12 Us.	78	AKO-712699	2190	5 Us.	60
AKO-52202	4200	4 Us.	48	AKO-54043	4400	12 Us.	78	AKO-71270	2120	-	60
AKO-52203	4200	4 Us.	48	AKO-5405A	4400	12 Us.	78	AKO-71271	2120	-	60
AKO-52204	4200	4 Us.	48	AKO-5406	4400	24 Us.	79	AKO-71275	2120	-	60
AKO-52213	4200	4 Us.	48	AKO-54061	4400	12 Us.	79	AKO-71279	2120	-	60
AKO-522024	4200	4 Us.	49	AKO-5409A	4400	8 Us.	77	AKO-71281	2190	1 U.	57
AKO-522034	4200	5 Us.	49	AKO-5413	4400	6 Us.	79	AKO-71282	2190	1 U.	57
AKO-52210	4200	1 U.	48	AKO-54301	1530	12 Us.	40	AKO-71285	2190	1 U.	57
AKO-522104	4200	5 Us.	48	AKO-5442B	4240	12 Us.	80	AKO-71286	2190	1 U.	57
AKO-52211	4200	1 U.	48	AKO-54426	4240	6 Us.	80	AKO-71287	2190	1 U.	57
AKO-52212	4200	1 U.	48	AKO-549505	4200	25 Us. (B)	80	AKO-71301A	2130	1 U.	62
AKO-52213	4200	1 U.	48	AKO-5605A	4200	1 U.	81	AKO-71302A	2130	1 U.	62
AKO-52214	4200	1 U.	49	AKO-617089	4100	25 Us. (B)	80	AKO-71321	2130	1 U.	62
AKO-5231	2110	100 m (A)	52	AKO-617097	4100	25 Us. (B)	80	AKO-71323	2130	1 U.	62
AKO-5234	2110	150 m (A)	53	AKO-61904	4100	25 Us. (B)	80	AKO-71331	2130	1 U.	61
AKO-52341	2110	150 m (A)	53	AKO-619901	4100	50 Us. (B)	80	AKO-71332	2130	1 U.	61
AKO-52342	2110	150 m (A)	53	AKO-619902	4100	50 Us. (B)	80	AKO-71333	2130	1 U.	61
AKO-52344	2110	150 m (A)	53	AKO-619907	4100	50 Us. (B)	80	AKO-71334	2130	1 U.	61
AKO-52346	2110	75 m (A)	53	AKO-70115	2110	100 m (A)	55	AKO-71370	2130	1 U.	61
AKO-5237	2110	100 m (A)	55	AKO-70130	2110	100 m (A)	55	AKO-71371	2130	1 U.	61
AKO-5238	2190	25 Us.	52	AKO-70140	2110	50 m (A)	55	AKO-71372	2130	1 U.	61
AKO-52383	2190	25 Us.	53	AKO-70192	2190	10 Us. (B)	55	AKO-71373	2130	1 U.	61
AKO-5239	2190	25 Us.	52	AKO-70194	2190	5 Us.	55	AKO-71374	2130	1 U.	61
AKO-52401	2190	1 U.	66	AKO-71010	2110	100 m (A)	54	AKO-71325	2130	1 U.	62
AKO-52402	2190	100 Us.	66	AKO-71015	2110	100 m (A)	54	AKO-71515	2150	1 U.	63
AKO-52403	2190	1 U.	66	AKO-71025	2110	100 m (A)	54	AKO-71535	2150	1 U.	63
AKO-52404	2190	100 Us.	65	AKO-71035	2110	100 m (A)	54	AKO-71611	2190	1 U.	66
AKO-5255A	4240	10 Us.	80	AKO-71050	2110	100 m (A)	54	AKO-71612	2190	1 U.	66
AKO-5256A	4240	10 Us.	80	AKO-71092	2190	1 U.	55	AKO-71617	2190	1 U.	66
AKO-53112	3315	25 Us.	84	AKO-71110	2110	100 m (A)	56	AKO-71620	2190	5 Us.	66
AKO-53114	3315	12 Us.	84	AKO-71120	2110	100 m (A)	56	AKO-71625	2190	5 Us.	66
AKO-53120	3315	12 Us.	84	AKO-71130	2110	100 m (A)	56	AKO-71628	2190	20 Us. (B)	65
AKO-53124	3315	1 U.	84	AKO-71135	2110	100 m (A)	56	AKO-71629	2190	1 U.	66
AKO-53125	3315	1 U.	84	AKO-71150	2110	100 m (A)	56	AKO-71630	2190	1 U.	66
AKO-53126	3315	1 U.	84	AKO-71212	2120	-	57	AKO-71635	2190	10 Us. (B)	66
AKO-53127	3315	1 U.	84	AKO-71214	2120	-	57	AKO-71658	1530	1 U.	39
AKO-53161	3315	1 U.	85	AKO-71216	2120	-	57	AKO-71659	1530	1 U.	39
AKO-53162	3315	1 U.	85	AKO-71218	2120	-	57	AKO-71660	1530	1 U.	39
AKO-53165	3315	1 U.	85	AKO-71219	2120	-	57	AKO-71661	1530	1 U.	39
AKO-53166	3315	1 U.	85	AKO-71241	2120	-	57	AKO-71666	2190	1 U.	65
AKO-53171	3310	6 Us.	83	AKO-71243	2120	-	57	AKO-717425	2190	1 U.	38



## LIST OF REFERENCES

Reference	Family	Pack	Page	Reference	Family	Pack	Page	Reference	Family	Pack	Page
AKO-717440	2190	1 U.	65	AKO-D14412	1510	12 Us.	21	AKO-TI40-PLAST	2200	1 U.	68
AKO-717441	2190	5 Us.	65	AKO-D14412-RC	1510	12 Us.	21	AKO-TI80-PLAST	2200	1 U.	68
AKO-717445	2190	1 U.	66	AKO-D14423	1510	12 Us.	21	AKOTIM-11ARTE	1520	12 Us.	34
AKO-71751	2190	1 U.	66	AKO-D14423-RC	1510	12 Us.	21	AKOTIM-11ARTEB	1520	12 Us.	34
AKO-718510	2150	1 U.	65	AKO-D14918	1580	10 Us.	41	AKOTIM-11ATE	1520	12 Us.	34
AKO-718520	2150	1 U.	65	AKO-D16323	1510	12 Us.	22	AKOTIM-11TE	1520	12 Us.	34
AKO-71863	2150	1 U.	65	AKO-D17023	1510	1 Us.	22	AKOTIM-12ARTE	1520	12 Us.	34
AKO-718720	2150	1 U.	65	AKO-DH-3M3-METAL	2200	1 U.	69	AKOTIM-12ARTEB	1520	12 Us.	34
AKO-80004A	1590	1 U.	40	AKO-DH-5M3-METAL	2200	1 U.	69	AKOTIM-12ATE	1520	12 Us.	34
AKO-80008	1590	1 U.	41	AKO-DH-10M3-METAL	2200	1 U.	69	AKOTIM-12TE	1520	12 Us.	34
AKO-80013	1590	1 U.	42	AKO-DH-2M3-PLAST	2200	1 U.	69	AKOTIM-13ARTE	1520	12 Us.	35
AKO-80015	1590	1 U.	39	AKO-DH-5M3-PLAST	2200	1 U.	69	AKOTIM-13ARTEB	1520	12 Us.	35
AKO-80016	1590	1 U.	39	AKO-DH-10M3-PLAST	2200	1 U.	69	AKOTIM-13ATE	1520	12 Us.	35
AKO-80018	1580	1 U.	41	AKO-DV-1M3-METAL	2200	1 U.	69	AKOTIM-13TE	1520	12 Us.	35
AKO-80019	1590	1 U.	41	AKO-DV-2M3-METAL	2200	1 U.	69	AKOTIM-21ARTE	1520	6 Us.	35
AKO-80020	1590	1 U.	39	AKO-DV-5M3-METAL	2200	1 U.	69	AKOTIM-21ARTEB	1520	6 Us.	35
AKO-80024	1580	1 U.	11	AKO-DV-10M3-METAL	2200	1 U.	69	AKOTIM-21ATE	1520	6 Us.	35
AKO-80025	1510	25 Us.	26	AKO-DV-1M3-PLAST	2200	1 U.	69	AKOTIM-21TE	1520	6 Us.	35
AKO-80030	1590	1 U.	39	AKO-DV-2M3-PLAST	2200	1 U.	69	AKOTIM-22ARTE	1520	6 Us.	35
AKO-80031	1590	1 U.	39	AKO-DV-5M3-PLAST	2200	1 U.	69	AKOTIM-22ARTEB	1520	6 Us.	36
AKO-80032	1510	25 Us.	28	AKO-DV-10M3-PLAST	2200	1 U.	69	AKOTIM-22ATE	1520	6 Us.	36
AKO-80033	1590	25 Us.	28	AKO-EC-100	2200	1 U.	71	AKOTIM-22TE	1520	6 Us.	36
AKO-80034T	2150	2 Us.	64	AKO-EC-150	2200	1 U.	71	AKOTIM-23ARTE	1520	6 Us.	36
AKO-80035T	2150	1 U.	64	AKO-EC-200	2200	1 U.	71	AKOTIM-23ARTEB	1520	6 Us.	36
AKO-80036T	2150	1 U.	64	AKO-EC-250	2200	1 U.	71	AKOTIM-23ATE	1520	6 Us.	36
AKO-80037T	2150	1 U.	64	AKO-EC-300	2200	1 U.	71	AKOTIM-23TE	1520	6 U	36
AKO-80038T	2150	2 Us.	64	AKO-EH-10	2200	1 U.	71	AKO-TOLVA-5M2	2200	1 U.	69
AKO-80039	1580	1 U.	11	AKO-EH-20	2200	1 U.	71	AKO-TOLVA-12M2	2200	1 U.	69
AKO-80040	1590	1 U.	11	AKO-EH-40	2200	1 U.	71	AKO-TOLVA-20M2	2200	1 U.	69
AKO-80041	2150	1 U.	64	AKO-EH-80	2200	1 U.	71	AKO-TOLVA-30M2	2200	1 U.	69
AKO-80046	2150	1 U.	41	AKO-MPC-4M	2200	1 U.	71	AKO-TUBO14T	4100	125 Us. (B)	81
AKO-ACS-10	2200	1 U.	68	AKO-MPC-8M	2200	1 U.	71	AKO-TUBO15T	4100	25 Us. (B)	81
AKO-ACS-20	2200	1 U.	68	AKO-MPC-12M	2200	1 U.	71	AKO-TUBO18T	4100	25 Us. (B)	81
AKO-ACS-40	2200	1 U.	68	AKO-SAFE-5M	2200	1 U.	71	AKO-TUBO18B	4100	25 Us. (B)	81
AKO-ACS-80	2200	1 U.	68	AKO-SC-20M2	2200	1 U.	71	AKO-TUBO18G	4100	25 Us. (B)	81
AKO-CANAL-50M	2200	1 U.	70	AKO-SC-40M2	2200	1 U.	71	AKO-TUBO18R	4100	25 Us. (B)	81
AKO-CANAL-100M	2200	1 U.	70	AKO-SC-60M2	2200	1 U.	71	AKO-TUBO18V	4100	25 Us. (B)	81
AKO-CANAL-150M	2200	1 U.	70	AKO-SC-80M2	2200	1 U.	71	AKO-TUBO20T	4100	25 Us. (B)	81
AKO-CANAL-200M	2200	1 U.	70	AKO-SC-100M2	2200	1 U.	71	AKO-TUBO21T	4100	125 Us. (B)	81
AKO-D10123	1510	10 Us.	26	AKO-SE-10M2	2200	1 U.	70	AKO-TUBO28T	4100	125 Us. (B)	81
AKO-D10223	1510	10 Us.	26	AKO-SE-20M2	2200	1 U.	70	AKO-TUBO35T	4100	125 Us. (B)	81
AKO-D10323	1510	10 Us.	26	AKO-SE-40M2	2200	1 U.	70	AKO-TUBO36T	4100	25 Us. (B)	81
AKO-D14012	1510	12 Us.	19	AKO-SE-60M2	2200	1 U.	70	AKO-TUBO36B	4100	25 Us. (B)	81
AKO-D14023	1510	12 Us.	19	AKO-SR-5M2	2200	1 U.	70	AKO-TUBO36G	4100	25 Us. (B)	81
AKO-D14023-C	1510	12 Us.	19	AKO-SR-10M2	2200	1 U.	70	AKO-TUBO36R	4100	25 Us. (B)	81
AKO-D14112	1510	12 Us.	20	AKO-SR-20M2	2200	1 U.	70	AKO-TUBO36V	4100	25 Us. (B)	81
AKO-D14120	1510	12 Us.	20	AKO-TEJADO-15M	2200	1 U.	70	AKO-TUBO40T	4100	25 Us. (B)	81
AKO-D14123	1510	12 Us.	20	AKO-TEJADO-30M	2200	1 U.	70	AKO-TUBO58T	4100	25 Us. (B)	81
AKO-D14123-2	1510	12 Us.	20	AKO-TEJADO-45M	2200	1 U.	70	AKO-TUBO58B	4100	25 Us. (B)	81
AKO-D14123-2-RC	1510	12 Us.	20	AKO-TEJADO-60M	2200	1 U.	70	AKO-TUBO58G	4100	25 Us. (B)	81
AKO-D14212	1510	12 Us.	20	AKO-TI10-METAL	2200	1 U.	68	AKO-TUBO58R	4100	25 Us. (B)	81
AKO-D14223	1510	12 Us.	20	AKO-TI20-METAL	2200	1 U.	68	AKO-TUBO58V	4100	25 Us. (B)	81
AKO-D14312	1510	12 Us.	21	AKO-TI40-METAL	2200	1 U.	68	AKO-TUBO65T	4100	25 Us. (B)	81
AKO-D14320	1510	12 Us.	21	AKO-TI80-METAL	2200	1 U.	68	AKO-TUBO70T	4100	25 Us. (B)	81
AKO-D14323	1510	12 Us.	21	AKO-TI10-PLAST	2200	1 U.	68				
AKO-D14323-C	1510	12 Us.	21	AKO-TI20-PLAST	2200	1 U.	68				

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

(B) Minimum, indivisible pack units.

# AKOsoft

The software of monitoring more friendly, robust and flexible



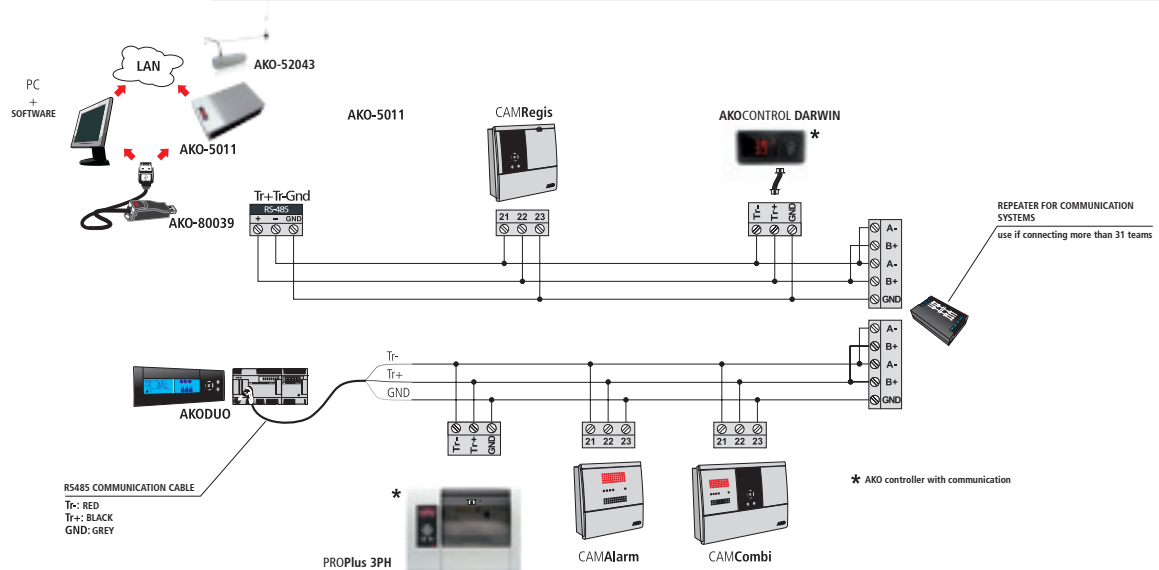
## AKONet Communication and software



### The software of monitoring more simple, robust and flexible.

AKOSoft has a wide range of software specifically developed for various applications, such as for the management and monitoring of CAMRegis data loggers, management and monitoring of AKO equipment via communication from a PC or webserver, configuration and monitoring of AKODuo, as well as management of GSM alarm modules.

The new AKONet software is presented as an easy, intuitive and fast tool to improve the connectivity and usability of AKO products in any installation. This new software provides users with a simple way to handle their installation, and knowing the status of all of its elements.



- This monitoring software allows remote management of the facility from anywhere in the world.
- CD-ROM (AKO-5010) for PC installation.
- Webserver (AKO-5011) with integrated software application ready to connect to any intranet.
- The control of the installation will be in both version:
  - Local: allows monitoring of connected controllers in the system itself.
  - Remote: allows the local system to be monitored remotely (web environment)
- For remote monitoring, you need to access via a web browser, using the IP address of the PC or Webserver.
- To use this software to operate the various AKO devices, a communication hub will need to be set up based on a standard RS485 network (MODBUS protocol), connecting all devices to the PC or Webserver through an RS485/USB converter module (AKO-80039).
- Key Features:
  - Connection of up to 127 devices.
  - Programming parameters of the various connected devices.
  - Real-time system monitoring by user-defined synoptic parameters.
  - Logging of temperatures and alarms.
  - Data displayed in table and graphic format, exportable to Excel and PDF.
  - Alarm message notification, both on screen and via e-mail.

#### AKOSOFT Compatibility:

AKO-5010/ AKO-5011: AKOControl, AKOCam (CAMCtrl, CAMRegis, CAMAlarm and CAMCombi), AKOPro (PROPlus) and AKODuo

AKO-5006: AKODuo

AKO-5008: CAMRegis

Reference	Description	Family	Pack
AKO-5006	DUOAssistant, software for offline AKODUO configuration	1580	1 Unit
AKO-5008	SOFTRegis, software for managing & monitoring CAMRegis loggers	1580	1 Unit
AKO-5010	AKONET CD software for managing & monitoring (converter module USB/RS485 included)	1580	1 Unit
AKO-5011	AKONET web server software for managing & monitoring (converter module USB/RS485 includ.)	1580	1 Unit
AKO-80039	Converter module USB/RS485	1580	1 Unit
AKO-80024	Repeater for RS485 communications systems	1580	1 Unit
AKO-14917	CMOS/RS485 converter module	1580	1 Unit
AKO-52043	Modem GSM/GPRS/ antenna USB cable (AKONet comptability)	1580	1 Unit

## GSMAlarm



### GSM module for alarm management.

When one of the 4 alarm inputs is activated, the device sends an SMS to the first programmed telephone number. If after the time adjusted by the user the message receipt confirmation is not received, it will automatically dial the next number. SMS sending also due to power supply and internal battery failure.

**Application:** Refrigerated facilities, process industry

- Applicable to any type of facility.
- Totally configurable by the user (telephone numbers, SMS, persistence, confirmation and resolutions times, and the type of NO/NC alarm contact), using software for PC SOFTgsm (included in the price).
- 4 separate inputs for alarm (voltage-free contacts)
- 10 telephone numbers assignable to each alarm.
- Indication via status leds of the unit (alarms, GPRS coverage, power supply, etc).
- USB communication cable for connection to PC.
- Rechargeable battery included (7h battery life)
- Power supply at 230 V

Referene	Description	Family	Pack
AKO-52042	GSM Alarm 4 input module (SIM card not included)	1580	1 Unit

## AKONet Webserver



### Webserver for management and monitoring

Instant connection to your facility from your computer. Connect your facility to Internet with the AKONet Webserver Plug&Play application. Receive alerts, programme tasks and download reports from any device with Internet connection: your PC, your tablet or even your Smartphone.

**Application:** Refrigerated facilities, process industry

- Refrigerated facility monitoring Plug&Play solution
- Web access from PC or mobile devices
- GSM/GPRS communications accessories for remote alarm management
- 2 GB of internal memory
- LED luminous indication system

Referene	Description	Family	Pack
AKO-5011	Internet server for management and monitoring	1580	1 Unit

## Módem 3G for sending messages



### 3G modem for sending GSM alarm messages compatible with AKONet

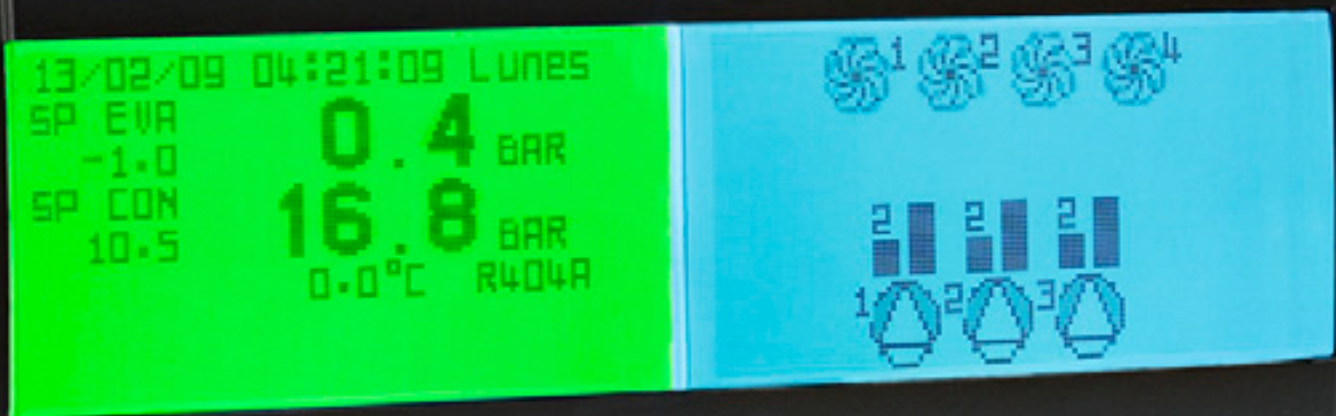
The AKO-52043 device is a 3G modem that allows the function of sending alarms via SMS messages in AKONet and AKONet Trace software.

- Allows sending alarms via SMS without the need for internet connection
- External antenna with easy portability and assembly
- Automatic installation software.

Referene	Description	Family	Pack
AKO-52043	3G modem for sending GSM alarm messages (compatible with AKONet)	1580	1 Unit

# AKODuo

The new generation of controllers for compressor racks



AKO

# AKODUO Compressors and condensers station, up to 18 outputs



### Energy savings through floating condensation.

Electronic controllers for regulating capacity in refrigeration stations, designed for more efficient management. Regulation in proportional band and neutral zone. Compressor rotation by operating hours. Up to 6 compressors can be managed with 2 partialisations. They have a 4-20 mA output for controlling the frequency variator of the condenser fans. Viewing of information on double multi-colour graphic screen. Rapid, intuitive menus with programming assistance and help on screen. Reading and programming configurable by pressure or temperature. Modular, robust system. Speed and ease of maintenance. Based on PLC technology.

**Application:** Cold installations.

- AKODUO: an electronic controller based on PLC technology for capacity regulation in cooling racks and condenser fans.

It comprises two units:

- DUOControl: efficiently manages the central unit, thanks to its floating condensing algorithm (DIN rail-mounted).
- DUOVisión: double-screen colour graphic display providing fast and accurate reading of all system variables.

• Key Features:

- Adjustment in the neutral zone or proportional band.
- Rotation of compressors by hours of operation or sequential activation.
- Control of fans by stages or by frequency variation
- Fast, user-friendly menus, grouped by functionality, with on-screen help and reading/programming wizard configurable by pressure (bar) or temperature (°C).
- Energy saving via activation of floating condensation algorithm and double evaporation pressure setting.

Key Features:

	AKO-21006	AKO-21012	AKO-21018	Function
DIGITAL INPUTS	8	10	12	Three fixed for PA, PB and AUTO/MAN sel.
DIGITAL OUTPUTS	6	12	18	Compressors and Fans
INPUTS 4-20 mA	3			Two pressure probes (HP & LP) and one exterior temp. probe
OUTPUTS 4-20 mA	1			Fans controlled by variable frequency

- Integrated RS485 communications. MODBUS protocol
- Compatible gases: R22, R134 A, R404 A, R507 A, R717 A (NH3) y R744 A (CO2).
- 24 VDC supply

Reference	Description	Family	Pack
AKO-21006	DUOControl 6 stages	1560	1 Unit
AKO-21012	DUOControl12 stages	1560	1 Unit
AKO-21018	DUOControl18 stages	1560	1 Unit
AKO-21701*	DUOVisión, Viewer with double display, panel-mounted	1560	1 Unit
AKO-21901	Power supply 100-240 Vac/24 Vdc, 0,75 A	1560	1 Unit
AKO-21902	Power supply 100-240 Vac/24 Vdc, 1,25 A	1560	1 Unit.
AKO-21904**	Communication cable RS485 for AKODuo	1580	1 Unit
AKO-5006	DUOAssistant, Software for off-line AKODuo configuration	1580	1 Unit

\* DUOVisión must be ordered together with DUOControl 6, 12 or 18.

\*\* Required for connecting the AKODUO controller to the communication hub (see AKOSOFT range diagram).

## DuoDrive Standard frequency converters for HVAC applications



### Low voltage frequency converters

Smart and intuitive frequency converters to improve energy efficiency. It provides tools to calculate energy savings, investment payback period, commissioning and diagnosis and remote access.

