CST
CUSTOM SENSORS & TECHNOLOGIES

Micro-control

Control system solutions adapted to your applications

08
Overview

■ Logic controllers

■ Control relays

■ Timers

www.crouzet.com

a brand of Schneider Electric

Crouzet

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Editorial

For over 40 years, Crouzet, a subsidiary of Schneider Electric, has established a reputation for providing quality timers, logic controllers and control relays. With the exciting new Millenium 3 & C-Lynx ranges, read on to discover Crouzet's complete Micro-control product offer.

Always one step ahead of market trends and customer requirements, Crouzet is continually developing its range of both standard and customised automation components and solutions to cover all the latest commercial and industrial applications and meet the needs expressed by manufacturers of automated equipment and machinery.

Throughout the world, Crouzet provides technical and industrial expertise to ensure that its products are perfectly customised and adapted for integration in any of your equipment.

In 2005, Schneider Electric set up the CST (Custom Sensors & Technologies) Business Unit incorporating the companies BEI, Crouzet, Crydom & Kavlico. In addition to the Micro-control products in this brochure, the new CST unit also offers an extensive range of products and solutions in detection, control and motorisation. The result? Even better service and technical choice for our customers.

Quality is at the heart of Crouzet's strategy. Our Quality Control and Environmental Management Systems are ISO 9001 and ISO 14001 certified respectively.

Eco-design is also a pivotal component in the company's "Offer Creation Process", the aim of which is to design products and services that match customer requirements whilst at the same time reducing their environmental impact throughout their life cycle.

All Crouzet products are now fully compliant with the RoHS directive.

RoHS

Crouzet

www.crouzet.com

Micro-control expertise

Expertise - for all your applications

■ **Crouzet's Micro-control offer** encapsulates all the vital steps in creating standard control system solutions and ensuring equipment reliability:

- □ **Analysis** of customer requirements
- □ **Multidisciplinary expertise** in the fields of sensors, motors and pneumatic components
- □ **Advanced prototyping** and on-site testing for adapted products
- □ Electrical, mechanical and climatic endurance **tests**
- □ **Standardisation and approval** of components (e.g., EMC)
- □ Electronics, electrical, mechanical and cable connections **expertise**
- □ Software & Firmware **engineering**
- □ **Customisable** product marking and labelling
- □ **International logistics,** after sales service.

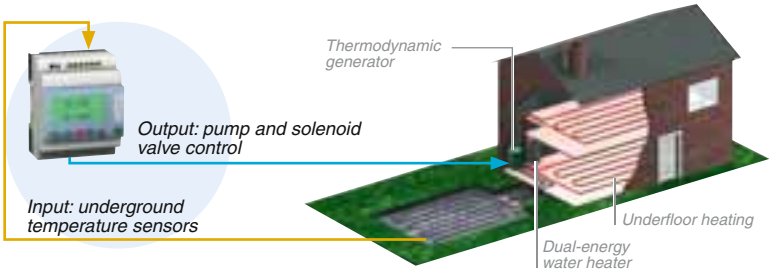
■ **Crouzet has developed extensive** "Adapted Control" expertise to meet the specific needs of each customer. Standard offers can therefore be tailored to provide dedicated products and solutions at any time.

■ **Crouzet's Micro-control products** are used in a variety of commercial applications, such as Building Management Systems, access management and vending machines, as well as in industrial applications, such as plastic forming tools, conveyors and woodworking machines.
They can also control agricultural equipment, water treatments (pump control, filtration...) and manage instalation dedicated to new energies (wind, solar, biomass...).

For more application examples, click on the "Applications" heading in the Micro-control section on our website: **www.crouzet.com**

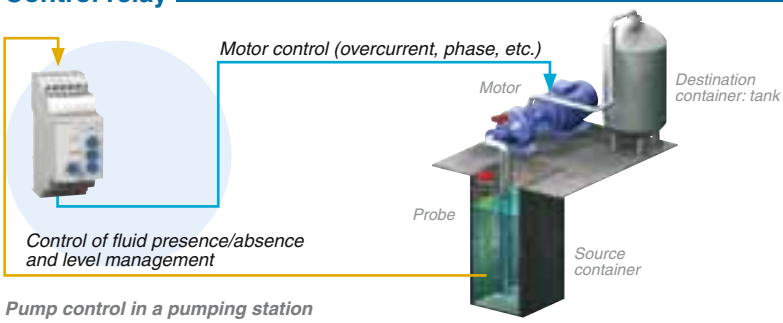
Examples of Micro-control applications:

Logic controller



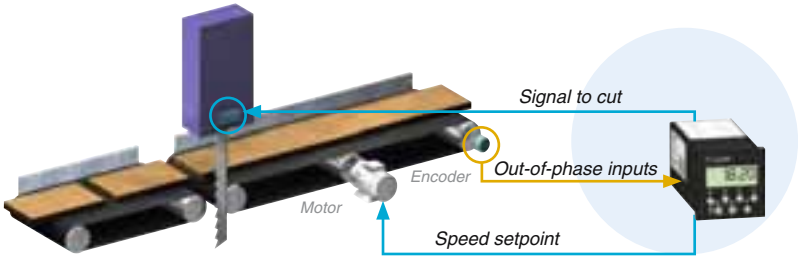
Heat control and domestic hot water system management: heat pump

Control relay



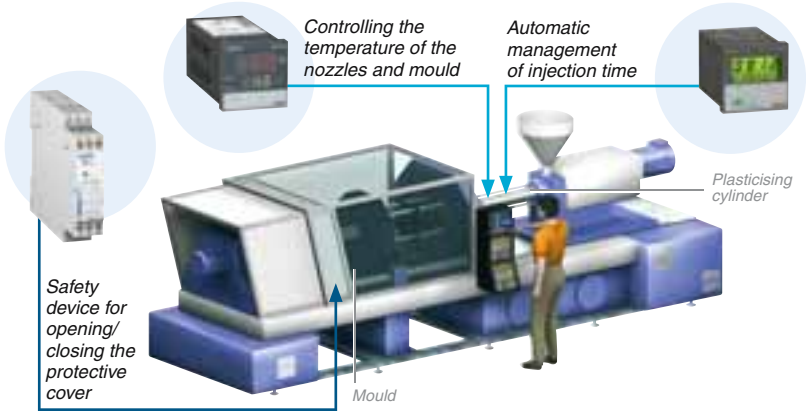
Pump control in a pumping station

Counter / Ratemeter



Cutting to length on woodworking machine

Temperature controller / Timer / Safety relay



Control and safety devices for injection/moulding press

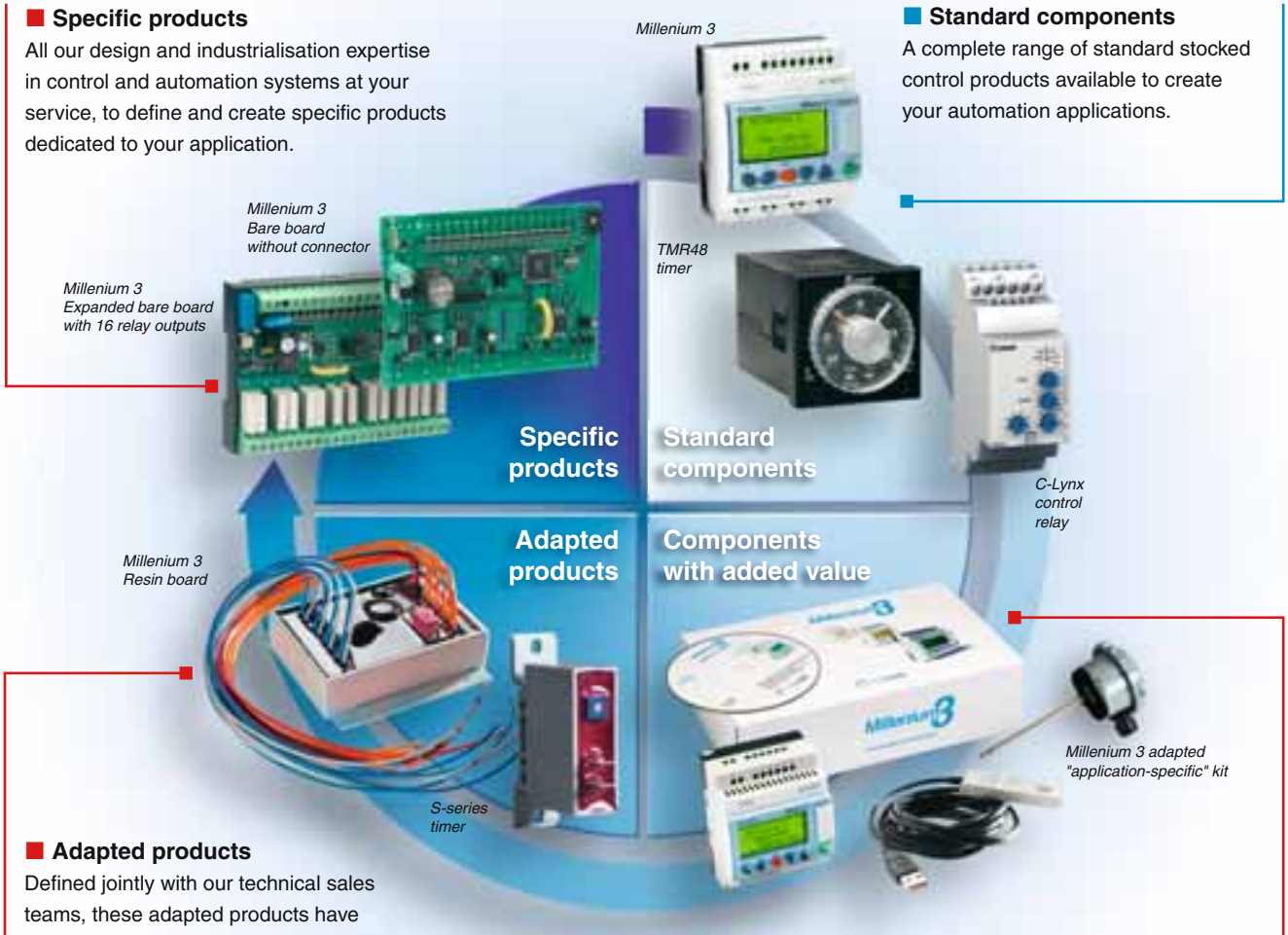
Adapted Micro-control offer

Whatever the type of machine, Crouzet can adapt standard components or create specific products to work in complete harmony with your equipment.
Just take a look at the adaptation wheel below to discover the different levels of customisation offered by Crouzet's Customer Adaptation Technical Service.

■ Dedicated Adapted Control Team

■ Specific products
All our design and industrialisation expertise in control and automation systems at your service, to define and create specific products dedicated to your application.

■ Standard components
A complete range of standard stocked control products available to create your automation applications.



■ Adapted products
Defined jointly with our technical sales teams, these adapted products have all the performance and functionality you need for your application.

■ Components with added value
Standard products complemented by factory-mounted auxiliaries or accessories (connectors, cables, wire outputs, etc.) or supplied as special kits to assist integration into your equipment, simplify logistics and maximise the reliability of your installation.

Presentation of the offer

Micro-control offer

■ Global distribution network

Taking a specialist approach to offer complete solutions, Crouzet harnesses electronic and electromechanical technologies to meet all your time management, management of physical and electrical values and counting requirements.
The entire range is sold through a global distribution network working hand in hand with local sales forces dedicated to Micro-control applications.

