Catalogue 2006/07

lae® ELECTRONIC


[always ahead of the field]

THIRTY-FOUR YEARS OF KNOWLEDGE...
... THE FUTURE OF MADE IN EUROPE

LAE electronic, which in 2005 became a joint stock company, in 2006 celebrates its 34th anniversary.

It is something that makes me particularly proud and optimistic for the future. At a time when there is a headlong shift of production units to the east and an endemic crisis in western businesses, LAE electronic continues to be a "small European tiger in the sector".

The definition is perhaps somewhat exaggerated, but on the whole reflects the solidity of our concern, which represents a benchmark in electronic temperature control. Our strategic partnerships are expanding, sales volumes are increasing and the desire to conquer new spaces remains.

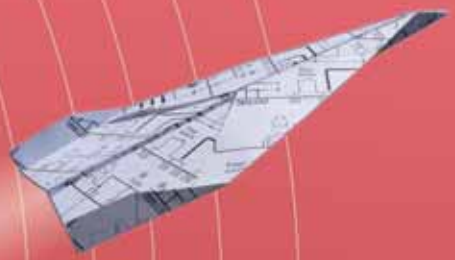
All this has been made possible by the in-depth experience gained in the field and the acquired store of knowledge that covers application features and associated problems plus the ability to resolve them with brilliant results.

This represents our major asset and is what allows us to proudly export worldwide the fruits of our labours. New countries are opening their doors to international trade, new economies are growing and we are already there.

A thank you goes to everyone for the teamwork and for the commitment in accepting challenges and successfully dealing with them. More than anything, thank you, you who are looking at this catalogue and will purchase our products, thereby contributing to the success of yours and our ***business****.*

MD Giuseppe Vizzotto talks

[Millions of products, LAE Testimonial throughout the World]



Millions of refrigerators, *cells, furnaces, incubators, air-conditioners, greenhouses, climatic chambers and many other pieces of equipment work perfectly because of the quality of our controllers.*

Canada to Australia, Europe to Asia, the ***LAE brand is renowned for quality, innovation and reliability.*** *Sources of strength and security for those who sell and use LAE products, evidenced by the solid partnerships formed with the major OEMs in the refrigeration, heating and air-conditioning industries.*

[use environmentally friendly technology]

R&D and Laboratory: Safe, State-of the-Art products

The driving force behind LAE electronics' progress has always been its research and development *department.*

R&D uses well-trained experts. Beyond their excellent university backgrounds, they have a well-developed knowledge of the functioning of the devices for which LAE instruments are destined.

The R&D engineers always use ***components from the world's top manufacturers with proven reliability that conform to international standards.*** *This contributes to achieving optimal results in technological terms as well as extremely high safety levels.*

The products undergo the strictest European standard tests, which guarantee that they comply with CE directives and, more importantly, that they work correctly even in the most extreme conditions.

Well in advance of the last date required by law, all LAE branded products manufactured as of January 2006 were already in conformity with RoHS (lead free) standards.

lae® ELECTRONIC

[PRODUCTION & LOGISTICS: SPEED AND RELIABILITY]

***Rapid and timely deliveries, lower costs without jeopardising quality and minimising errors**: these are the imperatives that drive our organisation to continuously improve our service. Under the supervision of trained technicians, automatic pick and place machines and computerised testing systems ensure consistently **high quality levels in production**, while keeping **costs competitive**.*

***An efficient information technology system** makes it possible to coordinate and optimise the overall management of orders, purchasing, stocking and deliveries.*

The result is speed in handling, a capacity to predict requests and the traceability of goods from our warehouse to that of the end customer.

[working partnership with customers]

CUSTOMER CARE
CUSTOMER SATISFACTION

Sales outlets in 60 countries, partnerships that date back many decades with the major OEMs worldwide, *production volumes and markets that expand yearly. This is the positive record of our company at the peak of its sector.*

Our primary objective, *beyond acquiring new customers,* ***is to satisfy our current partners***.

This goal comes first and foremost in our sales service, which consists of a skilled, greatly experienced, multi-lingual team.

This team works as a sensitive point of contact between LAE and the market and promptly transmits valuable information about the state of demand to the company's other strategic sectors.

This contributes to keeping a ***high level of sensitivity to customers' changing needs*** *and working methods, and ultimately to create increasingly solid relationships and synergies with OEMs and distributors.*

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SPECIALISTS IN DEVELOPING CUSTOMISED PRODUCTS FOR OEMs

In addition to its standard products, ***LAE electronic has always designed, developed and fabricated custom-made cards for controlling temperature, defrosting, fans, alarms, etc.***

Our major asset is the capacity to provide expert, reliable advice for making controllers that fully satisfy customer expectations and requirements with regard to functions, performance, size, appearance and cost. This has allowed us to establish working relations with world-renowned companies, which include:

AGA Foodgroup	***refrigeration***
Atlas Copco	***air treatment***
Cool Compact	***refrigeration***
Criosbanc Carrier	***commercial refrigeration***
Diktaş	***refrigeration***
Dometic	***refrigeration***
EPTA group	***commercial refrigeration***
Eurotec Dexion	***refrigeration***
Foster Refrigerator	***refrigeration***
Ginis Ginidis	***refrigeration***
Jordao Cooling Systems	***commercial refrigeration***
LEC refrigeration	***medical refrigeration***
LTH	***catering and commercial refrigeration***
Olitrem	***refrigeration***
Splendid Olimpia	***air-conditioning***
Williams Refrigeration	***refrigeration***

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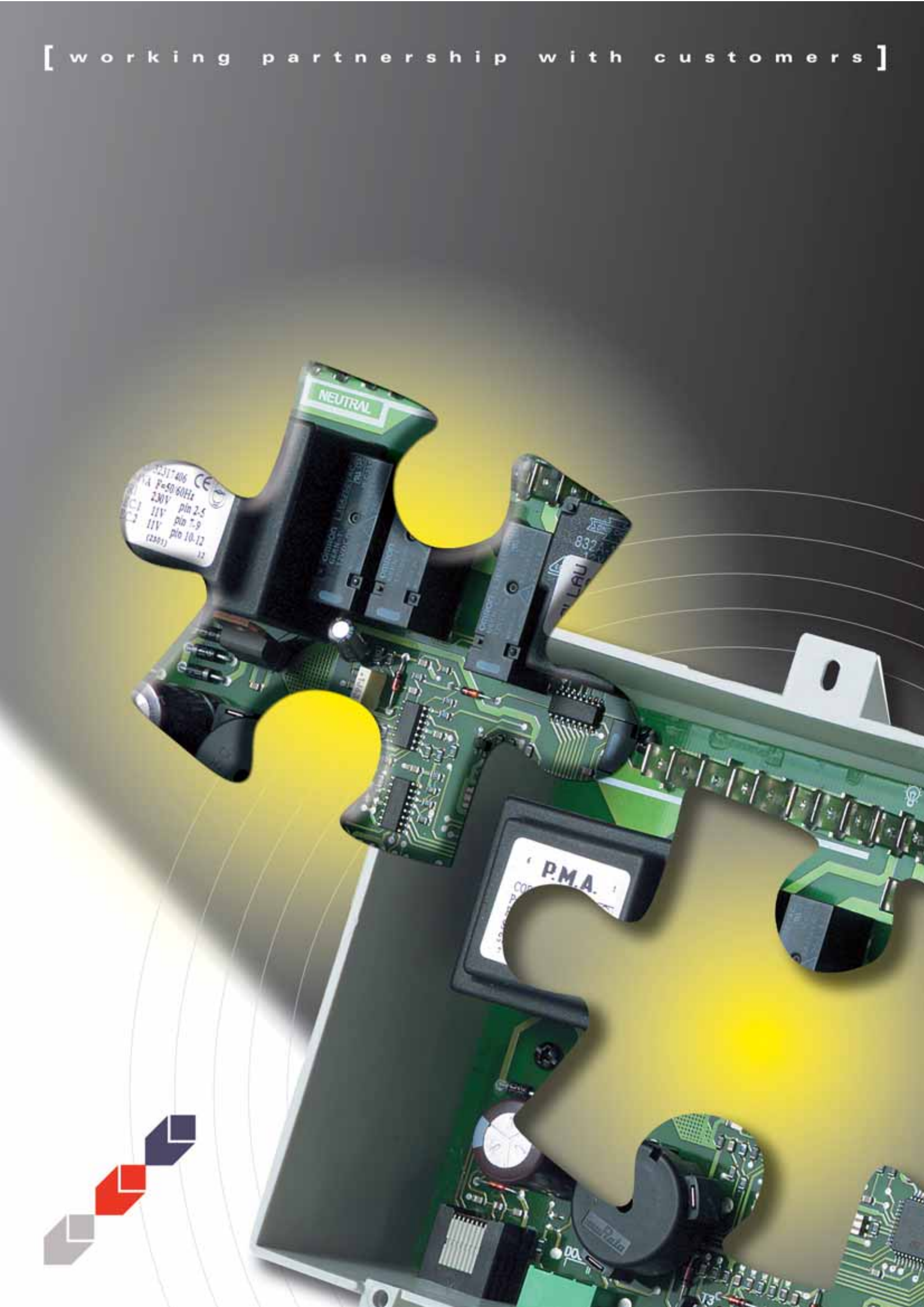
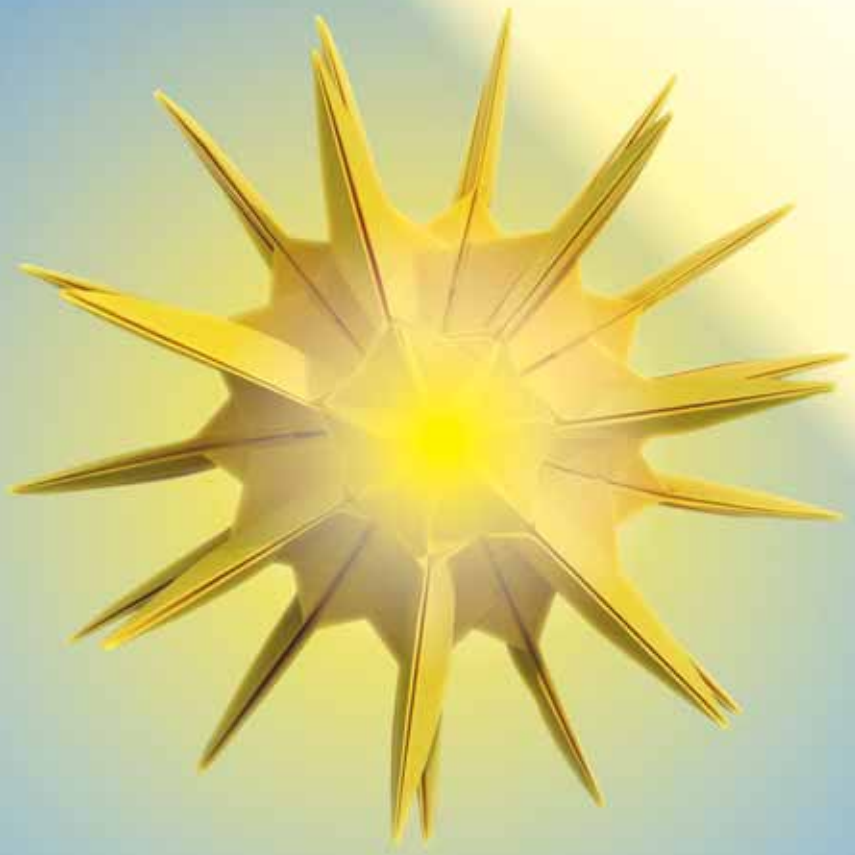
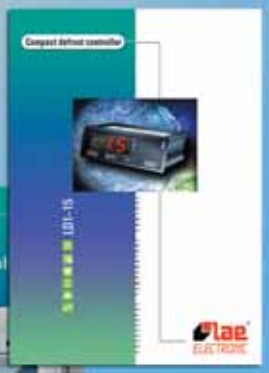
[working partnership with customers]







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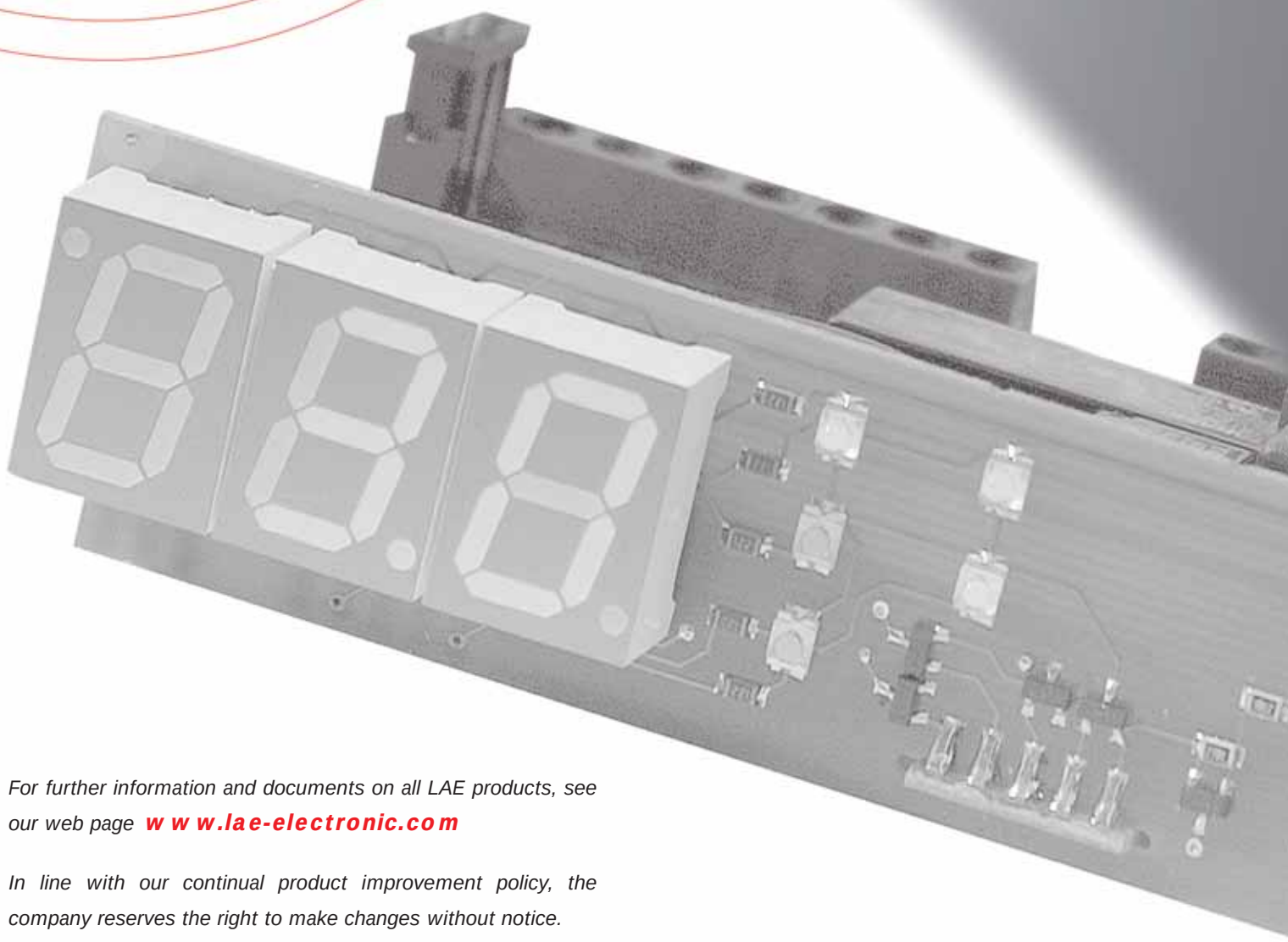
PRODUCT PROMOTION:
AN IMAGE OF CHAMPIONS

Training, ***seminars***, *and prestigious national and international* ***trade-fairs*** *are our preferred means to promote and inform the public about our constant innovations, which come from the knowledge and intuition of LAE electronic's R&D department.*

LAE offers its customers and retailers ***free learning and training tools*** *that are fast and easy to use, such as catalogues, CD-ROMs, animations and other documentation in different languages.*

LAE electronic also promotes its image by sponsoring one of the teams participating in the world motorcycling championship 125cc class.