**Application:** Refrigerated facilities..

#### • Main characteristics:

- EMC filters for buildings, class C2 (1st environment)
- RFI filters
- Interactive maintenance and diagnosis wizard
- Fault logger
- Reduction of audible noise
- Customised control panel for HVAC applications
- Variable self-inductance reactances: up to 25% less harmonics
- Variety of references from 0.75 to 37 kW

Reference	Description	Family	Pack
AKO-21202	DUODrive, 0,75 Kw, 380 Vac with Modbus RFI filter	1560	1 Unit
AKO-21203	DUODrive, 1,1 Kw, 380 Vac with Modbus RFI filter	1560	1 Unit
AKO-21204	DUODrive, 1,5 Kw, 380 Vac with Modbus RFI filter	1560	1 Unit
AKO-21205	DUODrive, 2,2 Kw, 380 Vac with Modbus RFI filter	1560	1 Unit
AKO-21206	DUODrive, 3 Kw, 380 Vac with Modbus RFI filters	1560	1 Unit
AKO-21208	DUODrive, 4 Kw, 380 Vac with Modbus RFI filter	1560	1 Unit
AKO-21212	DUODrive, 5,5 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21215	DUODrive, 7,5 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21223	DUODrive, 11 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21231	DUODrive, 15 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21238	DUODrive, 18,5 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21245	DUODrive, 22 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21259	DUODrive, 30 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit
AKO-21272	DUODrive, 37 Kw, 380 Vac with Modbus RFI filter	1580	1 Unit

Available from April 2013

## AKOControl

The most suitable and flexible range  
of temperature and humidity control





## AKOControl, technical table for Industrial and Commercial Refrigeration

	RELAY OUTPUTS				INPUTS				OPTIONS			FORMATS							
	Compressor Resistance	Defrost	Fan Resistance	Light/Aux/Alarm	Control Temperature	Environment Temperature	Defrost Temperature End	Digital input 1	Digital input 2	Power Supply	Buzzer	Real Time Clock	Communication RS485	Slim Panel	Standard Panel	Big Display Panel	large Panel	DIN Rail	Wall
AKO-D14012						NTC/PTC			12/24V						X				
AKO-D14023						NTC/PTC			230V						X				
AKO-D14023-C						NTC/PTC			90/240V			X		X					
AKO-13012						NTC			12V				X						
AKO-13020						NTC			120V				X						
AKO-13203						NTC			230V				X						
AKO-14602						NTC/PTC			230V										X
AKO-14605						NTC			230V										X
AKO-D14112	12A(9)				NTC/PTC	NTC/PTC		X	12/24V					X					
AKO-D14120	12A(9)				NTC/PTC			X	120V					X					
AKO-D14123	12A(9)				NTC/PTC			X	230V					X					
AKO-13112	12A(9)				NTC			X	12V				X						
AKO-13120	12A(9)				NTC			X	120V				X						
AKO-13123	12A(9)				NTC			X	230V				X						
AKO-10123	12A(9)			8(4)A	NTC			X	230V							X			
AKO-D10123	12A(9)				NTC/PTC			X	230V							X			
AKO-14610	12A(9)				NTC/PTC				230V										X
AKO-14612	12A(9)				NTC/PTC				120V										X
AKO-14615	12A(9)				NTC				230V										X
AKOTIM-21TE	12A(9)				NTC	NTC		X	230V									X	
AKOTIM-21ATE	12A(9)			5(4)A	NTC	NTC		X	230V									X	
AKOTIM-21ARTE	12A(9)			5(4)A	NTC	NTC		X	230V									X	
AKOTIM-21ARTEB	12A(9)			5(4)A	NTC	NTC		X	230V	X	X							X	
AKO-D14212	12A(9)			8(4)A	NTC	NTC		X	12V					X					
AKO-D14220	12A(9)			8(4)A	NTC	NTC		X	120V					X					
AKO-D14223	12A(9)			8(4)A	NTC	NTC		X	230V					X					
AKO-10223	12A(9)	8(4)A		8(4)A	NTC	NTC	NTC	X	X	230V						X			
AKO-D10223	12A(9)	8(4)A		8(4)A	NTC	NTC	NTC	X	X	230V						X			
AKOTIM-22TE	12A(9)	8(4)A			NTC	NTC	NTC	X	230V									X	
AKOTIM-22ATE	12A(9)	8(4)A		5(4)A	NTC	NTC	NTC	X	230V									X	
AKOTIM-22ARTE	12A(9)	8(4)A		5(4)A	NTC	NTC	NTC	X	230V									X	
AKOTIM-22ARTEB	12A(9)	8(4)A		5(4)A	NTC	NTC	NTC	X	230V	X	X							X	
AKO-D14312	12A(9)		5(4)A	8(4)A	NTC		NTC	X	12V					X					
AKO-D14320	12A(9)		5(4)A	8(4)A	NTC		NTC	X	120V					X					
AKO-D14323	12A(9)		5(4)A	8(4)A	NTC		NTC	X	230V					X					
AKO-D14323-C	12A(9)		5(4)A	8(4)A	NTC		NTC	X	90/240V			X		X					
AKO-D16323	12A(9)	12A(9)	5(4)A		NTC		NTC	X	X	90/240V				X					
AKO-10323	12A(9)	8(4)A	8(4)A	8(4)A	NTC		NTC	X	X	230V						X			
AKO-D10323	12A(9)		5(4)A	8(4)A	NTC		NTC	X	230V							X			
AKO-14632	12A(9)	10A	5(4)A		NTC		NTC	X	230V										X
AKO-D14412	5(4)A	5(4)A	5(4)A	5(4)A	NTC		NTC	X	12V					X					
AKO-D14412-RC	5(4)A	5(4)A	5(4)A	5(4)A	NTC		NTC	X	12V			X		X					
AKO-D14423	5(4)A	5(4)A	5(4)A	5(4)A	NTC		NTC	X	X	230V								X	
AKO-D14423-RC	5(4)A	5(4)A	5(4)A	5(4)A	NTC		NTC	X	X	90/240V			X						
AKO-14642	12(9)A	8(4)A	5(4)A	5(4)A	NTC	NTC	NTC	X	230V										X
AKOTIM-23TE	12(9)A	8(4)A	5(4)A		NTC	NTC	NTC	X	230V									X	
AKOTIM-23ATE	12(9)A	8(4)A	5(4)A	5(4)A	NTC	NTC	NTC	X	230V									X	
AKOTIM-23ARTE	12(9)A	8(4)A	5(4)A	5(4)A	NTC	NTC	NTC	X	230V									X	
AKOTIM-23ARTEB	12(9)A	8(4)A	5(4)A	5(4)A	NTC	NTC	NTC	X	230V	X	X							X	

## Application Scope

		
<b>Bottle Cooler</b>	<b>Food Showcase</b>	<b>Wine Installations</b>
		
<b>Crystallised</b>	<b>Food Tables</b>	<b>Food Cabinets</b>
		
<b>Blast Cabinet</b>	<b>Food Self Services</b>	<b>Dishes Showcase</b>
		
<b>Market Showcase</b>	<b>Wall Cabinet</b>	<b>Modular Cabinets</b>
		
<b>Modular Cool Rooms &lt;10m3</b>	<b>Modular Cool Rooms &gt;10m3</b>	<b>Food Chest Coolers</b>
		<p><b>Darwin</b> AKO-D14023/D14323 Pág.20</p> <p><b>Thermometer</b> AKO-13012 Pág.19</p> <p><b>CAMRegis</b> AKO-15762/16767 Pág.45</p>
<b>Central Hills Coolers</b>	<b>Thermolabile Coolers</b>	

## Thermostats and thermometers Range from -50 °C to +99 °C, panel mounting, small format

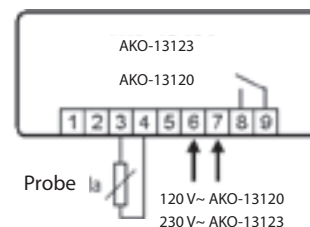
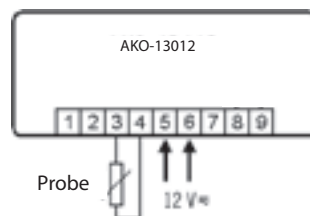
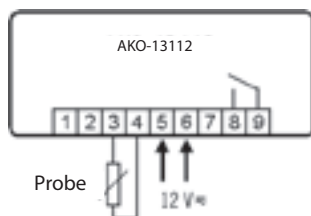
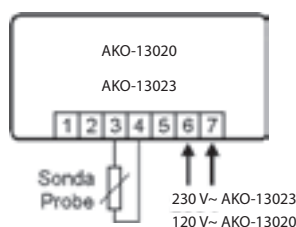


### Small dimensions 66 x 32 x 56 mm.

The dimensions of the panel cut-out make them exchangeable with traditional mechanical thermometers, by also integrating the thermostat and defrost clock function in a single unit. Programmable for cold and heat. Defrost by compressor stop. Possible password for entering programming, indication in °C or °F programme selectable and probe calibration.

**Application:** Industrial and commercial cold, displays, cabinets, etc.

- Temperature range -50 °C to +99 °C
- 2 Display digits (°C/°F)
- Resolution 1 °C
- Precision ±1 °C
- NTC Probe
- Panel cut-out dimensions 25,4 x 58 mm
- Front dimensions 32 x 66 mm
- Depth 51 mm



Reference	Description	Family	Pack
AKO-13012	12 V~, °C / °F probe NTC 1,5 m included	1510	12 Unit
AKO-13020	120 V~, °C / °F probe NTC 1,5 m included	1510	12 Unit
AKO-13023	230 V~, °C / °F probe NTC 1,5 m included	1510	12 Unit
AKO-13112	12V~, SPST relay 16 A, probe NTC included	1510	12 Unit
AKO-13120	120V~, SPST relay 16 A, probe NTC included	1510	12 Unit
AKO-13123	230V~, SPST relay 16 A, probe NTC included	1510	12 Unit

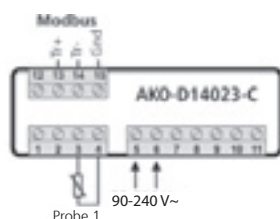
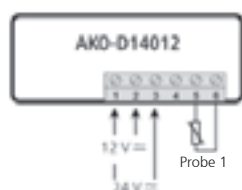
## Thermometers Range from -50 °C to +150 °C, panel mounting



### Temperature display.

Temperature display in °C or °F with decimal point. NTC/PTC probe selectable by programme. Allows probe calibration. A single button for adjusting parameters. The AKO-14023-C model has integrated RS-485 communication.

**Application:** Industrial and commercial refrigeration, displays, incubators, vehicles



- With NTC probe, temperature range from -50.0 °C to +99.9 °C
- With PTC probe, temperature range from -50.0 °C to +150 °C
- 3-digit display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 43 mm (AKO-D14012 y AKO-D14023)
- Depth 61 mm (AKO-D14023-C)

Reference	Description	Family	Pack
AKO-D14012	12/24 V~, 1 NTC probe included	1510	12 Units
AKO-D14023	230 V~, 1 NTC probe included	1510	12 Units
AKO-D14023-C	90-240 V~, with communication, 1 NTC probe included	1510	12 Units

### Thermostats Range from -50°C to +150 °C, 1 relay output, panel mounting

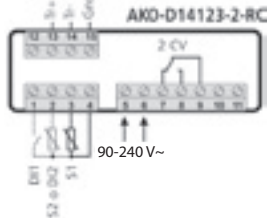
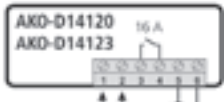
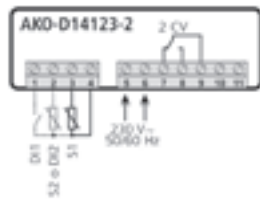
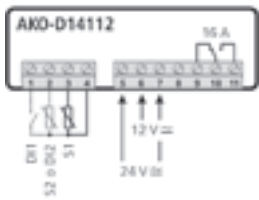


#### Programmable for cold and heat.

Programmable for cold and heat. Display and control in °C and °F with decimal-point. NTC/PTC probe selectable by programme. Possible password protection for configuration. Defrost by compressor shutdown.

Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration, displays, incubators, vehicles



120 V~ AKO-D14120  
230 V~ 50-60 Hz AKO-D14123 Probe 1

- With NTC probe, temperature range from -50.0 °C to +99.9 °C
- With PTC probe, temperature range from -50.0 °C to +150 °C
- 3 digits Display (°C/° F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 43 mm (AKO-D14120 y AKO-D14123)
- Depth 61 mm (AKO-D14112 y AKO-D14123-2-RC)
- Compressor relay SPST 16 A: AC1=12, AC3=9 (AKO-D1412x)
- Compressor relay SPDT 2 CV: AC1=16, AC3=10 (AKO-D14123-2, AKO-D14123-2-RC)
- Compressor relay SPDT 16 A: AC1=12, AC3=9 (AKO-D14112)

Reference	Description	Family	Pack
AKO-D14112	12/24 V~, 1 SPDT relay 16 A, 1 NTC probe included	1510	12 Units
AKO-D14120	120 V~, 1 SPST 16 A, 1 NTC probe included	1510	12 Units
AKO-D14123	230 V~, 1 SPST relay 16 A, 1 NTC probe included	1510	12 Units
AKO-D14123-2	230 V~, 1 SPDT relay 2 CV, 1 NTC probe included	1510	12 Units
AKO-D14123-2-RC	90-240 V~, 1 SPDT relay 2 CV, communication, 1 NTC probe included	1510	12 Units

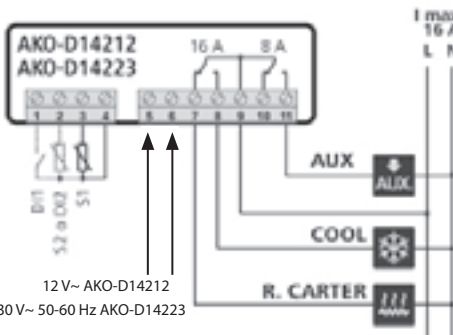
### Temperature controller Range from -50 °C to +99 °C, 2 relays, panel mounting



#### Compressor and auxiliary relay (defrost or fans).

Auxiliary relay function programmable as Defrost, Fans, Alarm or Light. A 2nd optional probe allows ending the defrost process by temperature. Programmable digital inputs such as door, switch, external alarm, remote defrost, energy saving or continuous cycle. Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration, display cabinets, electrical



12 V~ AKO-D14212  
230 V~ 50-60 Hz AKO-D14223

- Temperature range from -50.0 °C to +99.9 °C
- 3 Digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 61 mm
- Compressor relay SPDT 16 A: AC1=12, AC3=9
- Aux relay SPDT 8 A: AC1=8, AC3=4

Reference	Description	Family	Pack
AKO-D14212	12 V~, 2 relays , 1 NTC probe included	1510	12 Units
AKO-D14223	230 V~, 2 relays, 1 NTC probe included	1510	12 Units

## Temperature controllers Range from -50,0 °C to +99,9 °C, 3 relays, panel mounting

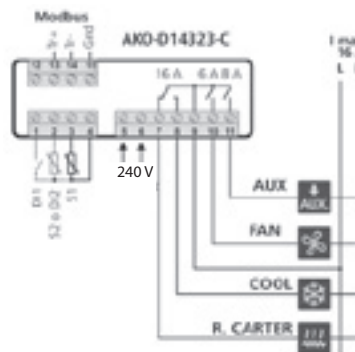
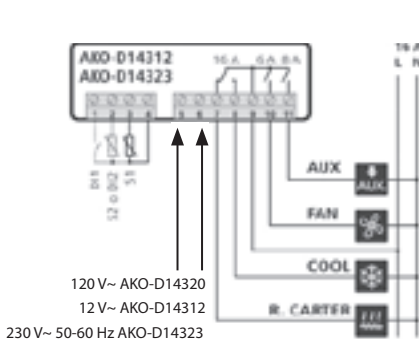


### Compressor, fan and auxiliary relay.

Auxiliary relay programmable as Defrost, Alarm or Light. Defrosts programmable by controlling compressor, resistances (or cycle reversal) and fans. A optional probe allows defrosting by temperature. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle.

Configuration wizard depending on application (8 configurations). The AKO-14323-C model has integrated RS-485 communication.

**Application:** Industrial and commercial refrigeration, display cabinets, electrical panels, etc.



- Temperature range -50.0 °C to +99.9 °C
- Temperature Range (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 61 mm
- Compressor relay SPDT 16 A: AC1=12, AC3=9
- Aux relay SPST 8 A: AC1=8, AC3=4
- Fan relay SPST 6 A: AC1=5, AC3=4

Reference	Description	Family	Pack
AKO-D14312	12 V~, 3 relays, 1 NTC probe included	1510	12 Units
AKO-D14320	120 V~, 3 relays, 1 NTC probe included	1510	12 Units
AKO-D14323	230 V~, 3 relays, 1 NTC probe included	1510	12 Units
AKO-D14323-C	90-240 V~, 3 relays, communication, 1 NTC probe included	1510	12 Units

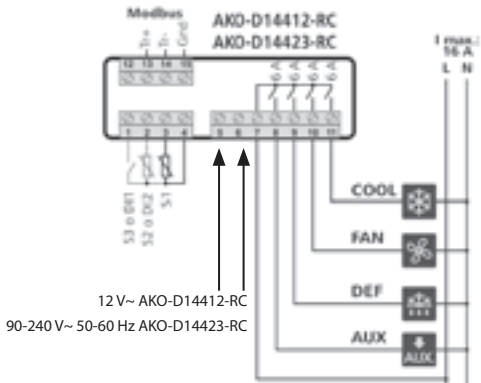
## Temperature controller Range from -50 °C to +99 °C, 4 relays



### Compressor and auxiliary relay (defrost or fans).

Auxiliary relay programmable as an alarm, 2nd defrost, gas collection or light. Defrost by heat, air or cycle reversal, programmable by controlling compressor, resistances (or cycle reversal) and fans. Real-time clock for starting defrosts. A 2nd optional probe allows defrosting by temperature. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle. Integrated RS-485 communications. Configuration wizard depending on application (8 configurations). (8 configurations) for AKO-D14412-RC and AKO-D14423-RC devices.

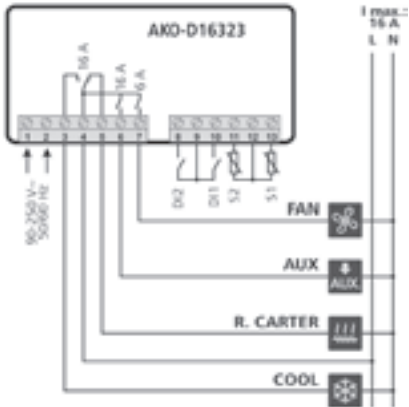
**Application:** Industrial and commercial refrigeration, display cabinets, electrical



- Temperature range from -50.0 °C to +99.9 °C
- 3 Digits display (°C/°F)
- Resolution 0.1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 61 mm
- Compressor relay SPST 6A: AC1=5, AC3=4
- Fan relay SPST 6A: AC1=5, AC3=4
- Defrost relay SPST 6A: AC1=5, AC3=4
- Aux relay SPST 6A: AC1=5, AC3=4

Reference	Description	Family	Pack
AKO-D14412	12 V~, 1 NTC probe included	1510	12 Units
AKO-D14423	90-240 V~, 1 NTC probe included	1510	12 Units
AKO-D14412-RC	12 V~, 4 relays, communication + real time clock, 1 NTC probe included	1510	12 Units
AKO-D14423-RC	90-240 V~, 4 relays, with communication and clock, 1 NTC probe included	1510	12 Units

### Temperature controllers Range from -50.0 °C to +99.9 °C, 3 relays, panel mounting



**Large display. Relay for compressor, fans and defrost.**

Defrosts programmable by controlling compressor, resistances (or cycle reversal) and fans. A 2nd optional probe allows defrosting by temperature. Auxiliary relay programmable as Defrost, Alarm or Light. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle. Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration

- Temperature range -50 °C to +99 °C
- 2 digits Display (°C/°F)
- Resolution: 0,1 °C on range -9,9 to 9,9 °C (1 °C in other range)
- Type of probe NTC
- Panel cut-out size 124 x 85 mm
- Front panel dimensions 139 x 100 mm
- Depth 40 mm
- Compressor relay SPDT 16 A: AC1=12, AC3=9
- Aux relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4

Reference	Description	Family	Pack
AKO-D16323	90-240 V~, 3 relays, 1 NTC probe included	1512	12 Units

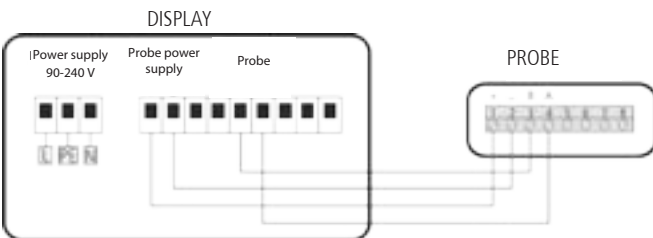
### GRANVis Display of temperature and humidity



**Display of temperature and humidity for installation in buildings and public premises.**

Fast and easy installation, perfect visibility trough display and 3 digits of 100 mm in size allowing goog read up to 50 m included probe.

**Application:** Small's supermarkets, sports centers, restaurants, bus stations, train stations, airports, etc..



- Temperature range -9 °C to +60 °C
- 3 digits display (°C/°F)
- Temperature accuracy 0,5 %
- Humidity accuracy 2 % (10 up to 90 %)
- Front panel dimensions 482 x 368 mm
- Depth 41 mm
- Power supply 90-240 V

Reference	Description	Family	Pack
AKO-D17023	GRANVis display of temperature and humidity	1510	1 Units

## Thermostat and Thermometer Range from -50 °C to +99 °C, wall mounting

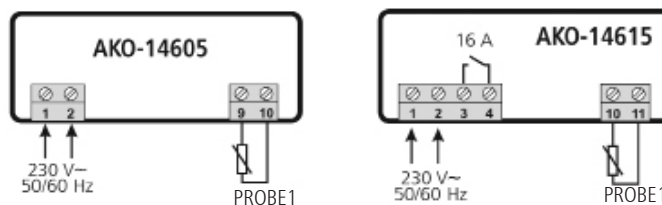


### Programmable temperature display for cold and heat.

Display and control in °C and °F. Possibility of blocking parameters. Defrost by compressor shutdown. NTC probe included in the kit, extendable with AKO-15586. Fixing holes suitable for universal recessed box.

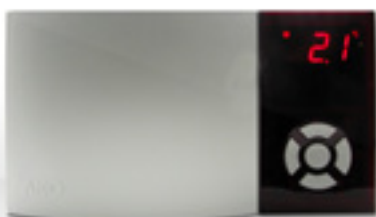
**Application:** Industrial and commercial refrigeration, displays, cabinets, incubators, vehicles, etc...

- Temperature range -50 °C to +99 °C
- 2 digits display (°C/°F)
- Resolution 1 °C
- Accuracy ±1 °C
- Dimensions 80 x 120 x 37 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9



Reference	Description	Family	Pack
AKO-14605	230 V~, 1 NTC probe included	1510	12 Units
AKO-14615	230 V~, 1 relay SPST 16A, 1 NTC probe included	1510	12 Units

## Thermometers Range from -50 °C to +150 °C, wall mounting

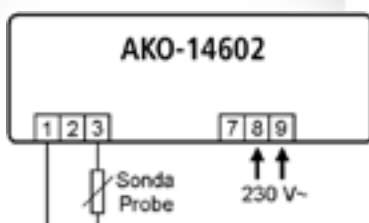


### Sonda NTC o PTC seleccionable por programa.

Temperature display in cold and heat applications. Allows probe calibration, display in °C or °F and password to enter programming. Fixing holes adapted to universal embedding box.

**Application:** Industrial and commercial cold, cold rooms, industrial warehouses, etc.

- NTC probe temperature range -50.0 °C to +99.9 °C
- PTC temperature range -50.0 °C to +150 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Box dimensions 171 x 94 x 42 mm
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Description	Family	Pack
AKO-14602	Thermometer 230 V~, 1 NTC probe included	1510	10 Units

## Temperature controllers Range from -50 °C to +150 °C, 1 output relay, wall mounting

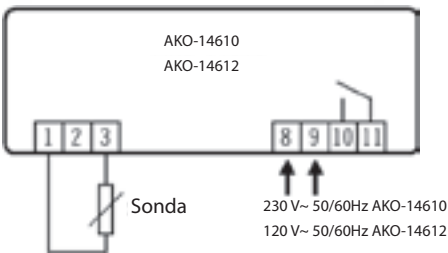


### Programmable for cold and heat.

NTC or PTC probe programme-selectable. Display and control with decimal point. Wall mounting. Fixing holes adapted to universal embedding box. Parameter protection by password. Indication in °C or °F.

**Application:** Industrial and commercial cold, cold rooms stores, incubators, industrial warehouses, etc.

- NTC probe temperature range -50.0 °C to +99.9 °C
- PTC probe temperature range -50.0 °C to +150 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- Box dimensions 171 x 94 x 42 mm
- Control relay SPST 16 A: AC1=12, AC3=9



Reference	Description	Family	Pack
AKO-14610	Controller 230 V~, 1 SPST relay, 1 NTC probe included	1510	10 Units
AKO-14612	Controller 120 V~, 1 SPST relay, 1 NTC probe included	1510	10 Units

## Temperature controllers Range from -50 °C to +99 °C, 3 relays, wall mounting

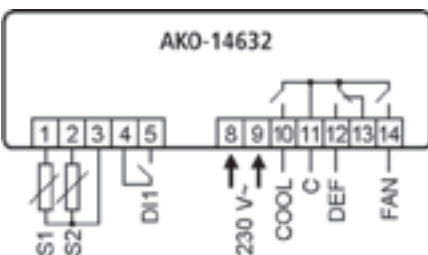


### Defrost by electric heat, air or hot gas bypass.

Programmable defrost by regulating the compressor, resistances (or hot gas bypass) and fans. With a 2nd optional probe, it enables defrost by temperature. Password enabled for entering the programming. Indication in °C or °F selectable by programme and probe calibration.

**Application:** Industrial and commercial cold, cold room stores, etc.

- Temperature range -50.0 °C to +99.9 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 171 x 94 x 42 mm
- Digital input for door contact
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 16 A: AC1=5, AC3=4
- Defrost relay SPDT 16 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Description	Family	Pack
AKO-14632	Controller 230 V~, 3 relays, 1 NTC probe included	1510	10 Units



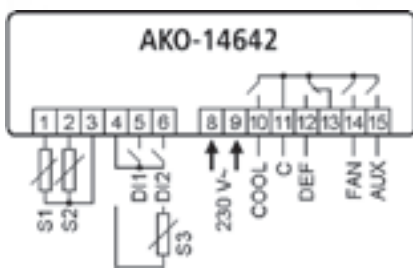
## Temperature controllers Range from -50 °C to +99 °C, 4 relays, wall mounting



### Configurable auxiliary relay.

Defrost by electric heat, air or hot gas bypass, programmable by regulating the compressor, resistances (or hot gas bypass) and fans. With a 2nd optional probe, it enables defrost by temperature. Auxiliary relay configurable for indicating alarms, defrost 2nd evaporator or solenoid control. Possible stop for pump down. Input for independent temperature probe or defrost control in 2nd evaporator. Digital input for door contact.