Product	Technology		Functions					
	Electronic	Electromechanical	Sensing	Operator dialogue	Processing	Actuating	Communicating	Supplying power
	Range	Range						
Logic controller P. 6-11	■ **Millenium 3** "compact" version ■ **Millenium 3** "expandable" version ■ **Millenium 3** digital or analogue extensions ■ **Millenium 3** "application-specific" extensions ■ Accessories (faceplates, converters, display units, etc.)	-	■	■	■	■	■	
	■ **Millenium 3** network communication extensions	-					■	
	■ **Millenium 3** modem communication interface	-					■	
Serveur Web for supervision P. 11	■ **Millenium Web Server**	-		■	■		■	
Regulated switch mode power supply P. 12-13	■ **Modular power supply** ■ **Equipment power supply** for integrated control system ■ DC/DC **converter**	-						■
Control relay P. 14-19	■ **C-Lynx** ■ **E, L & F** series ■ **Defrost relay**	-	■		■	■		
Timer P. 20-31 *DIN rail mounted*	■ **Chronos** ■ **RTM miniature** ■ **S serie**	■ **TOP 2000**	■	■	■	■		
Panel-mounted	■ **TMR 48** (Analogue) ■ **MBA** (Analogue) ■ **TIMER 8xx** (Digital)	■ **TOP 2000** ■ **Manual reset**	■	■	■	■		
Counter / Ratemeter P. 32-35	■ **CPT4** (with preselection) ■ **CP2** (without preselection)	■ **CH48G** ■ **36 x 37 mm** ■ **36 x 48 mm**	■	■	■	■		
Temperature controller P. 36-37	■ **CT48A** (Analogue) ■ **CTD24** (Digital) ■ **MIC48** (Digital) ■ **CTD43** (Digital) ■ **CTD46** (Digital) ■ **CTH46** (Digital) ■ **Pt100 & Thermocouple probes**	-	■	■	■	■		
Safety relay P. 38-39	■ **Emergency stops** and/or **mobile safety guards** ■ Relevelling **check** ■ **Timed contacts** ■ **Extension relays** ■ **Zero speed monitoring** ■ **Two-hand control**	-	■		■	■		

Millenium 3 "Compact" range

Millenium 3 logic controllers

Type		Part number	Power supply	Inputs	Outputs
With display					
	CD12 NEW	**88970041**	24 V ⎓	8 digital (including 4 analogue)	4 relays 8 A
		88970042	24 V ⎓	8 digital (including 4 analogue)	4 solid state 0.5 A (including 1 PWM)
		88970043	100 → 240 V ∿	8 digital	4 relays 8 A
		88970044	24 V ∿	8 digital	4 relays 8 A
		88970045	12 V ⎓	8 digital (including 4 analogue)	4 relays 8 A
	CD20 NEW	**88970051**	24 V ⎓	12 digital (including 6 analogue)	8 relays 8 A
		88970052	24 V ⎓	12 digital (including 6 analogue)	8 solid state 0.5 A (including 4 PWM)
		88970053	100 → 240 V ∿	12 digital	8 relays 8 A
		88970054	24 V ∿	12 digital	8 relays 8 A
		88970055	12 V ⎓	12 digital (including 6 analogue)	8 relays 8 A
Without display					
	CB12 NEW	**88970021**	24 V ⎓	8 digital (including 4 analogue)	4 relays 8 A
		88970023	100 → 240 V ∿	8 digital	4 relays 8 A
		88970024	24 V ∿	8 digital	4 relays 8 A
	CB20 NEW	**88970031**	24 V ⎓	12 digital (including 6 analogue)	8 relays 8 A
		88970033	100 → 240 V ∿	12 digital	8 relays 8 A
		88970034	24 V ∿	12 digital	8 relays 8 A

■ **Ergonomic display**

■ **Optimum memory capacity**

▷ Millenium 3 logic controllers operate with the following software:

■ **M3 SOFT**
Multilingual programming software (CD-ROM)
Part no.: 88970100

■ **M3 SPECIFIC FUNCTIONS**
Libraries of specific functions (CD-ROM)
Part no.: 88970103

■ **M3 ALARM**
Alarm management software (CD-ROM)
Part no.: 88970116
This software is used alongside communication interface M3MOD (Part no.: 88970117)

Modem communication solutions			Modular power supplies [1]					Starter kits and demo case
M3 MOD	RTC	GSM	12 V DC - 24 W	24 V DC - 7.5 W	24 V DC - 15 W	24 V DC - 30 W	24 V DC - 60 W	
NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW
88970117	88970118	88970119	88950306	88950303	88950304	88950307	88950302	Standard
■	□	□		■	■	■	■	**88970080**
■	□	□		■	■	■	■	**88970106** (Demo-case)
■	□	□						**88970081**
■	□	□						
■	□	□	■					
■	□	□		■	■	■	■	**88970082**
■	□	□		■	■	■	■	
■	□	□						**88970083**
■	□	□						
■	□	□	■					
■	□	□		■	■	■	■	
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■	□	□						
■	□	□						

■ *Compatible*
□ *Mounted with M3MOD:*
- GSM modem
- or STN modem

[1] Find the whole "Power Supplies" offer on pages 12-13

▷ The 4 starter kits each contain:

■ 1 CD12 or CD20 logic controller + 1 USB link cable + 1 M3 SOFT programming software CD-ROM + 1 M3 SPECIFIC FUNCTIONS CD-ROM.

Part no.: 88970080 / 88970081 / 88970082 / 88970083

▷ The demonstration case contains:

■ 1 CD12 logic controller + 1 USB link cable + 1 M3 SOFT programming software CD-ROM + 1 M3 SPECIFIC FUNCTIONS CD-ROM + 1 voltage adaptor + 1 I/O simulation card.

Part no.: 88970106

Millenium 3 "Expandable" range

Millenium 3 logic controllers

Type		Part number	Power supply	Inputs	Outputs
With display					
	XD10 NEW	**88970141**	24 V ⎓	6 digital (including 4 analogue)	4 relays 8 A
		88970142	24 V ⎓	6 digital (including 4 analogue)	4 solid state 0.5 A (including 1 PWM)
		88970143	100 ➞ 240 V ∿	6 digital	4 relays 8 A
		88970144	24 V ∿	6 digital	4 relays 8 A
	XD26 NEW	**88970161**	24 V ⎓	16 digital (including 6 analogue)	10 relays (8 x 8 A relay and 2 x 5 A relay)
		88970162	24 V ⎓	16 digital (including 6 analogue)	10 solid state 0.5 A (including 4 PWM)
		88970163	100 ➞ 240 V ∿	16 digital	10 relays (8 x 8 A relay and 2 x 5 A relay)
		88970164	24 V ∿	16 digital	10 relays (8 x 8 A relay and 2 x 5 A relay)
		88970165	12 V ⎓	16 digital (including 6 analogue)	10 relays (8 x 8 A relay and 2 x 5 A relay)

"Sandwich" extensions

Type		Part number	Power supply	Inputs	Outputs
Digital					
	XE10 NEW	**88970321**	Via the controller 24 V ⎓	6 digital	4 relays 5 A (1 of which is a changeover relay)
		88970323	100 ➞ 240 V ∿	6 digital	4 relays 5 A (1 of which is a changeover relay)
		88970324	24 V ∿	6 digital	4 relays 5 A (1 of which is a changeover relay)

Type		Part number	Power supply	Network	Characteristics of exchanges (words)
Communication					
	XN05 NEW	**88970270**	Via the controller 24 V ⎓	Ethernet (Server)	Read: 8 - Read/Write: 8 Clock: 4 - Status: 1
	XN03 NEW	**88970250**	Via the controller 24 V ⎓	Modbus RS-485 (Slave)	Read: 4 - Read/Write: 4 Clock: 4 - Status: 1
	XN06 NEW	**88972250***	Via the controller 24 V ⎓	Modbus RS-485 (Slave)	Read: 8 - Read/Write: 8 Clock: 12 - Status: 1

Termination extensions

Type		Part number	Power supply	Inputs	Outputs
Digital					
	XR06 NEW	**88970211**	Via the controller 24 V ⎓	4 digital	2 relays 8 A
		88970213	Via the controller 100 ➞ 240 V ∿	4 digital	2 relays 8 A
		88970214	Via the controller 24 V ∿	4 digital	2 relays 8 A
		88970215	Via the controller 12 V ⎓	4 digital	2 relays 8 A
	XR10 NEW	**88970221**	Via the controller 24 V ⎓	6 digital	4 relays 8 A
		88970223	Via the controller 100 ➞ 240 V ∿	6 digital	4 relays 8 A
		88970224	Via the controller 24 V ∿	6 digital	4 relays 8 A
		88970225	Via the controller 12 V ⎓	6 digital	4 relays 8 A
	XR14 NEW	**88970231**	Via the controller 24 V ⎓	8 digital	6 relays (4 x 8 A relay and 2 x 5 A relay)
		88970233	Par le contrôleur 100 ➞ 240 V ∿	8 digital	6 relays (4 x 8 A relay and 2 x 5 A relay)
		88970234	Via the controller 24 V ∿	8 digital	6 relays (4 x 8 A relay and 2 x 5 A relay)
		88970235	Via the controller 12 V ⎓	8 digital	6 relays (4 x 8 A relay and 2 x 5 A relay)
Analogue and "Application-specific" analogue					
	XA04 NEW	**88970241**	Via the controller 24 V ⎓	1 analogue (0-10V / 0-20mA), 1 analogue (0-10V / 0-20mA / Pt100)	2 analogue (0-10V) / PWM
	XA04W NEW	**88972805***	Via the controller 24 V ⎓	1 pH (1) (0-14), 1 ORP (2) (0-1000mV) 1 current (4-20mA), 1 Pt100 (0-50°C)	-
	XA03 NEW	**88970800***	Via the controller 24 V ⎓	3 Pt100 (-25 ➞ +125°C)	-

** These products are used with the M3 AC SOFT software - **Part no.: 88970111***

*(1) pH probe - **Part no.: 89750171** - (2) ORP (Redox) probe - **Part no.: 89750173***

	Modem communication solutions			Modular power supplies (1)					Starter kits
	M3 MOD	RTC	GSM	12 V DC - 24 W	24 V DC - 7.5 W	24 V DC - 15 W	24 V DC - 30 W	24 V DC - 60 W	
	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW
	88970117	88970118	88970119	88950306	88950303	88950304	88950307	88950302	Expandable
	■	□	□		■	■	■	■	
	■	□	□		■	■	■	■	
	■	□	□						
	■	□	□						
	■	□	□		■	■	■	■	
	■	□	□		■	■	■	■	88970084 / 88970094
	■	□	□						88970085
	■	□	□						
	■	□	□	■					

■ *Compatible*
□ *Mounted with M3MOD:*
- GSM modem
- or STN modem

(1) Find the whole "Power Supplies" offer on pages 12-13

▷ Millenium 3 logic controllers operate with the following software:

■ M3 SOFT
Multilingual programming software (CD-ROM)
Part no.: 88970100

■ M3 SPECIFIC FUNCTIONS
Libraries of specific functions (CD-ROM)
Part no.: 88970103

■ M3 ALARM
Alarm management software (CD-ROM)
Part no.: 88970116
This software is used alongside communication interface M3MOD (Part no.: 88970117)

▷ The 3 starter kits each contain:

■ 1 XD26 logic controller + 1 USB link cable + 1 M3 SOFT programming software CD-ROM + 1 M3 SPECIFIC FUNCTIONS CD-ROM
Part no: 88970084 / 88970085 / 88970094
■ The **88970094** starter kit also contains a 24 V DC - 30 W power supply.

▶ Millenium 3 Adapted Control:

■ Crouzet offers a range of **"hardened or specific" products:**
□ Bare board versions (12 or 20 I/O)
□ Resin board versions for harsh environments (vibration resistance and extended temperature range)
□ "Application-specific" analogue extensions: Temperature control (3 Pt100), Water treatment (pH, ORP/Redox).

■ Crouzet can also provide **Millenium 3 solutions adapted**, as required to meet any specification, offering, for example, a greater number of I/O, specific extensions, dedicated connections, customised laser marking, and "customer" software functions, kitting of products (ie.: Millenium 3 + temperature sensors)…

For any special applications, please contact our Micro-control sales and technical experts.