For further information and documents on all LAE products, see our web page ***www.lae-electronic.com***

In line with our continual product improvement policy, the company reserves the right to make changes without notice.

** The products and names of the listed companies are registered trademarks or brand names of the respective companies.*

** All our products are manufactured according to and their components conform with the RoHS directives*

[successful temperature control]

SUMMARY

lae ELECTRONIC

LTR15

77x35x77 mm

Single output thermostat or humidistat

Main Features

- *Runs on mains power supply*
- *PID with autotuning or ON/OFF control*
- *Output on relay (16A) or SSR piloting*
- *Input for PTC, NTC or 0÷1V*
- *0.1 / 1°C or 1°F resolution*
- *Refrigerating (dehumidifying) or heating (humidifying) control mode selection*
- *ON/OFF button on the front*
- *Load start limitation and safety function in the event of breakage of the sensor*
- *Quick setup through ZOT-LTR device*
- *Connection to LAE supervisory systems TAB.*

Applications

Temperature: *Control of small cold stores, refrigerated cabinets and tables, heating systems, cupboards, bains-marie, ovens, laboratory equipment.*

Humidity: *Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.*

LTR15 series

Functions	LTR15T..	LTR15C..	LTR15A..
Input type	PTC	NTC10K	0÷1V
Range	-50÷150°C -60÷300°F	-40÷125°C -40÷250°F	0÷99.9% r.H.
Accuracy	±0.3°C[a]; ±1.0°C[c]	±0.3°C[b]; ±1°C[c]	±0.7% r.H.
Resolution	0.1/1°C; °F		0.1 % r.H.
Front protection	IP55		
Panel cut-out	71x29 mm		
Ambient temp.	-10÷50°C		

[a]-50÷140°C; [b]-40÷110°C; [c]remaining range.

LTR	15	T	1	R	E	-B	G
	1	2	3	4	5	6	7

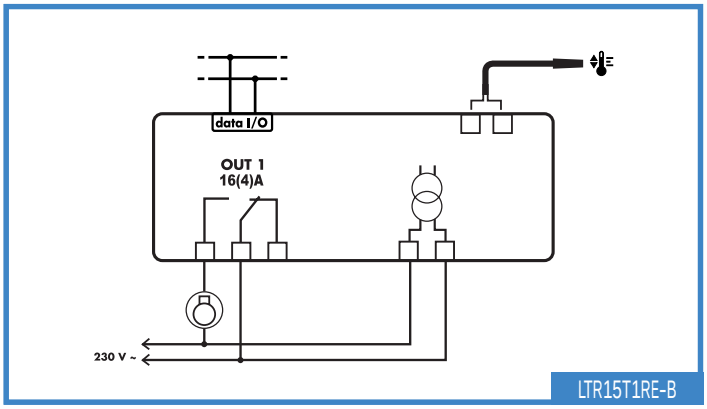
POS.	FUNCTION	DESCRIPTION
1	Series	**15** = dim. 35x77mm, prot. IP55
2	Input	**T**= PTC*; **C****= NTC10K; **A**= 0÷1V
3	Output nr.	**1** = one
4	Output type	**R** = relay; **F** = SSR drive
5	Supply	**D** =12Vac/dc; **E** =230Vac; **U** =115Vac, 2W
6	Optional serial comm.	**-** = no serial port; **-A** = TTL; **-B** = RS485
7	Front label	**G** = button ⟵ ; **S**= button 0/I

How to order examples:

LTR15C1RE-AS
(NTC10K input, 1 relay, 230Vac supply, TTL port, front label with 0/I button)
LTR15A1RU-G
(0÷1V input, 1 relay, 115Vac supply, no serial port, front label with ⟵ button)

* The standard PTC probe is the ST1K20P1
** The standard NTC probe is the SN4K20P1

On request, the LTR15 is also available with gasket for a better protection between bezel and panel.
In order to know versions available, **please consult LAE or our local dealer**.



LTR15T1RE-B

LTC15

77x35x77 mm

Universal Two Stage Controller

LTC15 Series

Functions	LTC15T..		LTC15P..	LTC15J..		LTC15A..	LTC15I..
Input type	PTC1000	NTC10K	PT100	TC "J"	TC "K"	0÷1V	0/4÷20mA
Range	-50÷150°C -60÷300°C	-40÷125°C -40÷260°C	-100÷850°C -150÷999°C	-50÷750°C -60÷999°C	-50÷999°C -60÷999°C	Configurable in setup	
Precision	±0.3°C	±0.2°C[a] ±0.5°C[b]	±0.2°C[a] ±1°C[b]	±3°C		±3mV	±0.1mA
Resolution	0.1/1; °C/°F			1 °C/°F		0.1/1	
Front protection	IP55						
Panel cut-out	71x29 mm						
Ambient temp.	-10÷50°C						

[a]-19.9÷99.9°C; [b]remaining range.

LTC	15	T	1	R	E	-B
	1	2	3	4	5	6

POS.	FUNCTIONS	DESCRIPTION
1	Series	**15** =dim.35x77mm, front prot. IP55
2	Input	**A**=0÷1V; **I**=0/4÷20mA; **J**=T/C 'J'/'K'; **P**=Pt100; **T**=PTC1000/NTC10K
3	Output No.	**1** =one; **2** =two
4	Output type	**R** =relay; **M** =Out1 on SSR, Out2 on relay
5	Power Supply	**D** =12Vac/dc, 2W; **E** =230Vac 50/60Hz; **U** =115Vac 50/60;Hz 3W
6	Serial port	**-**= none-**A** =TTL; **-B** =RS485

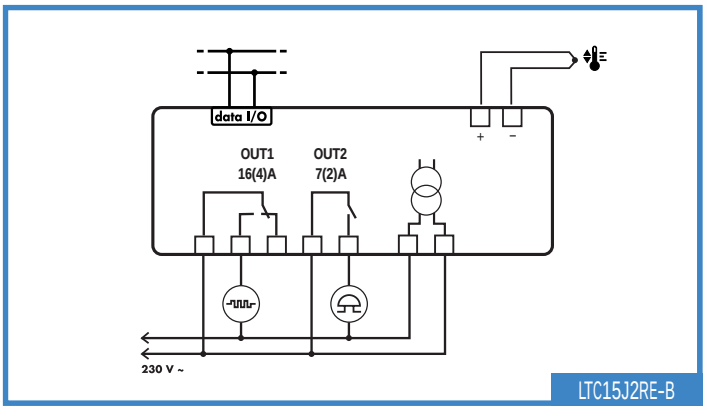
** The standard PTC probe is the ST1K20P1
** The standard NTC probe is the SN4K20P1
On request, the LTW15 is also available with gasket for a better protection between bezel and panel.
In order to know versions available, **please consult LAE or our local dealer**.

Main Features

- *Ideal for wholesalers as one model fits several applications*
- *Runs on mains power supply*
- *PID with autotuning or ON/OFF control*
- *Powerful main output on relay (16A) and mixed outputs on relay and SSR drive piloting option*
- *Selectable Input: PTC/NTC, TCJ/K, Pt100, 0÷1V, 0/4÷20mA*
- *Truly user-friendly programming*
- *0.1 / 1°C or 1°F resolution*
- *Refrigerating (dehumidifying) or heating (humidifying) mode selection*
- *Two Stage, Neutral Band, Alarm threshold control*
- *Standby button on front*
- *Quick setup through ZOT-LTC device*
- *Connection to LAE supervisory systems TAB.*

Applications

Temperature: *Control of heating systems, heated cupboards, bains-marie, ovens, laboratory equipment.*
Small cold stores, refrigerated cabinets and tables.
Humidity: *Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.*



LTC15J2RE-B

LTW15

77x35x77 mm

Auto-Tuning PID Single or Two Stage Controller

Main Features

- *Panel controller with one or two independent outputs*
- *Programming of: readout, output control via Hysteresis or PID*
- *Auto-tuning function for PID control*
- *Available inputs: T/C J-K, Pt100, PTC, NTC2K, 0/4...20mA, 0..1V*
- *Refrigerating (dehumidifying) or heating (humidifying) mode selection*
- *Refrigerating (dehumidifying) or heating (humidifying) control mode selection*
- *Programmable Neutral Zone, Two Step or Single stage control with alarm*
- *Outputs on relay or SSR piloting*
- *Quick setup through ZOT-LTW device*
- *Connection to LAE supervisory systems TAB.*

Applications

Temperature: *Ovens and thermostatic baths, incubators, precision heated and/or refrigerated systems.*

Humidity: *Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.*

LTW15 Series

Technical Data	LTW15T..	LTW15P..	LTW15C..	LTW15J..	LTW15K..	LTW15A..	LTW15I..
Input type	PTC	Pt100	NTC2K	TC "J"	TC "K"	0÷1V	0/4..20mA
Range	-50÷150°C -60÷300°F	-100÷850°C -150÷999°F	-20÷100°C -5÷212°F	-50÷800°C -60÷999°F	-50÷900°C -60÷999°F	0÷100% r.H.	Setup programmable
Accuracy	±0.2°C[a]; ±1°C[b]		±0.2°C	±3°C		±0.1% r.H.	±0.1mA
Resolution	0.1/1°C; 1°F			1 °C/°F		0.1% r.H.	0.1/1
Front protection	IP55						

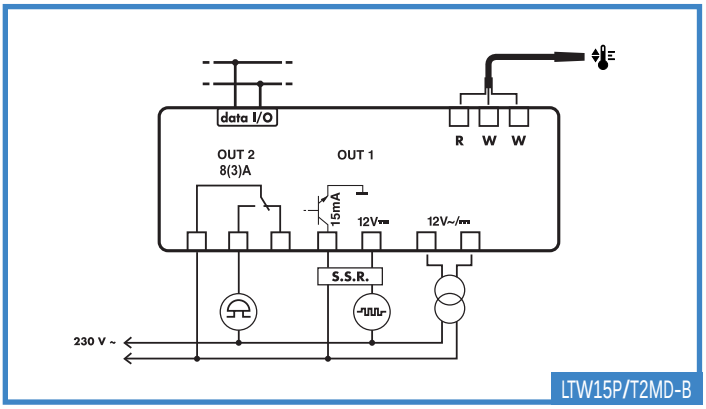
[a]-20÷100°C [b]remaining range

LTW	15	T	1	R	D	-B
	1	2	3	4	5	6

POS.	FUNCTIONS	DESCRIPTION
1	Series	**15** =dim.35x77mm, prot. IP55
2	Input	**T***=PTC; **P**=Pt100; **J**=T/C 'J'; **K**=T/C 'K'; **C****=NTC2K; **A**=0÷1V; **I**=0/4..20mA
3	Output No.	**1** =one; **2** =two
4	Output type	**R** =relay; **F** =SSR drive; **M** =Mixed relay and SSR drive output
5	Supply	**D** =12Vac/dc, 2W
6	Option	**Nil** =no; **-A** =TTL serial com; **-B** =RS485 serial com

* Standard PTC probe is ST1N20P-
** Standard NTC probe is SN2K20P1

On request, the LTW15 is also available with gasket for a better protection between bezel and panel.
In order to know versions available, **please consult LAE or our local dealer**.



LTW15P/T2MD-B

LTW12

77x35x77 mm

Auto-Tuning PID Single or Two Stage Controller

LTW12 Series

Functions	LTW12T..	LTW12P..	LTW12C..	LTW12J..	LTW12K..	LTW12A..
Input type	PTC	Pt100	NTC2K	TC "J"	TC "K"	0..1V
Range	-50÷150°C -60÷300°F	-100÷850°C -150÷999°F	-20÷100°C -5÷212°F	-50÷800°C -60÷999°F	-50÷900°C -60÷999°F	0÷100% r.H.
Accuracy	±0.2°C[a]; ±1°C[b]		±0.2°C	±3°C		±0.1% r.H.
Resolution	0.1/1; °C/°F			1 °C/°F		0.1% r.H.
Front protection	IP54					

[a]-20÷100°C [b]remaining range

LTW	12	A	1	R	D	-B
	1	2	3	4	5	6

POS.	FUNCTIONS	DESCRIPTION
1	Series	**12** =dim.35x77mm, prot. IP54
2	Input	**T***=PTC; **P**=Pt100; **J**=T/C "J"; **K**=T/C "K"; **C****=NTC2K; **A**=0÷1V
3	Output No.	**1** =one; **2** =two
4	Output type	**R** =relay; **F** =SSR drive
5	Supply	**D** =12Vac/dc, 2W
6	Serial comm.	**Nil** =no; **-A** =TTL serial com; **-B** =RS485 serial com

* Standard PTC probe is ST1N20P-
** Standard NTC probe is SN2K20P1
In order to know versions available, **please consult LAE or our local dealer**.