**Application:** Industrial and commercial cold, cold room stores, etc.



- Temperature range -50.0 °C to +99.9 °C
- Display 3 Digits (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 171 x 94 x 42 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defros relay SPDT 8 A: AC1=8, AC3=4
- Aux relay SPST 6 A: AC1=5, AC3=4
- Power supply 230V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-14642	Controller 230 V~, 4 relays, 1 NTC probe included	1510	10 Units

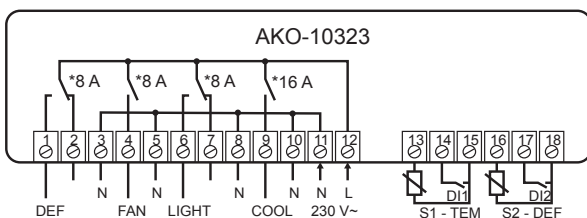
## Large frontal temperature controllers 2,3 and 4 relays, panel mounting



### Compressor and light relay.

6 keys: Up, Down, Set, Escape, Light and ON/OFF. Pushbutton to turn the unit on and off and light switch. Defrost by compressor shutdown. Continuous cycle is possible. Password enabled for entering programming, programme-selectable indication in °C o °F Digital input configurable for door contact, severe alarm, remote defrost, change in set-point temperature.

**Application:** Industrial and commercial cold, cold room stores, etc.



- Temperature range -50 °C to +99 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Panel cut-out dimensions 150 x 31 mm
- Box dimensions 149 x 30 x 57,7 mm
- Frame 174 x 34 mm
- Compressor relay SPST 16 A: AC1=16, AC3=10
- Light relay SPDT 8 A: AC1=8, AC3=4
- Defrost relay SPDT 8 A: AC1=8, AC3=4 (solo AKO-10223 y AKO-10323)
- Fans relay SPDT 8 A: AC1=8, AC3=4 (only AKO-10223 and AKO-10323)
- Power supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-10123	Controlller 1 control relay + light relay 230 V~	1510	10 Units
AKO-10223	Controlller 2 control relay + light relay 230 V~	1510	10 Units
AKO-10323	Controlller 3 control relay +light relay 230 V~	1510	10 Units

## Extended panel temperature controllers 1,2,3, relays, panel mounting

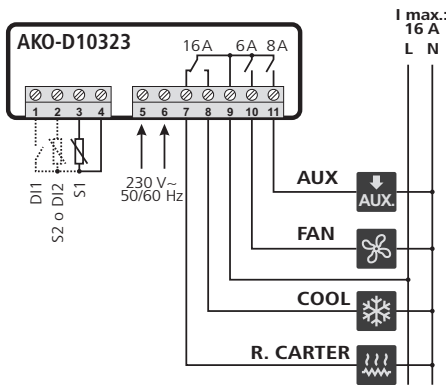


### Compressor relay, auxiliary and fans (3 relays controls only).

Auxiliary relay programmable as defrost, alarm or light. Programmable defrost controlling compressor, electric heat (or inverted cycle) and fans. With a 2nd optional probe it enable defrost by temperature. Configurable digital input for door contact, external alarm, remote defrost, energy (saving) or continuous cycle.

Assistant to put on service (8 settings). It incorporates two switches for auxiliary functions ideal for controlling furniture on/off, lights, etc.

**Application:** Industrial and commercial cold, displays, electric panels, etc.



- Temperature range -50 °C to +99 °C
- Temperature range (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Panel cut-out dimensions 136 x 29 mm
- Box dimensions 70 x 61 x 28,5 mm
- Frame 181 x 38 mm
- Compressor relay SPST 16 A: AC1=16, AC3=10
- Light relay SPDT 8 A: AC1=8, AC3=4
- Aux relay SPST 8 A: AC1=8, AC3=4
- Fans relay SPST 6 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-D10123	Controller 1 control relay + light switch and on/off 230 V~	1510	10 Units
AKO-D10223	Controller 2 control relay + light switch and on/off 230 V~	1510	10 Units
AKO-D10323	Controller 3 control relay + light switch and on/off 230 V~	1510	10 Units

## Thermometers Range from -50 °C to +70 °C, panel mounting



AKO-80032



AKO-80025

### Battery thermometers.

Temperature display in cold and heat applications.

**Application:** Industrial and commercial cold, displays.

- Temperature range -50 °C to +70 °C
- LCD display
- Resolution 0,1 °C
- Accuracy ±1 °C
- Battery power supply 1,5 V (G10)
- Dimensions AKO-80025 48 x 28,6 x 14 mm
- Dimensions AKO-80032 85,2 x 29,2 x 14,8 mm

Reference	Description	Family	Pack
AKO-80025	1,5 V Batteries (G10), probe 3 m	1510	25 Units
AKO-80032	Solar power supply + 1,5 V batteries (G10), probe 2 m	1510	25 Units

# Temperature controllers Range from -99,9 °C to +1370 °C, 48 x 48 format

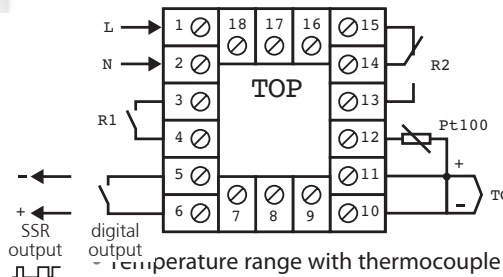


**Input for Pt100 probe, J and K thermocouple.**

ON/OFF Control. Programmable for cold and heat. With the 2 outputs, the controller can be used to work as a stage plus alarm.

**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with Pt100 probe -99,9 °C to +850,0 °C
- Temperature range with thermocouple J -99,9 °C to +800,0 °C
- Temperature range with thermocouple K -99,9 °C to +1370 °C
- Resolution 0,1 °C
- Accuracy ±1 °C
- 4 Digits display (°C/°F)
- Control output SSR 12 Vdc, max. 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 SPST relay 6 A, 250 V,  $\cos\phi=1$
- Relé R2 SPDT 5 A, 250 V,  $\cos\phi=1$



Reference	Description	Family	Pack
AKO-15440	Controller ON/OFF power supply from 20 up to 48 V~	1535	1 Unit
AKO-15490	Controller ON/OFF power supply from 100 up to 240 V~	1535	1 Unit

# PID controller, 48 x 48 format Range from -99,9 °C up to +1370 °C

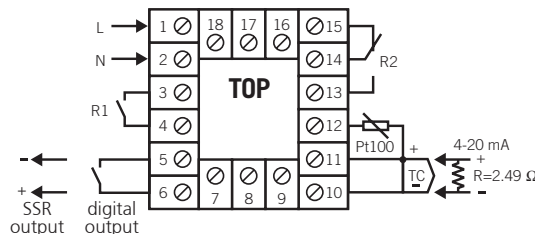


**Input for Pt100 probe, Thermocouple J and K, 4-20mA**

Programmable for cold and heat. Controller PID or ON/OFF programme-selectable. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20mA. With the 2 outputs, the controller can be used to work as a stage plus alarm. Digital input configurable for SetPoint change or start-stop of the unit.

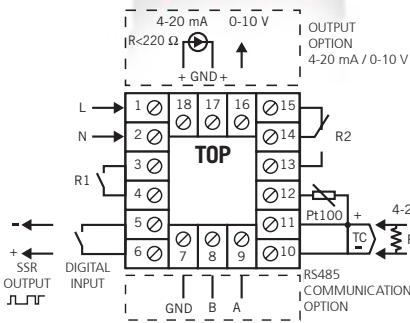
**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range probe Pt100 -99,9 °C to +850,0 °C
- Temperature range with thermocouple J -99,9 °C to +800,0 °C
- Temperature range with thermocouple K -99,9 °C to +1370 °C
- Temperature range with thermocouple 4-20mA -999 °C to +2500 °C
- Resolution 0,1 °C
- Accuracy ±1 °C
- Display 4 Digits (°C/°F)
- SSR control output 12 Vdc, max. 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250 V,  $\cos\phi=1$
- R2 relay SPDT 5 A, 250 V,  $\cos\phi=1$



Reference	Description	Family	Pack
AKO-15400	Controller with power supply from 20 up to 48 V~	1535	1 Unit
AKO-15450	Controlador con alimentación from 100 up to 240 V~	1535	1 Unit

### PID controller, 48 x 48 format Range -99,9 °C to +1370 °C, output 4-20 mA/0-10 V



#### With 4-20mA/0-10V output.

Programmable for cold and heat. Controller PID or ON/OFF programme-selectable. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20 mA. With the 2 outputs, the controller can be used to work as a stage plus alarm. With the 4-20 mA/0-10V output option, we have an analogue output to govern a valve or to resend the signal to a variator or PLC.

With the RS-485 communication option, the unit can be connected to a network working with ModBus protocol.

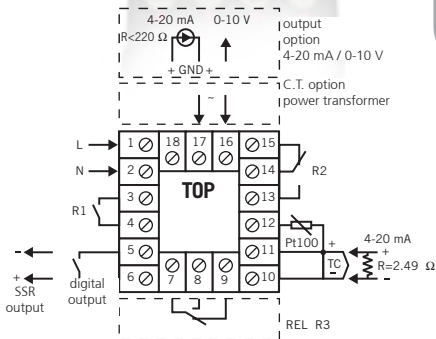
**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with probe Pt100 -99,9 °C to +850,0 °C
- Temperature range with probe thermocouple J -99,9 °C to +800,0 °C
- Temperature range with probe thermocouple K -99,9 °C to +1370 °C
- Temperature range with 4-20 mA -99,9 °C to +2500 °C
- Resolución 0,1 °C
- Precisión ±1 °C
- Visualización 4 Dígitos (°C/°F)
- Salida control SSR 12 Vdc, máximo 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250 V, cosφ= 1
- R2 SPDT 5 A, 250 V, cosφ= 1

Reference	Description	Family	Pack
AKO-15430	20 to 48 V~, with 4-20 mA	1535	1 Unit*
AKO-15437	20 to 48 V~, with 4-20 mA output and communication	1535	1 Unit*
AKO-15480	100 to 240 V~, with 4-20 mA output and communication	1535	1 Unit.
AKO-15487	100 to 240 V~, with 4-20 mA output and communication	1535	1 Unit.

\*Available on request

### PID controller, 48 x 48 format 48 x 48 Range from -99,9 °C to +1370 °C, 3 relays



#### With additional relay output.

Programmable for cold and heat. Controller PID or ON/OFF programme-selectable. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20 mA. Digital input configurable for SetPoint change or start-stop of the unit. With the 3 outputs, the controller can operate as a two stage, a neutral zone, with alarm signalling. With the 4-20 mA/0-10V output option, we have an analogue output to govern a valve or to resend the signal to a variator or PLC. With the option of an input for current transformer (C.T.) the breakage of the heating resistance can be detected.

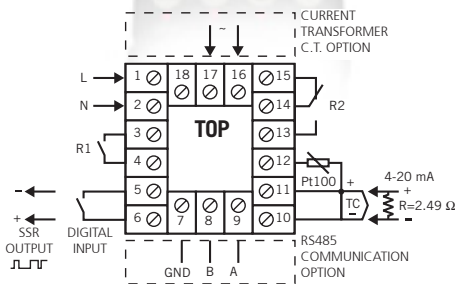
**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with probe Pt100 -99,9 °C a +850,0 °C
- Temperature range with thermocouple J -99,9 °C to +800,0 °C
- Temperature range with thermocouple K -99,9 °C to +1370 °C
- Temperature range with 4-20 mA -99,9 °C to +2500 °C
- Resolution 0,1 °C , Accuracy ±1 °C
- 4 Digits display (°C/°F)
- Output control SSR 12 Vdc, maximum 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250V, cosφ= 1
- R2 relay SPDT 5 A, 250V, cosφ= 1
- R3 relay SPDT 5 A, 250V, cosφ= 1

Reference	Description	Family	Pack
AKO-15410	20 to 48 V~, relay 3 SPDT 5 A	1535	1 Unit*
AKO-15413	20 to 48 V~, relay 3 SPDT 5 A, with 4-20 mA output	1535	1 Unit*
AKO-15415	20 to 48 V~, relay 3 SPDT 5 A, wit input for C.T.	1535	1 Unit*
AKO-15460	100 to 240 V~, relay 3 SPDT 5 A	1535	1 Unit.
AKO-15463	100 to 240 V~, relay 3 SPDT 5 A, with output 4-20 mA	1535	1 Unit.
AKO-15465	100 to 240 V~, relay 3 SPDT 5 A, with output for C.T.	1535	1 Unit*
AKO-80033	Intensity transformer (CT) 25 A/0,05 A	1590	25 Units

\*Available on request

## Control PID, formato 48 x 48 with RS485 communication



### Communication and input for current transformer.

Programmable for cold and heat. Controller PID or ON/OFF programme-selectable. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20 mA. With the 2 outputs, the controller can be used to work as a stage plus alarm. With the option of an input for current transformer (C.T.) the breakage of the heating resistance can be detected. With the RS-485 communication option, the unit can be connected to a network working with ModBus protocol.

**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with probe Pt100  
-99,9 °C to +850,0 °C
- Temperature range with thermocouple J  
-99,9 °C to +800,0 °C
- Temperature range with thermocouple K  
-99,9 °C to +1370 °C
- Temperature range with 4-20 mA  
-999 °C to +2500 °C
- Resolution 0,1 °C / Accuracy  $\pm 1$  °C
- 4 Digits display (°C/°F)
- Output control SSR 12 Vdc, max 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250 V,  $\cos\phi=1$
- R2 relay SPDT 5 A, 250 V,  $\cos\phi=1$

Reference	Description	Family	Pack
AKO-15401	20 to 48 V~, with input for C.T.	1535	1 Unit*
AKO-15402	20 to 48 V~, with communication	1535	1 Unit*
AKO-15403	20 to 48 V~, with input C.T. y comunicación	1535	1 Unit*
AKO-15451	100 to 240 V~, with input C.T.	1535	1 Unit*
AKO-15452	100 to 240 V~, with communication	1535	1 Unit
AKO-15453	100 to 240 V~, with input C.T. and communication	1535	1 Unit*
AKO-80033	Intensity transformer (C.T.) 25 A/0,05 A	1590	25 Units

\* Available on request

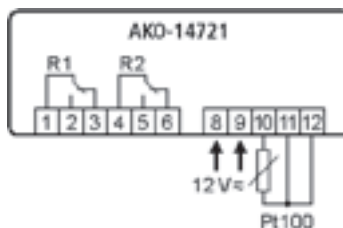
## Input controllers 4/20 mA Range from -50,0 °C to +600 °C, 2 relays, panel mounting



### 2 control relays.

Programmable for direct and inverse operation. With 2 relay outputs, the controller can be used to work as 2 independent stages, 2 related stages, neutral zone and 1 stage plus alarm. It has 1 digital input for remote change of the SetPoint

**Aplicación:** Fyers, electric panels, industrial installations, sewage treatment



- Temperature range -50 °C to +600 °C
- 3 digits display
- Resolution 1 °C
- Accuracy  $\pm 0,5$  °C
- Pt100 probe
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- Control relay 2 SPDT 8 A, 250 V,  $\cos\phi=1$
- Power supply 12 V~  $\pm 15\%$ , 50/60 Hz

Reference	Description	Family	Pack
AKO-14721	12 V~, Pt-100 probe no included	1530	12 Units

### Temperature or humidity controllers 2 relays output, panel mounting



**Input for Pt100, NTC, PTC probes, J and K thermocouple, 4-20 mA**

Programmable for cold and heat.

With the 2 relay outputs, the controller can be used to work as 2 independent stages, 2 related stages, neutral zone and one stage plus alarm.

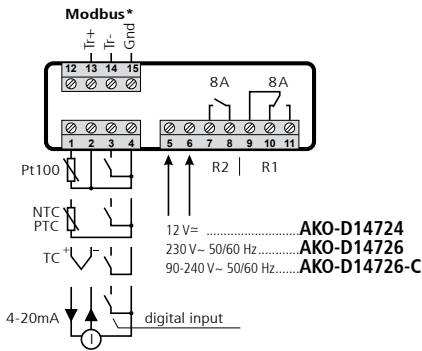
Digital input for SetPoint change.

**Application** Ovens, electric panels, industrial installations, incubators, etc.

- Temperature range with probe Pt100  
-100 °C to +440 °C
- Temperature range with probe NTC  
-50 °C to +100 °C
- Temperature range with probe PTC  
-50 °C to +150 °C

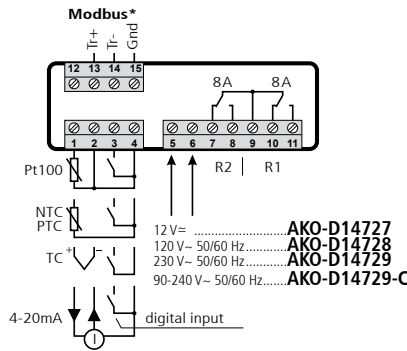
- Range 4-20 mA from -999 to + 999
- Temperature range with thermocouple J  
0 °C to +600 °C
- Temperature range with thermocouple K  
0 °C to +1000 °C
- Resolution 0,1 °C (1 °C for thermocouples J, K)
- Accuracy ±1 °C (±2 °C for thermocouples J, K)
- 3 Digits display (°C/°F)
- Panel cut-out dimensions 71 x 29 mm
- Front part dimensions 79 x 38 mm
- Depth 61 mm
- Control relay 1, 8 A SPST-SPDT: AC1=8, AC3=4
- Control relay 2, 8 A SPDT: AC1=8, AC3=4

**AKO-D14724/6/6-C**



\*depending reference

**AKO-D14727/9/9-C**



Reference	Description	Family	Pack
AKO-D14724	12 V~, temperature or humidity controller	1530	12 Units
AKO-D14726	230 V~, temperature or humidity controller	1530	12 Units
AKO-D14726-C	90-240 V~, temperature or humidity controller + communication	1530	12 Units
AKO-D14728	12 V~, temperature or humidity controller	1530	12 Units
AKO-D14729	230 V~, temperature or humidity controller	1530	12 Units
AKO-D14729-C	90-240 V~, temperature or humidity controller + communication	1530	12 Units

## Temperature controllers Range from -99,9 °C to +999 °C, 2 relays, DIN rail mounting

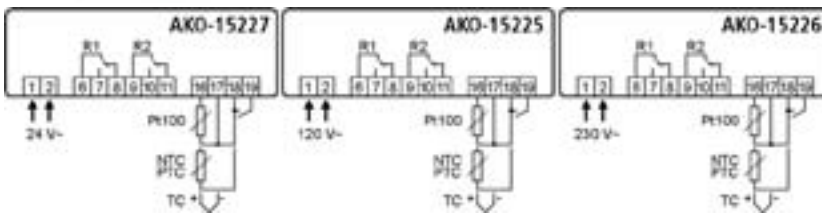


### Input for Pt100, NTC, PTC probes, J and K thermocouple.

With the 2 relay outputs, the controller can be used to work as 2 independent stages, 2 related stages, neutral zone and one stage plus alarm. Digital input for SetPoint change.

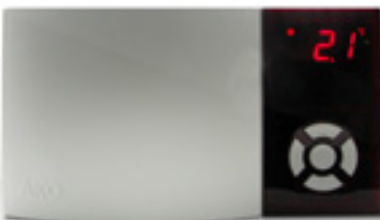
**Application:** Ovens, electric panels, industrial installations, incubators, etc.

- Temperature range wit probe Pt100  
-100 °C to +440 °C
- Temperature range wit probe NTC  
-50 °C to +100 °C
- Temperature range wit probe PTC  
-50 °C to +100 °C
- Temperature range wit thermocouple J  
0 °C a +600 °C
- Temperature range wit thermocouple K  
0 °C a + 999 °C
- Display 3 Digits (°C/°F)
- Resolution 0,1 °C (1 °C for thermocouples, J, K)
- Accuracy  $\pm 1$  °C ( $\pm 2$  °C for thermocouples, J, K)
- Box dimensions 70 x 90 x 58 mm  
(4 DIN modules)
- Front part dimensions 42,2 x 66,2 mm
- Control relays 2 SPDT 8 A: AC1=8, AC3=4



Referencie	Description	Family	Pack
AKO-15227	24 V~, for DIN rail 4 modules, 70 x 58 x 90 mm	1530	6 Units
AKO-15225	120 V~, for DIN rail 4 modules, 70 x 58 x 90 mm	1530	6 Units
AKO-15226	230 V~, for DIN rail 4 modules, 70 x 58 x 90 mm	1530	6 Units

## Solar energy controllers Differential thermostat 2 relays, wall mounting

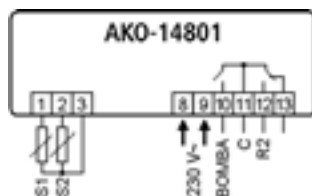


### Pump controls, support resistance or air-thermal.

Input for 2 probes. Probe 1 configurable as NTC or PTC, probe 2 NTC. De-icing function. Second relay programmable as air-thermal regulating function to limit the temperature in the solar panel or thermostat function for the support resistance in the accumulator. Parameter protection by password. Test pushbuttons. Low consumption. Fixing holes adapted to universal embedding box.

**Application:** Thermal solar energy installations

- With NTC probe, temperature range from -50.0 °C to +99.9 °C
- With PTC probe, temperature range from -50.0 °C to +150 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy  $\pm 1$  °C
- Box dimensions 171 x 94 x 42 mm
- Pump relay SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Power supply 230V~  $\pm 10\%$ , 50/60 Hz



Reference	Description	Family	Pack
AKO-14801	Controller 230 V~, 2 relays, 1 NTC probe included	1530	10 Units

### Solar energy controllers Panel differential thermostat



#### Panel differential thermostat

Input for 2 NTC probes. De-icing function. Pump stop for excessive temperature in probe 2. Low consumption.

**Application:** Thermal solar energy installations



- Temperature range from -50.0 °C to + 99.9 °C
- Resolution 1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- RPump relay SPST 16 A: AC1=10, AC3=7
- Power Supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-14327	Controller 230 V~, 1 relay, 1 NTC probe included	1530	12 Units

### Solar energy controllers Differential thermostat, DIN rail mounting (4 modules)



#### DIN rail format for panel integration.

Input for 2 NTC probes. De-icing function. Pump stop for excessive temperature in probe 2. Low consumption.

**Application:** Thermal solar energy installations



- Temperature range from -50 °C to +99,9 °C
- Display 3 Digits (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 DIN modules)
- Front part dimensions 42,2 x 66,2 mm
- Pump relay SPST 16 A: AC1=12, AC3=9
- Power supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-15224	Controller 230 V~, 1 relay, 1 NTC probe included	1530	6 Units



## Temperature controllers 2 relays, up to 2 probes, panel mounting



### Multifunction

The two probe inputs may be linked with the relay outputs for the functions of thermometer and thermostat in cold and heat applications, as a differential control of the two probes, double thermostat, two stages, neutral zone, etc. The configuration of the menus means that certain parameters may or may not be adjusted by the user, so that they might exclusively have the information and adjustment that the use of the machine requires. It is possible to modify the functions of the keys on the front and the temperature display. The configuration may be blocked by password.

**Application:** Solar energy, electric panels, industrial installations, etc

- Temperature range from -50 °C to + 99,9 °C
- Resolution 0,1 °C
- 3 digits display (°C/°F)
- Accuracy 0,5 °C
- NTC probe (1 included)
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- Relay R1 SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4



Referencie	Description	Family	Pack
AKO-14722	12 V~, for panel cut-out 70,5 x 28,5 mm	1530	12 Units
AKO-14723	230 V~, for panel cut-out 70,5 x 28,5 mm	1530	12 Units

## Temperature controllers 2 relays, up to 2 probes, DIN rail mounting

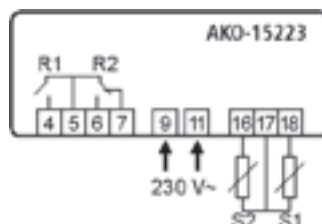


### Multifunction

The two probe inputs may be linked with the relay outputs for the functions of thermometer and thermostat in cold and heat applications, as a differential control of the two probes, double thermostat, two stages, neutral zone, etc. The configuration of the menus means that certain parameters may or may not be adjusted by the user, so that they might exclusively have the information and adjustment that the use of the machine requires. It is possible to modify the functions of the keys on the front and the temperature display. The configuration may be blocked by password.

**Application:** Solar energy, electric panels, industrial installations, etc

- Temperature range from -50 °C to + 99,9 °C
- Resolution 0,1 °C
- 3 digits displays (°C/°F)
- Accuracy 0,5 °C
- NTC probe (1 included)
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Relay R1 SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Description	Family	Pack
AKO-15223	230 V~, for DIN rail	1530	6 Units

### Modular controllers **AKOTIM** Range from -50 °C to +99 °C, 1 relay, panel mounting



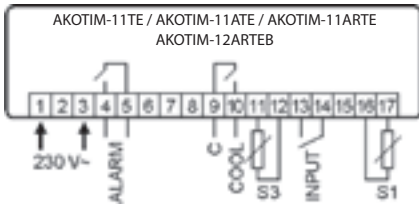
#### Compressor control relay

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C o °F 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by compressor stop.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 °C to +99,9 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Front part dimensions 75,8 x 33,8 mm
- Panel cut-out dimensions 70,5 x 28,5 mm
- Depth 61 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-11TE)
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	alarm relay	Real time clock	Buzzer	Family	Pack
AKOTIM-11TE	-	-	-	1520	12 Units
AKOTIM-11ATE	yes	-	-	1520	12 Units
AKOTIM-11ARTE	yes	yes	-	1520	12 Units
AKOTIM-11ARTEB	yes	yes	yes	1520	12 Units

### Modular controllers **AKOTIM** Range from -50 °C to +99,9 °C, 2 relays, panel mounting

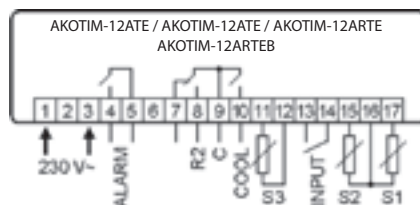


#### Compressor relay and R2 (defrost or fans)

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other parameters of use to the HACCP, 3 inputs for regulating probe, evaporator and independent temperature. Digital input for door contact. Defrost by electric heat or air. Programme-selectable indication in °C o °F.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range -50 °C to +99,9 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Front part dimensions 75,8 x 33,8 mm
- Panel cut-out dimensions 70,5 x 28,5 mm
- Depth 61 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-12TE)
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Alarm relay	Real Time clock	Buzzer	Family	Pack
AKOTIM-12TE	-	-	-	1520	12 Units
AKOTIM-12ATE	yes	-	-	1520	12 Units
AKOTIM-12ARTE	yes	yes	-	1520	12 Units.
AKOTIM-12ARTEB	yes	yes	yes	1520	12 Units

## Modular controllers **AKOTIM** Range from -50 °C to + 99,9 °C, 3 relays, panel mounting



### Relay for compressor, fans and defrost

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C or °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by electric heat, air or hot gas bypass

**Application:** Industrial and commercial cold, displays, electrical panels, etc.



Reference	Alarm relay	Real time clock	Buzzer	Family	Pack
AKOTIM-13TE	-	-	-	1520	12 Units
AKOTIM-13ATE	yes	-	-	1520	12 Units
AKOTIM-13ARTE	yes	yes	-	1520	12 Units
AKOTIM-13ARTEB	yes	yes	yes	1520	12 Units

## Controles modulares **AKOTIM** Range from -50 °C to +99,9 °C, 1 relay, rail DIN mounting



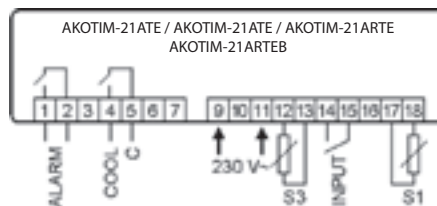
### Compressor control relay

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACC.

