



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



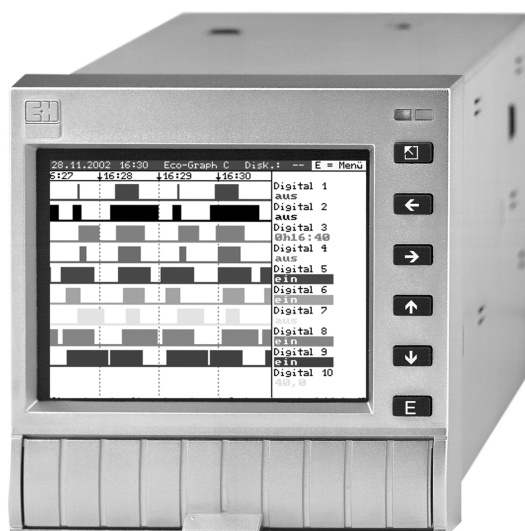
Solutions

Technical Information

Ecograph C

Digital Recorder

Acquisition, evaluation and archiving of flows, production quantities, switch statuses and operating times



Application

Ideal for plant operators who want to acquire

- On / off times and time periods
- Operating times, e.g. of pumps
- Maintenance intervals
- Faults and messages (alarm management)
- Numbers of units or flow quantity
- Supply / drain quantities in pipe networks
- Switch / valve statuses
- Pulses (revolutions per time)

and keep track through displaying and recording. The areas of application apply to many sectors and branches of industry:

mechanical engineering and plant engineering, water management, safety engineering, heaters, air conditioning and coolers, ventilation systems, pump stations, small sewage treatment plants, small power plants, packaging machinery.

Your benefits

- Economical: Replace up to 32 counters (Totalisers)
- Many channels: 4 / 18 / 32 digital inputs
- Practice-oriented: up to 15 relay outputs

- Versatile: internal relays can be controlled remotely, e.g. for resetting faults and alarms
- Reliable: inputs are galvanically isolated from the system
- Intelligent: digital inputs can be arithmetically or logically combined with each other
- Informative: search for events
- Concise: automatic creation of intermediate, daily, monthly, total and annual evaluations
- Instructive: adjustable time limit values signal maintenance intervals
- Safe: reliable data storage even during a power failure
- Flexible: communication via serial interface, disk, Ethernet or modem
- Practical: Direct connection of serial printers
- Inclusive: PC software package ReadWin 2000 in scope of delivery
- Universal: ATEX approval for Ex zone 2

Function and system design

Measuring principle

Electronic acquisition, evaluation and archiving of digital input signals.

Measuring system

Up to 32 input channels register digital signals with max. 25 Hz (minimum pulse duration 20 ms). The inputs are galvanically isolated from each other and can be set as report inputs, control inputs, operating time counters or pulse counters. The signal analysis includes the creation of intermediate, daily, monthly or annual evaluations. In addition, the last 7 evaluations can be displayed directly at the device. The "Quantity over time" calculation is already integrated into the device, i.e. the delivery volume can be determined directly in relation to time. The data is stored in the internal memory (power failure secure FLASH technology) and in the integrated disk drive. Long-term archiving is performed at the PC, whereby the data is transferred on disk or serially to the PC. The supplied PC software ReadWin 2000 can be used to operate and read out the devices and to archive and visualise the measured data.

Input values

Digital input (standard)

Number: 4 digital inputs

As per DIN 19 240:

logic "0" corresponds to -3 to +5 V, activation with logic "1" (corresponds to +12 to +30 V), max. 32 V, max. 25 Hz, input current approx. 2.7 mA at 24 V, min. pulse duration 20 ms

Selectable function per input:

control input (interrupt acquisition, setup lock, time synchronisation, external intermediate evaluation, sign change, back lighting off, external cycle), ON/OFF message, operating time pulse counter input, combination of message+operating time+quantity over time

Digital input (option)

Number: 2 cards with additional per 14 digital inputs

As per DIN 19 240:

logic "0" corresponds to -3 to +5 V, activation with logic "1" (corresponds to +12 to +30 V), max. 32 V, max. 25 Hz, input current approx. 1.6 mA at 24 V, min. pulse duration 20 ms

Selectable function per input:

control input (interrupt acquisition, setup lock, time synchronisation, external intermediate evaluation, sign change, back lighting off, external cycle), ON/OFF message, operating time pulse counter input, combination of message+operating time+quantity over time



Note!