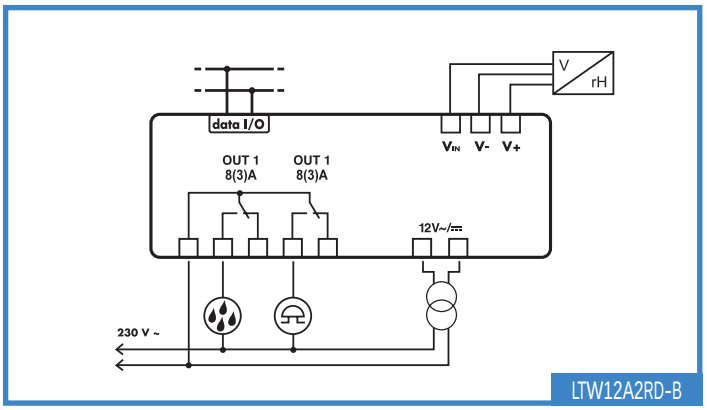
Main Features

- *Panel controller with one or two independent outputs*
- *Programming of: readout, output control via Hysteresis or PID*
- *Auto-tuning function for PID control*
- *Available inputs: T/C J-K, Pt100, PTC, NTC2K, 0..1V*
- *Refrigerating (dehumidifying) or heating (humidifying) mode selection*
- *Programmable Neutral Zone, Two Step or Single stage control with alarm*
- *Outputs on relay or SSR piloting*
- *Quick setup through ZOT-LTW device*
- *Connection to LAE supervisory systems TAB.*

Applications

Temperature: *Ovens and thermostatic baths, incubators, precision heated and/or refrigerated systems.*

Humidity: *Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.*



LTW12A2RD-B

MTR6

64x32x81 mm

Single output thermostat

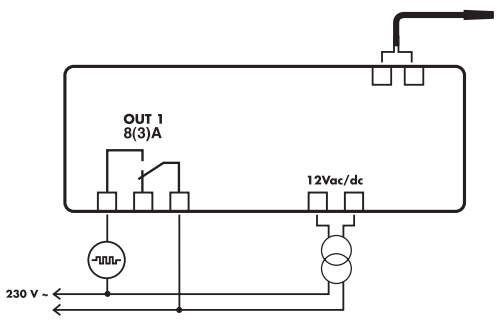
Main Features

- *Panel controller with programmable differential*
- *Refrigerating or heating mode control selection*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Very compact size*

Applications

Control of small cold stores, refrigerated cabinets and tables, heating systems, heated cupboards, bains-marie and ovens.

Standard versions	Front protection
MTR6T1RD	IP40
MTR6T1RDS	IP54



MTR6T1RD

Technical Data

Range:	-50÷150°C
Resolution:	1°
Accuracy:	±0.7° (-30÷110°C)
Sensor type:	PTC; standard mod. ST1K20P1
Power supply:	12Vac/dc ±10%; 2W
Panel cut-out:	58x26 mm
Ambient temperature:	-10 ÷ 50°C

MTR4

79x115x42 mm

Single output thermostat

Main Features

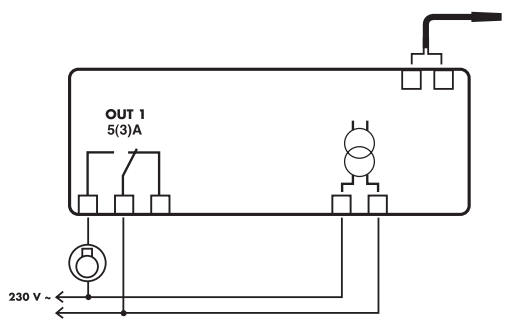
- *Wall controller with programmable differential*
- *Refrigerating or heating mode control selection*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Runs on mains power supply.*

Applications

Control of small cold stores, temperature baths and ovens, heating systems, airconditioned rooms.

Technical Data

Range:	*-50÷150°C*
Resolution:	*1°*
Accuracy:	*±0.7° (-30÷110°C)*
Sensor type:	*PTC; standard mod. ST1K20P1*
Power supply:	*230Vac ±10%; 50/60Hz; 2W*
Front protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*



MTR4T1RE

M H R 4

79x115x42 mm

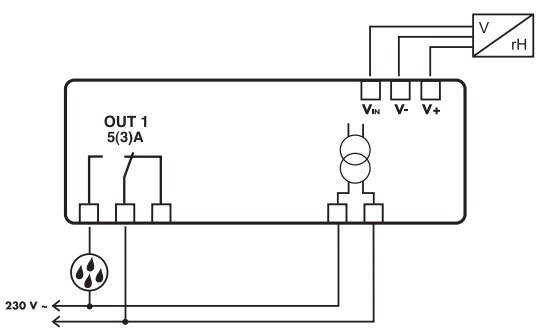
Single output humidistat

Main Features

- *Wall controller with programmable differential*
- *Humidifying or dehumidifying mode control selection*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Runs on mains power supply.*

Applications

Control of greenhouses, seasoning cells, cold stores, air-conditioned rooms.



MHR4A7RE

Technical Data

Range:	*0 ÷100% r.H.*
Resolution:	*1%*
Accuracy:	*±1% (0÷100% r.H.)*
Input type:	*0 ÷ 1V / 0 ÷ 100% r.H.*
Power supply:	*230Vac ±10%; 50/60 Hz; 2W*
Front protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*

MTC4

79x115x42 mm

Double output thermostat

Versions	Outputs	Functions
MTC4T1RE/3	2	2 thresholds
MTC4T1RE/4	2	1 threshold, 1 stage/alarm

Main Features

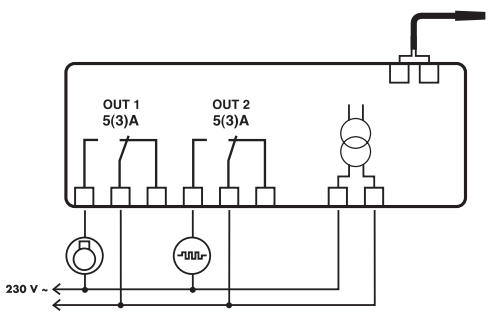
- *Wall controller with two independent or linked channels*
- *Refrigerating or heating mode control selection for each channel*
- *Two-step control or with main setpoint and alarm threshold*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Runs on mains power supply.*

Applications

Control of small cold stores, heating systems, temperature baths and ovens, airconditioned rooms.

Technical Data

Range:	-50÷150°C
Resolution:	1°
Accuracy:	±0.7° (-30÷110°C)
Sensor type:	PTC; standard mod. ST1K20P1
Power supply:	230Vac ±10%; 50/60Hz; 2W
Front protection:	IP40
Ambient temperature:	-10 ÷ 50°C



MTC4T1RE/3-/4

MTC27

DIN rail 54x90x70 mm

Single or double output thermostat

Main Features

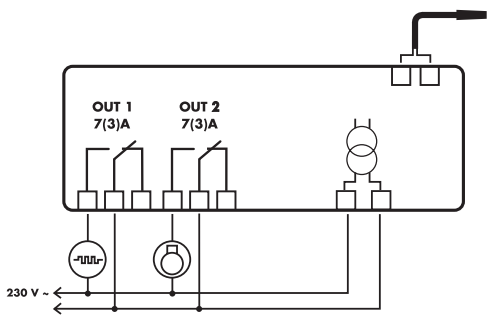
- *Controller for switchboards*
- *Two independent or linked channels*
- *Refrigerating or heating mode control selection for each channel*
- *Two-step control or with main setpoint and alarm threshold*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Runs on mains power supply*

Standard versions	Outputs	Functions	Power supply*
MTC27T1RE/2	1	1 threshold	230Vac±10%; 50/60 Hz; 3W
MTC27T1RE/3	2	2 thresholds	230Vac±10%; 50/60 Hz; 3W
MTC27T1RE/4	2	1 threshold, 1 stage/alarm	230Vac±10%; 50/60 Hz; 3W

* 24Vdc supply is also available, in this case the "E" option will be "I", ex. MTC27T1RI/2.

Applications

Control of small cold rooms, heating systems, ovens, GSM shelters, temperature baths, airconditioned rooms.



MTC27TIRE/3-/4

Technical Data

Range:	-50÷150°C
Resolution:	1°
Accuracy:	±0.7° (-30÷110°C)
Sensor type:	PTC; standard mod. ST1K20P1
Front protection:	IP40
Ambient temperature:	-10 ÷ 50°C

MHC27

DIN rail 54x90x70 mm

Single or double output humidistat

Versions	Outputs	Functions
MHC27A7RE/2	1	1 threshold
MHC27A7RE/3	2	2 thresholds
MHC27A7RE/4	2	1 threshold, 1 stage/alarm

Main Features

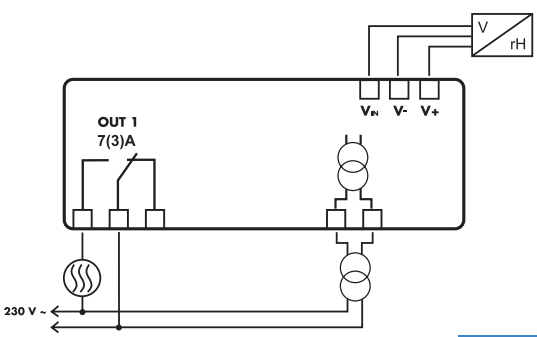
- *Controller for switchboards*
- *Two independent or linked channels*
- *Humidifying or dehumidifying mode control selection for each channel*
- *Two-step control or with main setpoint and alarm threshold*
- *Load start limitation*
- *Safety function in the event of breakage of the sensor*
- *Runs on mains power supply*

Applications

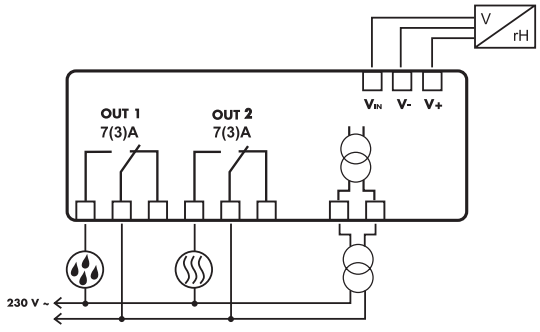
Control of cold stores, greenhouses, seasoning rooms, air-conditioned rooms.

Technical Data

Range:	*0 ÷100% r.H.*
Resolution:	*1%*
Accuracy:	*±1% (0÷100% r.H.)*
Input type:	*0÷1V / 0÷100% r.H.*
Power supply:	*230Vac ±10%; 50/60 Hz; 3W*
Front protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*



MHC27A7RE/2



MHC27A7RE/3-/4

LTC2W

110x53x75 mm

Wall mount Universal Controller

Main Features

- *Ideal for wholesalers as one model fits several applications*
- *Runs on mains power supply*
- *PID with autotuning or ON/OFF control*
- *Outputs on relays or mixed outputs on relay and SSR drive*
- *Selectable Input: PTC/NTC, 0÷1V, 0/4÷20mA*
- *Truly user-friendly programming*
- *0.1 / 1°C or 1°F resolution*
- *Refrigerating (dehumidifying) or heating (humidifying) mode control selection*
- *Two Stage, Neutral Band, Alarm threshold control*
- *Standby button on front*
- *Quick setup through ZOT-LTC device*
- *Connection to LAE supervisory systems TAB.*

Applications

Temperature: *Control panels of cold stores, control of heating systems, laboratory equipment.*

Humidity: *Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.*

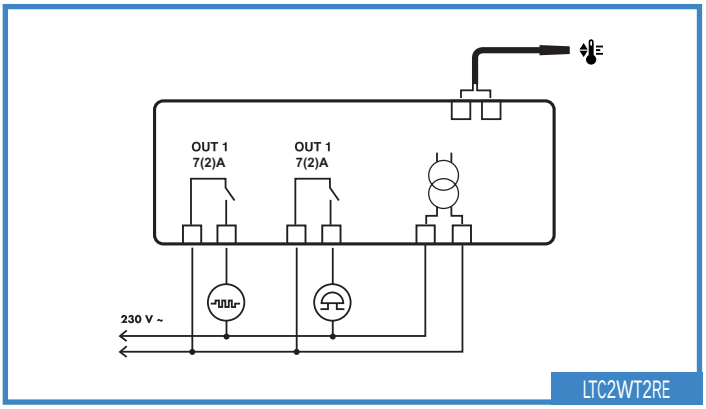
LTC2W Series

Functions	LTC2WT..		LTC2WA..	LTC2WI..
Input type	PTC1000	NTC10K	0÷1V	0/4÷20mA
Range	-50÷150°C	-40÷125°C	Configurable in setup	
Accuracy	±3°C	±0.2°C[a]	±3mV	±0.1mA
Resolution	0.1/1; °C/°F		0.1/1	
Front protection	IP65			
Ambient temp.	-10÷50°C			

[a]-20÷100°C;

LTC	2W	T	1	R	E	-B
	1	2	3	4	5	6

POS.	FUNCTIONS	DESCRIPTION
1	Series	**2W** =dim.110x53x75mm, prot. IP65
2	Input	**A**=0÷1V; **I**=0/4÷20mA; **T**=PTC1000 / NTC10K;
3	Output No.	**1** =one; **2** =two
4	Output type	**R** =relay; **M** =Out1 on SSR, Out2 on relay
5	Supply	**D** =12Vac/dc; **E** =230Vac 50/60Hz; **U** =115Vac 50/60Hz, 3W
6	Serial comm.	**Nil** =no; **-B** =RS485



LTC2WT2RE

LT12

77x35x77 mm

Wide range thermometer or hygrometer

Main Features

- *Panel display unit with range between -100 and +900°*
- *It's available in the version with °C or °F*
- *0.1° or 1° resolution*
- *Input for PTC/Pt100/TC/0÷1V*
- *Runs on mains power supply.*

Applications

Temperature: *accurate measurements in cold stores, refrigerating cabinets and tables, greenhouses, seasoning cells, high temperature ovens or furnaces.*

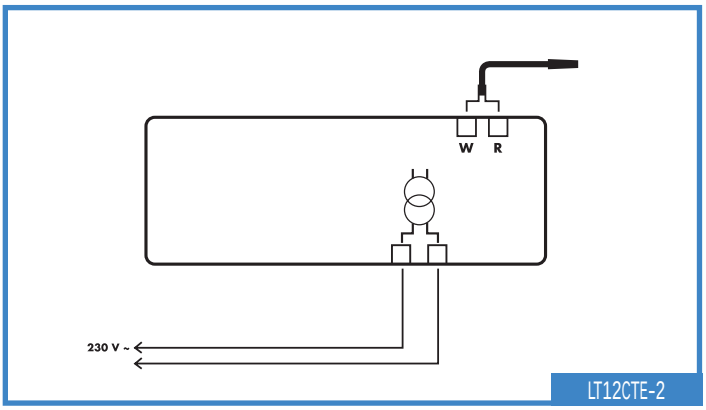
Humidity: *accurate measurements in greenhouses, seasoning cells, air-conditioned rooms.*

LT12 Series: °C and %r.H.