Programme-selectable indication in °C or °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by compressor stop.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 °C to +99,9 °C
- 3 digit display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defros relay SPDT 8 A: AC1=8, AC3=4
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-21TE)
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	alarm relay	Real time clock	Buzzer	Familiy	Pack
AKOTIM-21TE	-	-	-	1520	6 Units
AKOTIM-21ATE	yes	-	-	1520	6 Units
AKOTIM-21ARTE	yes	yes	-	1520	6 Units
AKOTIM-21ARTEB	yes	yes	yes	1520	6 Units

## Modular controllers **AKOTIM** Range from -50 °C to +99,9 °C, 2 relays, DIN rail mounting



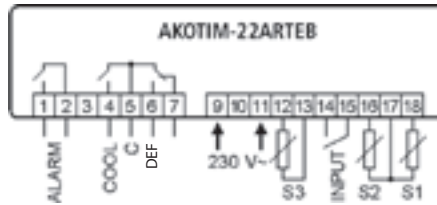
### Compressor relay and R2 (defrost or fans)

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

3 inputs for regulating probe, evaporator and independent temperature. Digital input for door contact. Defrost by electric heat or air. Programme-selectable indication in °C or °F.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 °C to +99,9 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-22TE)
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Alarm relay	Real time clock	Buzzer	Family	Pack
AKOTIM-22TE	-	-	-	1520	6 Units
AKOTIM-22ATE	Si	-	-	1520	6 Units
AKOTIM-22ARTE	Si	Si	-	1520	6 Units
AKOTIM-22ARTEB	Si	Si	Si	1520	6 Units

## Modular controllers **AKOTIM** Range from -50 °C to +99,9 °C, 3 relays, DIN rail mounting



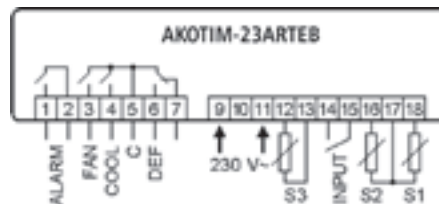
### Relay for compressor, fans and defrost

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C or °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by electric heat, air or hot gas bypass.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range -50 °C to +99,9 °C
- 3 digit display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defrost relay SPDT 8 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz



Reference	Alarm relay	Real time clock	Buzzer	Family	Pack
AKOTIM-23TE	-	-	-	1520	6 Units
AKOTIM-23ATE	yes	-	-	1520	6 Units.
AKOTIM-23ARTE	yes	yes	-	1520	6 Units
AKOTIM-23ARTEB	yes	yes	yes	1520	6 Units

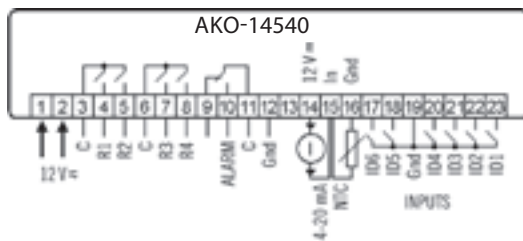
## Compressors and condensers rack up to 4 stages

**Operating modes, proportional band and neutral zone**

4 stage controller for compressors or condensers. Compressor rotation by operating hours. Probe reading configurable by pressure or temperature probe. 5 relay outputs: 4 control outputs and 1 alarm output. Also with 6 digital inputs, 4 for the compressor protection thermal switches, 1 for high pressure switch and 1 for low pressure switch..

**Application:** Cold installations

- Power supply 12 V~ ±20%, 50/60 Hz
- Relays R1, R2, R3 y R14 SPST 6 A: AC1=5, AC3=4
- Alarm relay SPDT 8 A: AC1=8, AC3=4
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- 3 digit display
- Accuracy (4-20 mA) ±1%
- Accuracy (NTC) ±1%
- Resolution (4-20 mA) 0,01
- Resolution (NTC) 0,1 °C
- Scale with input 4-20 mA -99,9 a + 99,9
- Temperature range (NTC) -50 °C a + 105 °C
- NTC probe or 4-20 mA



Reference	Description	Family	Pack
AKO-14540	Compressor and condensers station 4 stages, 12 V	1560	1 Unit
AKO-15590	Transformer 120-230 V/12 V rack	1590	12 Units

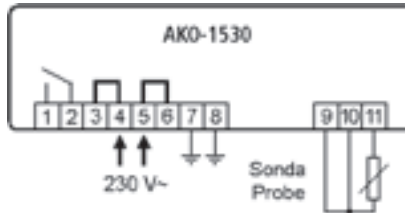
## Temperature controllers Range from -50 °C to +350 °C, 1 relay in IP65 box



### Suitable for outdoors

It is designed to regulate the temperature of pipes, tanks, valves, processing equipment, etc. that require local control and are installed outdoors or in aggressive atmospheres, either due to dirt, humidity, corrosion, etc.

**Application:** Industrial installations, agricultural, etc.



- Temperature range -50 °C to +350 °C
- 3 digit display (°C/°F)
- Resolution 0,1 °C
- Accuracy ±0,5 °C
- Pt100 probe
- Box dimensions 120 x 160 x 66 mm
- Work temperature -30 °C to +60 °C
- Protection IP65
- Control relay SPST 20 A: AC1=20, AC3=12
- Power supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-1530	Thermostat up to 350 °C, relay 20 A SPST, without probe	1530	5 Units
AKO-717425	Thermostat to pipe fixing support	2190	1 Unit
AKO-15595	Probe Pt-100, from -50 to 200 °C, 1,5 m of cable with braid	1590	5 Units

## Temperature controllers Energy controller

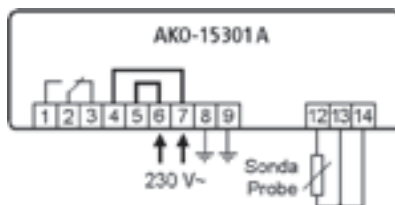


### Energy saving.

A controller designed to adjust the energy contribution from heating cables or other heat sources, in applications in which it must vary in line with the ambient temperature.

Its use is particularly suitable in system where, once designed and applied, the only variable that influences in the system is the ambient temperature.

**Application:** Electric traces, avoid freezing on ramps, terraces, etc.



- Temperature range -40 °C to +200 °C
- Visualizador 3 dígitos (°C/°F)
- Resolución 0,1 °C
- Precisión ±0,5 °C
- Sonda tipo Pt100
- Box dimensions 120 x 160 x 66 mm
- Protection IP65
- Control relay SPST 10 A: AC1=10, AC3=6
- Power supply 230 V~ ±10%, 50/60 Hz

Reference	Description	Family	Pack
AKO-15301A	Energy regulator ambient temperature function, 10 A relay	1530	1 Unit
AKO-15599	Pt-100 probe for ambient temperature	1590	1 Unit

## Mechanic Thermostat EEx ed IIC T5



**This thermostat is approved for use in Zone 1 and 2 classified area's.**

It is designed for use and adjustable control thermostats for freeze protection and temperature maintenance applications requiring pipewall or tankwall sensing. Each thermostat is available in four temperature control and bulb exposure temperatures ranges.

**Application:** Electrical Tracing

- Temperature range 0 °C to +200 °C
- Maximum pipe exposure temperature 230 °C
- Operating ambient temp. -45 °C to +55 °C
- Differential 5 °C
- Switch rating 16 A
- Junction box with M25
- Enclosure rating IP66
- Bulb and capillary stainless steel

Referencia	Descripción	Family	Pack
AKO-71658	Electric heat tracing control EEx ed 0 to 200 °C, pipe, for 7126x y 71219	1530	1 Unit
AKO-71659	Electric heat tracing control EEx ed 0 to 200 °C, wall, for 7126x y 71219	1530	1 Unit
AKO-71660	Electric heat tracing control EEx ed 0 to 200 °C, pipe, for 7121x, 7124x, 7125x	1530	1 Unit
AKO-71661	Electric heat tracing control EEx ed 0 to 200 °C, wall, for 7121x, 7124x, 7125x	1530	1 Unit

## Temperature controllers Ice and snow centre

**Guaranteeing energy savings of 80% with respect to control by means of thermostats.**

This ice control centre is used in automatic heating installations for open spaces. With this system, the heating comes on only if there is a chance of freezing, for example, snow, ice or sleet and automatically turns off after thawing.

**Application:** To avoid ice on ramps, terraces, roofs, guttering, etc.



- Measurement of temperature, humidity, ice and snow
- Floor temperature range -40 °C to +70 °C
- Programme after heat from 10 min to 120 min
- Consumption meter in hours

Reference	Description	Family	Pack
AKO-80015	Ice and snow centre	1590	1 Unit
AKO-80016	Temp. and humidity probe for ramps, streets, pavements and terraces	1590	1 Unit
AKO-80020	Ice and snow probe for ramps, streets, pavements and terraces	1590	1 Unit
AKO-80030	Ice and snow ramp for roofs and guttering	1590	1 Unit
AKO-80031	Ice and snow ramp for roofs and guttering	1590	1 Unit

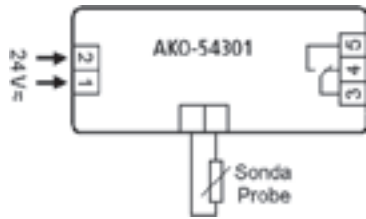
## Temperature controllers Thermostats for lifts



### DIN rail mounting

They are used to comply with the directive 95/16/EC in lift machinery rooms. Minimum alarm level adjusted to +5 °C and maximum alarm to +40 °C. 3 indication leds: Maximum, minimum alarm and temperature OK. Includes an NTC probe with 1,5 m of cable.

**Application:** Lifts



- Relay connected between 5 °C and 40 °C
- Accuracy  $\pm 5$  °C
- NTC probe
- Box dimension 18 x 90 x 58 mm (1 module DIN)
- Depth 61 mm
- Relay SPDT 8 A, 24 V,  $\cos\phi=1$
- Power supply 24 V~  $\pm 20\%$  50/60 Hz

Reference	Description	Family	Pack
AKO-54301	24 V~, DIN rail mounting, temp. fixed. min. 5 °C max. 40 °C	1530	12 Units

## Probes and accessories Accesories



AKO-14910



AKO-15586

AKO-155908



AKO-80004A



Reference	Description	Family	Pack
AKO-14910	Transparent lid for front protection	1590	120 Units (B)
AKO-15586	Metre of cable for extending probes, 3 x 0,5 mm <sup>2</sup> shielded	1590	100 m(A)
AKO-155908	Stainless steel sheath, 1/2" Gas thread	1590	10 Units
AKO-80004A	Converter from Pt-100 to 4-20 mA	1590	1 Unit

(A) The meters of packaged material are the standard ones; however, we reserve the right to supply in different lengths those indicated.  
 (B) Minimum, indivisible pack units.



## Probes and accessories Temperature probes

Reference	Description	Familia	Pack
AKO-14901	NTC probe, from -50 to 100 °C, 1,5 m of cable	1590	48 Units
AKO-14902	NTC probe, from -50 to 100 °C, 2,0 m of cable	1590	48 Units
AKO-14903	NTC probe, from -50 to 100 °C, 3,0 m of cable	1590	48 Units
AKO-14906	NTC probe, from -50 to 100 °C, 6,0 m of cable	1590	24 Units
AKO-14915	NTC probe, from -50 to 100 °C, stainless steel connector, 3,0 m of cable	1590	1 Units
AKO-15561	NTC probe, from -50 to 100 °C, IP68 protection, AISI 304. 1,5 m of cable	1590	10 Units
AKO-155801	PTC probe, from -50 to 150 °C, 1,5 m of cable	1590	10 Units
AKO-155802	PTC probe, from -50 to 150 °C, 2,0 m of cable	1590	10 Units
AKO-155803	PTC probe, from -50 to 150 °C, 3,0 m of cable	1590	10 Units
AKO-155807	PTC probe, from -50 to 150 °C, 7,0 m of cable	1590	10 Units
AKO-155815	PTC probe, from -50 to 150 °C, 15,0 m of cable	1590	5 Units
AKO-155830	PTC probe, from -50 to 150 °C, 30,0 m of cable	1590	1 Unit
AKO-15582	Pt-100 probe, from -50 to 180 °C, 2,0 m of cable with braid	1590	1 Unit
AKO-15584	Pt-100 probe, from -50 to 180 °C, 10,0 m of cable without braid	1590	1 Unit
AKO-15585A	Pt-100 probe, from -40 to 180 °C, 2,0 m of cable without braid	1590	1 Unit
AKO-15595	Pt-100 probe, from -50 to 200 °C, 1,5 m of cable with braid	1590	5 Units
AKO-15587	Pt-100 probe, from -60 to 350 °C, 2,0 m of cable with braid	1590	1 Unit
AKO-15597	Pt-100 probe, from -70 to 200 °C, 2,0 m of teflon cable	1590	1 Unit
AKO-15598	Pt-100 probe, from -200 to 600 °C, 1,5 m of MI cable	1590	1 Unit
AKO-15599	Pt-100 probe for environment temperature	1590	1 Unit
AKO-80008	Pt-100 probe EExd IIT6, IP65 box, to drums	1590	1 Unit
AKO-80019	Pt-100 probe EExd IIT6, for Ex zone and pipes	1590	1 Unit
AKO-15601	J probe, de 0 a 600 °C, 3,0 m of cable	1590	1 Unit
AKO-15602	K probe, de 0 a 1.000 °C, 3,0 m of cable	1590	1 Unit
AKO-15586	Metre of cable for extending probes, 3 x 0,5 mm2 shielded	1590	100 m (A)

(A) The meters of packaged material are the standard ones; however, we reserve the right to supply in different lengths those indicated.

## Parameter servers



### Tools for copying parameters

The programmers are particularly recommended for manufacturers that must adjust the equipment with just one configuration. The portable servers allow the installer to rapidly load a pre-programmed configuration into the equipment, without having to enter the programming routine.

Reference	Description	Family	Pack
AKO-14916	Programmer for AKO-14412, AKO-14423	1580	6 Units
AKO-14917*	CMOS / RS485 converter module	1580	6 Units
AKO-14918*	Portable server for AKO-14xxx	1580	10 Units
AKO-14920	Portable server for AKO-14012 a AKO-14123, AKO-14129	1580	1 Unit
AKO-14922	Portable server for AKO-10123 a AKO-10323	1580	1 Unit
AKO-80018	Power supply 230/12 V for programmers	1580	1 Unit
AKO-D14918	Portable server for Darwin	1580	10 Units

\*Portable server incompatible with AKOCONTROL DARWIN

### Probes and accessories Quick Table

#### NTC temperature probes

Reference	Description	Temperature range
(A) AKO-14901	TPE cable 1.5 meter long 15x Ø mm long cable	range -50 °C to 105 °C
(A) AKO-14902	TPE cable 2 meter long 15x Ø mm, long cable	range -50 °C to 105 °C
(A) AKO-14903	TPE cable 3 meter long 15x Ø mm, 6 mm bulb	range -50 °C to 105 °C
(A) AKO-14906	TPE 6 meter long cable 15xØ mm, 6 mm bulb	range -50 °C to 105 °C
(B) AKO-15561	special evaporator and IP68 submersible stainless steel bulb 6mm	range -50 °C to 105 °C
(C) AKO-14915	click special probe, silicone cable 3 meter AISI 304 stainless steel bulb 100xØ3mm	range -50 °C to 110 °C



#### PTC temperature probes

Reference	Description	Temperature range
AKO-155801	silicone cable 1.5 meter long tainless steel bulb 6 mm 40x Ø mm	range -50 °C to 105 °C
AKO-155802	silicone cable 2 meter long stainless steel bulb 6 mm 40x Ø mm	range -50 °C to 150 °C
AKO-155803	silicone cable 3 meter long stainless steel bulb 6 mm 40x Ø mm	range -50 °C to 150 °C
AKO-155807	silicone cable 7 meter long stainless steel bulb 6 mm 40x Ø mm	range -50 °C to 150 °C
AKO-155815	silicone cable 15 meter long stainless steel bulb 6 mm 40x Ø mm	range -50 °C to 150 °C
AKO-155830	silicone cable 30 meter long tainless steel bulb 6 mm 40x Ø mm	range -50 °C to 150 °C



#### Pt100 temperature probes

Reference	Description	Temperature range
(A) AKO-15585A	cable 2 meter long silicone AISI 316 stainless steel bulb 100 Ø mm	range -40 °C to 180 °C
AKO-15587	cable 2 meter long fiberglass AISI 316 stainless steel bulb 100 Ø mm	range -60 °C to 350 °C
(B) AKO-15596	cable 1.6 meter long silicone AISI 316 stain. steel bulb in angle Ø6 mm	range -200 °C to 200 °C
(C) AKO-15597	cable 2 meter long teflon AISI 316 stainless steel bulb 100 Ø mm	range -100 °C to 200 °C



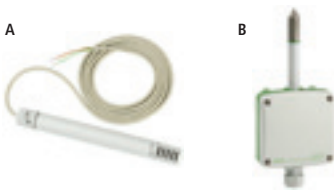
#### Type Thermocouple temperature probes

Reference	Description	Temperature range
AKO-15601	J-type thermocouple, fiberglass 3 meters AISI 316 stainless steel bulb 100 Ø 3mm	range -0 °C to 100 °C
AKO-15602	K-type thermocouple, fiberglass 3 meters stainless steel bulb 4.5mm 150 x Ø	range -0 °C to 600 °C



#### 4-20 humidity probes

Reference	Description	Temperature range
(A) AKO-80040	Tubular humidity probe Stainless Steel Filter. 10% to 95%	range -10 °C to 70 °C
(B) AKO-80013	HVAC applications dryers Stainless Steel Filter. 10% to 95% RH	range -5 °C to 50 °C



#### Accessories for controllers

Reference	Description	Temperature range
(A) AKO-1490	Transparent cover for front protection equipment Panel Fixing (Minimum order 120 units)	
(B) AKO-15586	Shielded cable 30x30 5 m2, for extension of probes NTC, PTC and PT100 (price per meter)	
(C) AKO-15908	Thread 1/2 " GAS. Diameter 8 mm, length 140 mm AISI 304 stainless steel sheath	



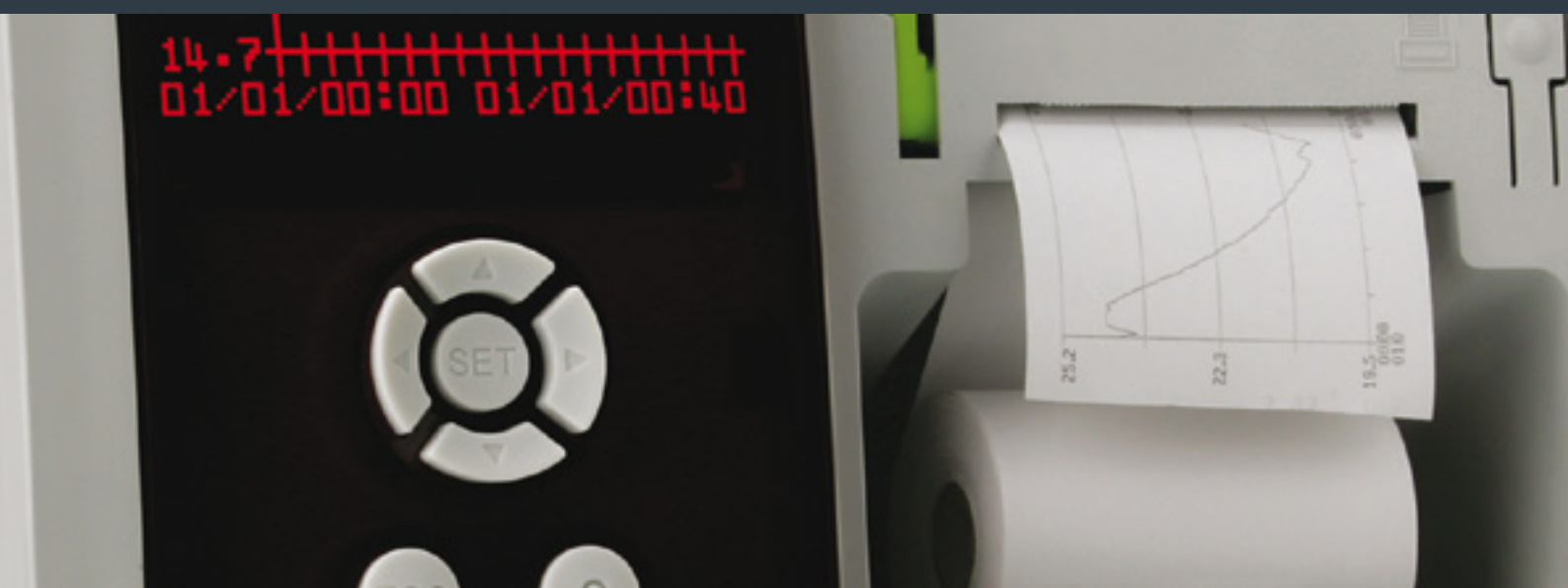
#### Transformers and Power

Reference	Description	Temperature range
(C) AKO-80014A	Power supply 115-230 V/ 24 V, 1A Probe power AKO-80013 and AKO-80014 A	
(A) AKO-15589	Power converter 14 to 30 V /125 V, 5 VA. DIN rail mounting This device is used when you want to power a 24 V thermostat Power up to 10 probes	
(B) AKO-15590	Transformer 120-230 V /12 V, maximum consumption 3 VA	



# AKOCam

The most complete solution  
for cold room store



### CAMCtrl BASIC control 5 relays, from -50 °C to +100 °C

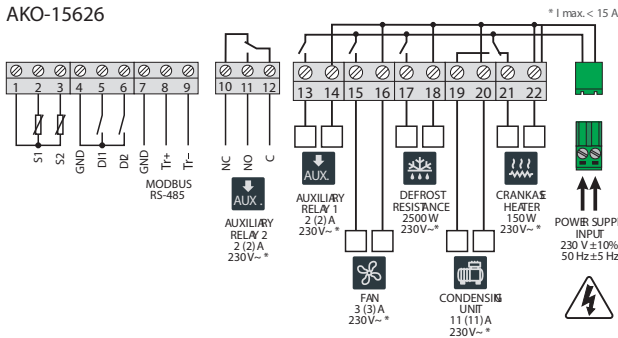


#### Temperature controller for positive or negative temperature cold storage rooms

Ideal for positive or negative services and ventilated refrigerated units. Defrost using resistances with configurable auxiliary relay. Gas collection manoeuvre (pump-down) selectable per programme. Digital inputs for door switch, high pressure controller, low pressure controller, remote defrost, Set-Point change (energy savings). Allows a 2<sup>nd</sup> temperature probe to control the evaporator's fans and end of defrost. Does not contain an internal battery.

**Application:** Industrial and commercial refrigeration.

AKO-15626



- Box dimensions 230 x 230 x 90 mm
- Panel cut-out dimensions 214 x 214 mm
- Protection IP65
- Buzzer
- NTC Probe / Resolution 0,1 °C
- Accuracy ±1 °C
- Compressor relay SPDT 20, 11(11) A, 230 V
- Fan relay SPST 16, 3(3)A, 230 V
- Defrost relay SPST 16, 10A, 230 V
- Aux relay 1 SPST 16, 2(2)A, 230 V
- Aux relay 2 SPDT 8, 2(2)A, 230 V
- 2 configurable relay inputs

Reference	Description	Family	Pack
AKO-15626	CAMCtrl Basic, 1 probe included, 230 V~	1510	1 Unit

### CAMCtrl 3 and 6 control relays, from -40 °C to +100 °C



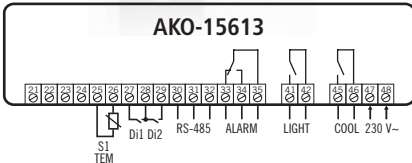
#### Controller with built-in register.

Graphic screen with customisable information. Programming assistant and on screen help. Auxiliary relay configurable for 2nd evaporator defrost or stop for pump down. Input for independent temperature probe or defrost control in 2nd evaporator. Internal memory up to one year for temperature register, with a battery for autonomy up to 24 hours. Designed under EN 12830 European standard. Wall and panel mounting. Integrated RS485 communication. ModBus protocol.

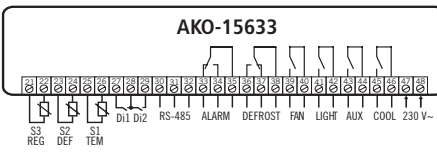
**Application:** Industrial and commercial cold.