Millenium 3 "Accessories" range

Programming

Type	Part number	Description
Connection accessories		
PA NEW	**88970102**	3 m serial link cable: PC => Millenium 3
	88970104	Millenium 3 => Bluetooth interface (class A 10 m)
	88970108	EEPROM memory cartridge for transferring/saving programs
	88970109	3 m USB link cable: PC => Millenium 3
	88970110	Bluetooth => USB adaptor (class A 10 m)
	88970123	1.80 m serial link cable: DB9/DB9

(PA): Programming accessories

Sensing

Type	Part number	Description	Power supply	Main characteristic
Analogue temperature sensors				
AS	**89750146**	Copper protective sleeve	-	-20 ➞ +100°C
	89750147	Stainless steel 316 protective sleeve	-	-20 ➞ +400°C
	89750150	Zone/space sensor (0-10 V)	24 V ⎓	-10 ➞ +40°C
	89750151	Ventilation duct (0-10 V)	24 V ⎓	-10 ➞ +60°C
	89750152	Outdoor sensor (0-10 V)	24 V ⎓	-10 ➞ +40°C
	89750153	Remote/submersible probe (0-10 V)	24 V ⎓	-10 ➞ +150°C
	89750155	Remote/submersible probe (0-10 V)	24 V ⎓	-40 ➞ +20°C
	89750180	Sensor CTN for Millenium 3 - 24 V ⎓ (pack of 10)	-	-25 ➞ +85°C
	89750181	Sensor CTN fo Millenium 3 - 24 V ⎓ (pack of 100)	-	-25 ➞ +85°C
	18373112	Heat transfer compound	-	-
	79696035	Pt100 probe Class B with stainless steel 316 sheath	-	max.: 200°C
	79696036	Pt100 probe Class B with stainless steel 316 sheath	-	max.: 400°C
	79696037	Pt100 probe Class B with aluminium V6 sheath	-	max.: 200°C
Analogue pressure transmitters 4-20 mA (1)				
AS NEW	**89210001**	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 0.25 bar
	89210002	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 1 bar
	89210003	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 2.5 bar
	89210004	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 10 bar
	89210005	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 25 bar
	89210006	Capacitive pressure transmitter: Relative (2)	12 ➞ 32 V ⎓	0 ➞ 60 bar
	89210007	Capacitive pressure transmitter: Absolute (3)	12 ➞ 32 V ⎓	0 ➞ 1 bar
	89210008	Capacitive pressure transmitter: Absolute (3)	12 ➞ 32 V ⎓	0 ➞ 2.5 bar
	89210009	Capacitive pressure transmitter: Absolute (3)	12 ➞ 32 V ⎓	0 ➞ 10 bar
	89210010	Capacitive pressure transmitter: Absolute (3)	12 ➞ 32 V ⎓	0 ➞ 25 bar
	89210011	Capacitive pressure transmitter: Absolute (3)	12 ➞ 32 V ⎓	0 ➞ 100 bar

(AS): Analogue sensors *(1) Connection: G 1/4 male DIN 16288* *(2) In relation to the atmospheric pressure* *(3) In relation to vacuum*

Converting

Type	Part number	Description	Power supply	Inputs	Outputs
Signal converters					
AC	**88950108**	0-20 mA / 0-10 V input converter	-	4	4
	88950112	PWM / 0-10 V output converter	24 V ⎓	1	1
Temperature converters					
AC	**88950150**	Input converter -20 ➞ + 150°C	24 V ⎓	Pt1000 3-wire	0-10 V
	88950151	Input converter -40 ➞ + 40°C	24 V ⎓	Pt100 3-wire	0-10 V
	88950152	Input converter 0 ➞ + 100°C	24 V ⎓	Pt100 3-wire	0-10 V
	88950153	Input converter 0 ➞ + 250°C	24 V ⎓	Pt100 3-wire	0-10 V
	88950154	Input converter 0 ➞ + 300°C	24 V ⎓	Thermocouple J	0-10 V
	88950155	Input converter 0 ➞ + 600°C	24 V ⎓	Thermocouple K	0-10 V

(AC): Analog Converter

Displaying

Type		Part number	Description	Power supply
Remote LCD alphanumeric displays (Modbus communication)				
	RD	**88970421**	Runtime kit: Three-colour screen + XN06 Modbus extension	24 V ⎓
		88970422	Runtime kit: Monochrome screen + XN06 Modbus extension	24 V ⎓
		88970844	Programming kit: Monocolour screen + XN06 Modbus extension + CD + cables	24 V ⎓
		88970849	Programming kit: Three-chrome screen + XN06 Modbus extension + CD + cables	24 V ⎓
Remote LCD displays/keypads (direct link with Millenium 3 via cable)				
	RD NEW	**88970410**	Remote LCD screen/keypad	24 V ⎓
		88970411	Remote LCD screen/keypad + 4 function buttons + 4 LEDs	24 V ⎓
		88970412	Kit with remote LCD screen/keypad + cable	24 V ⎓
		88970413	Kit with remote LCD screen/keypad + 4 function buttons + 4 LEDs + cable	24 V ⎓
		88970414	IP65 protection accessory for display/keypad	
Remote LED display - Input 0-10 V				
	RD	**88950400**	Display with 4 x 14 mm red digits	24 V ⎓
Potentiometer Ø 22 mm				
	EP	**88950109**	External potentiometer for value adjustment (4700 Ω)	30 V ⎓ max

(RD): Remote Display - (EP): External potentiometer

Mounting

Type		Part number	Description	List of products
Removable connectors				
	MA	**88970310**	Removable kit 12 I/O	CD12 or CB12
		88970311	Removable kit 20 I/O	CD20 or CB20
Faceplates				
	MA NEW	**89750160**	IP67 sealed faceplate (76.5 mm)	CD12
		89750161	IP67 sealed faceplate (147.5 mm)	■ XD10 + XR06 or XN03 or XN05 or XA04 ■ CD20 ■ XD10 + XN03 or XN05 + XR06 or XA04 ■ XD10 + XR10 or XR14
		89750162	IP67 sealed faceplate (248.5 mm)	■ XD26 + XR06 or XN03 or XN05 or XA04 ■ XD10 + XN03 or XA04 + XR10 or XR14 ■ XD10 + XE10 + XR06 or XA04 ■ XD26 + XN03 or XN05 + XR06 or XA04 ■ XD26 + XR10 or XR14 ■ XD10 + XE10 + XR10 or XR14 ■ XD26 + XE10 + XR06 or XA04 ■ XD26 + XN03 or XN05 + XR10 or XR14
		88970809	IP40 faceplate	CD12 or CB12
		88970810	IP40 faceplate	CD20 or CB20

(MA): Mounting Accessories

Millenium Web Server Solution

Supervising / Archiving / Remote diagnostics / Managing Modbus networks

Type		Part number	Description	Power supply
	XC10 NEW	**88950124**	The Millenium Web Server solution comprises: the Web Server module + 1 supervision page configuration software package (any Internet browser can be used)	24 V ⎓

Regulated switch mode power supplies

Description	Type	Part number	Input voltage	Nominal output voltage
Modular casing < 60W				
Modular power supplies - Millenium range				
	PS NEW	**88950303**	100 → 240 V ∿	24 V ⎓ (22.8 V → 28.8 V)
		88950304		24 V ⎓ (22.8 V → 28.8 V)
		88950305		5 V ⎓ (4.75 → 6.25 V)
		88950306		12 V ⎓ (11.4 V → 15 V)
		88950307		24 V ⎓ (22.8 V → 28.8 V)
		88950302		24 V ⎓ (22.8 V → 28.8 V)
DC/DC converter				
	PS NEW	**88950320**	9 → 18 V ⎓	12 V ⎓ (11.8 V → 12.2 V)
		88950321	9 → 36 V ⎓	24 V ⎓ (23.5 V → 24.5 V)
Metal casing > 60W				
Equipment power supplies for integrated control systems				
	89450 Without PFC*	**89450110**	100 → 240 V ∿	12 V ⎓
		89450210		24 V ⎓
		89450221		24 V ⎓
		89450231	115 / 230 V ∿	24 V ⎓
		89450241		24 V ⎓
	89450 With PFC*	**89450122**	100 → 240 V ∿	12 V ⎓
		89450222		24 V ⎓
		89450232	115 / 230 V ∿	24 V ⎓
		89450242		24 V ⎓
	89450 Accessories	**26450100**	Snap-on plate for 35 mm DIN rail	
		26450101	Mounting bracket	

** PFC = Power Factor Correction*

	Nominal power	Nominal output current	Casing width	Connection
	7.5 W	0.3 A	36 mm	Screw terminals
	15 W	0.6 A	36 mm	
	20 W	4 A	54 mm	
	24 W	2 A	54 mm	
	30 W	1.2 A	54 mm	
	60 W	2.5 A	72 mm	
	10 W	0.8 A	36 mm	Screw terminals
	10 W	0.4 A	36 mm	
	60 W	5 A	-	Screw terminals
	60 W	2.5 A	-	
	100 W	4.2 A	-	
	150 W	6.2 A	-	
	240 W	10 A	-	
	100 W	8.3 A	-	
	100 W	4.2 A	-	
	150 W	6.2 A	-	
	240 W	10 A	-	

E, F, L and C-Lynx ranges

Description	Type	Part number	Power supply
C-Lynx phase control			
	MWS NEW	**84873020**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
	MWS2 NEW	**84873021**	Self-powered 3 x 208 → 3 x 440 V ∿ - 50/60 Hz
	MWG NEW	**84873022**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
	MWU NEW	**84873023**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
	MWA NEW	**84873024**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
	MWUA NEW	**84873025**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
	HWUA NEW	**84873026**	Self-powered 3 x 220 → 3 x 480 V ∿ - 50/60 Hz
	H3US NEW	**84873220**	Self-powered 3 x 220 → 3 x 480 V ∿ - 50/60 Hz
	H3USN NEW	**84873221**	Self-powered 3 x 120 → 3 x 277 V ∿ (Phase-Neutral) 50/60 Hz
	M3US NEW	**84873222**	Self-powered 3 x 208 → 3 x 480 V ∿ - 50/60 Hz
E-series phase control			
	EWS	**84892299**	Self-powered 3 x 200 → 3 x 500 V ∿ - 50/60 Hz
	EWS2	**84873004**	Self-powered 3 x 200 → 3 x 460 V ∿ - 50/60 Hz
C-Lynx current control			
	MIC NEW	**84871122**	24 → 240 V ⎓ - 50/60 Hz
	HIL NEW	**84871120**	24 → 240 V ⎓ - 50/60 Hz
	HIH NEW	**84871130**	24 → 240 V ⎓ - 50/60 Hz
E-series current control			
	EIT	**84871040**	24 V ⎓ - 50/60 Hz
		84871041	24 V ∿ - 50/60 Hz
		84871042	48 V ∿ - 50/60 Hz
		84871043	120 V ∿ - 50/60 Hz
		84871044	230 V ∿ - 50/60 Hz
	TI for EIT	**26852304**	-
	EIL	**84871020**	24 V ⎓ - 50/60 Hz
		84871021	24 V ∿ - 50/60 Hz
		84871022	48 V ∿ - 50/60 Hz
		84871023	120 V ∿ - 50/60 Hz
		84871024	230 V ∿ - 50/60 Hz
	EIH	**84871030**	24 V ⎓ - 50/60 Hz
		84871031	24 V ∿ - 50/60 Hz
		84871032	48 V ∿ - 50/60 Hz
		84871033	120 V ∿ - 50/60 Hz
		84871034	230 V ∿ - 50/60 Hz
C-Lynx frequency control			
	HHZ NEW	**84872501**	120 → 277 V ∿ - 50/60 Hz