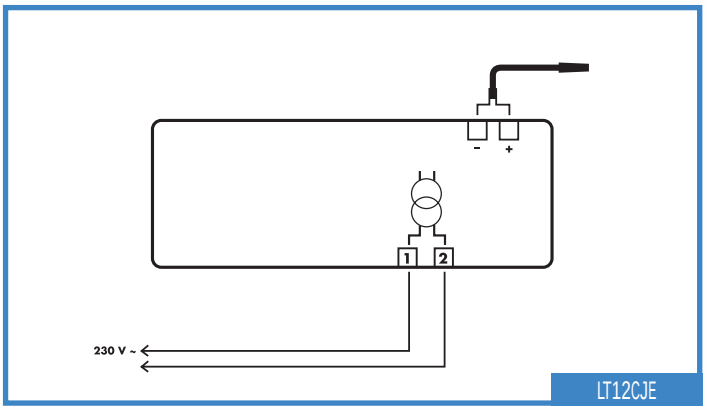
Technical Data	CT D/I/E	CP D/I/E	CJ D/I/E	CK D/I/E	CA D/I/E
Input type	PTC*	Pt100	TC "J"	TC "K"	0÷1V
Range	-50÷150°C	-100÷600°C	-50÷700°C	-50÷900°C	0÷100% r.H.
Accuracy	S1**=±0.2°C; S2**=±1°C		±3°C		±0.1%
Resolution	S1**=0.1°C; S2**=1°C		1°C		0.1%
Power Supply	..D=12Vac/dc; 2W /..I=24Vac/dc; 3W /..E=230Vac ±10%; 50/60 Hz; 2W				
Front protection	IP54				
Panel cut out	71x29 mm (WxH)				
Ambient temp.	-10÷50°C				

* Standard PTC probe is ST1K20P1
**Scale: S1 = -19.9÷99.9°C; S2 = remaining
Models with °F scale are also available.

In order to know versions available, **please consult LAE or our local dealer**.



LT12CTE-2



LT12CJE

LTS12

77x35x77 mm

Configurable thermometer or hygrometer

LTS12 Series

Technical Data	PT D/I/E		TC D/I/E		AV D/I/E
Input type	PTC*	Pt100	TC "J"	TC "K"	0÷1V
Range	-50÷150°C -60÷300°F	-100÷600°C -150÷999°F	-50÷700°C -60÷999°F	-50÷900°C -60÷999°F	0÷100% r.H.
Accuracy	S1**=±0.2°C; S2**=±1°C S1**=±0.4°F; S2**=±2°F		±3°C ±5°F		±0.1%
Resolution	S1**=0.1°C; S2**=1°C 1°F		1°C 1°F		0.1%
Power Supply	..D=12Vac/dc±10%; 2W /..I=24Vac/dc ±10%; 3W /..E=230Vac ±10%; 50/60 Hz; 2W				
Front protection	IP54				
Panel cut out	71x29 mm				
Ambient temp.	-10÷50°C				

*Standard PTC probe is ST1N20P-
**Scale: S1 = -19.9÷99.9°C / 0÷212°F; S2 = remaining;

In order to know versions available, **please consult LAE or our local dealer**.

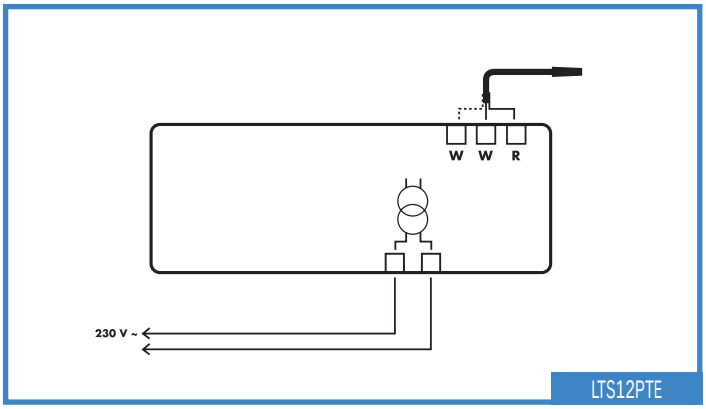
Main Features

- *Panel display unit*
- *Indicates the instant temperature or humidity and the min./max. measured values*
- *Easy selection of scale in °C/°F, of fixed or automatic resolution, input for PTC/Pt100, TCJ/K, 0...1V*
- *Runs on mains power supply*

Applications

Temperature: *measurements in cold stores, high temperature ovens or furnaces, washing machines and plants in which the thermometer requires configuration on the spot.*

Humidity: *measurements in greenhouses, seasoning cells, cold stores, air-conditioned rooms and plants in which the hygrometer requires configuration on the spot.*



LT 6

64x32x81 mm

Wide range thermometer or hygrometer

Main Features

- *Panel display unit with range between -100 and +900°*
- *It's available in the version with °C or °F*
- *0.1° or 1° resolution*
- *Input for PTC/Pt100/TC/0..1V*
- *Very compact size*

Applications

Temperature: *accurate measurements in cold stores, refrigerating cabinets and tables, greenhouses, seasoning cells, high temperature ovens or furnaces.*

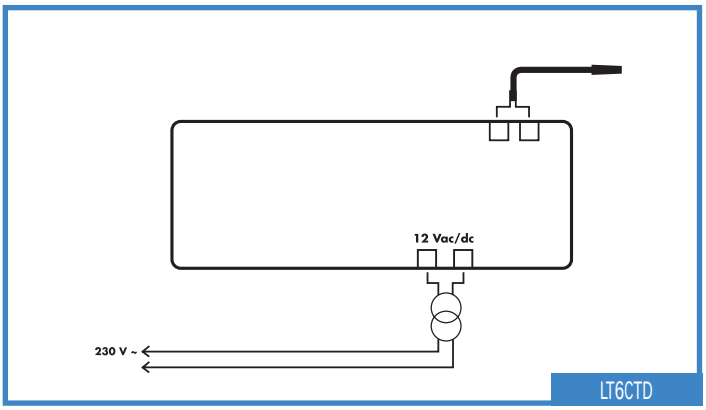
Humidity: *accurate measurements in greenhouses, seasoning cells, air-conditioned rooms.*

LT6 Series: °C and %r.H.

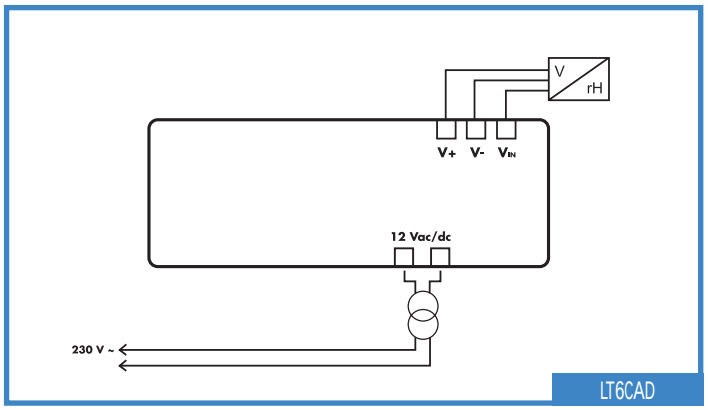
Technical Data	CT D/I	CP D/I	CJD	CKD	CA D/I
Input type	PTC*	Pt100	TC "J"	TC "K"	0÷1V
Range	-50÷150°C	-100÷600°C	-50÷700°C	-50÷900°C	0÷100% r.H.
Accuracy	S1**=±0.2°C; S2**=±1°C		±3°C		±0.1%
Resolution	S1**=0.1°C; S2**=1°C		1°C		0.1%
Power Supply	..D=12Vac/dc ..I=24Vac/dc; 2W		12Vac/dc; 2W		..D=12Vac/dc ..I=24Vac/dc; 2W
Protection	IP40***				
Panel cut out	58x26 mm (WxH)				
Ambient temp.	-10÷50°C				

* Standard PTC probe is ST1K20P1 or ST1N20P-
** Scale: S1 = -19.9÷99.9°C; S2 = remaining
*** IP54 protection is also available, in this case "S" option is added ex. : LT6CTDS
Models with °F scale are also available

In order to know versions available, **please consult LAE or our local dealer**.



LT6CTD



LT6CAD

Refrigeration Controllers with Defrost

LD1-15

77x35x77 mm

Defrost Unit for High Temp. applications

Main Features

- *Panel thermostat for High Temperature*
- *Runs on mains power supply*
- *Controls the compressor directly*
- *Light and ON/OFF buttons*
- *Excellent evaporator fan timed control*
- *Electrical, hot gas or off cycle defrost*
- *Temperature defrost termination*
- *Alarm on buzzer*
- *Door open, high/low temperature alarms*
- *Condenser clean warning*
- *HACCP functions*
- *Quick setup through ZOT device*
- *Connection to LAE supervisory systems TAB.*

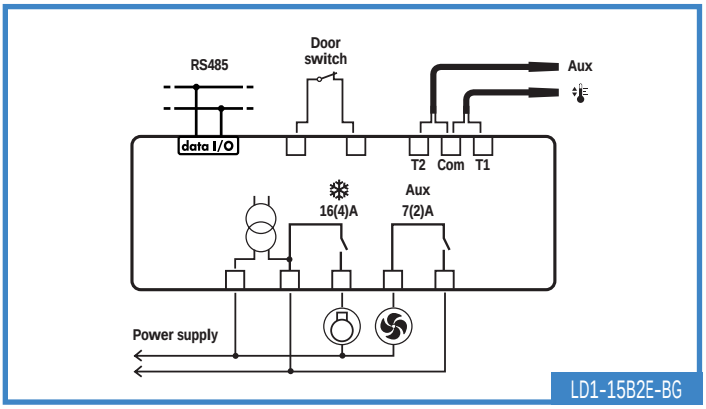
Applications

freestanding upright cabinets, cold stores, refrigerated plug-in display cases and counters, control panels.

LD1-15 Series

Function		A1E-AG	A1E-BG	B2E-AG	B2E-AL	B2E-BG	B2E-BL
Inputs	thermostat	✓	✓	✓	✓	✓	✓
	auxiliary			✓	✓	✓	✓
	door switch			✓	✓	✓	✓
Outputs	thermostat	✓	✓	✓	✓	✓	✓
	auxiliary			✓	✓	✓	✓
Options	serial TTL	✓		✓	✓		
	serial RS485		✓			✓	✓
Keypad	standard	✓	✓	✓		✓	
	with light key				✓		✓
Power supply	230Vac	✓	✓	✓	✓	✓	✓

All models are fitted with an alarm buzzer.
Models with compressor relay rated for 16(5)A are also available.
Models with 12Vac/dc and 110Vac power supply are available. Contact our distributor for information.
Models with removable terminal blocks are available.
On request, the LD1-15 is also available with gasket for a better protection between bezel and panel.
Consult LAE or our local dealer.



LD1-15B2E-BG

Technical Data

Control range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°; °C / °F*
Accuracy:	*<±0.3°C (-40.0÷70.0°C)*
Sensor type:	*standard NTC mod. SN2K20P1/P2*
Power supply:	*230Vac ±10% 50÷60Hz 3W*
Front protection:	*IP55*
Panel cut-out:	*71x29 mm*
Ambient temperature:	*-10÷50°C*

Refrigeration Controllers with Defrost

LD2-15

77x35x77 mm

Low Cost All Purpose Defrost Unit

LD2-15 Series

Functions		B3E	B4E	B4E-A
Inputs	thermostat	✓	✓	✓
	evaporator	✓	✓	✓
	door switch	✓	✓	✓
Outputs	thermostat 7(2)A	✓		
	thermostat 16(5)A		✓	✓
	defrost	✓	✓	✓
	evaporator fans	✓	✓	✓
Power supply	230Vac	✓	✓	✓
Option	TTL serial port			✓

All models come with alarm buzzer.
Models with removable terminal blocks are available.
Versions with 12V or 110V supply are available
On request, the LD2-15 is also available with gasket for a better protection between bezel and panel.
Consult LAE or our local dealer.

Main Features

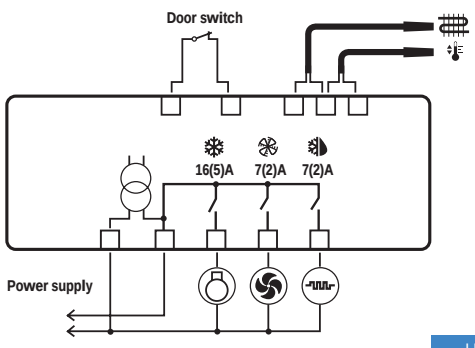
- *Panel thermostat for High and Low Temperature*
- ***FLEXICOLD** self-learning refrigeration control*
- *Runs on mains power supply*
- *Controls the compressor directly (16A relay)*
- *Excellent evaporator fan timed control*
- *Electrical, hot gas or off cycle defrost*
- *Alarm on buzzer*
- *Door open and high/low temperature alarms*
- *Condenser clean warning*
- *HACCP functions*
- *On/Off button.*

Applications

freestanding upright cabinets, cold stores, refrigerated plug-in display cases and counters, control panels, where maximum cost reduction is a must.

Technical Data

Control Range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Sensor type:	*NTC mod. standard SN2K20P1/P2*
Power supply:	*230V~ ±10% 50÷60Hz*
Front protection:	*IP55*
Panel cut-out:	*71x29 mm*
Ambient temperature:	*-10÷50°C*



LD2-15B4E

Refrigeration Controllers with Defrost

M P 1

77x35x77 mm

Universal Low Cost Cooling/Heating Controller

Main Features

- *Universal panel thermostat for the after-sales market*
- *Selectable Refrigerating or Heating mode control*
- *Runs on mains power supply*
- *Controls the load directly*
- *Excellent evaporator fan timed control*
- *Selectable PTC or NTC10K probe input*
- *Electrical, off cycle or hot gas defrost*
- *Door open and high/low temperature alarms*
- *Condenser clean warning*
- *On/Off button.*

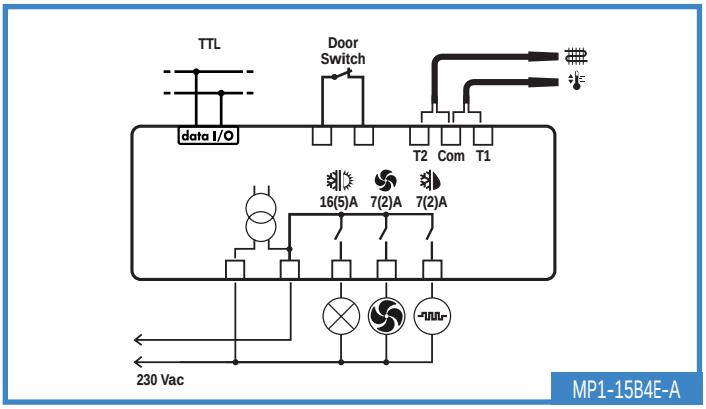
Applications

upright cabinets, cold stores, refrigerated plug-in display cases and counters, control panels, heated cupboards, thermostatic baths.

MP1-15 Series

Functions		B4E	B4E-A
Inputs	thermostat	✓	✓
	evaporator	✓	✓
	door switch	✓	✓
Outputs	thermostat	✓	✓
	defrost	✓	✓
	evaporator fans	✓	✓
Power supply	230Vac	✓	✓
Option	TTL serial port		✓

All models come with alarm buzzer.
Versions with 12V or 110V supply are available.
Models with removable terminal blocks are available.
Consult LAE or our local dealer.