- Box dimensions 230 x 230 x 90 mm
- Panel cut-out dimensions 214 x 214 mm
- Protection IP65
- Buzzer
- NTC probe / Resolution 0,1 °C
- Accuracy ±1 °C
- Compressor relay SPST 16 A, 250 V
- Fan relay SPST 8 A, 250 V
- Defrost relay SPDT 16 A, 250 V
- Aux relay SPST 16 A, 250 V
- Light relay SPST 16 A, 250 V
- Alarm relay SPDT 8 A, 250 V
- 2 configurable relay inputs

AKO-15613



AKO-15633



Reference	Description	Family	Pack
AKO-15613	CAMCtrl-3, 230 V~	1510	1 Unit
AKO-156131	CAMCtrl-3 + printer, 100 a 240 V~	1510	1 Unit
AKO-15633	CAMCtrl-6, 230 V~	1510	1 Unit
AKO-156331	CAMCtrl-6 + printer, 100 a 240 V~	1510	1 Unit

# CAMRegis BASIC

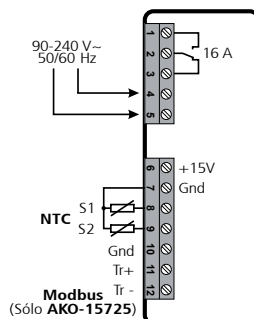
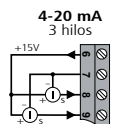
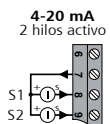
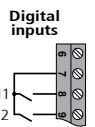
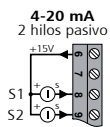
 2-channel temperature, humidity and events logger


### Inputs for NTC probes and 4-20 mA

Date logger with two configurable inputs, acoustic alarm + alarm relay and data downloading using an SD card. Display of maximum and minimum values of the last 24 hours (NTC and 4-20 mA inputs). Alarm logging function, saves a record per alarm activation/deactivation. Downloading of the stored data onto an SD card, in .csv format (value table separated by a comma). Log interval selectable from 1, 5, 15, 30 and 60 minutes. Maintenance of date/hour in the event of a power failure up to 2 days.

**Application:** Industrial and commercial refrigeration, process industry, etc. Loggers for facilities that require temperature, moisture and events logging.

### AKO-15724 / AKO-15725



- Temperature range -50 °C to + 99.9 °C
- Range 4-20 mA -100 to +900
- Display and logging 0.1 °C. Precision  $\pm 1$  °C
- Precision inputs 4-20 mA  $\pm 1\%$  (mA)
- Box dimensions 171 x 94 x 42 mm
- Alarm relay 2 SPDT 8 A, 250 V,  $\cos\phi = 1$
- Power supply 90 to 240 V~
- Protection degree IP60
- Compatible with AKONet and SOFTRegis (configuration and monitoring software).

### Characteristics

	AKO-15724	AKO-15725
MODBUS communication	No	yes
Inputs	2, configurable	
Input configurations	NTC / 4-20 mA / digital input / Off	
Alarm relay	yes (SPDT 8 A)	
Acoustical alarm	yes (Buzzer)	
Power supply	90 - 240 V~	
Protection	IP40	
SD card input	yes	
Installation	Wall	
Accordance	1 s/ EN-12830	
Included accessories	NTC Probe, SD Card and SD card USB reader	
Custom range	NTC: -50 °C to 99 °C; 4-20 mA: Configurable from -100 a 900 (1000 levels)	

Reference	Description	Family	Pack
AKO-15724	CAMRegis Basic, 90 to 240 V~, SPDT 8A	1510	1 Unit
AKO-15725	CAMRegis Basic, 90 to 240 V~, SPDT 8A + Modbus communication	1510	1 Unit
AKO-14931	Spare probe	1510	1 Unit
AKO-80013	wall humidity probe	1510	1 Unit
AKO-80040	tubular wall humidity probe	1510	1 Unit

### CAMRegis Temperature and humidity loggers



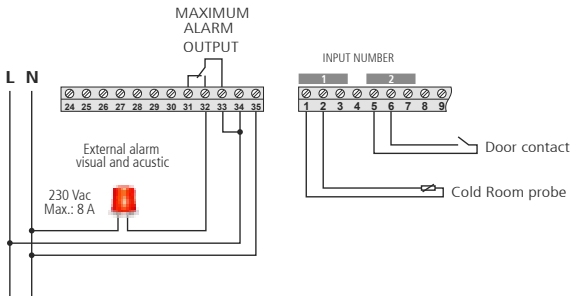
#### Inputs for NTC, Pt1000 digital and 4-20 mA probes.

Large, high luminosity graphic display. Setup wizard and text menus in multiple languages, with on-screen help. Quick print button, to print out the last calendar week of all entries logged. Internal memory up to three years, with a recording frequency of 15 minutes. Designed in compliance with European standard EN 12830. Integrated RS485 communications. ModBus protocol. Possibility of connecting Pt100 probes to 5-input units.

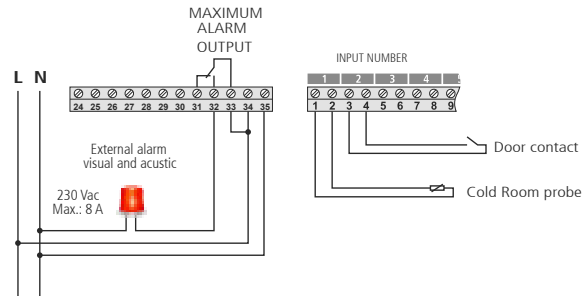
**Application:** Industrial and commercial refrigeration, processing industry, etc.

- Temperature range -150 °C to +590 °C
- Range 4-20 mA -999 °C to +999 °C
- Display and logging 0,1 °C. Accuracy ±1 °C
- Input accuracy 4-20 mA ±1% (mA)
- Box dimensions 230 x 230 x 90 mm
- Alarm relays 2 SPDT 8 A, 250 V,  $\cos\phi=1$
- Power supply 100 a 240 V~
- IP65 protection
- Autonomy 6 hours recording, 3 months to maintain time and date

AKO-1575x/1578x



AKO-1574x



Reference	Description	Family	Pack
AKO-15780	CAMRegis-2, 2-input temperature and humidity logger	1570	1 Unit
AKO-15782	CAMRegis-2i, 2-input temperature and humidity logger + printer	1570	1 Unit
AKO-15750	CAMRegis-5, 5-input temperature and humidity logger	1570	1 Unit
AKO-15752	CAMRegis-5i, 5-input temperature and humidity logger	1570	1 Unit
AKO-15740	CAMRegis-10, 10-input temperature and humidity logger	1570	1 Unit
AKO-15742	CAMRegis-10i, 10-input temperature and humidity logger + printer	1570	1 Unit
AKO-14901	NTC probe from -50 to +100 °C, 1.5 m cable	1590	48 Units
AKO-80013	Wall humidity probe, 10 a 95%, -5/50°C, output 4-20 mA	1590	1 Unit
AKO-80040	tubular humidity probe, 5%-95%, -10/70 °C, output 4-20 mA	1590	1 Unit
AKO-15703	Spare roll of thermal paper	1590	10 Units (B)
AKO-15704	Spare battery	1590	1 Unit
AKO-80039	USB/RS485 converter with 2 m cable to PC	1580	1 Unit
AKO-5008	SOFTRegis, software for managing and monitoring CAMRegis loggers	1580	1 Unit

## CAMAlarm Trapped person alarm for cold room stores, 1 light



### Optical and acoustic alarm

This family of alarms is designed for cold room stores working at negative temperatures or with a controlled atmosphere, optically and acoustically signalling if there is someone trapped. All units have a relay output for connection to GSM alarm system.

**Application:** Cold room stores.

- Optical and acoustic alarm. Acoustic power upper 90 dB to 1 m
- Pushbutton up to -50 °C
- 2 m special cable included for low temperature
- 1 output relay for remote alarm indication (GSM module)
- Battery charge indication
- Autonomy over 1 hour
- Wall and panel mounting
- Protection IP65
- Alarm dimensions 230 x 230 mm
- Light dimensions 94 x 171 x 55 mm
- Power supply 230 V~ ±10%, 50/60 Hz (AKO-52066 = 120 V)

Reference	Description	Family	Pack
AKO-52061	Alarm, with output for 1 luminous pushbutton (included)	4200	5 Units
AKO-520611	Spare power supply for AKO-52061	4200	1 Unit
AKO-52062	Spare pushbutton alarm with 2m cable	4200	1 Unit
AKO-52066	Alarm, with output for 1 luminous pushbutton (included), 120 V	4200	5 Units
AKO-520661	Spare power supply for AKO-52066	4200	1 Unit

## CAMAlarm Trapped person alarm for cold room stores, up to 4 lights, EN 378-1 Standard

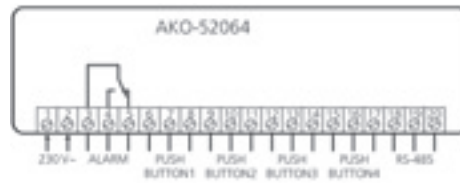


### Optical and acoustic alarm

This family of alarms is designed for cold room stores that work at negative temperatures or with a controlled atmosphere, indicating optically and acoustically if anyone trapped. All units have a relay output for connection to GSM alarm system. This model is designed under EN 378-1 European standard and is provided with RS485 communication for connection to a monitoring system.

**Application:** Cold room stores.

- Optical and acoustic alarm
- Interior light up to -50 °C
- 1 output relay for remote alarm indication (GSM module)
- Battery charge indication
- Protection IP65
- Detection of broken pushbutton cable
- Wall and panel mounting
- Alarm dimensions 230 x 230 x 87 mm
- Light dimensions 94 x 171 x 55 mm
- Power supply 230 V~ ±10%, 50/60 Hz
- RS485 for supervision system



Reference	Description	Family	Pack
AKO-52063	Alarm, with output for 1 luminous (1 included)	4200	1 Unit
AKO-520631	Spare power supply for AKO-52063	4200	1 Unit
AKO-52064	Alarm, with output for 4 luminous pushbuttons (1 included)	4200	1 Unit
AKO-520641	Spare power supply for AKO-52064	4200	1 Unit
AKO-52062	Luminous pushbutton for spare alarm with 2 m cable	4200	1 Unit

### CAMGas Permanent high-precision gas leak detector

The location of the detectors should be chosen depending on the coolant.

Coolant detectors will be designed to quickly notify either a dangerous concentration of coolant in the surroundings of a refrigeration system or contamination of the environment. The premises or areas where they should be located are defined in the following sections.

**Specific machine rooms:**

In each specific machine room the concentration of coolant should be controlled by a system with at least one sensor that activates an alarm located in premises occupied by people and that eventually isolates parts of the refrigeration system.

**Cold storage room store and refrigerated premises for processes:**

In cold storage rooms and refrigerated premises for processes in which in the event of coolant leaks the practical acceptable limits of coolant concentration may be exceeded, a leak detection system will be installed that activates an alarm and isolates part of the refrigeration system.



**Installation of a fixed gas detection system in premises, with a concentration of over 25 kg of freon gas (50 kg in the case of the R17), where there should be an optical and acoustic alarm, both inside and outside the building and the possibility of sending a signal in the event of an incident for remote monitoring.**

Furthermore, the use of this device allows immediately detecting possible gas leaks with levels of 500 ppm (according to model), to minimise risks for people in occupied spaces and the economic impact of the loss of refrigerated gas. It also has a warning system in the event of a broken cable in the sensors, supplied with a calibration guarantee of 3 years.

**Application:** machine rooms, cold room stores, sales rooms and preparation rooms



- 2 levels of detection: Pre-alarm and Alarm
- Remote sensor. Maximum distance sensor 200 m
- 2 auxiliary relays to active remote alarms
- Work environment sensor -20/50 °C
- It is not suitable for classified areas as potentially explosives zones.
- Detection broken cable
- Power supply 90-260 A 50/60Hz

Detect following gases:

- A Sensor: R-134a, R-410A, R-417A, R-409A, R-32.  
Sensibility: 500/1000ppm
- B Sensor: R-404A, R-507A, R-22, R-408A  
Sensibility: 500/1000ppm
- C Sensor: R-717 (NH3/ammonia)  
Sensibility: 250/500ppm
- U Sensor: R-134a, R-407C, R-410A, R-417A, R-409A, R-32, R-404A, R-22, R-22A, R-22D, R-437A, R-408A, R-507A  
Sensibility: \*3500/7000ppm  
(\*type of gas depending)

Reference	Description	Family	Pack
AKO-52201	Gas detection alarm + A sensor	4200	1 Unit
AKO-52202	Gas detection alarm + B sensor	4200	1 Unit
AKO-52203	Gas detection alarm + C sensor	4200	1 Unit
AKO-52204	Gas detection alarm + U sensor	4200	1 Unit
AKO-52210	Gas detection alarm (spare)	4200	1 Unit
AKO-52211	A sensor (spare)	4200	1 Unit
AKO-52212	B sensor (spare)	4200	1 Unit
AKO-52213	C sensor (spare)	4200	1 Unit
AKO-52214	U sensor (spare)	4200	1 Unit



# COMBIAlarm Gas leak detector + Trapped person alarm.

## TRAPPED PERSON ALARM

Inside cold storage rooms equipped to operate at below zero temperatures or with artificial atmosphere, we recommend having next to the door and at a height of not over 1.25 metres, two call devices (bell, siren or telephone), one connected to an autonomous energy source, battery, accumulators, etc, suitably lit with a pilot light and so that ice cannot form on them. This pilot light will be permanently lit and will automatically connect to the emergency lighting system in the event of a fault in the power supply.

In cold storage rooms that operate at temperatures from 0 °C to 5 °C you will only have to assemble one call device.

## GAS LEAK DETECTION ALARM

The location of the detectors depends on the type of coolant used.

Coolant detectors will be designed to quickly notify either a dangerous concentration of coolant in the surroundings of a refrigeration system or contamination of the environment. The premises or areas where they should be located are defined in the following sections.

### Specific machine rooms:

In each specific machine room the concentration of coolant should be controlled by a system with at least one sensor that activates an alarm located in premises occupied by people and that eventually isolates parts of the refrigeration system.

### Cold storage room store and refrigerated premises for processes:

In cold storage rooms and refrigerated premises for processes in which in the event of coolant leaks the practical acceptable limits of coolant concentration may be exceeded, a leak detection system will be installed that activates an alarm and isolates part of the refrigeration system.



**COMBIAlarm allows a fast and easy installation in the configuration of the device. It is also very precise to detect from 500 ppm (according to the type of gas), which guarantees a safe and efficient facility.**

The easiest and most efficient way to comply with current standards in your refrigerated facilities with the most complete and flexible device on the market. It is made up of a central unit with powerful acoustics and display with IP65 protection so that it can be installed in hostile environments. Up to 4 luminous emergency buttons that can be connected to be used as a single trapped person alarm or a combination of up to 2 gas leak sensors and 2 emergency buttons.

**Application:** machine rooms, negative cold room stores, sales rooms, preparation rooms, food logistics and distribution centres.

- 2 detection levels: Pre-alarm and alarm
- Remote sensor. Maximum distance 200m
- 2 auxiliary relays to active remote alarms
- Wor environment sensor -20/50 °C
- It is not suitable for classified areas as potentially explosives zones.

Detect following gases:

- A Sensor: R-134a, R-410A, R-417A, R-409A, R-32.

Sensibility: 500/1000ppm

- B Sensor: R-404A, R-507A, R-22, R-408A

Sensibility: 500/1000ppm

- C Sensor: R-717 (NH3/amoniaco)  
Sensibility: 250/500ppm

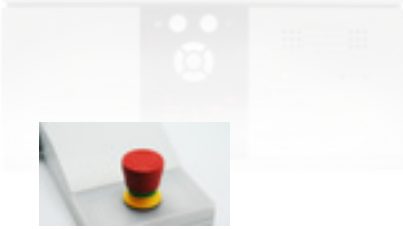
- U Sensor: R-134a, R-407C, R-410A, R-417A, R-409A, R-32, R-404A, R-22, R-22A, R-22D, R-437A, R-408A, R-507A

Sensibility: \*7000/3500ppm

(\*type of gas depending)

Reference	Description	Family	Pack
AKO-522014	Gas detection + Trapped person alarm + A sensor + Pushbutton	4200	1 Unit
AKO-522024	Gas detection + Trapped person alarm + B sensor + Pushbutton	4200	1 Unit
AKO-522034	Gas detection + Trapped person alarm + C sensor + Pushbutton	4200	1 Unit
AKO-522047	Gas detection + Trapped person alarm + U sensor + Pushbutton	4200	1 Unit
AKO-522104	Gas detection + Trapped person alarm (spare)	4200	1 Unit
AKO-52211	A sensor (spare)	4200	1 Unit
AKO-52212	B sensor (spare)	4200	1 Unit
AKO-52213	C sensor (spare)	4200	1 Unit
AKO-52214	U sensor (spare)	4200	1 Unit
AKO-52062	Light pushbutton with 2m cable, spare AKO-52063 and AKO-52064	4200	1 Unit

### CAMCombi 6 relays control, from -50 °C to +100 °C, with alarm for cold room store

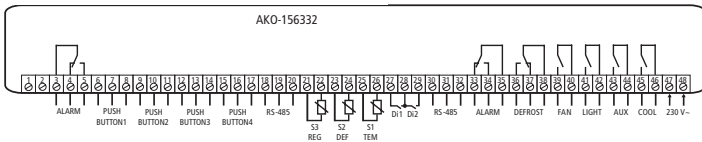


#### Display with alarm and control board with built-in register

This family of controllers with registers and alarm appears from the CAMCtrl, CAMRegis and CAMAlarm series. Display of information on graphic screen. Autonomous control board, with internal memory up to one year for registering the temperature. Person locked in alarm in room with output for 4 lights and autonomy of 10 hours. Identification of the alarm signal to know which pushbutton has triggered the alarm. Wall and panel mounting. Interior space for up to 2 contactors. Integrated RS485 communication. ModBus protocol.

#### Application Cold room stores

- Temperature range -40,0 °C to +99,9 °C
- Resolution 0,1 °C
- Accuracy ±1 °C
- NTC probe
- Real time clock
- Box dimensions 346 x 230 x 111 mm
- Panel cut-out dimensions 330 x 214 mm
- Compressor relay SPST 16 A, 250 V
- Fan relay SPST 8 A, 250 V
- Defrost relay SPDT 16 A, 250 V
- Aux relay SPST 16 A, 250 V
- Light relay SPST 16 A, 250 V
- Alar relay SPDT 8 A, 250 V
- 1 output relay for remote alarm signalling (GSM module)
- Light pushbutton to -50 °C
- Protection IP65
- Gas sensor -20 °C

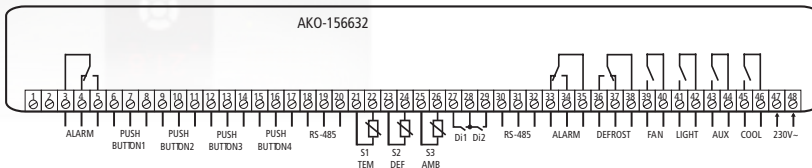


Reference	Description	Family	Pack
<b>AKO-156332</b>	CAMCtrl-6 + alarm, 230 V~ (1 light included)	1510	1 Unit
<b>AKO-52062</b>	Light and pushbutton for spare alarm with 2 m cable	4200	1 Unit

### CAMCombi 6 relays Split control, from -50 °C to +100 °C, with alarm for cold room store



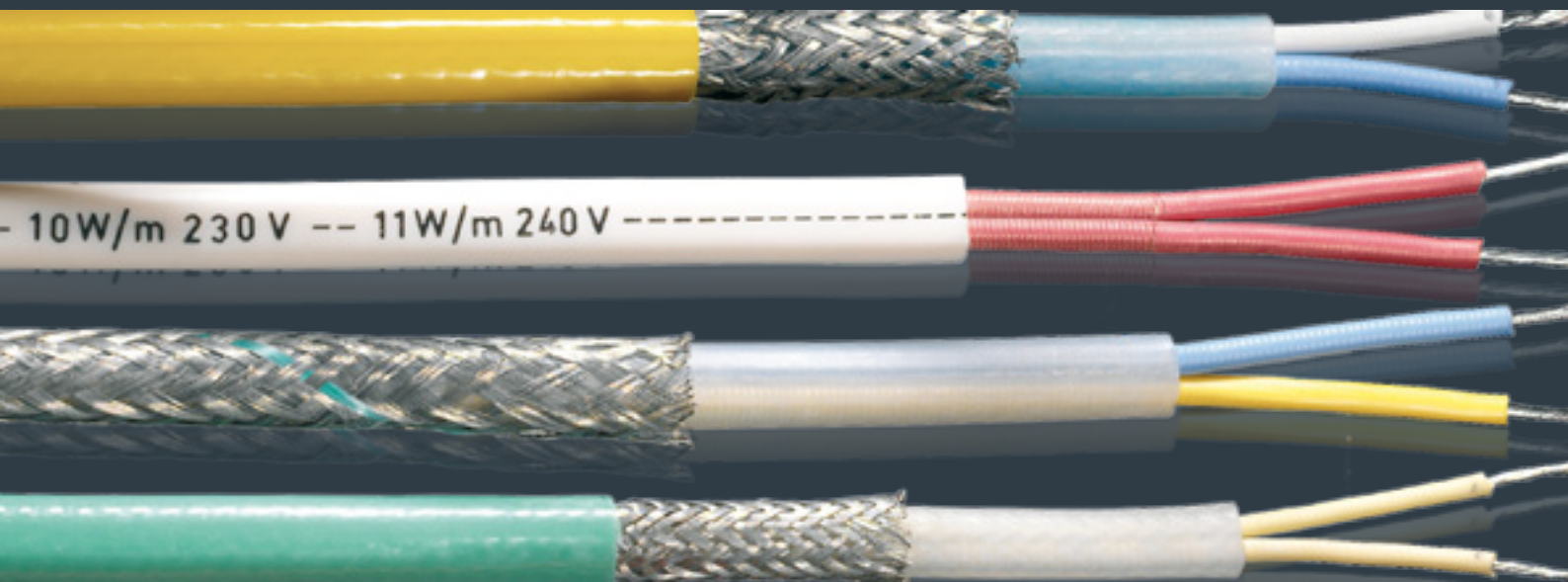
- Temperature range -40,0 °C to +99,9 °C
- Resolution 0,1 °C / Accuracy ±1 °C
- NTC probe
- Real time clock
- Box dimensions 346 x 230 x 90 mm
- Panel cut-out dimensions 330 x 214 mm
- Compressor relay SPST 16 A, 250 V
- Fan relay SPST 8 A, 250 V
- Defrost relay SPDT 16 A, 250 V
- Aux relay SPST 16 A, 250 V
- Light relay SPST 16 A, 250 V
- Alarm relay SPDT 8 A, 250 V
- 1 output relay for remote alarm signalling (GSM module)
- Light pushbutton to -50 °C
- Protection IP65



Reference	Description	Family	Pack
<b>AKO-156632</b>	CAMCtrl-6S + alarm, 230 V~ (1 light included)	1510	1 Ud.
<b>AKO-15673</b>	CAMCtrl-6S Split plate, 230 V~	1510	1 Ud.
<b>AKO-52062</b>	Light and pushbutton for spare alarm with 2 m cable	4200	1 Ud.

**AKOCable**

Heating Cable Solutions  
® Electrical Tracing



# HEATING CABLE TECHNOLOGIES

Series type heating cable

Parallel type heating cable The heating cable may be cut to size on site without changing its linear power.

### Mineral insulation



Used for high temperature maintenance and/or exposure

### Fluoropolymer cover



Used in long tracing systems

### Constant wattage



### Self-regulating



Used in the majority of temperature maintenance applications

## Constant wattage heating cable PVC insulation

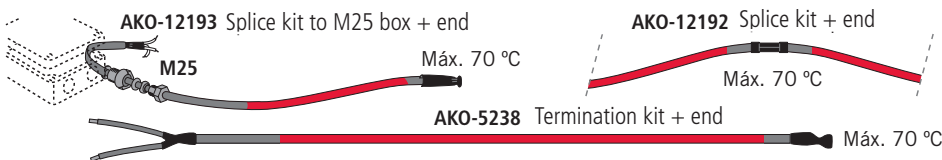


**Exposure temperature up to 70 °C with PVC high temperature insulation.**

PVC insulation. Copper conductors 2 x 1,5 mm<sup>2</sup>. Nominal outer dimensions 7 x 9,5 mm. Suitable for low temperature applications.

**Application:** Construction and refrigeration

- Minimum bend radius at 20 mm to -15 °C
- Heating conductor element: Nickel - Chromium
- Distance between contacts: 1000 mm
- Maximum insulation temperature: 70 °C



Reference	Description	Family	Pack
AKO-5231	Heating cable 10 W/m to 230 V, PVC insulation	2110	100 m .(A)
AKO-1212	Heating cable 20 W/m to 230 V, PVC insulation	2110	100 m. (A)
AKO-12192	Splice kit + end	2190	1 Unit
AKO-12193	Splice kit to M25 box + end	2190	1 Unit
AKO-5238	Termination kit	2190	25 Units

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

## Constant wattage heating cable silicone insulation



### Exposure temperature up to 180 °C with silicone insulation

Suitable for avoiding ice in pipes and metal surfaces or for heating not exceeding 55 °C on them. It can be cut to size. They are commonly used in industrial or commercial refrigeration installations to avoid ice in the drain pipes, condensation on the surface, and in applications on metal surfaces not exceeding 55 °C.

**Application:** Refrigeration



- Minimum bend radius at 10 mm to -4 °C
- Heating conductor element: Nickel - Chromium
- Distance between contacts: 595 mm
- Maximum exposure temp. (disconnected): 180 °C
- Outer dimensions: 8 x 5 mm

Reference	Description	Family	Pack
<b>AKO-5234</b>	Heating cable 30 W/m at 230 V, silicone insulation	2110	150 m. (A)
<b>AKO-52342</b>	Heating cable 30 W/m at 120 V, silicone insulation	2110	150 m. (A)
<b>AKO-52344</b>	Heating cable 40 W/m at 230 V, silicone insulation	2110	150 m. (A)
<b>AKO-52346</b>	Heating cable 65 W/m at 230 V, silicone insulation	2110	75 m. (A)
<b>AKO-52383</b>	Kit for sealing connection termination + end	2190	25 Units

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

## Constant wattage heating cable silicone insulation

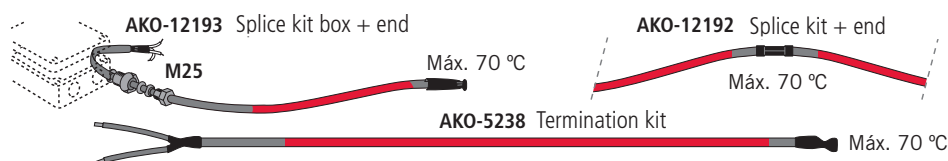


### Exposure temperature up to 180 °C with silicone insulation

PVC insulation. Copper conductors 2 x 1,5 mm<sup>2</sup>. Nominal outer dimensions 7 x 9,5 mm. Suitable for low temperature applications.