Control relays

Control functions	Control values	Output relay	Casing width
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	1 single pole changeover relay 5 A	17.5 mm
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	2 single pole changeover relays 5 A	17.5 mm
Phase failure and phase sequence (with regeneration)	208 → 480 V ∿ - 50/60 Hz	1 single pole changeover relay 5 A	17.5 mm
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	1 single pole changeover relay 5 A	17.5 mm
Undervoltage	-20% → -2%		
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	1 single pole changeover relay 5 A	17.5 mm
Asymmetry	5% → 15 %		
Undervoltage and overvoltage	-20% → -2% / +2% → +20%	1 single pole changeover relay 5 A	17.5 mm
Asymmetry	5% → 15 %		
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz		
Overvoltage	+2% → +20%	1 double changeover relay 2 x 5 A	35 mm
Asymmetry	5% → 15 %		
Undervoltage	-20% → -2%		
Phase failure and phase sequence	220 → 480 V ∿ - 50/60 Hz		
Phase failure	220 → 480 V ∿ - 50/60 Hz	2 single pole changeover relays 5 A	35 mm
Undervoltage	-20% → -2%		
Overvoltage	+2% → +20%		
Phase failure and loss of neutral	120-277 V ∿ - 50/60 Hz	2 single pole changeover relays 5 A	35 mm
Undervoltage	-20% → -2%		
Overvoltage	+2% → +20%		
Phase failure	208 → 480 V ∿ - 50/60 Hz	1 single pole changeover relay 5 A	17.5 mm
Undervoltage	-20% → -2%		
Overvoltage	+2% → +20%		
Phase failure and phase sequence	200 - 500 V ∿	1 single pole changeover relay 8 A	22.5 mm
Phase failure and phase sequence	200 - 460 V ∿	2 single pole changeover relays 8 A	22.5 mm
Overcurrent (or undercurrent) with built-in current transformer	2 A → 20 A	1 single pole changeover relay 5 A	17.5 mm
Undercurrent or overcurrent	2 mA → 20 mA / 10 mA → 100 mA / 50 mA → 500 mA	1 double changeover relay 2 x 5 A	35 mm
Undercurrent or overcurrent	0,1 A → 1 A / 0.5 A → 5 A / 1 A → 10 A	1 double changeover relay 2 x 5 A	35 mm
Undercurrent or overcurrent	10 A → 100 A with current transformer **(Part no: 26852304)**	1 single pole changeover relay 8 A	22.5 mm
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Current transformer	10 → 100 A	-	-
Undercurrent or overcurrent	2 mA → 20 mA / 10 mA → 100 mA / 50 mA → 500 mA	1 single pole changeover relay 8 A	22.5 mm
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent	0.1 A → 1 A / 0.5 A → 5 A / 1 A → 10 A	1 single pole changeover relay 8 A	22.5 mm
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Undercurrent or overcurrent			
Underfrequency or overfrequency (window)	40 → 60 Hz and 50 → 70 Hz	2 single pole changeover relays 5 A	35 mm

Description	Type	Part number	Power supply	Control functions
C-Lynx voltage control				
	MUS12DC NEW	**84872140**	Self-powered12 V ⎓ - 50/60 Hz	Overvoltage or undervoltage
	MUS80ACDC NEW	**84872141**	Self-powered 24 ➞ 48 V ≂ - 50/60 Hz	Overvoltage or undervoltage
	MUS260ACDC NEW	**84872142**	Self-powered 110 ➞ 240 V ≂ - 50/60 Hz	Overvoltage or undervoltage
	MUSF80ACDC NEW	**84872151**	Self-powered 24 ➞ 48 V ≂ - 50/60 Hz	Overvoltage and undervoltage (window)
	MUSF260ACDC NEW	**84872152**	Self-powered 110 ➞ 240 V ≂ - 50/60 Hz	Overvoltage and undervoltage (window)
	HUH NEW	**84872120**	24 ➞ 240 V ≂ - 50/60 Hz - 50/60 Hz	Overvoltage or undervoltage
	HUL NEW	**84872130**	24 ➞ 240 V ≂ - 50/60 Hz - 50/60 Hz	Overvoltage or undervoltage
E-series voltage control				
	EUL	**84872020**	24 V ⎓ - 50/60 Hz	Overvoltage or undervoltage
		84872021	24 V ∿ - 50/60 Hz	Overvoltage or undervoltage
		84872023	120 V ∿ - 50/60 Hz	Overvoltage or undervoltage
		84872024	230 V ∿ - 50/60 Hz	Overvoltage or undervoltage
	EUH	**84872030**	24 V ⎓ - 50/60 Hz	Overvoltage or undervoltage
		84872031	24 ∿ - 50/60 Hz	Overvoltage or undervoltage
		84872033	120 V ∿ - 50/60 Hz	Overvoltage or undervoltage
		84872034	230 V ∿ - 50/60 Hz	Overvoltage or undervoltage
C-Lynx level control				
	HNM NEW	**84870700**	24 ➞ 240 V ≂ - 50/60 Hz	Filling or emptying with conductive liquids (1 or 2 levels)
	MNS NEW	**84870720**	24 ➞ 240 V ≂ - 50/60 Hz	Filling (1 level)
	HNE NEW	**84870710**	24 ➞ 240 V ≂ - 50/60 Hz	Filling or emptying with all types of material (1 or 2 levels)
E, F and L series level control				
	ENR	**84870201**	24 V ∿ - 50/60 Hz	Filling or emptying with conductive liquids (1 or 2 levels)
		84870203	120 V ∿ - 50/60 Hz	
		84870204	230 V ∿ - 50/60 Hz	
	ENRM	**84870211**	24 V ∿ - 50/60 Hz	Filling or emptying with conductive liquids (2 levels)
		84870213	120 V ∿ - 50/60 Hz	
		84870214	230 V ∿ - 50/60 Hz	
	FNLS	**84870803**	230 V ∿ - 50/60 Hz	Filling or emptying with conductive liquids (2 levels: high/low)
	FN	**84870501**	24 V ∿ - 50/60 Hz	Filling or emptying with conductive liquids (2 levels: high/low)
		84870502	48 V ∿ - 50/60 Hz	
		84870503	120 V ∿ - 50/60 Hz	
		84870504	230 V ∿ - 50/60 Hz	
	LN	**84870301**	24 V ∿ - 50/60 Hz	Emptying with conductive liquids (1 or 2 levels))
		84870303	120 V ∿ - 50/60 Hz	
		84870304	230 V ∿ - 50/60 Hz	
		84870306	24 V ∿ - 50/60 Hz	
		84870308	120 V ∿ - 50/60 Hz	
		84870309	230 V ∿ - 50/60 Hz	
	L2N	**84870401**	24 V ∿ - 50/60 Hz	Filling and monitoring of wells (2 levels)
		84870403	120 V ∿ - 50/60 Hz	
		84870404	230 V ∿ - 50/60 Hz	
Level control accessories				
	S5	**79696006**	High-pressure and high-temperature probe ≤ 350°C (connection: G 3/8)	
	S3	**79696014**	Electrode holder with a single 1000 mm probe ≤ 200°C (connection: G 1/2)	
	S7	**79696043**	Protected electrode for level > 1 metre, for mounting by suspension and connected using cable C1 (part no.: 79696001: length as per request)	
	S8	**79696044**	A light, compact 3-probe electrode holder (probes measuring 1000 mm) ≤ 80°C (connection: G 1/2)	

Control relays

Control values	Output relay	Casing width
9 → 15 V ⎓	1 single pole changeover relay 5 A	17.5 mm
20 → 80 V ∿	1 single pole changeover relay 5 A	17.5 mm
65 → 260 V ∿	1 single pole changeover relay 5 A	17.5 mm
20 → 80 V ∿	1 single pole changeover relay 5 A	17.5 mm
65 → 260 V ∿	1 single pole changeover relay 5 A	17.5 mm
0,2 V → 2 V / 1 V → 10V / 6V → 60 V	1 double changeover relay 2 x 5 A	35 mm
15 V → 150 V / 30 V → 300 V / 60 V → 600 V	1 double changeover relay 2 x 5 A	35 mm
0,2 V → 2 V / 1 V → 10V / 6 V → 60 V	1 single pole changeover relay 8 A	22.5 mm
15 V → 150 V / 30 V → 300 V / 60 V → 600 V	1 single pole changeover relay 8 A	22.5 mm
Sensitivity: 250 Ω → 5 kΩ / 5 kΩ → 100 kΩ / 50 kΩ → 1 MΩ	1 double changeover relay 2 x 5 A	35 mm
Contact input for discrete sensor	1 single pole changeover relay 5 A	17.5 mm
Contact input for discrete sensor: PNP or NPN sensor/contact	1 single pole changeover relay 5 A	35 mm
Sensitivity: 5 kΩ - 100 kΩ	1 single pole changeover relay 8 A	22.5 mm
Sensitivity: 250 Ω - 5 kΩ / 5 kΩ - 100 kΩ / 50 kΩ - 1 MΩ	1 single pole changeover relay 8 A	22.5 mm
Sensitivity: 250 Ω - 5 kΩ	2 single pole changeover relays 8 A	45 mm
Sensitivity: 5 kΩ - 100 kΩ with alarm (overflow or running dry)	2 single pole changeover relays 8 A	45 mm
Sensitivity: 5 kΩ - 100 kΩ	1 single pole changeover relay 8 A	45 mm plug-in 8-pin (1)
		45 mm plug-in 8-pin (1)
		45 mm plug-in 8-pin (1)
		45 mm plug-in 11-pin (2)
		45 mm plug-in 11-pin (2)
		45 mm plug-in 11-pin (2)
Sensitivity: 5 kΩ - 100 kΩ	1 single pole changeover relay 8 A	45 mm plug-in 11-pin (2)
		45 mm plug-in 11-pin (2)
		45 mm plug-in 11-pin (2)

*(1) 8-pin connector base - **Part no.: 25622080***
*(2) 11-pin connector base - **Part no.: 25622130***

Custom'able label

custom'able

C-Lynx Adapted Control:

■ Based on your specifications, Crouzet can also offer a range of C-Lynx control relays adapted to your requirements:
□ Adaptation of the level of regeneration for phase failure checks,
□ Conversion of adjustable products into products with a fixed threshold,
□ Adaptation of input voltage ranges and measurement ranges,
□ Option of customising markings.

For any special applications, please contact our Micro-control sales and technical experts.

Description	Type	Part number	Power supply
C-Lynx speed control			
	HSV NEW	84874320	24 ➞ 240 V ≂ - 50/60 Hz
C-Lynx temperature control in lifts according to EN 81			
	HT81 NEW	84874110	24 ➞ 240 V ≂ - 50/60 Hz
	HT81-2 NEW	84874120	24 ➞ 240 V ≂ - 50/60 Hz
	HWT81 NEW	84874130	24 ➞ 240 V ≂ - 50/60 Hz
C-Lynx pump control			
	HPC NEW	84874200	1-phase: 230 V ∿ - 50/60 Hz 3-phases (self-powered): 3 x 208 ➞ 3 x 480 V ∿ - 50/60 Hz
C-Lynx motor temperature and phase control			
	HWTM NEW	84873027	24 ➞ 240 V ≂ - 50/60 Hz
	HWTM2 NEW	84873028	24 ➞ 240 V ≂ - 50/60 Hz
Series E motor temperature control			
	ETM	84874015	24 V ≂ - 50/60 Hz
		84874013	120 V ∿ - 50/60 Hz
		84874014	230 V ∿ - 50/60 Hz
	ETM2	84874025	24 V ≂ - 50/60 Hz
		84874023	120 V ∿ - 50/60 Hz
		84874024	230 V ∿ - 50/60 Hz
	ETM22	84874035	24 V ≂ - 50/60 Hz
		84874033	120 V ∿ - 50/60 Hz
		84874034	230 V ∿ - 50/60 Hz
Heat exchanger defrost relay for air conditioning system			
	NFR	88899204	90 ➞ 260 V ∿ - 50/60 Hz

C-Lynx accessories

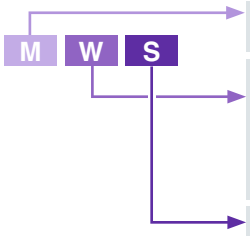
Description	Type	Part number
Removable sealable covers to protect settings		
	For 17.5 mm casing	84800000
	For 35 mm casing	84800001