MP1-15B4E-A

Technical Data

Control Range:	-50÷120°C
Resolution:	0.1 / 1°; °C / °F
Accuracy:	PTC1000: <±0.5°C (-50÷120°C)
	NTC10K: <±0.3°C (-40÷7 0°C)
NTC10K:	<±0.3°C (-40.0÷70.0°C)
Sensor type:	selectable NTC10K mod. standard SN4K20P1/P2
	Or PTC1000 mod. standard ST1K20P1/P2
Power supply:	230V~ ±10% 50÷60Hz 3W
Front protection:	IP55
Panel cut-out:	71x29 mm
Ambient temperature:	-10÷50°C

Refrigeration Controllers with Defrost

LCD15

77x35x84 mm

All purpose defrost unit

LCD15 Series

Function		BS3E	BS3E-A	BS3E-B	CS3E	CS3E-A	CS3E-B
Inputs	thermostat	✓	✓	✓	✓	✓	✓
	evaporator	✓	✓	✓	✓	✓	✓
	auxiliary				✓	✓	✓
	door switch	✓	✓	✓	✓	✓	✓
Outputs	thermostat	✓	✓	✓	✓	✓	✓
	defrost	✓	✓	✓	✓	✓	✓
	evaporator fans	✓	✓	✓	✓	✓	✓
Options	TTL serial port		✓			✓	
	RS485 serial port			✓			✓

Models with removable terminal blocks are also available.
All models come with alarm buzzer.
Versions with 110Vac are also available. In this case, the code changes in, for ex., LCD15CS3U-B, where "**U**" means 110Vac.
Versions with 12V supply are also available. In this case, the code changes in, for ex., LCD15CS3D, where "**D**" means 12Vac/dc.
On request the LCD15 is also available with gasket for a better protection between bezel and metal panel.
In order to know versions available, please consult LAE or our local dealer.

Main Features

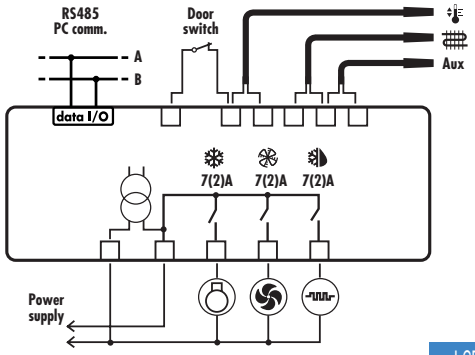
- *Panel thermostat for High and Low Temperature*
- ***FLEXICOLD** self-learning refrigeration control*
- *Runs on mains power supply*
- *Evaporator fan control*
- *Electrical, hot gas or off cycle defrost*
- *Alarm on buzzer*
- *Door open, high/low temperature, HP alarms*
- *Condenser clean warning*
- *HACCP functions*
- *On/Off button*
- *Quick setup through ZOT device*
- *Connection to LAE supervisory systems TAB.*

Applications

freestanding upright cabinets, cold stores, refrigerated plug-in display cases and counters, control panels.

Technical Data

Control Range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°C; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Type of sensor:	*NTC mod. standard SN2K20P1/P2/P3*
Power supply:	*230Vac ±10%; 50/60Hz; 3W*
Front protection:	*IP55*
Panel cut-out:	*71x29 mm*
Ambient temperature:	*-10÷50°C*



LCD15CS3E-B

Refrigeration Controllers with Defrost

LCD32

196x38x78 mm

Compact multi-function defrost unit

Main Features

- *Panel thermostat for High and Low Temperature*
- *Output to control the compressor directly*
- *Evaporator fan control*
- *Electrical, hot gas or off cycle defrost*
- *Light or auxiliary load control*
- *Quick connectors for Lives and Neutrals*
- *Two operating parameter sets*
- *HACCP functions*
- *Door open, high/low temperature, HP alarms*
- *Automatic condenser clean warning*
- *Quick setup through ZOT-LCD device*
- *Connection to LAE supervisory system TAB*
- *Runs on mains power supply.*

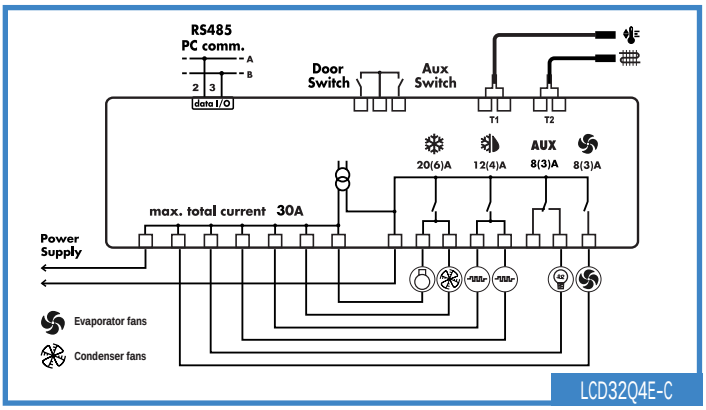
Applications

Cold stores, refrigerating cabinets, tables and counters, saladettes, medical cabinets and display cases, both static and ventilated.

LCD32 Series

Functions		Q3E	S3E	Q3E-A	S3E-A	Q4E-C	S4E-C
Connections		Quick	Screw	Quick	Screw	Quick	Screw
Inputs	thermostat	✓	✓	✓	✓	✓	✓
	evaporator	✓	✓	✓	✓	✓	✓
Outputs	thermostat	✓	✓	✓	✓	✓	✓
	defrost	✓	✓	✓	✓	✓	✓
	evaporator fans	✓	✓	✓	✓	✓	✓
	auxiliary					✓	✓
Options	door+Aux switch			✓	✓	✓	✓
	TTL serial port	✓	✓	✓	✓		
	RS485 serial					✓	✓
Supply#	230Vac	✓	✓	✓	✓	✓	✓

Versions with 110Vac supply are also available.
* On request the LCD32 is also available with gasket for a better protection between bezel and metal panel.
In this case, the code changes in, for ex. LCD32Q4E-CS. Please ask information about standard versions available with this option.
In order to know versions available, please consult LAE or our local dealer.



LCD32Q4E-C

Technical Data

Programming Range:	*-30.0÷30.0°C*
Resolution:	*0.1 / 1; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Sensor type:	*NTC, standard mod. SN2K20P1/P2*
Power supply:	*230Vac ±10%; 50/60Hz; 3W*
Front protection:	*IP55*
Panel cut-out:	*163x31.5 mm*
Ambient temperature:	*-10 ÷ 50°C*

Refrigeration Controllers with Defrost

LCD28

105x90x55 mm

Split Powerful Defrost Unit

LCD28 Series

Functions		CS4E-A	CS4E-B
Inputs	thermostat	✓	✓
	evaporator	✓	✓
	auxiliary	✓	✓
	door switch + aux. Digital input	✓	✓
Outputs	thermostat	✓	✓
	defrost	✓	✓
	evaporator fans	✓	✓
	auxiliary load	✓	✓
Options	TTL serial port	✓	
	RS485 serial port		✓
Power supply	230 Vac	✓	✓
Connections	Screw terminals	✓	✓

Versions with quick connectors for the outputs are also available
All models are fitted with alarm buzzer
Versions with 12V or 110V supply are also available.
Please consult LAE or our local dealer.

Main Features

- *Thermostat for High and Low Temperature*
- ***FLEXICOLD** self-learning refrigeration control*
- *No need for contactors or external wiring*
- *Runs on mains power supply*
- *Evaporator fan control*
- *Electrical, hot gas or off cycle defrost*
- *Alarm on buzzer*
- *Door open, high/low temperatures, HP alarms*
- *Condenser clean warning*
- *HACCP functions*
- *On/Off button*
- *Quick setup through ZOT device*
- *Connection to LAE supervisory systems TAB.*

Applications

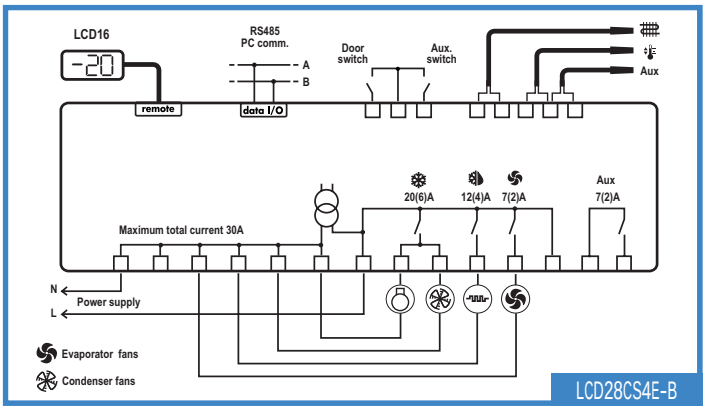
Freestanding upright cabinets, cold stores, control panels, refrigerated plug-in display cases and counters.

Technical Data

Control Range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Type of sensor:	*NTC mod. standard SN2K20P1/P2/P3*
Power supply:	*230Vac ±10%; 50/60Hz; 3W*
Protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*

LCD16 display unit

Size:	*77x35x20 mm (WxHxD)*
Panel cut-out:	*71x29 mm*
Front protection:	*IP55*
Ambient temperature:	*-10 ÷ 50°C*



Refrigeration Controllers with Defrost

LF28

105x90x55 mm

Versatile Split Defrost Unit for multiple evaporators

Main Features

- *Suitable to control multiple evaporators or multiple compressors and condensers plants*
- ***FLEXICOLD** self-learning refrigeration control*
- *No need for contactors or external wiring*
- *Runs on mains power supply*
- *Light control option*
- *Very efficient evaporator fan control*
- *Electrical, hot gas or off cycle defrost*
- *Remote defrost start facility*
- *Door open, HP, High temperature alarms*
- *Condenser clean warning*
- *HACCP functions*
- *On/Off button*
- *Quick setup through ZOT device*
- *Connection to LAE supervisory system TAB.*

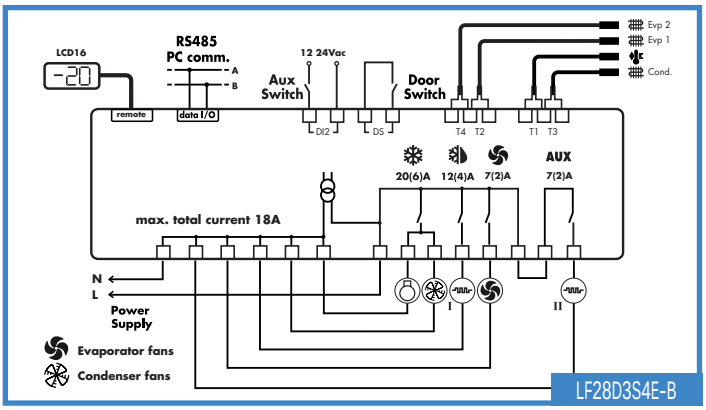
LF28 Series

Functions		D2S4E-A	D3S4E-B
Inputs	thermostat	✓	✓
	evaporator	✓	✓
	condenser	✓	✓
	auxiliary	✓	✓
Digital inputs	door switch + aux. Digital input	✓	
	door switch + aux. voltage input		✓
Outputs	thermostat	✓	✓
	defrost	✓	✓
	evaporator fans	✓	✓
	auxiliary load	✓	✓
Options	TTL serial port	✓	
	RS485 serial port		✓
Power supply	230 Vac	✓	✓
Connections	Screw terminals	✓	✓

Versions with quick connectors for the outputs are also available
All models are fitted with alarm buzzer
Versions with 12V or 110V supply are available.
Please consult LAE or our local dealer.

Applications

Cold stores, control panels, refrigerated plug-in cabinets and display cases for shops and supermarkets.



Technical Data

Control Range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Type of sensor:	*NTC mod. standard SN2K20P1/P2/P3/P4*
Power supply:	*230Vac ±10%; 50/60Hz; 3W*
Protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*

LCD16 display unit

Size:	*77x35x20 mm (WxHxD)*
Panel cut-out:	*71x29 mm*
Front protection:	*IP55*
Ambient temperature:	*-10 ÷ 50°C*

Refrigeration Controllers with Defrost

LD2W

110x53x75 mm

Wall mount All Purpose Defrost Unit

Main Features

- *Wall mount thermostat for High and Low Temperature*
- ***FLEXICOLD** self-learning refrigeration control*
- *Runs on mains power supply*
- *Excellent evaporator fan timed control*
- *Electrical, hot gas or off cycle defrost*
- *Alarm on buzzer and relay*
- *High, low temperature and door open alarm*
- *Condenser clean warning*
- *HACCP functions*
- *On/Off button*
- *Connection to LAE supervisory software TAB.*

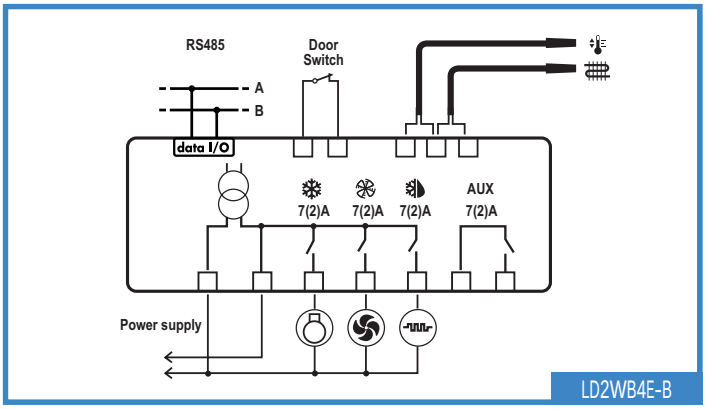
Applications

Cold rooms.

Technical Data

Control Range:	*-40.0÷40.0°C*
Resolution:	*0.1 / 1°; °C / °F*
Accuracy:	*<±0.2°C (-30.0÷30.0°C)*
Sensor type:	*NTC mod. standard SN2K20P1/P2*
Power supply:	*230V~ ±10% 50÷60Hz 3W*
Front protection:	*IP65*
Ambient temperature:	*-10 ÷ 50°C*

In order to know versions available, please consult LAE or our local dealer.



Refrigeration Controllers with Defrost

SSD90

165x127x55 mm

Multi-purpose defrost controller for High & low-temperatures, with condenser control

Main Features

- *For High and Low temperature*
- *No contactors or external wiring*
- *Up to three probes for: thermostat, evaporator, condenser*
- *Up to seven power relays: compressor, evaporator fans, condenser fans, defrosting, alarm, lights, auxiliary loads*
- *On/Off button*
- *Lights controlled manually or through door switch*
- *Selection of scale in °C/°F*
- *Faston connectors for Lives and Neutrals*
- *Up to eight alarm sources*
- *Quick setup through ZOT-SSD device*
- *Connection to supervision LAE system TAB*

SSD90 Series

Functions		A14E-A	B34E-A	B35E-C	C65E-C*
Inputs	thermostat	✓	✓	✓	✓
	evaporator		✓	✓	✓
	condenser				✓
Outputs	thermostat	✓	✓	✓	✓
	defrost		✓	✓	✓
	evaporator fans		✓	✓	✓
	condenser fans				✓
	lights	✓	✓	✓	✓
	alarm			✓	✓
	auxiliary	✓	✓	✓	✓
Options	door switch	✓	✓	✓	✓
	RS485			✓	✓
Supply**	230Vac	✓	✓	✓	✓

* In the models C65E-C, the defrost relay is on voltage free contacts.