**Application:** Construction and refrigeration

- Minimum bend radius at 20 mm a -40 °C
- Heating conductor element: Nickel - Chromium
- Maximum circuit length 68 m
- Maximum exposure temperature (disconnected): 180 °C
- Distance between contacts: 500 mm



Reference	Description	Family	Pack
<b>AKO-712545</b>	Heating cable 50 W/m to 230 V, silicone insulation	2110	100 m. (A)
<b>AKO-12192</b>	Splice kit + end	2190	1 Unit
<b>AKO-12193</b>	Splice kit to M25 box + end	2190	1 Unit
<b>AKO-5238</b>	Termination kit	2190	25 Units

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

## Constant wattage heating cable silicone insulation + metal braid



**Exposure temperature up to 180 °C with metal protection braid.**

A range with braid, giving mechanical and electrical protection by using it as an earth conductor. It can be cut to size. They are commonly used in industrial or commercial refrigeration installations to avoid ice in the drain pipes, condensation on the surface, and in applications on metal surfaces not exceeding 55 °C.

**Application:** Refrigeration

- Minimum bend radius at 10 mm to -40 °C
- Heating conductor element: Nickel - Chromium
- Outer dimensions: 9 x 6 mm
- Maximum circuit length: 63 m
- Maximum operating temperature (connected): 85 °C
- Maximum exposure temperature (disconnected): 180 °C
- Distance between contacts: 595 mm



Reference	Description	Family	Pack
<b>AKO-52341</b>	Heating cable 30 W/m to 230 V, insulation + metal braid	2110	150 m.(A)
<b>AKO-52383</b>	Kit for sealing connection termination + end	2190	25 Units

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

## Constant wattage heating cable silicone insulation + metal braid

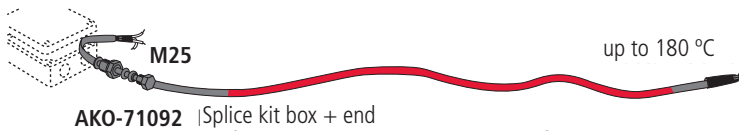


**Exposure temperature up to 180 °C with metal protection braid**

A range with braid, giving mechanical and electrical protection by using it as an earth conductor. It can be cut to size. They are usually used in heating to maintain the temperature of pipes, tanks, etc. in protection against freezing, maintaining process temperatures of up to 165 °C and especially in areas that are not corrosive or atmospheres classified as potentially explosive.

**Application:** Industry and construction

- Minimum bend radius at 20 mm a -40 °C
- Heating conductor element: Nickel - Chromium
- Outer dimensions: 9,4 x 6,9 mm
- Maximum operating temp. (connected): up to 165 °C
- Maximum exposure temp. (disconnected): 180 °C



Reference	Description	Family	Pack
<b>AKO-71010</b>	Heating cable 10 W/m a 230 V, up to 165 °C	2110	100 m.(A)
<b>AKO-71015</b>	Heating cable 15 W/m a 230 V, up to 150 °C	2110	100 m.(A)
<b>AKO-71025</b>	Heating cable 25 W/m a 230 V, up to 115 °C	2110	100 m.(A)
<b>AKO-71035</b>	Heating cable 35 W/m a 230 V, up to 75 °C	2110	100 m.(A)
<b>AKO-71050</b>	Heating cable 50 W/m a 230 V, up to 25 °C	2110	100 m.(A)
<b>AKO-71092</b>	Kit for connection ends to M25 box + end sealing	2190	1 Unit

A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

## Constant wattage heating cable silicone insulation + metal braid



### 24/48V with metal protection braid

A range with braid, giving mechanical and electrical protection by using it as an earth conductor. It can be cut to size. They are usually used in heating to maintain the temperature of pipes, tanks, etc. in protection against freezing, maintaining process temperatures of up to 165 °C and especially in areas that are not corrosive or atmospheres classified as potentially explosive.

**Application:** Industry and construction.



AKO-71092 Splice kit box + end

- Minimum bend radius at 20 mm a -25 °C
- Heating conductor element: Nickel - Chromium
- Outer dimensions: 9.4 x 6.4 mm
- Maximum exposure temperature (disconnected): 180 °C
- Distance between contacts: 200 mm

Reference	Description	Family	Pack
AKO-5237*	Heating cable 40 W/m to 48 V, (10 W/m to 24 V)	2110	100 m. (A)
AKO-71092	Kit for connection ends to M25 box + end sealing	2190	1 Unit

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

\*Available on request

## Constant wattage heating cable Fluoropolymer covering

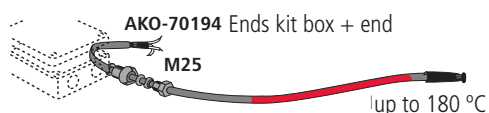


### Exposure temperature up to 180 °C with fluoropolymer covering

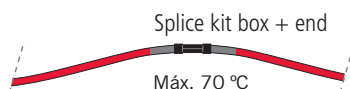
Follow the AKO usage instructions. It can be cut to size. These are used to maintain the temperature and protection against ice in pipes, on roofs, terraces, ramps, stairs, drains, etc.

**Application:** Construction

- Minimum bend radius at 20 mm to -40 °C
- Heating conductor element Nickel - Chromium
- Outer dimensions: 9 x 6,5 mm
- Maximum operating temperature (connected) up to 155 °C
- Maximum exposure temperature (disconnected) 180 °C



AKO-70194 Ends kit box + end



Reference	Description	Family	Pack
AKO-70115	Heating cable 15 W/m a 230 V, up to 155 °C	2110	100 m.(A)
AKO-70130	Heating cable 30 W/m a 230 V, up to 115 °C	2110	100 m.(A)
AKO-70140	Heating cable 40 W/m a 230 V, up to 84 °C	2110	50 m.(A)
AKO-70192	Splice kit + end, for cables embedded in concrete	2190	10 Units (B)
AKO-70194	Kit for connection ends to M25 box + end sealing	2190	5 Units

A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

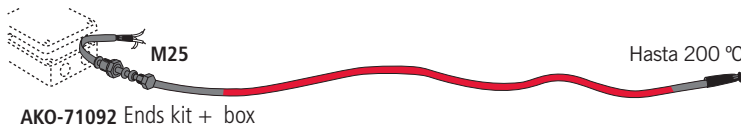
(B) Minimum, indivisible pack units.

## Constant wattage heating cable Fluoropolymer covering



**Exposure temperature up to 200 °C with fluoropolymer cover.**  
 Suitable for corrosive atmospheres and with risk of explosion, when following the AKO usage instructions. It can be cut to size. They are usually used in heating to maintain the temperature of pipes, tanks, etc. in protection against freezing, maintaining process temperatures up to 190 °C and especially in installations with highly corrosive atmospheres, in plastic pipes and tanks, and in areas classified as potentially explosive atmospheres.

**Application:** Industry



- Minimum bend radius at -40 °C: 20 mm
- Heating conductor element Nickel - Chromium
- Outer dimensions 10,3 x 7,4 mm
- Maximum operating temperature (connected): up to 190 °C
- Maximum exposure temperature (disconnected): 200 °C

Reference	Description	Family	Pack
<b>AKO-71110</b>	Heating cable 10 W/m a 230 V, up to 190 °C	2110	100 m.(A)
<b>AKO-71120</b>	Heating cable 20 W/m a 230 V, up to 168 °C	2110	100 m.(A)
<b>AKO-71130</b>	Heating cable 20 W/m a 230 V, up to 168 °C	2110	100 m.(A)
<b>AKO-71135</b>	Heating cable 35 W/m a 230 V, up to 132 °C	2110	100 m.(A)
<b>AKO-71150</b>	Heating cable 50 W/m a 230 V, up to 91 °C	2110	100 m.(A)
<b>AKO-71092</b>	Kit for connection ends to M25 box + end sealing	2190	1 Ud.

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.

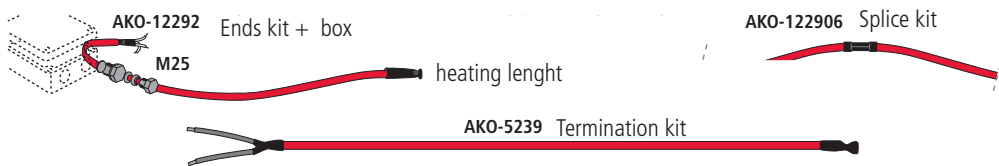
## Self-regulating heating cable Polyolefin insulation



**Exposure temperature up to 85 °C with braid for ground connection.**  
 Suitable for dry or damp atmospheres, but not corrosive. Area classification: ordinary. Maximum temperature for continuous exposure: 65 °C.

**Application:** Industry and refrigeration

- Minimum bend radius at -20 °C: 30 mm
- Outer dimensions: 12 x 5 mm
- Maximum operating temperature (connected): 65 °C
- Maximum exposure temperature (disconnected): 85 °C



Reference	Description	Family	Pack
<b>AKO-1221</b>	Heating cable 25 W/m to 10 °C, 230 V (11 W/m, 40 °C)	2120	100 m. (A)
<b>AKO-12292</b>	Kit for connection ends to M25 box + end sealing	2190	1 Unit
<b>AKO-122906</b>	Splice kit	2190	1 Unit
<b>AKO-5239</b>	Termination kit	2190	25 Units

(A) The metres of packaged material are the standard ones; however, we reserve the right to supply in different lengths to those indicated.



## Self-regulating heating cable Fluoropolymer covering



### Exposure temperature up to 85 °C suitable for Ex zone

Adjust power output in line with the temperature in the pipe. It can be cut to size. Maximum temperature for continuous exposure: 65 °C. For electric heating of pipes and tanks, in maintaining temperatures when steam cleaning is NOT performed.

**Application:** Industry and refrigeration

- Minimum temperature installation –40 °C
- Minimum bend radius: 32 mm
- Maximum operating temperature (connected): 65 °C
- Maximum exposure temperature (disconnected): 85 °C



Reference	Description	Family	Pack
AKO-71212	Heating cable 9 W/m to 10 °C, 230 V (4 W/m, 40 °C)	2120	–
AKO-71214	Heating cable 15 W/m to 10 °C, 230 V (7 W/m, 40 °C)	2120	–
AKO-71216	Heating cable 25 W/m to 10 °C, 230 V (12 W/m, 40 °C)	2120	–
AKO-71218	Heating cable 32 W/m to 10 °C, 230 V (16 W/m, 40 °C)	2120	–
AKO-71219	Heating cable 48 W/m to 10 °C, 230 V (22 W/m, 40 °C)	2120	–
AKO-71281	Termination kit for AKO-71219 heating cables	2190	1 Unit
AKO-71282	Termination kit for heating cables	2190	1 Unit
AKO-71285	Glands for connecting heating cables	2190	1 Unit
AKO-71287	Glands for connecting AKO-71219 heating cables	2190	1 Unit

## Self-regulating heating cable Fluoropolymer insulation and covering



### Exposure temperature up to 121 °C suitable for Ex zone.

Adjust power output in line with the temperature in the pipe. It can be cut to size. Maximum temperature for continuous exposure: 121 °C. For electric heating of pipes and tanks, in maintaining temperatures when steam cleaning is performed.

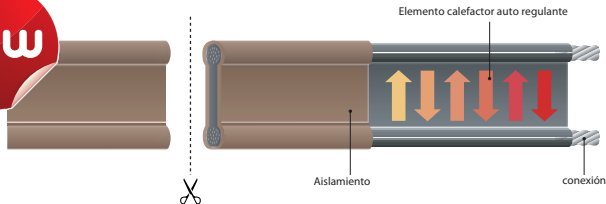
**Application:** Industry

- Minimum installation temperature –40 °C
- Minimum bend radius: 32 mm
- Maximum operating temperature (connected): 121 °C
- Maximum exposure temperature (disconnected): 121 °C



Reference	Description	Family	Pack
AKO-71241	Heating cable 14 W/m to 10 °C, 230 V (5 W/m, 100 °C)	2120	–
AKO-71243	Heating cable 30 W/m to 10 °C, 230 V (11 W/m, 100 °C)	2120	–
AKO-71245	Heating cable 48 W/m to 10 °C, 230 V (24 W/m, 100 °C)	2120	–
AKO-71248	Heating cable 64 W/m to 10 °C, 230 V (40 W/m, 100 °C)	2120	–
AKO-71282	Termination kit for heating cables	2190	1 Unit
AKO-71286	Glands for connecting heating cables M25	2190	1 Unit

## Self-regulating parallel cable thermoplastic insulation



**Exposure temperature up to 85 °C as copper conductor and thermoplastic insulator**

The AKO self-regulating heating cable is designed for its use in domestic and industrial applications. Heating circuits should always be protected by a combined overcurrent / earthing differential device with a sensitivity of 30 mA.

**Application:** Industry, construction and refrigeration

• AKO-1232:

Dimensions: 10.9 x 3.8 mm

Maximum distance 0 °C (16 A): 198 m

Cut section: 0.5 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

• AKO-1234:

Dimensions: 10.9 x 3.8 mm

Maximum distance 0 °C (16 A): 154 m

Cut section: 0.5 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

• AKO-1236:

Dimensions: 10.9 x 3.8 mm

Maximum distance 0 °C (16 A): 124 m

Cut section: 1.1 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

• AKO-1238:

Dimensions: 10.9 x 3.8 mm

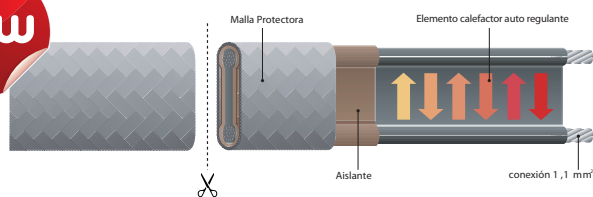
Maximum distance 0 °C (16 A): 110 m

Cut section: 1.1 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

Reference	Description	Family	Pack
<b>AKO-1232</b>	Heating cable 10 W/m a 10 °C, 230 V	120	50 m.
<b>AKO-1234</b>	Heating cable 17 W/m a 10 °C, 230 V	120	50 m.
<b>AKO-1236</b>	Heating cable 25 W/m a 10 °C, 230 V	120	50 m.
<b>AKO-1238</b>	Heating cable 31 W/m a 10 °C, 230 V	120	50 m.
<b>AKO-1246</b>	Heating cable 20 W/m a 10 °C, 230 V	120	50 m.

## Self-regulating parallel cable mesh + thermoplastic insulation



**Exposure temperature up to 85 °C as copper conductor and thermoplastic insulator**

AKO self-regulating heating cables are adequate for protection against frost and temperature maintenance up to 65 °C.

**Application:** Industry, construction and refrigeration

• AKO-1222:

Dimensions: 5 x 8 mm

Maximum distance 0 °C: 198 m

Cut section: 0.55 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

• AKO-1224:

Dimensions: 5 x 8 mm

Maximum distance 0 °C: 154 m

Cut section: 0.55 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

• AKO-1228:

Dimensions: 5 x 8 mm

Maximum distance 0 °C: 110 m

Cut section: 1.1 mm<sup>2</sup>

Characteristics: Max temp 85 °C, copper conductor, thermoplastic insulator

Reference	Description	Family	Pack
<b>AKO-1222</b>	Heating cable 10 W/m a 10 °C, 120 V	120	50 m.
<b>AKO-1224</b>	Heating cable 17 W/m a 10 °C, 120 V	120	50 m.
<b>AKO-1228</b>	Heating cable 31 W/m a 10 °C, 120 V	120	50 m.

## Self-regulating heating cable Fluoropolymer insulation and covering



### Exposure temperature up to 250 °C suitable for Ex zone.

Adjust power output in line with the temperature in the pipe. It can be cut to size. Maximum temperature for continuous exposure: 121 °C. For electric heating of pipes and tanks, in maintaining temperatures when steam cleaning is performed.

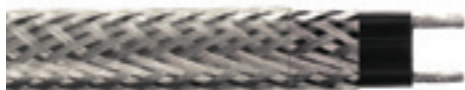
**Application:** Industry

- Minimum installation temperature: -60 °C
- Minimum bend radius: 32 mm
- Maximum operating temperature (connected): 121 °C
- Maximum exposure temperature (disconnected): 205 °C
- Maximum exposure temperature (intermittent): 250 °C



Reference	Description	Family	Pack
AKO-71250	Heating cable 9 W/m to 10 °C, 230 V (3 W/m, 100 °C)	2120	–
AKO-71251	Heating cable 18 W/m to 10 °C, 230 V (6 W/m, 100 °C)	2120	–
AKO-71252	Heating cable 27 W/m to 10 °C, 230 V (11 W/m, 100 °C)	2120	–
AKO-71253	Heating cable 37 W/m to 10 °C, 230 V (16 W/m, 100 °C)	2120	–
AKO-71255	Heating cable 48 W/m to 10 °C, 230 V (24 W/m, 100 °C)	2120	–
AKO-71258	Heating cable 64 W/m to 10 °C, 230 V (40 W/m, 100 °C)	2120	–
AKO-71282	Termination kit for heating cables	2190	1 Unit
AKO-71286	Glands for connecting heating cables M25	2190	1 Unit

## Self-regulating heating cable Fluoropolymer insulation and covering



### Up to 250 °C, suitable for Ex zone.

Adjust power output in line with the temperature in the pipe. It can be cut to size. Maximum temperature for continuous exposure: 150 °C. For electric heating of pipes and tanks, in maintaining temperatures when steam cleaning is performed.

**Application:** Industry

- Minimum installation temperature: -60 °C
- Minimum bend radius: 32 mm
- Maximum operating temperature (connected): 150 °C
- Maximum exposure temperature (disconnected): 200 °C
- Maximum exposure temperature (intermittent): 250 °C



Reference	Description	Family	Pack
AKO-71261	Heating cable 15 W/m to 10 °C, 230 V (5 W/m, 120 °C)	2120	–
AKO-71263	Heating cable 32 W/m to 10 °C, 230 V (10 W/m, 120 °C)	2120	–
AKO-71265	Heating cable 48 W/m to 10 °C, 230 V (18 W/m, 120 °C)	2120	–
AKO-71267	Heating cable 64 W/m to 10 °C, 230 V (25 W/m, 120 °C)	2120	–
AKO-71281	Termination kit for heating cables	2190	1 Unit
AKO-71287	Glands for connecting heating cables	2190	1 Unit

### Self-regulating heating cable Fluoropolymer insulation and covering



**Exposure temperature up to 260 °C in glass fiber and fluoropolymer covering**

Adjust power output in line with the temperature in the pipe. It can be cut to size. Maximum temperature for continuous exposure: 150 °C. For electric heating of pipes and tanks, in maintaining temperatures when steam cleaning is performed.

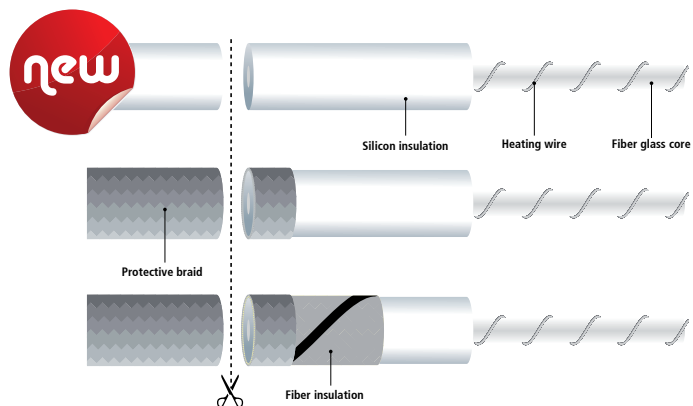
**Application:** Industry and refrigeration

- Minimum installation temperature: -60 °C
- Minimum bend radius: 57 mm
- Maximum operating temperature (connected): 150 °C
- Maximum exposure temperature (disconnected): 260 °C



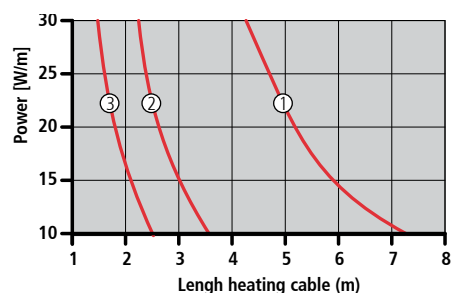
Reference	Description	Family	Pack
AKO-71270	Heating cable 14 W/m to 10 °C, 230 V (10 W/m, 120 °C)	2120	-
AKO-71271	Heating cable 28 W/m to 10 °C, 230 V (18 W/m, 120 °C)	2120	-
AKO-71275	Heating cable 42 W/m to 10 °C, 230 V (28 W/m, 120 °C)	2120	-
AKO-71279	Heating cable 57 W/m to 10 °C, 230 V (38 W/m, 120 °C)	2120	-
AKO-71283	Termination kit for heating cables. Exp. up to 200 °C	2190	1 Unit
AKO-71286	Glands for connecting heating cables M25	2190	1 Unit

## Series cable silicone insulation

**A Heating cable with silicone insulation**

They are apt for protection against frost and temperature maintenance in the refrigeration industry. Particularly suitable for domestic electricity, protection against frost in machines of the cold storage industry and the refrigeration industry.

**Application:** Industry and refrigeration

**B****C**

1: 100 W/m  
2: 400 W/m  
3: 800 W/m

## Semi-rigid silicone range

Reference	Description	Family	Pack
<b>AKO-71331</b>	Heating cable 3,5 m length , 1,5 m heating area, 75 W, 230 V, 180 °C	120	10 Uds.
<b>AKO-71332</b>	Heating cable 4 m length , 2 m heating area, 100 W, 230 V, 180 °C	120	10 Uds.
<b>AKO-71333</b>	Heating cable 5 m length , 3 m heating area, 150 W, 230 V, 180 °C	120	10 Uds.
<b>AKO-71334</b>	Heating cable 6 m length , 4 m heating area, 200 W, 230 V, 180 °C	120	10 Uds.
<b>AKO-71335</b>	Heating cable 7 m length , 5 m heating area, 250 W, 230 V, 180 °C	120	10 Uds.
<b>AKO-71336</b>	Heating cable 8 m length , 6 m heating area, 300 W, 230 V, 180 °C	120	10 Uds.

## Flexible silicone range

Reference	Description	Family	Pack
<b>AKO-71370</b>	Heating cable 3,5 m length , 1 m heating area, 50 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71371</b>	Heating cable 2,3 m length , 1,3 m heating area 65 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71372</b>	Heating cable 2,5 m length , 1,5 m heating area 75 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71373</b>	Heating cable 3 m length , 2 m heating area 100 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71374</b>	Heating cable 4 m length , 3 m heating area 150 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71375</b>	Heating cable 5 m length , 4 m heating area 200 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71376</b>	Heating cable 6 m length , 5 m heating area 250 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71377</b>	Heating cable 7 m length , 6 m heating area 250 W, 300 V, 200 °C	120	10 Uds.
<b>AKO-71378</b>	Heating cable 8 m length , 7 m heating area 300 W, 230 V, 200 °C	120	10 Uds.
<b>AKO-71379</b>	Heating cable 9 m length , 8 m heating area 3000 W, 230 V, 200 °C	120	10 Uds.

## Series cable Quartz fiber insulation

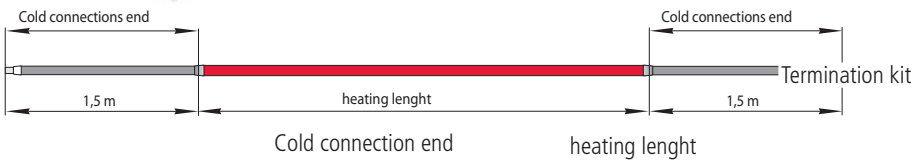


**Exposure temperature up to 900 °C with quartz fiber insulation.**

Quartz fiber insulation. Very flexible to adapt it to very small pipes. Installation in dry places with no risk of humidity. These kinds of heating cables are suitable for heating pipes and surfaces up to a maximum temperature of 800 °C.

**Application:** Industry

- Minimum bend radius at -20 °C: 10 mm
- Cold ends of 1,5 m
- Maximum operating temperature (connected): 800 °C
- Maximum exposure temperature (disconnected): 900 °C



Reference	Description	Family	Pack
<b>AKO-71321</b>	Heating cable 1 m long, 170 W, 230 V, up to 800 °C	2130	1 Unit
<b>AKO-71323</b>	Heating cable 3 m long, 500 W, 230 V, up to 800 °C	2130	1 Unit
<b>AKO-71325</b>	Heating cable 5 m long, 800 W, 230 V, up to 800 °C	2130	1 Unit

## Series cable Mineral insulation

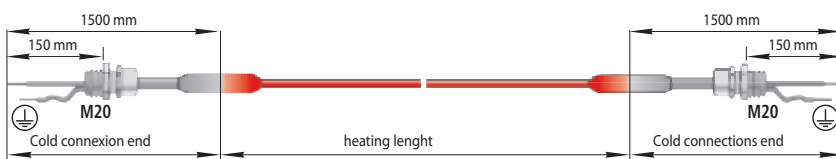


**Exposure temperature up to 600° C with mineral insulation**

Magnesium oxide insulation. Stainless steel exterior covers. Sufficient flexibility to adapt it to surfaces. These kinds of cables are used to heat pipes, tanks, hoppers and other processing equipment up to 500 °C and in cases where cables must withstand up to 600 °C with the cables disconnected.