Control relays

Control functions	Control values	Output relay	Casing width
Underspeed or overspeed	Time between controlled pulses: 0.05 → 0.5 s / 0.1 → 1 s / 0.5 → 5 s / 1 → 10 s / 0.1 → 1 mn / 0.5 → 5 mn / 1 → 10 mn	1 single pole changeover relay 5 A	35 mm
Undertemperature and overtemperature (window)	Input Pt100 3-wire Low threshold: -1°C → +11°C High threshold: +34°C → +46°C	1 single pole changeover relay 5 A	35 mm
Undertemperature and overtemperature (window)	Input Pt100 3-wire Low threshold: -1°C → +11°C High threshold: +34°C → +46°C	2 N/O relays 5 A	35 mm
Undertemperature and overtemperature (window)	Input Pt100 3-wire Low threshold: -1°C → +11°C High threshold: +34°C → +46°C	2 N/O relays 5 A	35 mm
Phase failure and phase sequence	3 x 208 → 3 x 480 V ∿ - 50/60Hz		
3-phase network monitoring	-	1 single pole changeover relay 5 A	35 mm
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz		
Undercurrent or overcurrent (window)	1 A → 10 A ∿		
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	2 N/O relays 5 A	35 mm
Thermal protection	PTC		
Phase failure and phase sequence	208 → 480 V ∿ - 50/60 Hz	2 N/O relays 5 A	35 mm
Thermal protection	PTC		
Test	-		
Latching	-		
Thermal protection	PTC	1 N/O relay 8 A	22. 5 mm
Thermal protection	PTC	1 single pole changeover relay 8 A	22.5 mm
Thermal protection	PTC	1 single pole changeover relay 8 A	22.5 mm
Frost formation monitored by temperature probe (length: 1.60 m)	Temperature of the exchanger < -3°C	1 single pole changeover relay 8 A	22.5 mm 6.35 mm Faston connectors

▷ Description of product types

Example:



☐ **Casing width**	M	17.5 mm	H	35 mm	E	22,5 mm	F	45 mm	L	Plug-in 45 mm
☐ **Control functions**	W	Phase	I	Current	HZ	Frequency	U	Voltage	3U	3-phase voltage
	N	Level	SV	Underspeed	P	Pump control	T81	Temperature of lift machine room	WT	Phase + Temperature of lift machine room
	T	Temperature								
☐ **Function details**										

DIN rail mounted timers

Description	Type	Part number	Power supply	Functions (see pages 28-31)
Electronic timers				
Chronos 2 range - 17.5 mm				
	MUR4	**88826100**	12 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	MUR3	**88826103**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	MUR1	**88826105**	24 V ⎓ / 24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	MAR1	**88826115**	24 V ⎓ / 24 ➞ 240 V ∿	A-At
	MBR1	**88826125**	24 V ⎓ / 24 ➞ 240 V ∿	B
	MCR1	**88826135**	24 V ⎓ / 24 ➞ 240 V ∿	C
	MHR1	**88826145**	24 V ⎓ / 24 ➞ 240 V ∿	H-Ht
	MLR1	**88826155**	24 V ⎓ / 24 ➞ 240 V ∿	Li-L
	MXR1	**88826185**	24 V ⎓ / 24 ➞ 240 V ∿	Ad-Ah-N-O-P-Pt-TL-Tt-W
	MURc3	**88826503**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	MUS2	**88826004**	24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	MAS5	**88826014**	24 ➞ 240 V ≂	A
	MHS2	**88826044**	24 ➞ 240 V ∿	H
	MLS2	**88826054**	24 ➞ 240 V ∿	Li-L
Chronos 2 range - 22.5 mm				
	TUR4	**88865100**	12 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TUR3	**88865103**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TUR1	**88865105**	24 V ⎓ / 24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TAR1	**88865115**	24 V ⎓ / 24 ➞ 240 V ∿	A-At
	TBR1	**88865125**	24 V ⎓ / 24 ➞ 240 V ∿	B
	TCR1	**88865135**	24 V ⎓ / 24 ➞ 240 V ∿	C
	THR1	**88865145**	24 V ⎓ / 24 ➞ 240 V ∿	H-Ht
	TLR1	**88865155**	24 V ⎓ / 24 ➞ 240 V ∿	Li-L
	TQR1	**88865175**	24 V ⎓ / 24 ➞ 240 V ∿	Q
	TQR6	**88865176**	230 ➞ 400 V ∿	Q
	TXR1	**88865185**	24 V ⎓ / 24 ➞ 240 V ∿	Ad-Ah-N-O-P-Pt-TL-Tt-W
	TXR4	**88865180**	12 V ≂	Ad-Ah-N-O-P-Pt-TL-Tt-W
	TURc3	**88865503**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TA2R1	**88865215**	24 V ⎓ / 24 ➞ 240 V ∿	A-At
	TU2R4	**88865300**	12 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TU2R3	**88865303**	12 ➞ 230 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TU2R1	**88865305**	24 V ⎓ / 24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	TX2R1	**88865385**	24 V ⎓ / 24 ➞ 240 V ∿	Ad-Ah-N-O-P-Pt-TL-Tt-W
	TK2R1	**88865265**	24 V ⎓ / 24 ➞ 240 V ∿	K
Chronos 2 range - 35 mm plug-in				
	OUR4	**88867100**	12 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	OUR3	**88867103**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	OUR1	**88867105**	24 V ⎓ / 24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht
	OCR1	**88867135**	24 V ⎓ / 24 ➞ 240 V ∿	C
	OLR1	**88867155**	24 V ⎓ / 24 ➞ 240 V ∿	Li-L
	OA2R1	**88867215**	24 V ⎓ / 24 ➞ 240 V ∿	A
	PA2R1	**88867415**	24 V ⎓ / 24 ➞ 240 V ∿	A-At
	PC2R1	**88867435**	24 V ⎓ / 24 ➞ 240 V ∿	C
	PL2R1	**88867455**	24 V ⎓ / 24 ➞ 240 V ∿	Li-L
	PU2R4	**88867300**	12 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	PU2R3	**88867303**	12 ➞ 240 V ≂	A-Ac-At-B-Bw-C-D-Di-H-Ht
	PU2R1	**88867305**	24 V ⎓ / 24 ➞ 240 V ∿	A-Ac-At-B-Bw-C-D-Di-H-Ht

Timing	Outputs	Rated current	Casing width	Connection
0 → 1 s / 1 → 10 s / 0.1 → 1 min / 1 → 10 min / 0.1 → 1 h / 1 → 10 h / 10 → 100 h /	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Screw terminals
	1 timed changeover relay	8 A	17.5 mm	Spring terminals
	Solid state	0.7 A	17.5 mm	Screw terminals
	Solid state	0.7 A	17.5 mm	Screw terminals
	Solid state	0.7 A	17.5 mm	Screw terminals
	Solid state	0.7 A	17.5 mm	Screw terminals
0 → 1 s / 1 → 10 s / 0.1 → 1 min / 1 → 10 min / 0.1 → 1 h / 1 → 10 h / 10 → 100 h /	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Screw terminals
	1 timed changeover relay	8 A	22.5 mm	Spring terminals
	2 timed changeover relay	8 A	22.5 mm	Screw terminals
	2 timed changeover relays (1)	8 A	22.5 mm	Screw terminals
	2 timed changeover relays (1)	8 A	22.5 mm	Screw terminals
	2 timed changeover relays (1)	8 A	22.5 mm	Screw terminals
	2 timed changeover relays (1)	8 A	22.5 mm	Screw terminals
0.06 → 0.6 s / 0.25 → 2.5 s / 2 → 20 s / 16 → 160 s	2 timed changeover relays (1)	8 A	22.5 mm	Screw terminals
1 s / 10 s / 1 min / 10 min / 1 h / 10 h / 100 h	1 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	1 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	1 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	1 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	1 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	2 timed changeover relay	8 A	35 mm	Plug-in 8-pin (2)
	2 timed changeover relay	8 A	35 mm	Plug-in 11-pin (3)
	2 timed changeover relay	8 A	35 mm	Plug-in 11-pin (3)
	2 timed changeover relays	8 A	35 mm	Plug-in 11-pin (3)
	2 timed changeover relays (1)	8 A	35 mm	Plug-in 11-pin (3)
	2 timed changeover relays (1)	8 A	35 mm	Plug-in 11-pin (3)
	2 timed changeover relays (1)	8 A	35 mm	Plug-in 11-pin (3)

(1) or 1 timed & 1 instantaneous

*(2) 8-pin connector base - **Part no.: 25622080***

*(3) 11-pin connector base - **Part no.: 25622130***

Description	Type	Part number	Power supply	Functions (see pages 28-31)
Miniatures range - 21 x 27 mm				
	RTMA2	**88895201**	12 V ⎓	A
		88895202	24 V ⎓	
		88895203	24 V ∿	
		88895206	110 V ∿	
		88895207	230 V ∿	
	RTMA4	**88896201**	12 V ⎓	A
		88896202	24 V ⎓	
		88896203	24 V ∿	
		88896206	110 V ∿	
		88896207	230 V ∿	
	RTM Accessories	**26532702**	Spring clips for DIN rail mounting base	
		26532706	Base for DIN rail mounting RTMA4	
		26532707	Base for DIN rail mounting RTMA2	
		26532708	PCB base RTMA4	
		26532709	PCB base RTMA2	
Electromechanical timers				
TOP 2000 range				
	6 s - 12 min	**88225011**	220 → 240 V ∿	2-3-4
		88225012	110 → 127 V ∿	
		88225013	24 V ∿	
		88225019	42 → 48 V ∿	
	6 min - 12 h	**88225014**	220 → 240 V ∿	2-3-4
		88225015	110 → 127 V ∿	
		88225016	24 V ∿	
		88225017	42 → 48 V ∿	

Adapted Control timer:

■ To satisfy the requirements of equipment manufacturers, Crouzet offers an adapted range of DIN rail mounted timers with solid state output: the **S series**

□ Mono-function
□ Single-range
□ Mono-voltage
□ Timing fixed or adjustable by external or built-in potentiometer.

On request, Crouzet can modify output contacts, remove the mounting brackets and even reduce the dimensions.

■ Based on your specifications, Crouzet can also adapt any other DIN rail- or panel-mounted timer:

□ Conversion of adjustable timing products into products with fixed timing
□ Other timing ranges
□ Adaptation of the output power
□ Customer labelling.

For any special applications, please contact our Micro-control sales and technical experts.

	Timing	Outputs	Rated current	Casing width	Connection
	■ 0 → 1 s ■ 1 → 10 s ■ 0.1 → 1 min ■ 1 → 10 min ■ 0.1 → 1 h ■ 1 → 10 h ■ 10 → 100 h	2 timed changeover relays	5 A	21 mm	Plug-in 8-pin
	■ 0 → 1 s ■ 1 → 10 s ■ 0.1 → 1 min ■ 1 → 10 min ■ 0.1 → 1 h ■ 1 → 10 h ■ 10 → 100 h	4 timed changeover relays	5 A	21 mm	Plug-in 14-pin
	6 s → 12 min	1 time changeover relay & 1 instantaneous	5 A	48 mm	Screw terminals
	6 min → 12 h	1 time changeover relay & 1 instantaneous	5 A	48 mm	Screw terminals

■ Resin-coated for sealed protection.

■ Connection by 6.35 mm Faston connectors.

■ Dedicated version for compressors and heat pumps (prevention of compressor short-cycling, percentage timer).