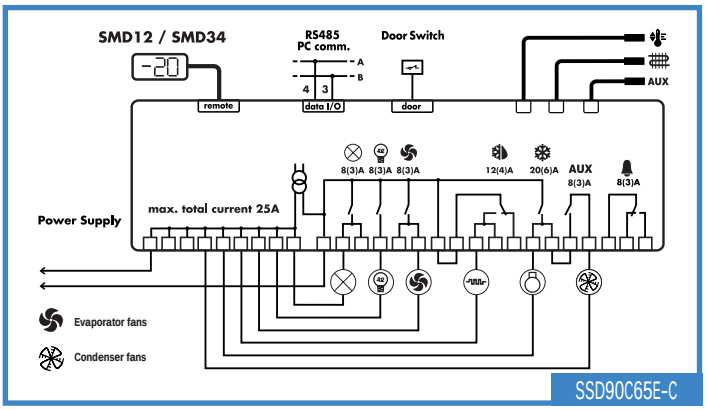
** Versions with 110Vac supply are also available. The code changes in, for ex.: SSD90C65U-A, where "**U**" means 110Vac.

Applications

Cold stores, refrigerating cabinets, tables and counters, medical cabinets and display cases, both static and ventilated. It can also be used to control heated cupboards.

Technical Data

Range:	-50 ÷ 150°C / -40÷250°F
Resolution:	1°C/°F
Accuracy:	±0.5°C (-25÷100°C)
Sensor type:	PTC; standard mod. ST1K20C1/C2/C3
Power supply:	230Vac ±10%; 50/60 Hz; 5W
Front protection:	IP30
Ambient temperature:	-10 ÷ 50°C



SMD34: display unit

Size:	190x37x23 mm (WxHxD)
Panel cut-out:	184X31 mm
Front protection:	IP54
Ambient temperature:	-10 ÷ 50°C

SMD12RU20: display unit

Size:	77x35x29 mm (WxHxD)
Panel cut-out:	71x29 mm
Front protection:	IP54
200cm Flat cable:	Included
Ambient temperature:	-10 ÷ 50°C

Refrigeration Controllers with Defrost

BIT20

87x110x55 mm

Split defrost controller for high and low-temperature refrigerators

BIT20 Series

Functions		B11E	B22E	C11E
Inputs	thermostat	✓	✓	✓
	evaporator		✓	
Outputs	thermostat	✓	✓	✓
	defrost		✓	
	evaporator fans		✓	
Features	dipswitches			✓
	remote unit	✓	✓	

Main Features

- *Electronic alternative to electro-mechanical systems*
- *For High and Low temperature*
- *Destined for the OEM market*
- *No need for contactors or external wiring*
- *Output to control the compressor directly*
- *Electrical, hot gas or off cycle defrost*
- *Evaporator fan stop during defrost*
- *Parameter setting through dipswitches and/or compact display unit*
- *Runs on mains power supply*

Applications

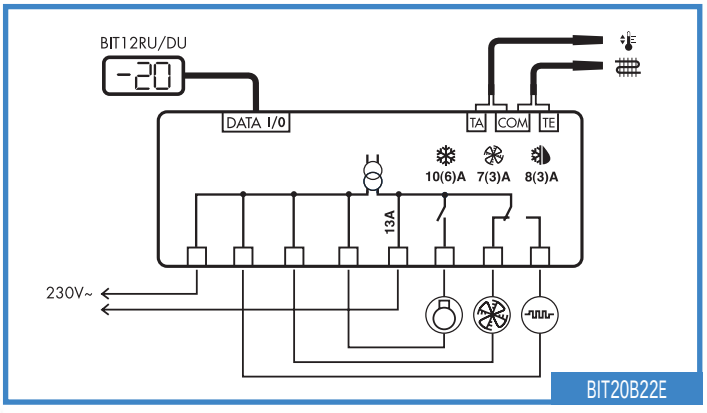
Small or medium sized refrigerating counters, tables, glass door, upright cabinets.

Technical Data

Range:	-35÷25°C
Resolution:	1°C
Accuracy:	±0.6°C (-30÷10°C)
Sensor type:	NTC, standard mod. SN2K20P1/P2
Power supply:	230Vac ±10%; 50/60 Hz; 4W
Front protection:	IP30
Ambient temperature:	-10 ÷ 50°C

BIT12RU20: display unit

Size:	77x35x29 mm (WxHxD)
Panel cut-out:	71x29 mm
Front protection:	IP54
200cm Flat cable:	Included
Ambient temperature:	-10 ÷ 50°C



Refrigeration Controllers with Defrost

RDC12

77x35x97 mm

Compact defrost controller with Real Time Clock

Main Features

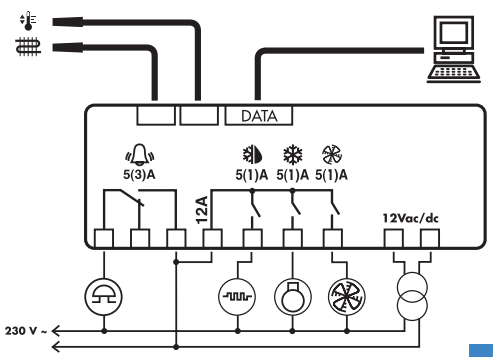
- *Panel controller for High and Low temperature*
- *Up to six defrosts a day*
- *Real time clock with 20-day back-up battery*
- *Up to four outputs for: compressor, evaporator fans, defrosting, alarm*
- *Electrical, hot gas or off cycle defrost*
- *Defrost termination on temperature*
- *Temperature alarm*
- *Connection with supervisory LAE system TAB*

Applications

Cold stores, refrigerated cabinets, counters and display cases for shops and supermarkets, in which defrosting must take place at well-defined times.

RDC122 Series

Functions		T1R2	T1R3B	T1R3J
Inputs	thermostat	✓	✓	✓
	evaporator	✓	✓	✓
Outputs	thermostat	✓	✓	✓
	defrost	✓	✓	✓
	evaporator fans	✓	✓	✓
	alarm		✓	✓
Options	buzzer		✓	✓
	RS485			✓



RDC122T1R3J

Technical Data

Range:	-50÷150°C
Resolution:	1°
Accuracy:	±0.5° (-25÷100°C)
Sensor type:	PTC; standard mod. ST1K20C1/C2
Power supply:	12Vac/dc ±10%; 3W
Front protection:	IP54
Panel cut-out:	71x29 mm
Ambient temperature:	-10 ÷ 50°C

Refrigeration Controllers with Defrost

CDC28

DIN rail 90x105x70 mm

Defrost controller for switchboards

CDC28 Series

Functions		CDC282T1R3
Inputs	thermostat	✓
	evaporator	✓
Outputs	thermostat	✓
	defrost	✓
	evaporator fans	✓
	alarm	✓

Main Features

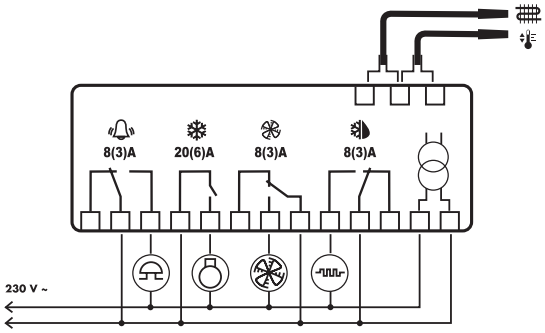
- *Runs on mains power supply*
- *Direct compressor control*
- *Evaporator fan control*
- *Fan delay after defrost*
- *Electrical, hot gas or off cycle defrost*
- *Timed or on demand defrost start*
- *Defrost termination on temperature*
- *Temperature alarm*
- *Safety function in the event of breakage of the sensor*

Applications

Control of cold storage rooms.

Technical Data

Range:	*-50÷150°C*
Resolution:	*1°*
Accuracy:	*±0.5° (-25÷100°C)*
Sensor type:	*PTC; standard mod. ST1K20P1/P2*
Power supply:	*230Vac ±10%; 50/60 Hz; 4W*
Front protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*



CDC282T1R3

Refrigeration Controllers with Defrost

MCDU31

96x48x144 mm

Defrost controller for cold storage rooms

Main Features

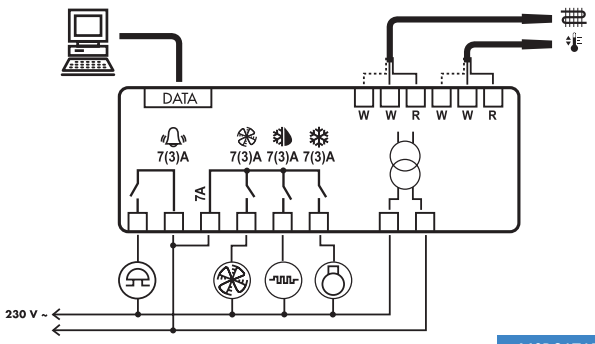
- *Runs on mains power supply*
- *Inputs for PTC or Pt100*
- *Electrical, hot gas or off cycle defrost*
- *Timed or on demand defrost start*
- *Defrost termination on temperature*
- *Evaporator fan management for correct humidity control in the room*
- *Super freeze function*
- *Temperature and door open alarms*
- *Alarm buzzer*
- *Double display for ease-of-use*
- *Faston connectors*
- *Connection with supervision LAE systems*

Applications

Cold storage rooms, provision rooms in ships, medical equipment.

MCDU31 Series

Functions		T1RE/7
Inputs	thermostat	✓
	evaporator	✓
Outputs	thermostat	✓
	defrost	✓
	evaporator fans	✓
	alarm	✓
Options	buzzer	✓
	door switch	✓
	RS485 port	✓



MCD31T1RE/7

Technical Data

Range:	-50.0 ÷150.0°C
Resolution:	0.1°
Accuracy:	±0.5° (-20 ÷100°C)
Sensor type:	PTC; standard mod. ST1N20F-
Power supply:	230Vac ±10%; 50/60 Hz; 4W
Front protection:	IP40
Panel cut-out:	90.3X42.3mm
Ambient temperature:	-10 ÷ 50°C

Compressor Regulators
Suction and condensing pressure

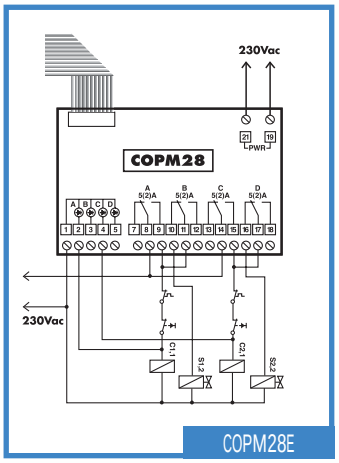
COPS80

193x97x64 mm

Suction pressure controller

Main Features

- *Controls up to eight outputs for single or multi-stage compressors*
- *Pressure control with two setpoints for energy saving*
- *Rotation of compressors, equalisation of total operating time*
- *Limitations of starts*
- *Plant diagnostics with HP and LP switches*
- *Compressor diagnostics*
- *Fifteen internal and external alarm sources*
- *Storage of ten alarms*
- *Automatic maintenance management*
- *Alpha-numeric display with four selectable languages*
- *Connection to LAE supervision systems*



COPM28E

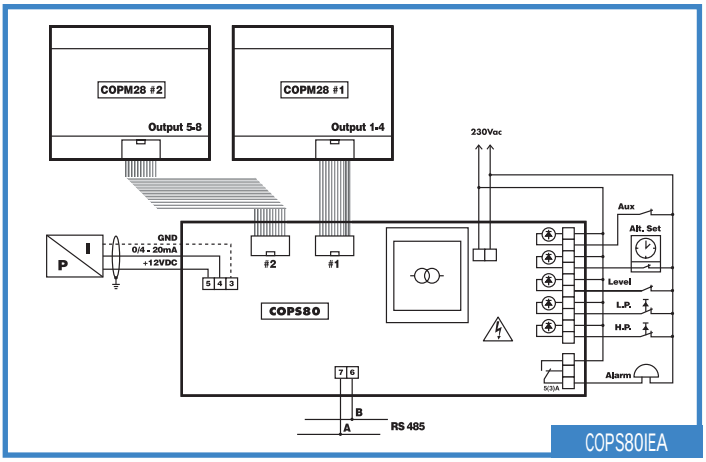
Applications

for cryogenerators in supermarkets, cold stores and all cryogenic systems with variable demand.

How to order:
COPS80IEA, 1 or 2 COPM28E modules, PGT8 transmitter

COPM28 Relay module for COPS80

Size:	*90x105x55 mm*
Relay outputs:	*4 x 5(2)A 240Vac*
Power supply:	*230Vac ±10%; 50/60 Hz; 2W*
Feedback inputs:	*4 x 110-240Vac*
Protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*



COPS80IEA

Technical Data

Range:	*-1.00÷9.00bar*
Resolution:	*0.01bar*
Accuracy:	*±0.01bar (-1.00÷9.00bar)*
Sensor type:	*0/4÷20mA*
Supply voltage:	*230Vac ±10%; 50/60 Hz; 4W*
Data port:	*RS485*
Front protection:	*IP54*
Panel cut-out:	*182x81 mm*
Ambient temperature:	*-10 ÷ 50°C*

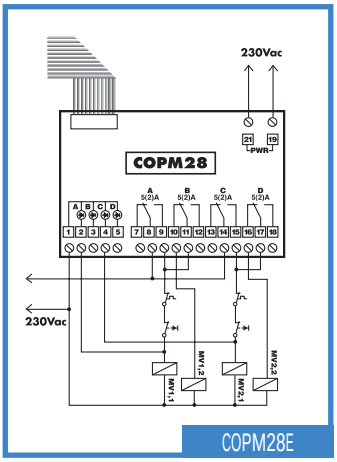
Compressor Regulators

Suction and condensing pressure

COPC80

193x97x64 mm

Condensing pressure controller



COPM28E

Main Features

- *Controls up to eight outputs for single or multi-speed fans*
- *Pressure control with two setpoints for energy saving*
- *Differentiated start/stop sequences of fans*
- *Limitations of starts*
- *Plant diagnostics with HP switch*
- *Fan diagnostics*
- *Twelve internal and external alarm sources*
- *Storage of ten alarms*
- *Automatic maintenance management*
- *Alpha-numeric display with four selectable languages*
- *Connection to LAE supervision systems*

COPM28 Relay module for COPC80

Size:	*90x105x55 mm*
Relay outputs:	*4 x 5(2)A 240Vac*
Power supply:	*230Vac ±10%; 50/60 Hz; 2W*
Feedback inputs:	*4 x 110-240Vac*
Protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*

Applications

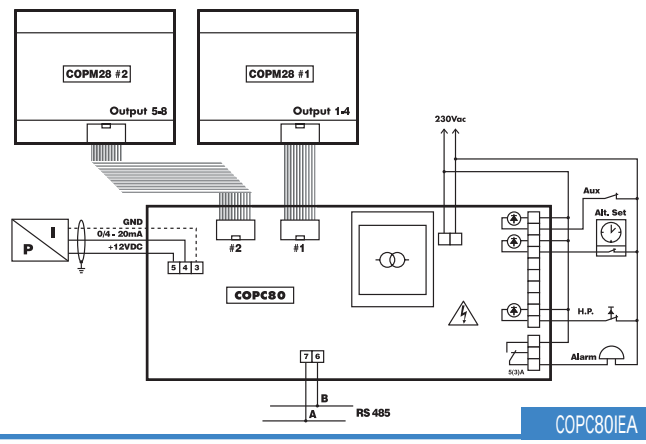
For cryogenerators in supermarkets, cold stores and all systems where the condensing pressure must be kept constant.