**Application:** Industry

- Minimum bend radius at -20 °C: 32 mm
- Stainless steel exterior cove
- Cold terminations of 1,5 m
- Heating elements of 12 and 20 m
- Max. exposure (offline) 600 ° CC



Reference	Description	Family	Pack
<b>AKO-71301A</b>	Heating cable 12 m long, 440 W, 230 V, up to 514 °C	2130	1 Unit
<b>AKO-71302A</b>	Heating cable 20 m long, 1537 W, 230 V, up to 420 °C	2130	1 Unit

## Heating resistances Refrigeration compressors



### Universal resistance for hermetic compressors

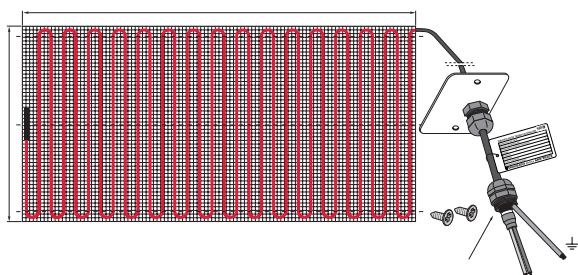
Heating resistances for refrigerator compressors. They prevent the coolant absorbing oil and are suitable for any type of compressor in a cylindrical or oval shape, boiler or tank.

**Application:** Industrial



Reference	Description	Family	Pack
AKO-71863	Compressor heating cable res 35 W, 120 mm Ømin x 175 mm Ømax.	2150	1 Unit
AKO-71864	Compressor heating cable res 45 W, 150 mm Ømin x 280 mm Ømax.	2150	1 Unit
AKO-71866	Compressor heating cable res 65 W, 220 mm Ømin x 320 mm Ømax.	2150	1 Unit
AKO-71867	Compressor heating cable res 75 W, 245 mm Ømin x 370 mm Ømax.	2150	1 Unit

## Heaters Heating panels

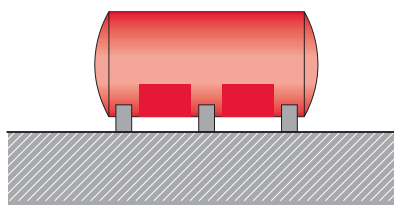


### Exposure temperature up to 185 °C, flexible for heating tanks and surfaces

Power outputs of 375 W and 875 W. Installed on galvanized metal fabric. They are used to maintain the temperature in horizontal tanks.

**Application:** Industry

- Nominal dimensions 800 x 1620 mm
- Maximum exposure temperature (connected) up to 185 °C
- Maximum exposure temperature (disconnected) up to 200 °C
- Heating cable AKO-71115 and AKO-71135



Reference	Description	Family	Pack
AKO-71515	Panel 0,8 x 1,62 m, 375 W, 230 V, up to 185 °C	2150	1 Unit
AKO-71535	Panel 0,8 x 1,62 m, 875 W, 230 V, up to 132 °C	2150	1 Unit

### Heaters Heating bands with thermostat



#### Flexible pipes for heating metal drums.

For standard metal drums from 25 to 200 L. Powers from 300 W to 1000 W. Easy to fix the drum. They are usually used to melt solids, liquate viscous materials and maintain the temperature of contained products.

**Application:** Industry



- Power supply cable 2 m
- Heating uniformly spread
- Silicone insulation with glass fiber

Reference	Description	Family	Pack
AKO-80034T	Band 1000 W, 230 V, for 200 l drums	2150	2 Units
AKO-80035T	Band 800 W, 230 V, for 105 l drums	2150	1 Unit
AKO-80036T	Band 500 W, 230 V, for 50 l drums	2150	1 Unit
AKO-80037T	Band 300 W, 230 V, for 25 l drums	2150	1 Unit
AKO-80038T	Band 1500 W, 230 V, for 200 l drums	2150	1 Unit

### Heaters Heater Jacket



#### Container heaters to 1000 L square tanks

This heater jacket has quick release adjustable buckles for ease of installation and removal and is designed with upper and lower heat zones, each with separate thermostatic control. This allows for the upper heating zone to be switched off once the content level has fallen below half way.

**Application:** Industry

- Power supply cable 2 x 2,5 m
- Two circuits each 1000 W to 230 V
- Temp. Control from 0 to 90 °C
- Top cap included

Reference	Description	Family	Pack
AKO-80041	Container heater to 1000 l square tanks, 2 x 1000 W, 230 V	2150	1 Unit



## Heaters Drum heaters



AKO-718520

### For products highly sensitive to temperature in a safe area

Carbon steel diffuser, thermal insulation of 40 mm of glass fiber. They have guides that allow them to be stacked to achieve the required height. Gentle product heating. They are used to melt solids and liquefy viscous materials or materials that are problematic due to their sensitivity to heat, such as greases, glucose, honey, tar, paints, varnishes, phenols, waxes, etc.

**Application:** Industry



AKO-718510

- Power cable: 3 m de 3 x 2,5 mm<sup>2</sup>
- Power up to 3.120 W per drum
- Outer diameter: 750 mm
- Inner diameter: 620 mm
- Height: 440 mm

Reference	Description	Family	Pack
AKO-718510	Base heater 720 W, 230 V	2150	1 Unit
AKO-718520	Ring heater 1.200 W, 230 V	2150	1 Unit

## Heaters Drum heaters




### For products highly sensitive to temperature in the Ex area.

Carbon steel diffuser, thermal insulation of 40 mm of glass fiber. They have guides that allow them to be stacked to achieve the required height. Gentle product heating. They are used to melt solids and liquefy viscous materials or materials that are problematic due to their sensitivity to heat, such as greases, glucose, honey, tar, paints, varnishes, phenols, waxes, etc.

**Application:** Industry



- Power cable: 3 m de 3 x 2,5 mm<sup>2</sup>
- Power up to 2.200 W per drum
- Outer diameter: 750 mm
- Inner diameter: 620 mm
- Height: 440 mm

Reference	Description	Family	Pack
AKO-718720	Ring heater 1100 W, to 10 °C with self-regul. cable	2150	1 Unit 

## Accessories



### Junction boxes, fixing supports and protectors for crossing lagging.

Plastic boxes very resistant to corrosion and suitable for outdoor installation. Stainless steel support for fixing to boxes. Kits for crossing lagging, used to prevent the heating cables from being damaged.

**Application:** Industry, construction and refrigeration

Reference	Description	Family	Pack
AKO-71613	Junction box with 1 M20 input and 2 M12, for probes	2190	1 Unit
AKO-71611	Junction box with 4 M25 inputs, ordinary area	2190	1 Unit
AKO-71617	Junction box with 4 M25 inputs, Ex area	2190	1 Unit
AKO-71620	Cable protector in pipe lagging	2190	5 Unit
AKO-71625	Support for fixing boxes to the AKO-71620 protector	2190	5 Unit
AKO-71628	Protector for heating cables in sharp edges	2190	20 Units (B)
AKO-71629	Cable protector in tank lagging	2190	1 Unit
AKO-717425	Support for fixing boxes and controllers	2190	1 Unit
AKO-1901	Set screw + accom. for clamps	4900	50 Units (B)
AKO-1903	Stainless steel tape to truss clamp	4900	30 m (B)

(B) Minimum, indivisible pack units.



### Thermostats and accessories for installing heating cables

A range of accessories for sealing, fixing, signalling and identifying heating cables makes their installation easy on pipes, tanks and surfaces in general.

**Application:** Industry and construction

Reference	Description	Family	Pack
AKO-712699	Tube of high temperature sealing silicone 75 ml	2190	5 Units
AKO-71630	Support for heating cable in vertical tanks	2190	1 Unit
AKO-71635	Installation support for heating cables on roofs and gutters	2190	10 Units (B)
AKO-71666	Self-vulcanising sealing tape 9,15 x 19 mm	2190	10 Units
AKO-717440	50 m roll of aluminium adhesive tape	2190	1 Unit
AKO-717441	33 m roll of glass fiber adhesive tape	2190	5 Units
AKO-717445	Set of 5 AKO-TRACE signalling labels	2190	1 Unit
AKO-71751	Set of 5 heating section identification labels	2190	1 Unit

(B) Minimum, indivisible pack units.



With hot-weld glue for humidity-proof seals. They are used to seal and protect cable splices from humidity.

- Retracts up to 33% of its original size
- Contraction temperatures >125 °C
- Operating temperature from -30 °C to +80 °C
- Flexible modified polyolefin material black with interior hot-weld glue

Reference	Description	Family	Pack
AKO-52401	Heat shrinkable sleeve diameter 12/4 mm, length 1.2 m	2190	1 Unit
AKO-52402	Heat shrinkable sleeve diameter 12/4 mm, length 50 mm	2190	100 /25 Units (B)
AKO-52403	Heat shrinkable sleeve diameter 6/2 mm, length 1.2 m	2190	1 Unit
AKO-52404	Heat shrinkable sleeve diameter 6/2 mm, length 75 mm	2190	100 /25 Units (B)

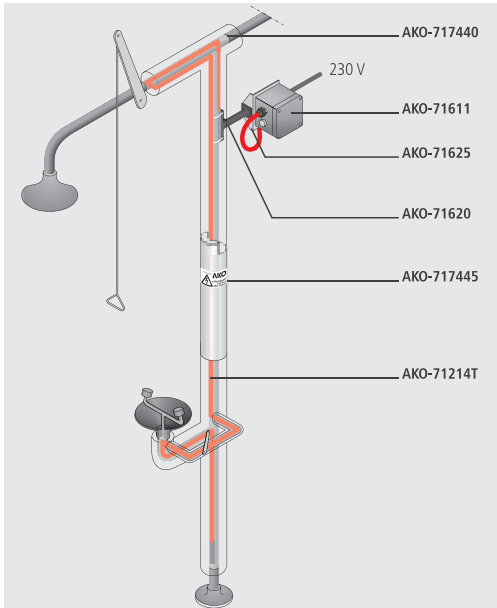
(B) Minimum, indivisible pack units.

## AKOKit

A complete heating cable solution for the Industrial and Commercial Refrigeration and Industrial, Safety and Home Automation markets



### Pipes and emergency systems



#### Kit to prevent freezing and maintain the temperature in pipes and emergency systems

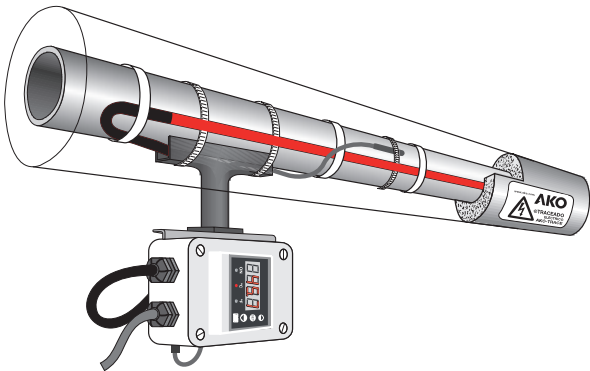
Electric heating of thermally insulated piping by constant power parallel heating cable.

**Application:** Industry and construction.

- Maximum exposure temperature 70 °C (due to the use of heat shrink tubing on the end).
- Minimum ambient temperature -10 °C for external piping.
- Minimum ambient temperature 5 °C for indoor piping.
- Minimum temperature stabilization of water 15 °C for installation in showers and 10 °C in water supply pipes for hose reel and hydrant systems.
- Kit for use in ordinary areas.

Immediate solution for your heat-tracing projects Without the need for specific technical knowledge. Does not require complex technical calculations. Does not need special tools or handling.

All kits come with the right cable and amounts for each type of application, their accessories, assembly instructions and control elements (in those where this is necessary)



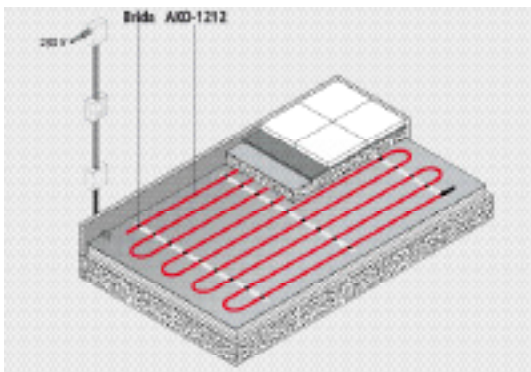
#### Kit items:



Reference	Description	Family	Pack
AKO-EH-10	Heat Tracing kit to prevent freezing in pipes up to 5" and 10 m	2200	1 Unit
AKO-EH-20	Heat Tracing kit to prevent freezing in pipes up to 5" and 20 m	2200	1 Unit
AKO-EH-40	Heat Tracing kit to prevent freezing in pipes up to 5" and 40 m	2200	1 Unit
AKO-EH-80	Heat Tracing kit to prevent freezing in pipes up to 5" and 80 m	2200	1 Unit
AKO-ACS-10	Heat Tracing kit for ACS pipes up to 2" and 10 m	2200	1 Unit
AKO-ACS-20	Heat Tracing kit for ACS pipes up to 2" and 20 m	2200	1 Unit
AKO-ACS-40	Heat Tracing kit for ACS pipes up to 2" and 40 m	2200	1 Unit
AKO-ACS-80	Heat Tracing kit for ACS pipes up to 2" and 80 m	2200	1 Unit
AKO-TI10-METAL	Heat Tracing kit for metal pipes up to 3", 60 °C and 10 m	2200	1 Unit
AKO-TI20-METAL	Heat Tracing kit for metal pipes up to 3", 60 °C and 20 m	2200	1 Unit
AKO-TI40-METAL	Heat Tracing kit for metal pipes up to 3", 60 °C and 40 m	2200	1 Unit
AKO-TI80-METAL	Heat Tracing kit for metal pipes up to 3", 60 °C and 80 m	2200	1 Unit
AKO-TI10-PLAST	Heat Tracing kit for plastic pipes up to 3", 30 °C and 10 m	2200	1 Unit
AKO-TI20-PLAST	Heat Tracing kit for plastic pipes up to 3", 30 °C and 20 m	2200	1 Unit
AKO-TI40-PLAST	Heat Tracing kit for plastic pipes up to 3", 30 °C and 40 m	2200	1 Unit
AKO-TI80-PLAST	Heat Tracing kit for plastic pipes up to 3", 30 °C and 80 m	2200	1 Unit
AKO-SAFE-5M	Kit to avoid freezing in emergency systems (Showers, hose-reels, etc)	2200	1 Unit



## Underfloor heating



Kit items:



### Kit for underfloor heating

Electric heating with constant power cable of underfloors and exterior surfaces (e.g. streets, ramps, terraces, roads).

**Application:** Construction.

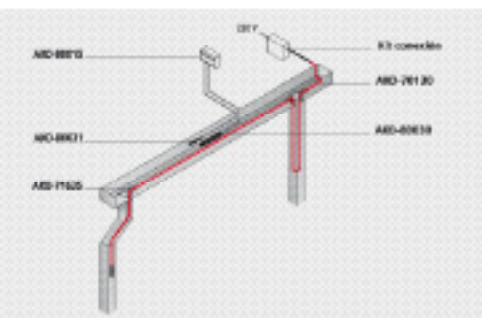
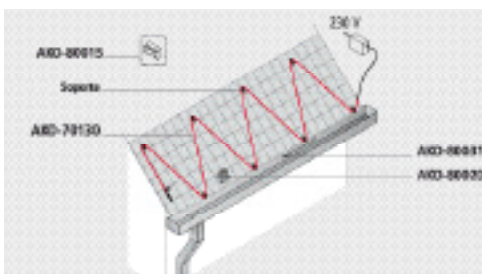
- Maximum exposure temperature 70 °C
- Minimum ambient temperature -5 °C for radiant floor.
- Minimum ambient temperature -20 °C for heating of exterior surfaces.
- Kit for use in ordinary areas.

Immediate solution for your heat-tracing projects Without the need for specific technical knowledge. Does not require complex technical calculations. Does not need special tools or handling.

All kits come with the right cable and amounts for each type of application, their accessories, assembly instructions and control elements (in those where this is necessary).

Reference	Description	Family	Pack
<b>AKO-SR-5M2</b>	Kit for underfloor heating up to 5 m <sup>2</sup>	2200	1 Unit
<b>AKO-SR-10M2</b>	Kit for underfloor heating up to 10 m <sup>2</sup>	2200	1 Unit
<b>AKO-SR-20MS</b>	Kit for underfloor heating up to 20 m <sup>2</sup>	2200	1 Unit
<b>AKO-SE-10M2</b>	Kit for heating exterior surfaces up to 10 m <sup>2</sup>	2200	1 Unit
<b>AKO-SE-20M2</b>	Kit for heating exterior surfaces up to 20 m <sup>2</sup>	2200	1 Unit
<b>AKO-SE-40MS</b>	Kit for heating exterior surfaces up to 40 m <sup>2</sup>	2200	1 Unit
<b>AKO-SE-60MS</b>	Kit for heating exterior surfaces up to 60 m <sup>2</sup>	2200	1 Unit

## Roofs and Gutters



### Kit for preventing ice and snow buildup on roofs and in drainage channels.

Constant power parallel heating cable on roofs and gutters.

**Application:** Construction.

- Maximum exposure temperature 70 °C
- Minimum ambient external temperature -20 °C
- Kit for use in ordinary area

Immediate solution for your heat-tracing projects Without the need for specific technical knowledge. Does not require complex technical calculations. Does not need special tools or handling.

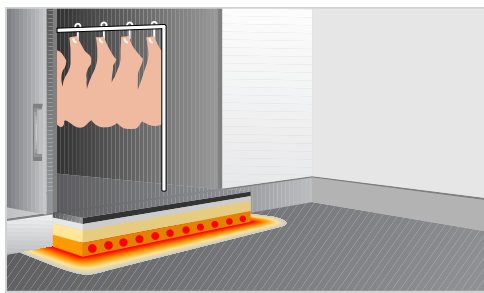
All kits come with the right cable and amounts for each type of application, their accessories, assembly instructions and control elements (in those where this is necessary).

Kit items:



Reference	Description	Family	Pack
<b>AKO-TEJADO-15M</b>	Kit for heating up to 15 m long roof overhang	2200	1 Unit
<b>AKO-TEJADO-30M</b>	Kit for heating up to 30 m long roof overhang	2200	1 Unit
<b>AKO-TEJADO-45M</b>	Kit for heating up to 45 m long roof overhang	2200	1 Unit
<b>AKO-TEJADO-60M</b>	Kit for heating up to 60 m long roof overhang	2200	1 Unit
<b>AKO-CANAL-50M</b>	Kit for heating up to 50 m length of guttering	2200	1 Unit
<b>AKO-CANAL-100M</b>	Kit for heating up to 100 m length of guttering	2200	1 Unit
<b>AKO-CANAL-150M</b>	Kit for heating up to 150 m length of guttering	2200	1 Unit
<b>AKO-CANAL-200M</b>	Kit for heating up to 200 m length of guttering	2200	1 Unit

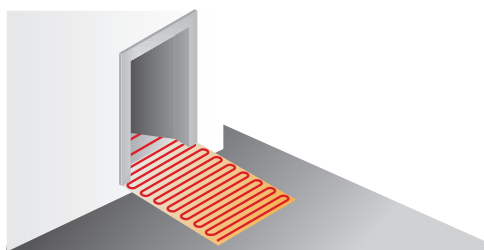
## Solutions for refrigeration



## Kit items:



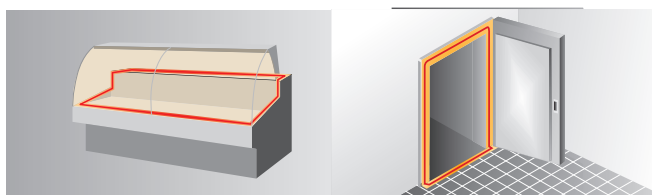
Reference	Description	Family	Pack
<b>AKO-SC-20M2</b>	Kit for heating cold room underfloors up to 20 m <sup>2</sup>	2200	1 Unit
<b>AKO-SC-40M2</b>	Kit for heating cold room underfloors up to 40 m <sup>2</sup>	2200	1 Unit
<b>AKO-SC-60M2</b>	Kit for heating cold room underfloors up to 60 m <sup>2</sup>	2200	1 Unit
<b>AKO-SC-80M2</b>	Kit for heating cold room underfloors up to 80 m <sup>2</sup>	2200	1 Unit
<b>AKO-SC-100M2</b>	Kit for heating cold room underfloors up to 100 m <sup>2</sup>	2200	1 Unit



## Kit items:



Reference	Description	Family	Pack
<b>AKO-EC-100</b>	Kit for heating cold room entrances up to 1 m wide	2200	1 Unit
<b>AKO-EC-150</b>	Kit for heating cold room entrances up to 1,5 m wide	2200	1 Unit
<b>AKO-EC-200</b>	Kit for heating cold room entrances up to 2 m wide	2200	1 Unit
<b>AKO-EC-250</b>	Kit for heating cold room entrances up to 2,5 m wide	2200	1 Unit
<b>AKO-EC-300</b>	Kit for heating cold room entrances up to 3 m wide	2200	1 Unit



## Kit items:



Reference	Description	Family	Pack
<b>AKO-MPC-4M</b>	Kit for heating cold room door and window frames up to 4 m	2200	1 Unit
<b>AKO-MPC-8M</b>	Kit for heating cold room door and window frames up to 8 m	2200	1 Unit
<b>AKO-MPC-12M</b>	Kit for heating cold room door and window frames up to 12 m	2200	1 Unit

**Solution for industrial and commercial refrigeration**

Electric heating with constant power cable to prevent formation of condensation on display windows and the protection of cold room entrances, doors and floors.

**Application:** Construction and refrigeration

- Maximum exposure temperature 70 °C
- Minimum temperature of -25 °C in display case.
- Minimum temperature of -30 °C in cold rooms.
- Kit for use in ordinary areas.

Immediate solution for your heat-tracing projects Without the need for specific technical knowledge. Does not require complex technical calculations. Does not need special tools or handling.

All kits come with the right cable and amounts for each type of application, their accessories, assembly instructions and control elements (in those where this is necessary).

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- Minimum temperature of -25 °C in display case.
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- Kit for use in ordinary areas.

## AKOPro

The most suitable range  
of control panels





# PROPlus for single-phase and three-phase condensing and evaporator units



### PROPlus. Cuadros electrónicos de control.

Cold rooms above and below freezing. Defrost by air/time or resistors.

PROPlus is the comprehensive, single-device electronic solution for managing cold rooms, both above and below freezing, in conjunction with:

Standard condensing units, fully enclosed condensation, as a service panel in decentralised systems.

Electronic panels with overall 16 A thermo-magnetic protection, for controlling cold rooms, with up to 2 HP compressors, with the following components: Compressor/Liquid solenoid, single-phase evaporator fans, defrost by air/time or electrical (up to 2,500 W 230 V/I).

Electronic panel with thermo-magnetic circuit breaker for control circuits and resistors for controlling cold rooms, with the following components: Compressor/liquid solenoid, single-phase evaporator fans, defrost by air/time or electrical (up to 6.500 W 400 V/III).

#### PROPlus (AKO-15640)

- For single-phase condensing unit and evaporator resistances
- Input: 3 NTC probes (1 included)
- Temperature range: -50.0 °C to +99.9 °C
- Output: 6 relays (COMP, DEFROST, FAN, LIGHT, ALARM and AUX)
- Multi-language graphic LCD screen

- Communication: RS485
- Datalogger
- Real time clock with ± 1 accuracy
- 2 digital inputs: configurables
- Alarm signals: buzzer (acustic alarma) and relay
- IP65 Protection
- Dimensions: 230 x 230 x 90 mm

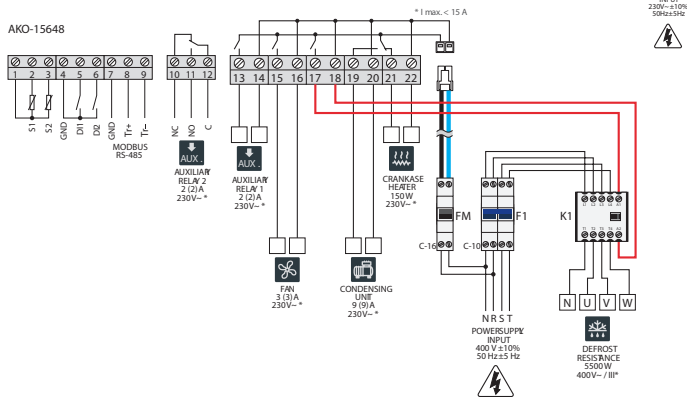
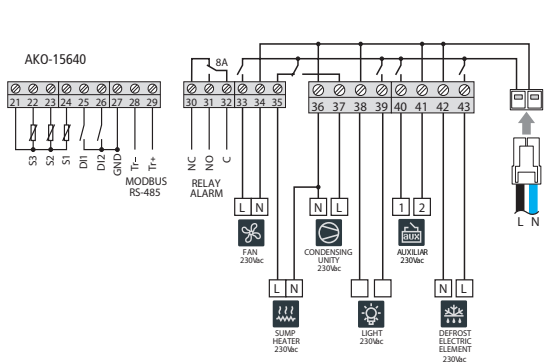
#### PROPlus Basic (AKO-15645 / AKO-15648)

- For single-phase and three-phase condensing unit and evaporator resistances
- Inputs: 2 NTC probes (1 included)
- Temperature range: -50.0 °C to +99.9 °C
- Output: 5 relays (COMP, DEFROST, FAN, AUX1, AUX2)

- 3 digits display
- Communication: RS485
- 2 digital inputs: configurable
- IP65 Protection
- Dimensions: 230 x 230 x 90 mm
- Gas collection (pump-down)

#### Advantages:

- User-friendly menus and help texts to facilitate programming on LCD screen.
- Easy access to thermo-magnetic circuit breaker, thanks to its frontal arrangement.
- High degree of IP65 protection for installation in wet environments.
- Comprehensive functionality for managing cold rooms with fully enclosed condensing units.



Reference	Description	Cond. Unit 230 V/I AC1 (AC3)	Fan Evap. 230 V/I Res. (Induc.)	Electric Defrost		Power supply	Family	Pack
				230V/I	400 V/III			
AKO-15640	PROPlus - 1F	20A (11,5 A)	8A (2,2 A)	2.500 W		230 V/I (50/60 Hz)	1510	1 Unit
AKO-15645	PROPlus Basic	11,5 A	2,2 A	2.500 W		230 V/I (50/60 Hz)	1510	1 Unit
AKO-15648	PROPlus Basic	9 A	2,2 A		5.500 W	400 V/III (50/60 Hz)	1510	1 Unit

Electronic Panels controlling three phase condensing units and evaporators

## PROPlus 3PH

It includes in a single category all key functions for the correct regulation of a Refrigerated Facility.

Application in refrigerated services in three-phase condenser unit and evaporator with compressor thermal protections, safety gas collection cut-outs (low pressure).