Panel-mounted timers

Description	Type	Part number	Power supply	Functions (see pages 28-31)
Electronic timers - ANALOGUE				
TMR 48 range				
	TMR48 A	**88886106**	12 → 240 V ⎓ / 24 → 240 V ∿	A
	TMR48 X	**88886116**	12 → 240 V ⎓ / 24 → 240 V ∿	A1, A2, H1, H2, Q1, Q2, D-Di
	TMR48 U	**88886016**	12 → 240 V ⎓ / 24 → 240 V ∿	A, B, C, W, G, Ac, Bw
	TMR48 L	**88886516**	12 → 240 V ⎓ / 24 → 240 V ∿	L/Li, G/Gi
	TMR Accessories	**25622080**	11-pin connector base	
		25622130	8-pin connector base	
		79237739	Spring clips	
		79694002	11-pole rear base	
		25622203	8-pole rear base	
MBA range				
	MBA2F	**88901308**	100 → 240 V ≂	A
		88901328		
		88901348		
		88901378		
		88901398		
	MBA3F	**88901302**	24 V ⎓	A
		88901322		
		88901342		
		88901372		
		88901392		
Electronic timers - DIGITAL				
TIMER 8xx range with LCD display				
	812	**88857400**	220 → 240 V ∿	A
		88857406	110 V ∿	
		88857409	24 V ≂	
	814	**88857003**	12 V ⎓ / 24 → 48 V ≂	A, B, C, D, Di, H
		88857005	24 V ≂ / 110 → 240 V ∿	A, B, C, D, Di, H
		88857103	12 V ⎓ / 24 → 48 V ≂	A, B, C, D, Di, H
		88857105	24 V ≂ / 110 → 240 V ∿	A, B, C, D, Di, H
	815	**88857301**	24 V ⎓ / 220 → 240 V ∿	A1, A2, AM, Amt
		88857302	12 V ⎓ / 42 → 48 V ≂	
		88857307	24 V ≂ / 110 V ∿	
	816	**88857601**	24 V ≂ / 220 → 240 V ∿	A, B, C, D, Di, H
		88857604	24 V ≂ / 48 ≂	
		88857607	24 V ≂ / 110 V ∿	
		88857701	24 V ≂ / 220 → 240 V ∿	A, B, C, D, Di, H
		88857704	24 V ≂ / 110 V ∿	
	TIMER 8xx Accessories	**25622301**	8-pin solder tag connector	
		25622076	11-pin solder tag connector	
		79237739	Spring clips	
		25622080	11-pin connector base	
		25622130	8-pin connector base	
		79694002	11-pole rear base	
		25622203	8-pole rear base	

	Timing	Outputs	Rated current	Casing width	Connection
	0.02 → 1.2 s / 0.05 → 3 s / 0.2 → 12 s / 0.5 → 30 s / 2 → 120 s / 5 → 300 s / 0.2 → 12 min / 0.5 → 30 min / 2 → 120 min / 5 → 300 min / 0.2 → 12 h / 0.5 → 30 h / 2 → 120 h / 5 → 300 h	2 timed changeover relays	5 A	48 mm	Plug-in 8-pin
		2 timed changeover relays (or 1 timed & 1 instantaneous)	5 A	48 mm	Plug-in 8-pin
		2 timed changeover relays	5 A	48 mm	Plug-in 11-pin
		2 timed changeover relays	5 A	48 mm	Plug-in 11-pin
	0.1 s → 1 s 0.5 s → 10 s 3 s → 60 s 0.5 min → 10 min 3 min → 60 min	Solid state	400 mA	Ø 22 mm	Screw terminals
	0.1 s → 1 s 0.5 s → 10 s 3 s → 60 s 0.5 min → 10 min 3 min → 60 min	Solid state	200 mA	Ø 22 mm	Screw terminals
	99,99 s / 999,9 s / 9999 s / 99 min 59 s / 99,99 min / 999,9 min / 9999 min / 99h59 min / 99,99 h / 999,9 h / 9999 h	2 timed double changeover relays	2 x 5 A	48 mm	Plug-in 8-pin
		1 timed changeover relay	8 A	48 mm	Plug-in 8-pin
		1 changeover relay (timed or instantaneous)	8 A	48 mm	Plug-in 8-pin
		1 changeover relay (timed or instantaneous)	8 A	48 mm	Plug-in 11-pin
		1 timed changeover relay	8 A	48 mm	Plug-in 11-pin
		1 changeover relay (timed or instantaneous)	2 x 8 A	48 mm	Plug-in 11-pin
		1 timed changeover relay	8 A	48 mm	Plug-in 8-pin
		1 timed changeover relay	8 A	48 mm	Plug-in 11-pin

Description	Type	Part number	Power supply	Functions (see pages 28-31)
Electromechanical timers				
TOP 2000 range				
	6 s - 12 min	**88226011**	220 → 240 V ∿	2-3-4
		88226012	110 → 127 V ∿	
		88226013	24 V ∿	
		88226019	42 → 48 V ∿	
		88226501	24 V ∿	
		88226502	42 → 48 V ∿	
		88226503	110 → 127 V ∿	
		88226504	220 → 240 V ∿	
	6 min - 12 h	**88226014**	220 → 240 V ∿	2-3-4
		88226015	110 → 127 V ∿	
		88226016	24 V ∿	
		88226017	42 → 48 V ∿	
		88226505	24 V ∿	
		88226506	42 → 48 V ∿	
		88226507	110 → 127 V ∿	
		88226508	220 → 240 V ∿	
	TOP 2000 Accessories	**25622301**	8-pin solder tag connector	
		25622130	8-pin connector base	
Manual reset range				
	882564 Single-pole	**88256401**	127 V ∿ / 230 V ∿	A
		88256402		
		88256403		
		88256404		
		88256405		
		88256406		
		88256407		
		88256408		
	882565 2-pole	**88256506**	127 V ∿ / 230 V ∿	A
		88256507		
		88256508		
		88256509		
		88256510		
		88256511		
		88256512		
		88256513		
	882569 3-pole	**88256906**	127 V ∿ / 230 V ∿	A
		88256907		
		88256908		
		88256909		
		882569110		
		882569111		
		882569112		
		882569113		

Timing	Outputs	Rated current	Casing width	Connection
6 s ➞ 12 min	1 timed changeover relay & 1 instantaneous	5 A	48 mm	Plug-in 8-pin
6 s ➞ 12 min	1 timed changeover relay & 1 instantaneous	5 A	48 mm	Screw terminals
6 min ➞ 12 h	1 timed changeover relay & 1 instantaneous	5 A	48 mm	Plug-in 8-pin
6 min ➞ 12 h	1 timed changeover relay & 1 instantaneous	5 A	48 mm	Screw terminals
5 min (max. display time: 4 min 40 s) 15 min (max. display time: 14 min) 30 min (max. display time: 28 min) 60 min (max. display time: 56 min) 120 min (max. display time: 1 h 53 min) 5 h (max. display time: 4 h 43 min) 15 h (max. display time: 14 h 10 min) 30 h (max. display time: 28 h 20 min)	1 timed changeover	16 A	55 mm	6.35 mm Faston connectors
5 min (max. display time: 4 min 40 s) 15 min (max. display time: 14 min) 30 min (max. display time: 28 min) 60 min (max. display time: 56 min) 120 min (max. display time: 1 h 53 min) 5 h (max. display time: 4 h 43 min) 15 h (max. display time: 14 h 10 min) 30 h (max. display time: 28 h 20 min)	2 timed changeovers	16 A	55 mm	6.35 mm Faston connectors
5 min (max. display time: 4 min 40 s) 15 min (max. display time: 14 min) 30 min (max. display time: 28 min) 60 min (max. display time: 56 min) 120 min (max. display time: 1 h 53 min) 5 h (max. display time: 4 h 43 min) 15 h (max. display time: 14 h 10 min) 30 h (max. display time: 28 h 20 min)	3 timed changeovers	16 A	55 mm	6.35 mm Faston connectors

Generic functions

This section contains all the function diagrams for Crouzet timers.

U : Supply
R : Output or load relay
T : Timing

C (Y1) : Control contact
∞ : indefinite

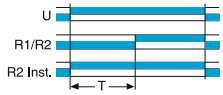
➞ Function A: Delay on energisation

1 relay

Single timing cycle which begins on energisation.

The output changes state after timing.

2 relays timed or 1 relay timed and 1 instantaneous

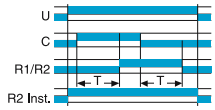


➞ Function Ac: Timing after closing and opening of control contact

1 relay

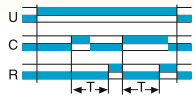
After energisation, closure of the control contact causes the timing period T to commence and output relay R (or the load) changes state at the end of this interval. When contact C (Y1) opens, relay R resets after a second timing period T.

2 relays timed or 1 relay timed and 1 instantaneous



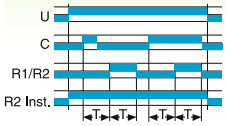
➞ Function Ad: Delay on energisation by switch (not resettable)

1 relay



After power-up, pressing or holding down the switch starts timing. At the end of timing, the output is energised. The output will be reset the next time the switch is pressed or held down.

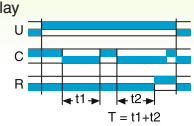
➞ Function Ah: Flashing single cycle by switch (not resettable)



After power-up, pressing or holding down the switch starts timing. At the end of timing, the output is energised. At the end of this second timing, the output falls back to its initial value.

➞ Function At: Timing on energisation with memory

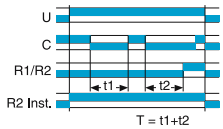
1 relay



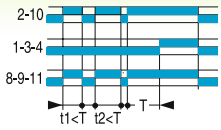
Provides a cumulative time for contact opening.

The output changes states at the end of the set time.

2 relays timed or 1 relay timed and 1 instantaneous

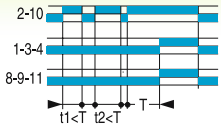


➞ Function A1: Delay on energisation



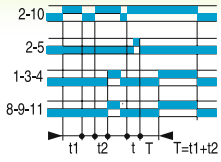
1 relay timed
1 relay 1 instantaneous

➞ Function A2: Delay on energisation



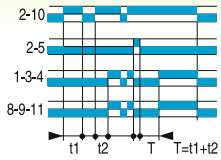
2 relays timed

➞ Function AM: Delay on energisation



Memory during timing

➞ Function AMt: Delay on energisation



Memory during and after timing

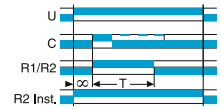
➞ Function B: Timing on impulse one shot On pulse (with constant supply)

1 relay

After energisation; a pulse (≥ 50 ms) or a maintained control contact will cause the output to change state which reverts to the rest position at the end of timing.

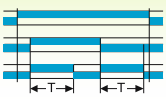
N.B.: this process enables shortening or lengthening of a signal.

2 relays timed or 1 relay timed and 1 instantaneous



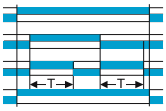
➞ Function Bw: Pulse output (adjustable)

1 relay



A output relay R (or the load) changes state, and remains in the changed-over state for the timing period, both when control contact C (Y1) closes and when it opens.

2 relays timed or 1 relay timed and 1 instantaneous

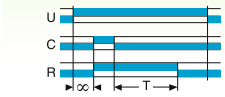


U : Supply
R : Output or load relay
T : Timing

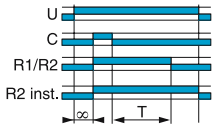
C (Y1) : Control contact
∞ : indefinite

➞ Function C: Timing after impulse Delay OFF (with constant supply)

1 relay



2 relays timed or 1 relay timed and 1 instantaneous

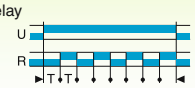


After energisation, once the control contact is closed the output state changes. Timing will only begin on the re-opening of this control contact (one shot). Relay R returns to its initial position at the end of the timing period.

➞ Function D or Di: Symmetric recycler

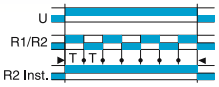
Repetitive cycle which switches the output alternately between the rest and operating position for equal time bases. **T1 + T2 = T total**

1 relay

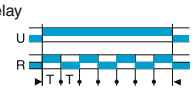


Function D:
the cycle begins with the output in rest position. Pause start.

2 relays timed or 1 relay timed and 1 instantaneous

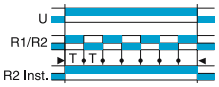


1 relay



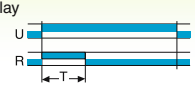
Function Di:
the cycle begins with the output in the operating position. Pulse start.