How to order examples:

COPC80IEA, 1 or 2 COPM28E modules, PGT30 transmitter

Technical Data

Range:	*-1.0÷50.0bar*
Resolution:	*0.1bar*
Accuracy:	*±0.1bar (-1.0÷50.0bar)*
Sensor type:	*0/4÷20mA*
Supply voltage:	*230Vac ±10%; 50/60 Hz; 4W*
Data port:	*RS485*
Front protection:	*IP54*
Panel cut-out:	*182x81 mm*
Ambient temperature:	*-10 ÷ 50°C*



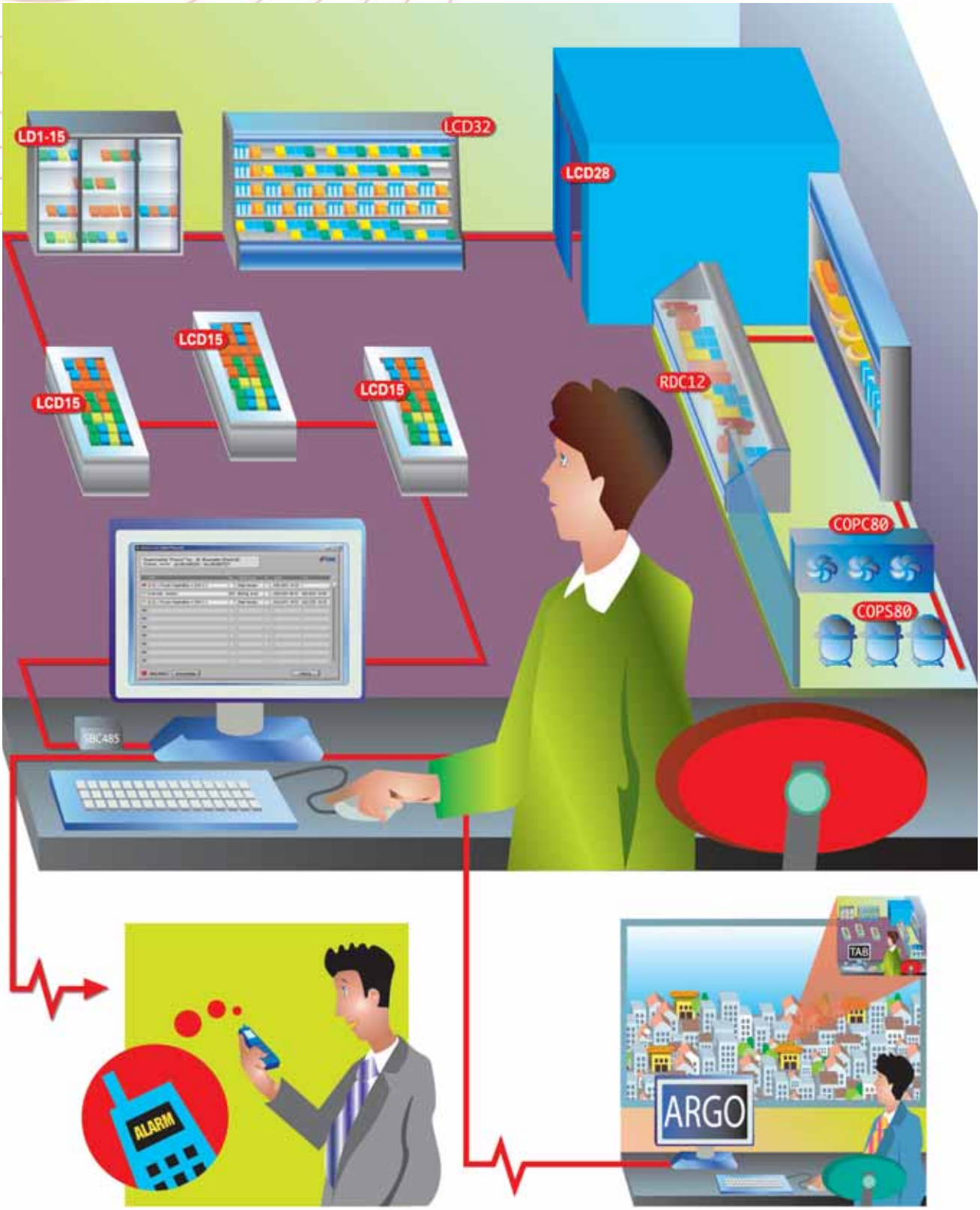
COPC80IEA

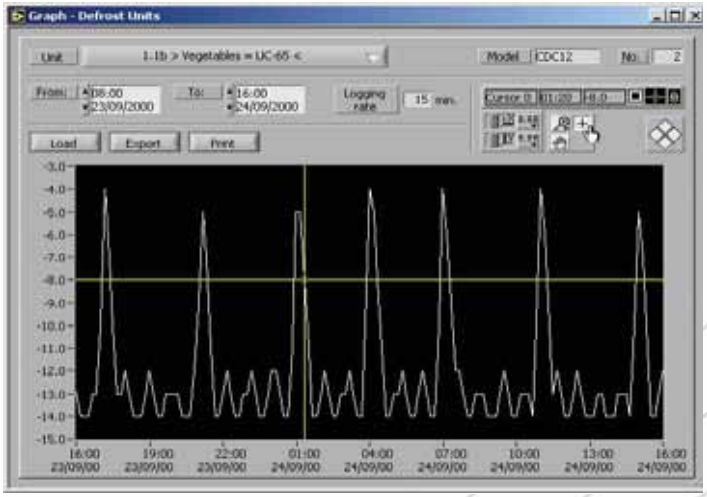
Supervision Software & Module

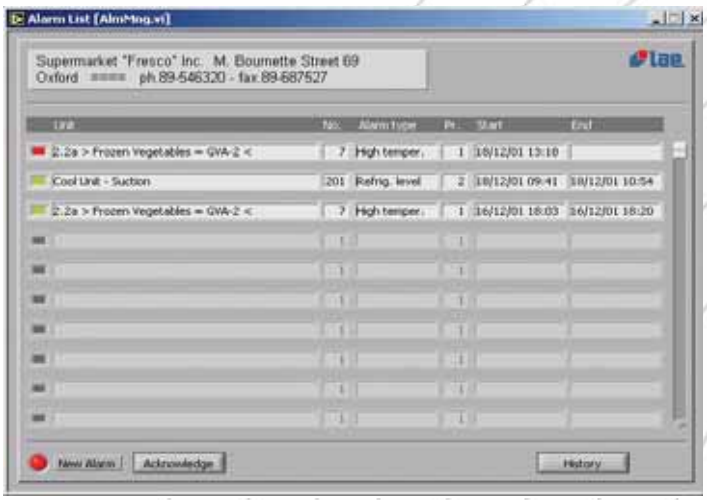
Monitoring, Data Logging, Tele-servicing

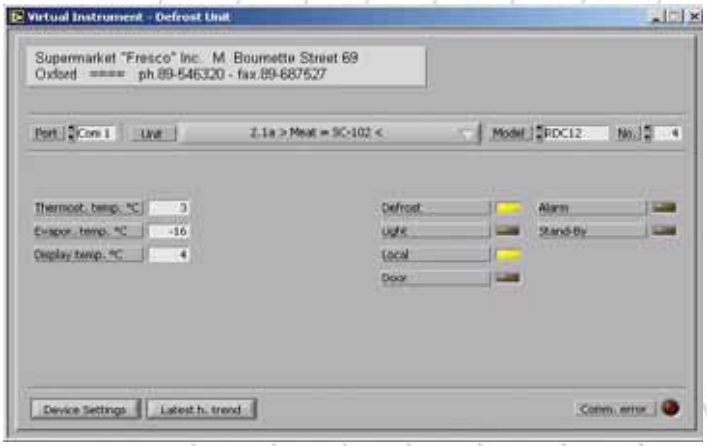
TAB

Monitoring, Logging and Programming Software









Main Features

- *Overall plant monitoring*
- *Storage of temperature, humidity, pressure, alarms*
- *Display and printing in numerical and graphic form of stored data*
- *Export of stored data for Excel* or others*
- *Diagnostics with dynamic graphs of all analog inputs*
- *Virtual instrument for analysing the system and setting regulator parameters*
- *Scheduling option for automatic management of defrost starts, light on/ light off times, controller standby*
- *Direct sending of SMS to trace alarm status*
- *Connection to remote PC for tele-servicing via Internet*
- *Several languages available: English, German, Italian, Spanish, Polish etc.*

Available options

Available as full optional as described above but also in a "low cost version" for data logging only. This "low cost version" replaces the HTD software.
This version is called TAB LV

Applications

Supervision of the refrigeration process in supermarkets, convenience stores, shops, petrol stations, large kitchens, food factories, cruise ships etc.

System Requirements

- *Computer with Windows 2000/XP* operating system installed and properly running, minimum processor and memory as required from Windows version - USB port - Mouse - CD-ROM drive*
- *1024x768 pixel screen resolution, 16-bit colour*
- *100MB available on Hard Disk for software installation*
- *RS232 serial port (COM); an additional port is required if a GSM modem is fitted*
- *RS485 converter mod. SBC485 with modem type serial cable. Every 64 controllers, you must add a repeater SBR485. So, if there are 200 controllers to be connected, you must fit an SBC485 + 3 SBR485's.*
- *GSM modem for sending SMS*

Supervision Software & Module
Monitoring, Data Logging, Tele-servicing

ARGO

Teleservicing software

Main Features

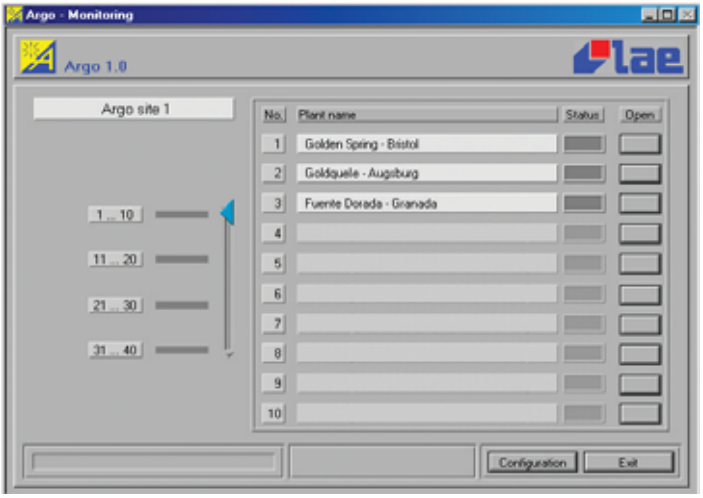
- *Possibility of supervising up to 40 systems controlled by TAB software*
- *Continuous monitoring of system status*
- *Storage of alarms and transmission of SMS to one or more mobile phones*
- *Remote control of TABs for diagnostics and programming*
- *Allows fast service with suitable spares.*

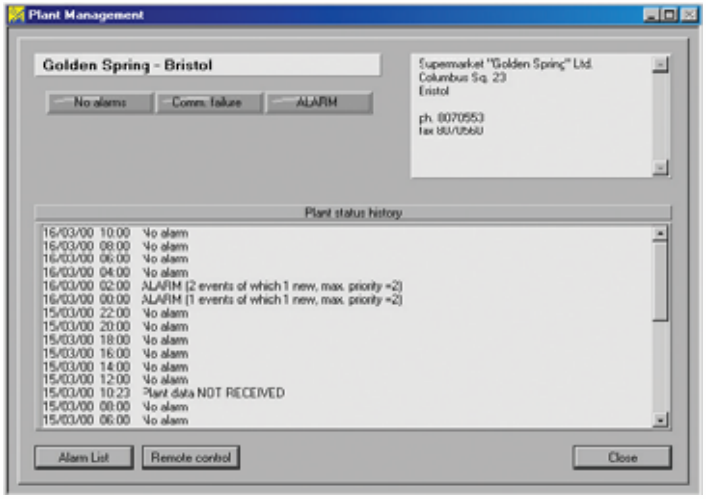
Minimum hardware requirements

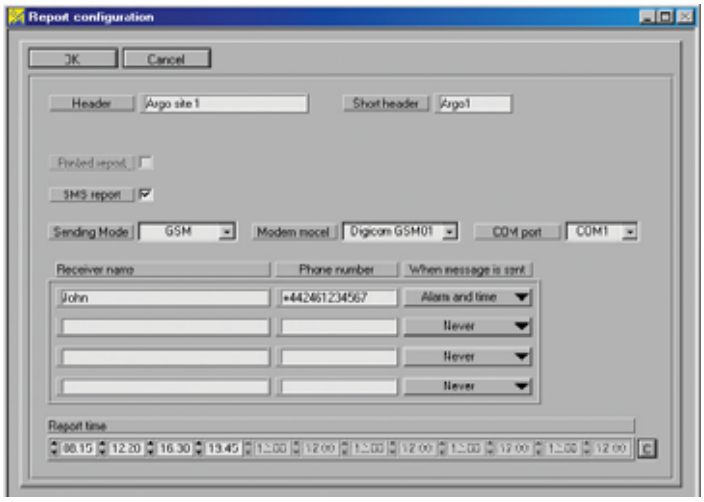
- *Computer with Windows 95/98 operating system installed and properly running, minimum processor and memory as required from Windows* version - Parallel port - Mouse - CD-ROM drive*
- *1024x768 pixel screen resolution, 16-bit colour*
- *100MB Hard Disk space for software installation*
- *modem suitable for ISDN/PSTN or other interface with the line used*
- *pcAnywhere* software, "base" version*
- *RS232 serial port (COM) if a GSM modem is fitted*
- *GSM modem for sending SMS*

On each TAB station you must add:

- *ISDN/PSTN modem or other interface with the line used*
- *pcAnywhere* software, "host" version*







If you need details on these components, please consult our local dealer.