- Same equipment for both small and large facilities
  - Rational design manufactured in AKO
  - Its equipment, graphic display, browsing with multilanguage menus using keys, documentation and above all its functionality make up an EASY product
- Functionality in a single device
  - Fast and easy installation, robust and compact device
  - Easy and intuitive graphic display that allows easy and fast diagnosis
  - 3 NTC inputs with defrost, registration, control and product temperature
  - Auxiliary output with connection to speed regulator for condenser and higher power connection
  - Data logger integrated
  - Cold room store control up to 7,5 CV



## PROPlus 3PH For three-phase condensing units and evaporators



- Input : 3 NTC probes (1 included)
- Temperature range: -50.0 °C to +99.9 °C
- 6 output relays (COMP, DEFROST, FAN, LIGHT, ALARM and AUX)
- Multi-language graphic LCD screen
- Communication: RS485
- Datalogger
- Real time clock
- 2 digital inputs: configurables
- Alarm signal: buzzer (acoustic alarm) and relay
- Protection IP65
- Dimensions: 400 x 90 mm

### Advantages:

- User-friendly menus and help texts to facilitate programming on LCD screen.
- Defrost by time/air or resistors gives you full flexibility and efficient energy management of your installation.
- Easy access to thermo-magnetic circuit breaker, thanks to its frontal arrangement.
- High degree of IP65 protection for installation in wet environments.
- Comprehensive functionality for managing cold rooms with fully enclosed condensing units.
- Facilitate the connection for systems with distributed control, ideal for protection and control in existing facilities expansions suffering its services.

### Standard advanced functionality

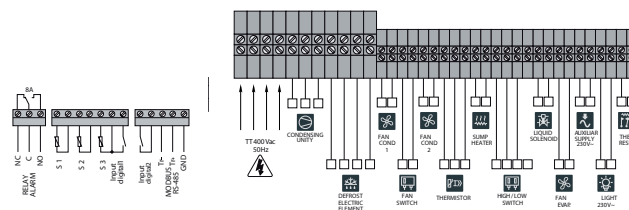
It includes in a single category all key functions for the correct regulation of a Refrigerated Facility.

Application in refrigerated services in three-phase condenser unit and evaporator with compressor thermal protections, safety gas collection cut-outs (low pressure).

The PROPLUS 3PH control panels have the same equipment for small and large facilities.

Electronic panel with thermo-magnetic circuit breaker for control circuits resistors for controlling cold rooms, with the following components:

- \* Power supply 400 V / III 50 Hz
- \* Compressor/ liquid solenoid.
- \* Partial evaporator fans.
- \* Defrost by air/ time or electrical.



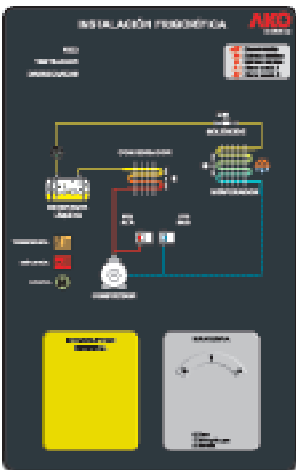
Reference	Condenser units		Evaporator				Family	Pack
	Compressor	Condenser	Fans	Defrost	Light			
	400 V-III	230 V-I	400 V-III	230 V-I	400 V-III	400 V-III	230 V-I	
AKO-15650	2,5 - 4 A	3 A		3 A		7000 W	460 W	1510
AKO-15651	4 - 6,3 A	3 A		3 A		7000 W	460 W	1510
AKO-15651-3		0,63 -1 A						
AKO-15652	6,3-10 A	3 A		3 A		7000 W	460 W	1510
AKO-15652-3		1-1,6 A						
AKO-15653	10-16 A	3 A		3 A		10200 W	460 W	1510
AKO-15653-3		1-1,6 A						
AKO-15658					1-1,6 A	7000 W	460 W	1510
AKO-15659					1,6-2,5 A	10200 W	460 W	1510
AKO-15680	2,5 - 4 A	3 A		3 A		7000 W	460 W	1510
AKO-15681	4 - 6,3 A	3 A		3 A		7000 W	460 W	1510
AKO-15682	6,3 - 10 A	3 A		3 A		10200 W	460 W	1510
AKO-15683	10 - 10,6 A	3 A		3 A		10200 W	460 W	1510

# PROMet Metal Line Electrical Panels

Electrical Panels with 3-phase condenser units and evaporators with single-phase fans and 3-phase resistors


**Design features:**

- Metal enclosure with dimensions as shown, with RAL-7032-5 grey metallic textured powder coating with PM.
- Main switch, three pole, live switching, front control.
- Three-way selector switch, 22 mm diameter, for controlling condenser unit (0-Off, 1-Collect gas, 2-Automatic).
- Indicator lamps for condenser unit status and faults, and other microprocessor indications
- Vinyl mimic panel with refrigeration circuit
- Direct starter with no thermal cutout for condenser unit
- Three polar contactor circuit resistances for defrost (20 A in AC-1).
- Single-pole magneto-thermal cutout for control circuits, single-pole + neutral
- Connection terminals to range elements in power and maneuver.
- Control of installation made in AKO
- Numbering of power and control components
- Electrical diagrams and documentations
- Moeller brand switchgear

**Microprocessor control of one or two relays as shown (with thermostat)**


Reference	Condenser unidad	Evaporator		Control	Dimensions	Family	Pack
		Fan 230V/1	Resistance 400V/III1-ph				
<b>AKO-17609</b>	1 - 1,6 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17610</b>	1,6 - 2,5 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17611</b>	2,5 - 4 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17612</b>	4 - 6,3 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17613</b>	6,3 - 10 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17614</b>	10 - 16 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17615</b>	16 - 20 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17616</b>	20 - 25 A	yes	No	AKO-14223	300 x 300 x 140	1550	1 Unit
<b>AKO-17617</b>	1 - 1,6 A	yes	yes	AKO-14323	300 x 300 x 140	1550	1 Unit
<b>AKO-17618</b>	1,6 - 2,5 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17619</b>	2,5 - 4 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17620</b>	4 - 6,3 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17621</b>	6,3 - 10 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17622</b>	10 - 16 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17623</b>	16 - 20 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit
<b>AKO-17624</b>	20 - 25 A	yes	yes	AKO-14323	400 x 300 x 140	1550	1 Unit

**AKOElec**

Technology developed for the  
protection and safety of people



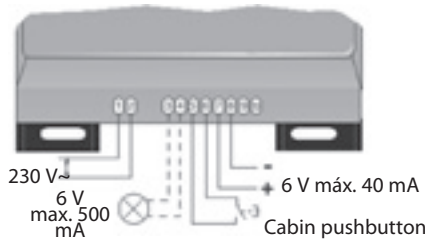
## Alarm with emergency lighting for lifts, AKO-5404 series



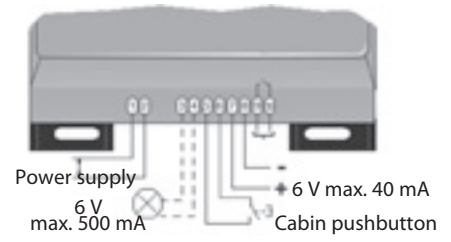
These units comply with EN 81-1.

- Own autonomy of over one hour with automatic Ni-Cd battery recharging.
- Output for rescue lighting 6 V, 500 mA.
- Output for permanent supply 6 V, 40 mA.
- Noise level over 90 decibels at 1 m.
- Dimensions 212 x 139 x 52 mm.
- The units with auxiliary relay allow alarms to be activated remotely in the AKO-5605A centralizer.

**AKO-5404C**  
Installed in cabin



**AKO-54041A** 230 V or **AKO-54043** 120 V  
Installed in cabin



Reference	Description	Family	Pack
<b>AKO-5404C</b>	Power supply unit 230 V without relay output	4400	12 Units
<b>AKO-54041A</b>	Power supply unit 230 V with relay output	4400	12 Units
<b>AKO-54043</b>	Power supply unit 120 V with relay output	4400	12 Units

## Alarms with emergency lighting for lifts, loudspeaker or siren type



**AKO-5405A**



**AKO-5409A**

These units comply with EN 81-1.

- Own autonomy of over one hour with automatic battery recharging.
- Output for rescue lighting 6 V, 500 mA.
- Output for permanent supply 6 V, 40 mA.
- Noise level over 90 decibels at 1 m.
- Dimensions 268 x 160 x 116 mm.
- With an auxiliary relay allowing alarms to be activated remotely in the AKO-5605A centralizer

Reference	Description	Family	Pack
<b>AKO-5405A</b>	Unit 230V, output 6V, alarm with loudspeaker	4400	12 Units
<b>AKO-5409A</b>	Unit 230V, output 12V, alarm with siren	4400	8 Units

## Panels for rescue lighting in cabin, external power supply



These lights panels supplied by alarms come on automatically in the event of loss of electricity, carrying out the function of rescue lighting.

- Material in self-extinguishing polycarbonate V 0 making them very secure against vandalism.
- Dimensions: 111 x 77 x 26 mm.

Reference	Description	Family	Pack
<b>AKO-5406</b>	Surface panel with 2 6 V lamps	4400	24 Units
<b>AKO-54061</b>	Surface panel with 2 12 V lamps	4400	12 Units
<b>AKO-549505</b>	Lamp 6V, 0,20 A, spare	4400	25 Units (B)

(B) Minimum, indivisible pack units.

## Alarm with emergency lighting for lifts, for fluorescent lamps from 18 to 30 W



These units comply with EN 81-1.

- Own autonomy of over one hour with automatic Ni-Cd battery recharging.
- Rescue lighting output for system with fluorescent tube.
- Output for permanent supply 12 V, 40 mA.
- With an auxiliary relay allowing alarms to be activated remotely in the AKO-5605A centralizer.

Reference	Description	Family	Pack
<b>AKO-5413</b>	Power supply unit for fluorescent lamps from 18 to 30 W	4400	6 Units

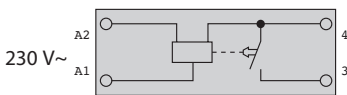
## Phase detector relays



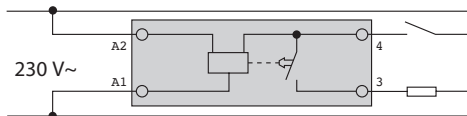
- The same device can be used
- They detect a percentage voltage drop of the three phases.
- They detect a percentage voltage drop of one of the phases.
- They detect phase inversion.
- Contact triggering delay between 1 and 2 sec.
- Maximum contact intensity 8 A, 250 V~, cosj=1.
- DIN 42880 box dimensions 90 x 71 x 58 mm.
- Combustibility degree V 0 according to UL94.

Reference	Description	Family	Pack
<b>AKO-5442B</b>	Detector relay for 400 V, 50 Hz and 230 V, 50 Hz	4240	12 Units
<b>AKO-54426</b>	Detector relay for 380 V, 60 Hz and 208 V, 60 Hz	4240	6 Units

## Timer relays for compressor response delay



**AKO-5256A**



**AKO-5255A**

Reference	Description	Family	Pack
<b>AKO-5255A</b>	Delay since last disconnection adj. from 50" to 300"	4240	10 Units
<b>AKO-5256A</b>	Response delay, adjustable from 30" to 300"	4240	10 Units



## Transparent protectors for fluorescent lamps

Protection of food from contamination.



Reference	Description	Family	Pack
<b>AKO-TUBO 14T</b>	For fluorescent lamp 14 W, Ø 16 mm, 549 mm length	4100	125 Units (B)
<b>AKO-TUBO 15T</b>	For fluorescent lamp 15 W, Ø 26 mm, 438 mm length	4100	25 Units (B)
<b>AKO-TUBO 18T</b>	For fluorescent lamp 18 W, Ø 26 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 20T</b>	For fluorescent lamp 20 W, Ø 38 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 21T</b>	For fluorescent lamp 21 W, Ø 16 mm, 849 mm length	4100	125 Units (B)
<b>AKO-TUBO 28T</b>	For fluorescent lamp 28 W, Ø 16 mm, 1149 mm length	4100	125 Units (B)
<b>AKO-TUBO 35T</b>	For fluorescent lamp 35 W, Ø 16 mm, 1449 mm length	4100	125 Units (B)
<b>AKO-TUBO 36T</b>	For fluorescent lamp 36 W, Ø 26 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 40T</b>	For fluorescent lamp 40 W, Ø 38 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 58T</b>	For fluorescent lamp 58 W, Ø 26 mm, 1500 mm length	4100	25 Units (B)
<b>AKO-TUBO 65T</b>	For fluorescent lamp 65 W, Ø 38 mm, 1500 mm length	4100	25 Units (B)
<b>AKO-TUBO 70T</b>	For fluorescent lamp 70 W, Ø 26 mm, 1740 mm length	4100	25 Units (B)
<b>AKO-617089</b>	For fluorescent lamp 30 W, Ø 26 mm, 895 mm length	4100	25 Units (B)
<b>AKO-617097</b>	For fluorescent lamp 25 W, Ø 26 mm, 970 mm length	4100	25 Units (B)
<b>AKO-61904</b>	For fluorescent lamp 25 W, Ø 26 mm, 818 mm length	4100	25 Units (B)
<b>AKO-619901</b>	White stopper for AKO-TUBOS diam. 26 mm	4100	50 Units (B)
<b>AKO-619902</b>	White stopper for AKO-TUBOS diam. 38 mm	4100	50 Units (B)
<b>AKO-619907</b>	White stopper for AKO-TUBOS diam. 16 mm	4100	50 Units (B)

(B) Minimum, indivisible pack units.

## Colour protectors for fluorescent lamps

They allow fluorescent lamps to be transformed into colour tubes.



Reference	Description	Family	Pack
<b>AKO-TUBO 18B</b>	<b>Blue</b> For fluorescent lamp 18 W, Ø 26 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 18G</b>	<b>Amber</b> For fluorescent lamp 18 W, Ø 26 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 18R</b>	<b>Red</b> For fluorescent lamp 18 W, Ø 26 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 18V</b>	<b>Green</b> For fluorescent lamp 18 W, Ø 26 mm, 590 mm length	4100	25 Units (B)
<b>AKO-TUBO 36B</b>	<b>Blue</b> For fluorescent lamp 36 W, Ø 26 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 36G</b>	<b>Amber</b> For fluorescent lamp 36 W, Ø 26 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 36R</b>	<b>Red</b> For fluorescent lamp 36 W, Ø 26 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 36V</b>	<b>Green</b> For fluorescent lamp 36 W, Ø 26 mm, 1200 mm length	4100	25 Units (B)
<b>AKO-TUBO 58B</b>	<b>Blue</b> For fluorescent lamp 58 W, Ø 26 mm, 1500 mm length	4100	25 Units (B)
<b>AKO-TUBO 58G</b>	<b>Amber</b> For fluorescent lamp 58 W, Ø 26 mm, 1500 mm length	4100	25 Units (B)
<b>AKO-TUBO 58R</b>	<b>Red</b> For fluorescent lamp 58 W, Ø 26 mm, 1500 mm length	4100	25 Units (B)
<b>AKO-TUBO 58V</b>	<b>Green</b> For fluorescent lamp 58 W, Ø 26 mm, 1500 mm length	4100	25 Units (B)

(B) Minimum, indivisible pack units.

**AKONivel**

The most reliable solution  
for level control

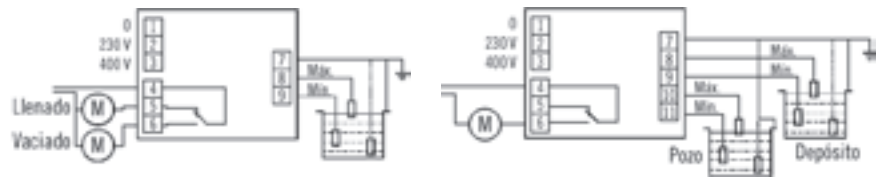


## Level control electronic relays for conducting liquids, DIN rail box



Storm interference protection by varistors on the input of the power supply and probes.

- Maximum length 200 metres.
- For DIN rail and plug-in terminals.
- Sensitivity control.
- Stainless steel electrode probe with protector.



Reference	Description	Family	Pack
AKO-53171	Relay 230/400 V for well or tank	3310	6 Units
AKO-53172	Relay 230/400 V for well + tank	3310	6 Units
AKO-53173	Stainless steel electrode probe with protector	3310	18 Units

## Level control electronic relays for conducting liquids, undecal box



Storm interference protection by varistors on the input of the power supply and probes.

- Maximum length 200 metres.
- For installation on undecal socket.
- Sensitivity control.
- Interior bridge for changing the order of the probes.
- Stainless steel electrode probe with protector.



Reference	Description	Family	Pack
AKO-53181	Relay 230/400 V~ for well or tank	3310	12 Units
AKO-53182	Relay 230/400 V~ for well + tank	3310	12 Units
AKO-53183	Relay 48/120 V~ for well or tank	3310	12 Units
AKO-53184	Relay 48/120 V~ for well + tank	3310	12 Units
AKO-53185	Relay 24 V~ for well or tank	3310	12 Units
AKO-53186	Relay 24 V~ for well + tank	3310	12 Units
AKO-53187	Relay 24 V~ for well or tank + alarm relay	3310	12 Units
AKO-53188	Relay 230 V~ for well or tank + alarm relay	3310	12 Units
AKO-53173	Stainless steel electrode probe with protector	3310	18 Units

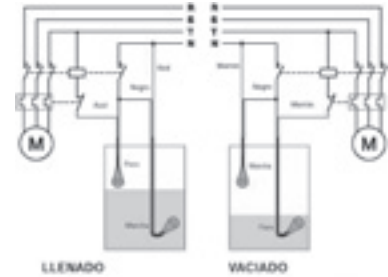
(B) Minimum, indivisible pack units.

## Level control level switches without mercury or lead for liquids



High reliability to control the level of liquids in clean waters, sewage, waste waters, septic tanks, etc.

- Usable at densities between 0,95 and 1,10 Kg/dm<sup>3</sup>.
- Working temperature between 0 °C and 60 °C.
- Maximum working pressure 4 bar to +20 °C.
- Inverter micro switch 10A, 250 V~, (1/2 CV).
- Polypropylene lid.
- PVC cable



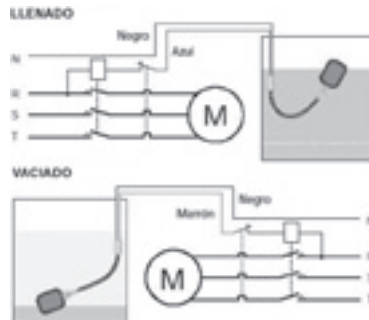
Reference	Description	Family	Pack
AKO-53120	Level switch with 6 m of cable	3315	12 Units
AKO-53124	Level switch with 10 m of cable	3315	1 Unit
AKO-53125	Level switch with 15 m of cable	3315	1 Unit
AKO-53126	Level switch with 20 m of cable	3315	1 Unit
AKO-53127	Level switch with 30 m of cable	3315	1 Unit

## Level control level switches for liquids, clean waters and general applications



High reliability to control the level of liquids in clean, drinking waters and general applications.

- Operating temperature between 0 °C and 60 °C.
- Inverter micro switch of 10(4) A, 250~.
- Nominal dimensions 81 x 131 x 41,5 mm.
- Polypropylene lid.
- By regulating the distance of the counter-weight, the maximum and minimum levels are regulated.



Reference	Description	Family	Pack
AKO-53112	Level switch with 2 m of cable and counter-weight	3315	25 Units
AKO-53114	Level switch with 10 m of cable and counter-weight	3315	12 Units

## Level control level switches for corrosive liquids and temperatures up to 125 °C



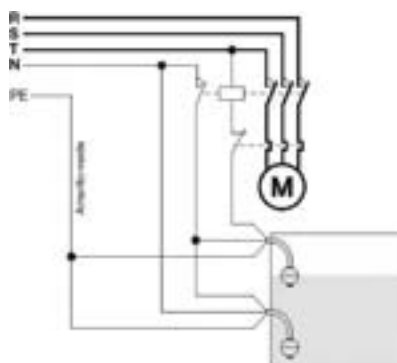
AKO-53161



AKO-53165

En acero inoxidable AISI 316 de elevada resistencia a la corrosión.

- Operating temperature between  $-20\text{ °C}$  and  $+125\text{ °C}$ .
- Include 1 m of silicon cable of  $3 \times 0,5\text{ mm}^2$ .



Reference	Description	Family	Pack
AKO-53161	Horizontal Surface 60 VA, 250~, 40 bar, Ø 52 mm	3315	1 Unit
AKO-53165	Horizontal Surface 40 VA, 250~, 15 bar, Ø 30 mm	3315	1 Unit

## Level control level switches for corrosive liquids and temperatures up to 125 °C



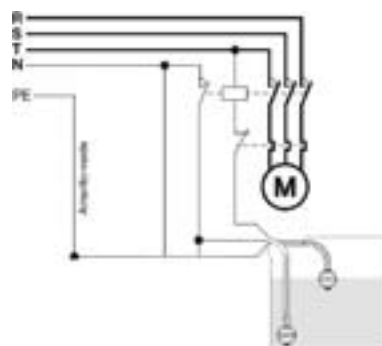
AKO-53162



AKO-53166

In AISI 316 stainless steel, highly corrosion-resistant.

- Operating temperature between  $-20\text{ °C}$  and  $+125\text{ °C}$ .
- Include 1 m of silicon cable of  $3 \times 0,5\text{ mm}^2$ .



Reference	Description	Family	Pack
AKO-53162	Vertical Surface 60 VA, 250~, 40 bar, Ø 52 mm	3315	1 Unit
AKO-53166	Vertical Surface 40 VA, 250~, 15 bar, Ø 30 mm	3315	1 Unit

## Level control level switch for solids, membrane system

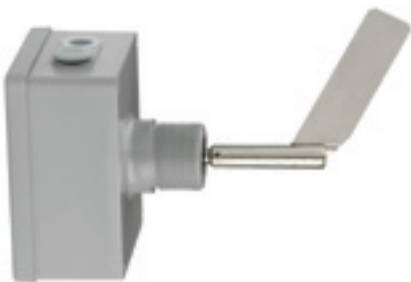


Used in signalling, checking and control of grain or powder dry products, with a maximum diameter of 30mm and a density between 0.3 and 2.5 g/cm<sup>3</sup> flowing in a silo, hopper or conduct.

- Minimum sensitivity: 60 grams.
- Operating temperature between -20 °C y +80 °C.
- Micro switch contact, 15 A, 250 V~
- Buna N nitril membrane.
- Fiber-glass reinforced polypropylene box.

Reference	Description	Family	Pack
AKO-5330	Membrane system level switch	3320	12 Units

## Level control level switch for solids, stainless steel rotating scoop system.



Used in signalling, checking and control of grain or powder dry products, with a maximum diameter of 15 mm flowing in a silo, hopper or conduct.

- Turning speed of 5 r.p.m.
- Operating temperature between -20 °C y +60 °C.
- Power supply 230 V~ ±10%, 50/60 Hz.
- Micro switch contact, 6 A, 250 V~
- Fiber-glass reinforced ABS box.

Reference	Description	Family	Pack
AKO-5335	Level switch with rotating scoop	3320	6 Units

## General conditions of sale

1. The prices in euros indicated do not include taxes, apply to materials placed in your our workshops (collect on delivery) including normal packaging but not the carriage charges for the merchandise sent on account and risk of the buyer.

2. Each product that are included in studies or estimates with designs adapted to customer specifications, the prices are established depending on each project.

3. The prices and conditions apply to materials supplied in container units. Those marked (A): The metres of packaging are the standard ones, but we reserve the right to supply in different lengths than the ones indicated. Those marked (B): Minimum and indivisible container units.

4. The minimum quantity stipulated for each order of 250,00 Euros (net invoice value) must be taken into consideration. For exports, a fixed processing charge (30 Euros) is established on each order.

5. Our warehouse do not accept the returning of goods without the W.E. indicating that they have previously been authorised to enter. In all case, a charge for depreciation will be made for inspecting and checking the goods.

6. No returns will be accepted after 48 hours have elapsed from the confirmation of the acceptance of the order.

7. Collections of our sales are insured by companies such as "Cesce" or similar companies. Payment of the first order will be done in cash, until the opening of the risk has been authorised for credit sales.

8. The payment method for credits sales will be agreed on in each case after authorised by the Insurance Company. The sales conditions will depend on the payment term.

9. The information show in this catalogue is merely informative. We reserve the right to supply materials that could differ slightly from those contained in this publication.

## Family

### COLD/HEAT CONTROL - 1000

- 1510 Industrial refrigeration control
- 1520 AKOTIM modular controls (HACCP)
- 1530 Process control. Industrial Heat
- 1535 PID control
- 1550 Control panels
- 1560 Compressors pack controls
- 1570 Data loggers
- 1580 Communication and software
- 1590 Probes and accessories

### HEATING CABLES - 2000

- 2110 Constant wattage parallel cable
- 2120 Self-regulating parallel cable

### 2120 Câble parallèle autorégulant

- 2130 Series cable
- 2150 Drum, tank and special heaters
- 2190 Accessories

### LEVEL CONTROL - 3000

- 3310 Measurers and level control relays
- 3315 Switches for liquids
- 3320 Switches for solids

### PROTECTION - 4000

- 4200 Alarms for refrigeration
- 4240 Detectors and timers
- 4400 Alarms for lifts
- 4100 Protectors for fluorescent lamps

## Warranty conditions

1. AKO Electromecànica, S.A.L. guarantees its products for a term of 2 years from the date of made.

2. This warranty covers the repair or replacement of parts, materials or faulty equipment as a result of factory defects. users will pay all expenses incurred in sending the faulty elements to the AKO premises.

3. AKO will not accept any returned item that has not been authorised previously.

4. The replacement of parts, materials of faulty equipment does not entail an extension of the warranty.

5. This Warranty does not cover faults or damage due to the use of the product for a purpose other than the one they are intended for or products that have not been installed in accordance with the instructions for installation.

6. This warranty does not cover products, materials or equipment that have been handled by persons not authorised by AKO.

7. This warranty does not cover faults caused by catastrophic (fire, flood...) or atmospheric events, knocks and falls.

8. AKO is not responsible for any direct or indirect damage caused by failures or faults in its material or products as well as any other claims that could arise in them, unless this is mandatory in accordance with what is provided by the law.

9. To validate the warranty, the materials or products must be accompanied by their respective purchased receipts.

# AKO



- Headquarters
- Subsidiaries
- Partners
- Sales

## Headquarters

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Presence in over 90 countries

# AKO

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