2 relays timed or 1 relay timed and 1 instantaneous

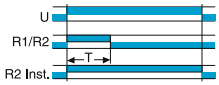


➞ Function H: Timing on energisation Interval timer - one shot

1 relay



2 relays timed or 1 relay timed and 1 instantaneous

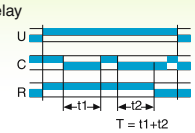


On energisation, the output changes state, remains in that state for the duration of timing and resets at the end of the single cycle.

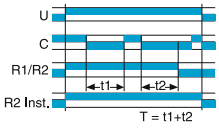
N.B. This is complementary to function A.

➞ Function Ht: Delay on energisation with memory

1 relay



2 relays timed or 1 relay timed and 1 instantaneous

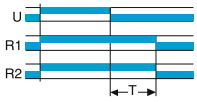


Provides a cumulative time for contact opening.
On energisation, the output changes state, remains in that state for the duration of timing and resets at the end of the single cycle.

➞ Function K: Delay on de-energisation - True delay OFF

1 relay

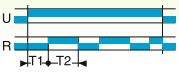
2 relays timed or 1 relay timed and 1 instantaneous



On energisation, the output changes state.
On de-energisation timing commences and the output only returns to the reset condition after timing.

➞ Function L: Asymmetric recycler

1 relay



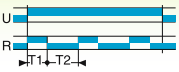
2 relays timed or 1 relay timed and 1 instantaneous

Repetitive cycle comprising 2 independent adjustable time bases.
Each time base corresponds alternately to a different output state.

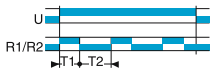
N.B.: The cycle starts with the output in the rest position.

➞ Function Li: Asymmetric recycler

1 relay



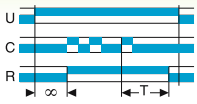
2 relays timed or 1 relay timed and 1 instantaneous



Repetitive cycle comprising 2 independent adjustable time bases.
Each time base corresponds alternately to a different output state.

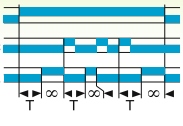
N.B.: The cycle starts with the output in the operating position.

➞ Function N: "Safe-guard"



At the first control pulse the output is energised. To complete the timing the interval between the two control pulses must be greater than the timing set.

➞ Function O: "Delayed safe-guard"

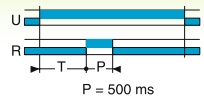


On energisation, a first timing sequence occurs and the output changes state.
With the closing of the control contact, the output resets and the timing starts, with the output being activated after timing. For the timing to be completed, the interval between the closing of two control contacts must be greater than the timing set.

U : Supply
R : Output or load relay
T : Timing

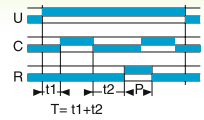
C (Y1) : Control contact
∞ : indefinite

➞ Function P: Delayed fixed-length pulse



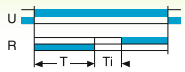
Timing begins on energisation. At the end of the timing period output relay R (or the load) changes state for a period of approximately 500 ms.

➞ Function Pt: Impulse counter (delay on)



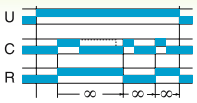
Calculates the total opening time of a contact. At the end of timing, the output is energised for approximately 500 ms.

➞ Function Q: "Star-delta"



At the end of timing, the output is not energised. It remains "open" (not conducting) and will only change state after the fixed time of Ti has elapsed.
Dwell time selectable

➞ Function TL: Impulse relay

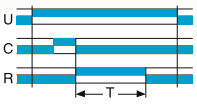


After power-up, pressing or holding down the switch closes the relay. Pressing the switch a second time opens the relay.

➞ Function Tt: Timed impulse relay

After power-up, pressing or holding down the switch closes the relay and starts timing. The relay opens at the end of timing or when the switch is pressed a second time.

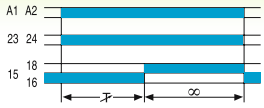
➞ Function W: Timing after pulse on control contact



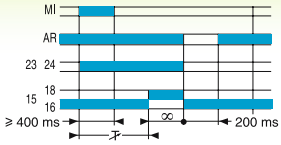
After energisation, if the control contact opens it causes output relay R (or the load) to change state and timing to start.
At the end of the timing period, relay R resets to its original state.

Dedicated functions **TOP2000**

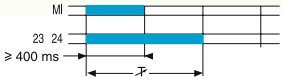
➞ Function 2:



➞ Function 3:



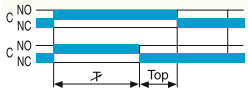
➞ Function 4:



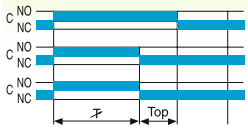
Dedicated functions **Manual reset**

➞ 1 pole:

➞ 2 poles:

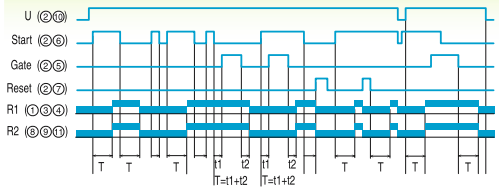


➞ 3 poles:

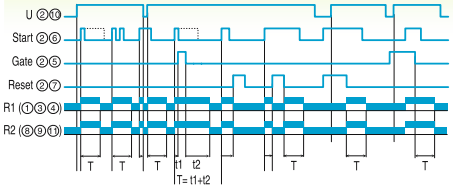


TMR48 dedicated functions

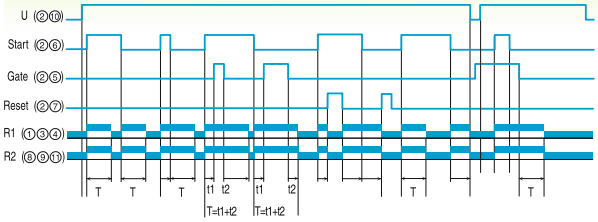
➞ Function Ac: Timing after closing and opening of control contact



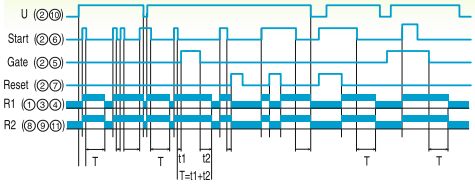
➞ Function B: Timing on impulse



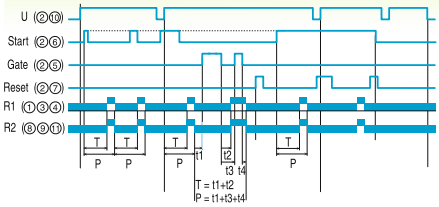
➞ Function Bw: Pulse output (adjustable)



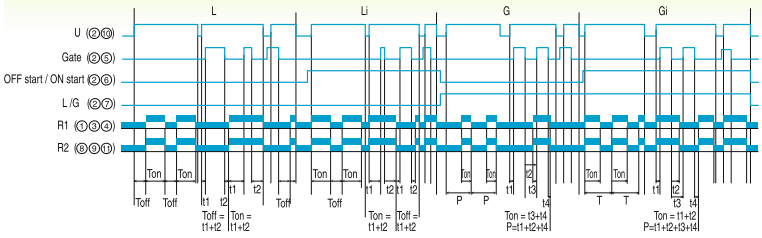
➞ Function C: Timing after impulse - Delay off with constant supply



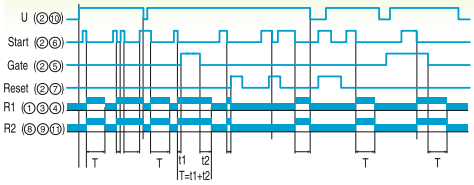
➞ Function G: Cyclic function



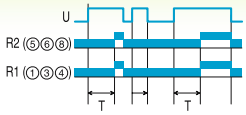
➞ Function L/LiG/Gi: Asymmetric recycler



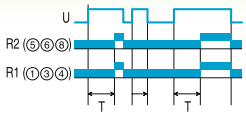
➞ Function W: Timing after impulse on control contact



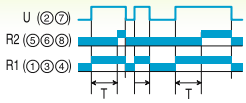
➞ Function A TMR48 A: Delay on energisation



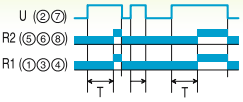
➞ Function A TMR48 U: Delay on energisation



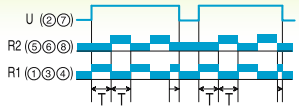
➞ Function A1: Delay on energisation



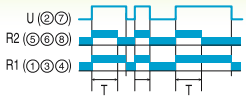
➞ Function A2: Delay on energisation



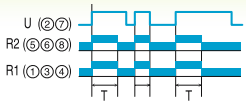
➞ Function D-Di: Symmetric recycler



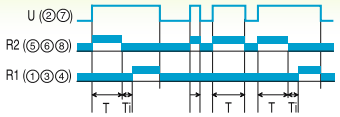
➞ Function H1: Timing on energisation



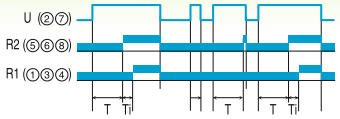
➞ Function H2: Timing on energisation



➞ Function Q1: Star-delta



➞ Function Q2: Star-delta 2



Electronic counters

Description	Type	Part number	Power supply	Functions
With preselection				
Multifunction up/down counters - CPT4 range				
	CPT4 - LCD NEW **1 preset**	**87620111**	12 → 24 V ⎓	■ Preselection counter ■ Ratemeter ■ Timer ■ Multi-totaliser
		87620112	24 V ∿	
		87620113	115 V ∿	
		87620114	230 V ∿	
	CPT4 - LCD NEW **2 presets**	**87620121**	12 → 24 V ⎓	■ Preselection counter ■ Ratemeter ■ Timer ■ Multi-totaliser ■ Batch counters
		87620122	24 V ∿	
		87620123	115 V ∿	
		87620124	230 V ∿	
	CPT4 - LED NEW **1 preset**	**87620211**	12 → 24 V ⎓	■ Preselection counter ■ Ratemeter ■ Timer ■ Multi-totaliser
		87620212	24 V ∿	
		87620213	115 V ∿	
		87620214	230 V ∿	
	CPT4 - LED NEW **2 presets**	**87620221**	12 → 24 V ⎓	■ Preselection counter ■ Ratemeter ■ Timer ■ Multi-totaliser ■ Batch counters
		87620222	24 V ∿	
		87620223	115 V ∿	
		87620224	230 V ∿	
	CPT4 - Accessories NEW	**87620300**	Panel cut-out adaptor plate 72 x 72 mm	

Description	Type	Part number	Power supply	Functions
Without preselection				
Totalizer - CP2 range*				
	CP2 - 2108	**87610340**	Lithium battery	Totalizer
	CP2 - 2231	**87610040**	Lithium battery	Totalizer
	CP2 - 2232	**87610050**	Lithium battery	Totalizer
Total/partial impulse counter - CP2 range*				
	CP2 - 2293	**87610240**	Lithium battery	Total / partial impulse counter
	CP2 - 2294	**87610250**	Lithium battery	Total / partial impulse counter
Hour counters / Chronometer - CP2 range*				
	CP2 - 2108 H	**87610440**	Lithium battery	Hour counter / chronometer (second, minute, hour)
Hour counters - CP2 range*				
	CP2 - 2213	**87610140**	Lithium battery	Hour counter (second, minute, hour)
	CP2 - 2214	**87610150**	Lithium battery	Hour counter (second, minute, hour)
	CP2 - Accessories	**26546829**	Panel cut-out adaptor plate 25 x 50 mm	
		26546830	Panel cut-out adaptor plate 45 x 45 mm	
		26546831	Panel cut-out adaptor plate Ø 50 mm	

** with manual or remote reset*

Counters / Ratemeters

	Max. counting speed	Type of counter inputs*	Output relay	Display	Dimension
	5 kHz	Voltage or solid state	1 changeover relay & 1 solid state	LCD screen with 6 digits (height 9 mm) Display: -99999 to 999999	48 x 48 mm
	5 kHz	Voltage or solid state	2 changeover relays & 2 solid state	LCD screen with 6 digits (height 9 mm) Display: -99999 to 999999	48 x 48 mm
	5 kHz	Voltage or solid state	1 changeover relay & 1 solid state	LCD screen with 6 digits (height 7.6 mm) Display: -99999 to 999999	48 x 48 mm
	5 kHz	Voltage or solid state	2 changeover relays & 2 solid states	LCD screen with 6 digits (height 7.6 mm) Display: -99999 to 999999	48 x 48 mm