Supervision Software & Module

Monitoring, Data Logging, Tele-servicing

i-LON

Internet Server

i.LON 100 is an Internet Server that allows a system with LAE electronic controllers to be supervised via Internet.

It carries out functions of data acquisition, data logging, alarm management, sending of messages and programming of events.

The Server configuration, all the acquired data and the controller parameters are accessed via Web browser from any computer anywhere provided it is connected to the local network or to Internet. In addition to the existing integrated Web pages, it is also possible to create and insert customized pages that give a better representation of the system and relative data.

LAE provides files that already contain the basic information for its controllers and that may be loaded directly into i.LON 100 to facilitate system configuration procedures.

What is more, i.LON 100 may be connected to any other LONWORKS® and Modbus device so as to be able to monitor units fitted with other manufacturers' controllers that may have all sorts of functions, such as an air-conditioning system control.

There are also 2 digital inputs and 2 outputs on relay available.

Main Features

Data logging

The data to be stored and the frequency of storage may be chosen. Text format may even be used for the created files (importable directly from applications such as Excel) or compressed format, which allows a considerable saving of storage space.

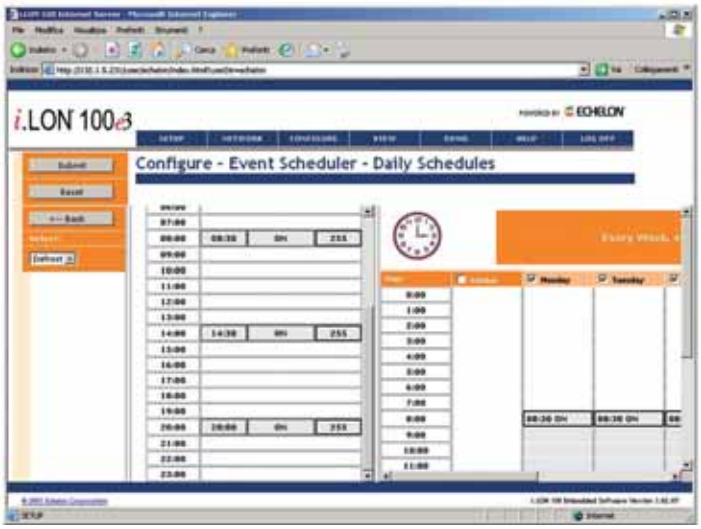
When the data files reach a certain fill level, i.LON 100 can send them as an attachment to an e-mail message and therefore always keep the storage available for subsequent data without anyone needing to act. The stored data are also visible in real time via the integrated Web page.

Alarm management

During configuration it is necessary to define the sources and the conditions that must determine an alarm event and the actions that must follow: it is possible to send an e-mail, which indicates the alarm and sends data in an attachment, to set a controller parameter or to activate a relay. All the alarm events may be recorded in a log file.

Programming of events

This function may be used to program the value that certain controller parameters or commands must assume on certain days and at certain times. This, for example, allows the automatic management of defrost starts at fixed times or the switching on and off of the refrigerator lights according to the shop opening days and hours.



TMR15

77x35x77 mm

Countdown timer

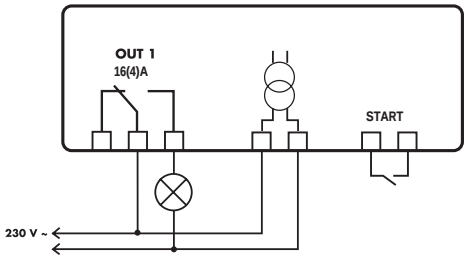
Main Features

- *Panel timer*
- *Countdown in hours and minutes or minutes and seconds*
- *Manual start/stop of countdown*
- *Remote start of countdown*
- *Manual switching on/off of output*
- *Mains powered*
- *Buzzer to warn countdown end*
- *Keypad lock.*

Standard versions	Power supply	Buzzer
TMR15E	230Vac ±10%, 3W	
TMR15E-A	230Vac ±10%, 3W	✓
TMR15U	115Vac ±10%, 3W	
TMR15U-A	115Vac ±10%, 3W	✓
TMR15D	12Vac/dc ±10%, 3W	
TMR15D-A	12Vac/dc ±10%, 3W	✓

Applications

control of duration of industrial processes, control of dough retarders, control of cooking time in ovens.



TMR15E-A

Technical Data

Outputs:	*Out 16(4)A 240V~*
Power supply:	*230Vac ±10% 3W*
Front protection:	*IP55*
Panel cut-out:	*71x29 mm*
Ambient temperature:	*10 ÷ 50°C*

TIMER12

77x35x77 mm

Countdown timer

Main Features

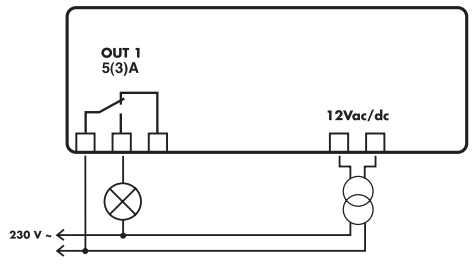
- *Panel timer or clock*
- *Countdown in hours and minutes or minutes and seconds*
- *Manual start/stop of countdown*
- *Manual switching on/off of output*

Applications

control of duration of industrial processes, control of dough retarders, control of cooking time in ovens.

Technical Data

Range:	*99:59 hours:minutes ; minutes:seconds*
Output:	*5(3)A 240Vac*
Power supply:	*12Vac/dc ±10%; 2W*
Front protection:	*IP54*
Panel cut-out:	*71x29 mm*
Ambient temperature:	*-10 ÷ 50°C*



TIMER12D/1-/2-/3-/4

M V R 2 8

DIN rail 90x105x70 mm

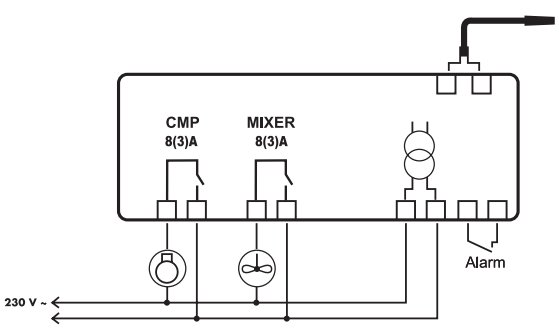
Milk-vat controller

Main Features

- *For switchboards*
- *Controls the compressor and the mixer in milk-vats*
- *Two programs for milk preservation*
- *Manual plant test*
- *Manual program for vat cleaning*
- *Auxiliary input for motor lock alarm indication*
- *Runs on mains power supply*

Technical Data

Range:	*-5.0 ÷100°C*
Resolution:	*0.1° (-5.0 ÷19.9°C); 1° (20° ÷ 100°C)*
Accuracy:	*±0.3° (-5.0 ÷100°C)*
Sensor type:	*PTC; standard mod. ST1K20P1*
Power supply:	*230Vac ±10%; 50/60 Hz; 3W*
Front protection:	*IP40*
Ambient temperature:	*-10 ÷ 50°C*



MVR28T1RE

ST1K..C/P

Sensor type:	KTY81-121, 990 @ 25°C
Range:	-40÷105°C
Accuracy:	±1.5°C @ 25°C
Sheath:	Ø6x34mm; TPE
Cable:	2 wires x 0.35mm²; -40÷105°C; TPE; connector or points
Protection:	IP67

ST1L..P-

Sensor type:	KTY81-121, 990 @ 25°C
Range:	-40÷120°C
Accuracy:	±1.5°C @ 25°C
Sheath:	Ø6x34mm; TPE
Cable:	2 wires x 0.35mm²; screen; -40÷120°C; PETE; points
Protection:	IP67

ST1N..P-

Sensor type:	KTY81-121, 990 @ 25°C
Range:	-40÷120°C
Accuracy:	±1.5°C @ 25°C
Sheath:	Ø7x40mm; nylon6
Cable:	3 wires x 0.22mm²; screen; -40÷120°C; PETE; points
Protection:	IP67

SN2K..P

Sensor type:	NTC2K, 2000 @ 25°C
Range:	-40÷105°C
Accuracy:	±0.3°C @ 25°C
Sheath:	Ø6x34mm; TPE
Cable:	2 wires x 0.35mm²; -40÷105°C; TPE; points
Protection:	IP67

SN4K..P

Sensor type:	NTC10K, 10000 @ 25°C
Range:	-40÷105°C
Accuracy:	±0.3°C @ 25°C
Sheath:	Ø6x34mm; TPE
Cable:	2 wires x 0.35mm²; -40÷105°C; TPE; points
Protection:	IP67

SN4L..P-X

Sensor type:	NTC10K, 10000 @ 25°C
Range:	-40÷120°C
Accuracy:	±0.3°C @ 25°C
Sheath:	Ø6x70mm; stainless steel
Cable:	2 wires x 0.35mm²; -40÷120°C; TPE; points
Protection:	IP67

Humidity transmitters

HT2WAD

Sensor type:	Capacitive
Output signal:	0÷1Vdc
Range:	0%÷100%r.H
Accuracy:	±5%r.H. (25%÷75%r.H.)
Sheath:	Ø14x40mm
Protection:	IP65 (electronics)
Operating temperature:	0÷75°C (sensor) / 0÷50°C (electronics)
Dimensions of the enclosure:	110x53x75mm (electronics)
Power supply:	12Vdc, 0.2W

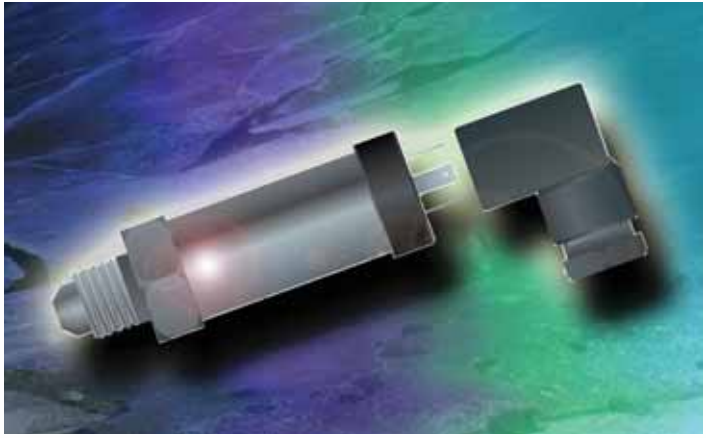
HD9513TC

Sensor type:	Capacitive
Output signal:	0÷1Vdc
Range:	5÷98% r.H.
Accuracy:	±2.5%r.H. @ 20°C
Response time:	2 minutes
Sheath:	Ø14x150mm; Pocan plastic
Cable:	150cm, max 80°C, silicon rubber, 2 wires and screen
Protection:	IP64 (electronics)
Operating temperature:	-20÷80°C (probe) / -5÷50°C (electronics)
Dimensions of the enclosure:	120x80x55mm (electronics)
Power supply:	12÷24Vac/dc, 1VA

HT2WSE

Humidity and temperature transmitter

Sensor type:	*Capacitive*
Output signal:	*RS485*
Range:	*0%÷100%r.H / 0÷70°C*
Accuracy:	*±5%r.H. (25%÷75%r.H.) / ±0.3°C @ 25°C; ±1°C (0÷70°C)*
Sheath:	*Ø14x40mm*
Protection:	*IP65 (electronics)*
Operating temperature:	*0÷75°C (sensor) / 0÷50°C (electronics)*
Dimensions of the enclosure:	*110x53x75mm (electronics)*
Power supply:	*12Vdc, 0.2W*



PGT8 - PGT30

Pressure transmitters

PGT8

Sensor type:	Piezoresistive gauge
Output:	4÷20mA
Range:	-0.7÷8.0 bar
Accuracy:	±1% (0÷50°C)
Sheath:	Ø17x76 mm
Connections:	mPm connector
Pressure port:	G¼" male, Brass and Steel
Protection:	IP65
Ambient temperature:	-20÷80°C
Power supply:	8÷28Vdc

PGT30

Sensor type:	Piezoresistive gauge
Output:	4÷20mA
Range:	0÷30 bar
Accuracy:	±1% (0÷50°C)
Sheath:	Ø17x58 mm
Connections:	mPm connector
Pressure port:	G¼" male, Brass and Steel
Protection:	IP65
Ambient temperature:	-20÷80°C
Power supply:	8÷28Vdc

Programming Device

ZOT

ZERO OPERATOR'S TIME

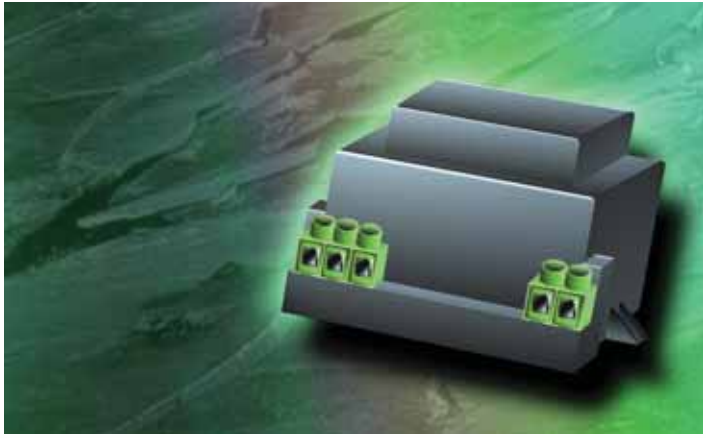
Programming Portable Device

Main Features

- *Ergonomic device for easy end-of-the-line controller configuration*
- *Permanent memory of stored setup values*
- *Can communicate with TTL and RS485 ports*
- *Requires no battery*

Technical Data

Communication port:	*TTL and RS485*
Connection:	*4-pin connector*
Power supply:	*from the connected instrument*
Consumption:	*0.2W (5Vdc)*
Front Protection:	*IP20*
Dimensions:	*41x20x88 mm*
Ambient temperature:	*0 ÷ 50°C*



Transformers

transformers

Code	Voltage of primary	Voltage of secondary	Frequency	Power	Dimensions (WxHxD mm)	Overtemp. protection	Approvals
TR230	230Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36		ENEC
TR230F	230Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36	✓	ENEC
TR240	240Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36		ENEC
TR110	110Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36		
TR115	115Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36		UL
TR24/12V	24Vac	12Vac/dc	50/60 Hz.	3VA	60.5x48x36		

TRE24
Voltage converter

Technical Data

Power supply:	*16..36Vdc*
Output:	*12Vdc*
Max. current:	*250mA*
Max. power:	*3W*
Dimensions:	*60.5X48X36 mm (WxHxD)*