** Input counting modes: Upcounting, Downcounting, Cumulative counting, Directional up-down counting, Independent up-down counting, Phase.*

	Max. counting speed	Type of counter inputs	Output relay	Display	Dimension
	7 kHz	Volt-free contact, solid state or voltage	-	LCD screen with 6 digits (height 7 mm)	24 x 48 mm
	7.5 kHz	Solid state	-	LCD screen with 8 digits (height 7 mm)	24 x 48 mm
	40 Hz	Voltage	-	LCD screen with 8 digits (height 7 mm)	24 x 48 mm
	100 Hz	Volt-free contact or solid state	-	LCD screen with 8 digits (height 7 mm)	24 x 48 mm
	100 Hz	Voltage	-	LCD screen with 8 digits (height 7 mm)	24 x 48 mm
	7 kHz	Volt-free contact	-	LCD screen with 8 digits (height 7 mm)	24 x 48 mm
	-	Volt-free contact or solid state	-	LCD screen with 6 digits (height 7 mm)	24 x 48 mm
	-	Voltage	-	LCD screen with 6 digits (height 7 mm)	24 x 48 mm

Electromechanical counters

Description	Type	Part number	Power supply	Functions
Without preselection				
Hour counters - CH48G range				
	CH48G Without reset	**99761710**	18 ⇝ 26 V ∿	Hour counter (hour)
		99761711	36 ⇝ 48 V ∿	
		99761712	110 ⇝ 127 V ∿	
		99761714	220 ⇝ 240 V ∿	
		99761715	110 ⇝ 127 V ∿	
		99761716	220 ⇝ 240 V ∿	
		99761718	24 ⇝ 30 V ∿	
	CH48G Accessories	**26546803**	Connector base for DIN rail mounting	
		26546805	Bezel (grey) 55 x 55 mm	
Totalizers - 24 x 28 mm range				
	Without reset	**99766901**	230 V ∿	Totalizer
		99766902	115 V ∿	
		99766904	24 V ∿	
		99766907	24 V ⎓	
	With manual reset	**99766921**	230 V ∿	Totalizer
		99766922	115 V ∿	
		99766924	24 V ∿	
		99766927	24 V ⎓	
Totalizers - 36 x 37 mm range				
	Without reset	**99766601**	230 V ∿	Totalizer
		99766602	115 V ∿	
		99766604	24 V ∿	
		99766607	24 V ⎓	
	With manual reset	**99766610**	230 V ∿	Totalizer
		99766611	115 V ∿	
		99766613	24 V ∿	
		99766616	24 V ⎓	
Totalizers - 36 x 48 mm range				
	Without reset	**99766701**	230 V ∿	Totalizer
		99766702	115 V ∿	
		99766704	24 V ∿	
		99766707	24 V ⎓	
	With manual reset	**99766710**	230 V ∿	Totalizer
		99766711	115 V ∿	
		99766713	24 V ∿	
		99766716	24 V ⎓	

	Max. counting speed	Type of counter inputs	Output relay	Display	Dimensions
	-	Voltage	-	7 digits, including 2 decimals (height 3.8 mm)	48 x 48 mm
	-				
	-				
	-				
	-				
	-				
	-				
	50 → 60 Hz	-	-	6 digits (height 4 mm)	24 x 48 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				
	50 → 60 Hz			5 digits (height 4 mm)	24 x 48 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				
	50 → 60 Hz	-	-	6 digits (height 4 mm)	36 x 37 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				
	50 → 60 Hz			5 digits (height 4 mm)	36 x 37 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				
	50 → 60 Hz	-	-	6 digits (height 4 mm)	36 x 48 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				
	50 → 60 Hz			5 digits (height 4 mm)	36 x 48 mm
	50 → 60 Hz				
	50 → 60 Hz				
	-				

Electronic temperature controllers

Description	Type	Part number	Voltage	Functions	Output relay 1	Output relay 2
Analogue						
CT48A range						
	CT48A	**89420047**	230 V ∿	Heating	Relay 5 A	-
		89420067				
		89420097				
		89420077	230 V ∿	Heating	Relay 5 A	-
		89420087				
		89420207	230 V ∿	Heating	Relay 5 A	-
		89420217				
		89420227				
		89420237				
		89420257				
	CT48A Accessories	**25622301**	8-pin solder tag connector			
		25622303	8-pin connector base for DIN rail and panel mounting			
		79237709	IP54 protective cover			
Digital						
CTD24 range						
	CTD24 1 alarm	**89422702**	24 V ⎓	Heating **or** cooling	Relay 3 A	Relay 3 A
		89422708	100 → 240 V ∿			
		89422712	24 V ⎓	Heating **or** cooling	Relay 3 A	Voltage logic
		89422718	100 → 240 V ∿			
		89422722	24 V ⎓	Heating **or** cooling	Voltage logic	Voltage logic
		89422728	100 → 240 V ∿			
MIC48 range						
	MIC48 2 alarms	**89422002**	24 V ⎓	Heating **and/or** cooling	Relay 3 A	Relay 1 A
		89422008	100 → 240 V ∿			
		89422012	24 V ⎓	Heating **and/or** cooling	Voltage logic	
		89422018	100 → 240 V ∿			
		89422402 *	24 V ⎓	Heating **and/or** cooling	Relay 3 A	
		89422408 *	100 → 240 V ∿			
		89422412 *	24 V ⎓	Heating **and/or** cooling	Voltage logic	
		89422418 *	100 → 240 V ∿			
CTD43 range						
	CTD43 1 alarm	**89421102**	24 V ⎓	Heating **or** cooling	Relay 3 A	Relay 1 A
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		89421112	24 V ⎓	Heating **or** cooling	Voltage logic	Relay 1 A
		89421118	100 → 240 V ∿			
CTD46 range						
	CTD46 1 alarm	**89422102**	24 V ⎓	Heating **or** cooling	Relay 3 A	Relay 1 A
		89422108	100 → 240 V ∿			
		89422112	24 V ⎓	Heating **or** cooling	Voltage logic	Relay 1 A
		89422118	100 → 240 V ∿			
CTH46 range						
	CTH46	**89422502**	24 V ⎓	Heating **or** cooling	Relay 3 A	Relay 1 A
		89422508	100 → 240 V ∿			
		89422512	24 V ⎓	Heating **or** cooling	Voltage logic	Relay 1 A
		89422518	100 → 240 V ∿			
Temperature probes						
	Thermocouple	**79696030**		Thermocouple probe J with nickel-plated brass eyelet - max.: 400°C		
		79696031		Thermocouple probe J with stainless steel 304 casing - max.: 600°C		
		79696032		Thermocouple probe J with stainless steel 316 sheath Ø 6 mm - max.: 400°C		
		79696033		Thermocouple probe J with stainless steel 316 sheath Ø 5 mm - max.: 400°C		
		79696034		Thermocouple probe K with stainless steel 304 casing - max.: 1100°C		
	Pt100	**79696035**		Pt100 probe Class B with stainless steel 316 sheath - max.: 200°C		
		79696036		Pt100 probe Class B with stainless steel 316 sheath - max.: 400°C		
		79696037		Pt100 probe Class B with aluminium V6 sheath - max.: 200°C		

** Optional Modbus-Jbus RS 485 link on request for MIC 48 controllers*

Temperature controllers

	Temperature	Input type	Control type	Number of displays	Dimensions	Connection
	(0 → + 250° C)	Thermocouple J	Digital or Proportional derivative selected by wiring	-	56 mm x 48 mm	Plug-in 8-pin
	(0 → + 450° C)					
	(0 → + 600° C)					
	(0 → + 800° C)	Thermocouple K				
	(0 → + 1200° C)					
	(-50 → +30° C)	Resistance temperature detector Pt100 (2-wire)				
	(0 → + 40° C)					
	(0 → + 120° C)					
	(0 → + 200° C)					
	(0 → + 400° C)					
	-	**Universal configurable:** Resistance temperature detector Pt100 (2-3 wire) / Thermocouples J-K-R-S-L-N / Voltage	PID with auto-tune & adaptive tune	1 (4 digits)	24 mm x 48 mm	Screw terminals
	-	Resistance temperature detector PT100 (3-wire) / Thermocouples J-K-R-S-T-L-N / Voltage / Current	PID with auto-tune & adaptive tune *Option: load break monitoring with current transformer:* ***Part no.: 26852301*** *(10 A / 50 mA)* ***Part no.: 26852302*** *(25 A / 50 mA)* ***Part no.: 26852303*** *(50 A / 50 mA)* ***Part no.: 26852304*** *(100 A / 50 mA)*	2 (4 digits)	56 mm x 48 mm	Screw terminals
	-	Resistance temperature detector PT100 (3-wire) / Thermocouples J-K-L-N	PID with auto-tune & adaptive tune	1 (3 digits)	56 mm x 48 mm	Screw terminals
	-	Resistance temperature detector PT100 (3-wire) / Thermocouples J-K-L-N	PID with auto-tune & adaptive tune	2 (3 digits)	56 mm x 48 mm	Screw terminals
	-	Resistance temperature detector PT100 (3-wire) / Thermocouples J-K-L-N	PID with auto-tune & adaptive tune	2 (3 digits)	56 mm x 48 mm	Screw terminals

Safety relays

Description	Type	Part number	Power supply	Functions	Levels of safety according to EN 954-1
Emergency stop and/or mobile guards					
	KNA3-XS	**85100036**	24 V ≂	■ Emergency stops ■ Mobile guard monitoring	3
		85100037	40 → 260 V ≂		
	KNA3-RS	**85100434**	115 V ∿	■ Emergency stops ■ Mobile guard monitoring	4
		85100435	230 V ∿		
		85100436	24 V ≂		
	KZP3-RS	**85100536**	24 V ≂		
Relevelling zone check					
	KZHNV-XS	**85100526**	24 V ≂	Relevelling zone check for lifts according to EN81	4
Timed contacts					
	KZR3-RS	**85100736**	24 V ≂	■ Emergency stops ■ Mobile guard monitoring ■ Safety timer function from 0.5 s to 30 s	4
Extension relay					
	KZE3-XS	**85100936**	24 V ≂	Extending the number of contacts in a safety relay	Depending on main relay
	KZEC3-XS	**85101936**	24 V ≂	Extending the number of contacts in a safety relay	Depending on main relay
Zero speed monitoring					
	KSW2-RS	**85100326**	24 V ≂	Zero speed monitoring for a single or 3-phase motor	4
2-hand control					
	KZH2-XS	**85100626**	24 V ≂	Type III C "2-hand control" functions according to EN 574/97	4
	KZH3-RS	**85100634**	115 V ∿	Type III C "2-hand control" functions according to EN 574/97	4
		85100635	230 V ∿		
		85100636	24 V ≂		

	Safety contacts	Data contacts	Casing width	Connection
	3 N/O safety contacts	1 N/C signalling contact	22.5 mm	Screw terminals
	3 N/O safety contacts	1 N/C signalling contact	45 mm	Screw terminals
	2 N/O safety contacts	1 N/C signalling contact	22.5 mm	Screw terminals
	1 N/O instantaneous safety contacts 1 N/O timed safety contact 1 N/C timed safety contact	1 N/C timed signalling contact	45 mm	Screw terminals
	3 N/O safety contacts	1 N/C return loop	22.5 mm	Screw terminals
	3 N/O safety contacts	1 N/C return loop	22.5 mm	Spring terminals
	1 N/O safety contacts 1 N/C safety contact	Separate return loop	45 mm	Screw terminals
	2 N/O safety contacts	-	22.5 mm	Screw terminals
	3 N/O safety contacts	1 N/C signalling contact	45 mm	Screw terminals

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