Note on the input functions events, events+operating time, quantity from time, control input:

Depending on the number of channels switched on, the signal must be present for the following time at least:

Number of active channels:	Time:
1 to 10	100 ms
11 to 20	250 ms
21 to 30	500 ms
As of 31 channels	1 s

Output values

Power supply output

for activating the digital inputs with potential-free contacts 24 V DC (20 V at 100 mA), short-circuit proof, unswitched

Relay outputs (standard)

Number: 3 changeover contacts, 230 V AC / 3 A for limit value messages

Relay outputs (option)

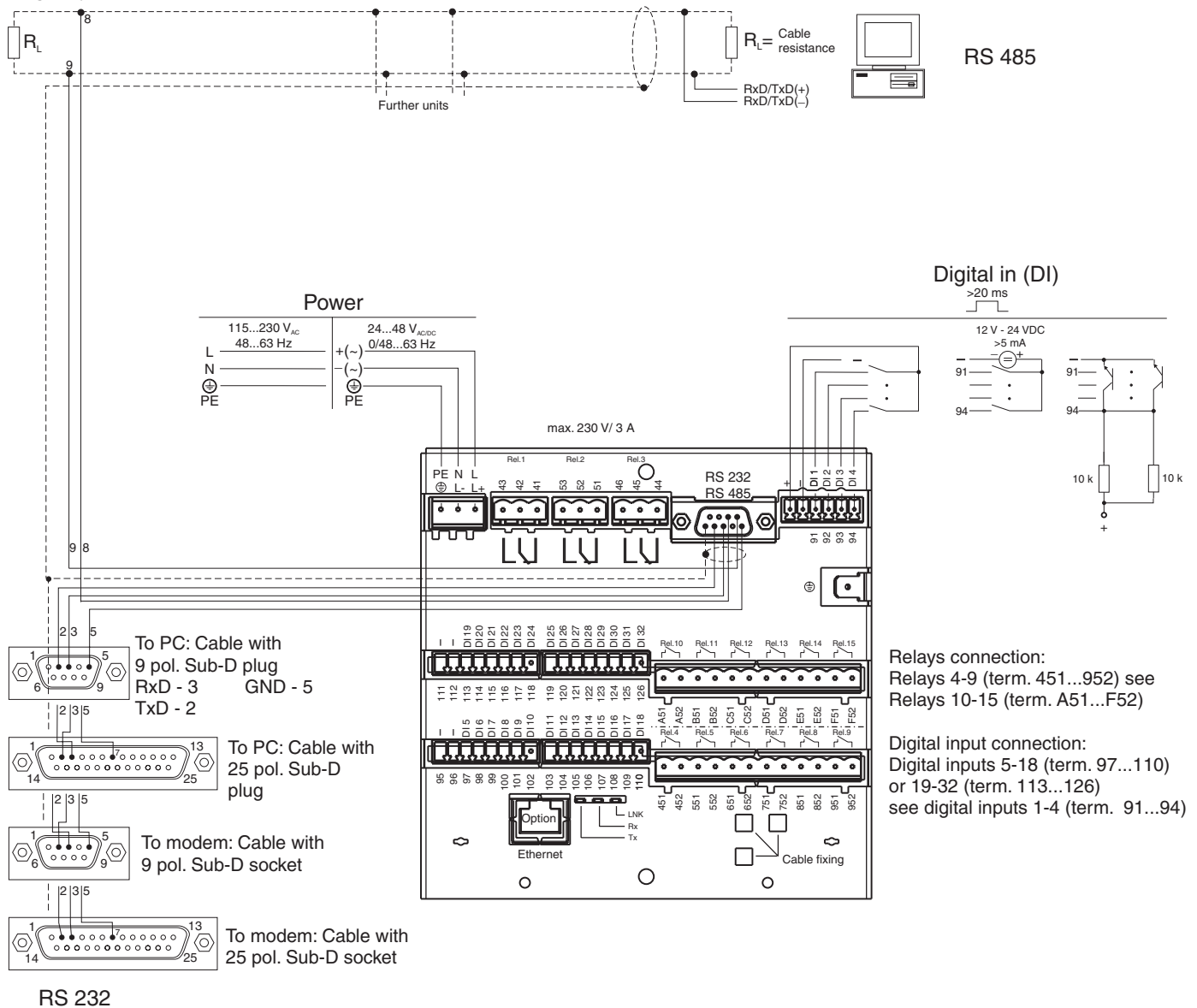
Number: 2 cards each with 6 additional relays

NO contact, 230 V AC / 3 A for limit value messages; can be configured by operating as NC contact.

Mixing SELV circuits and mains circuits is not permitted.

Power supply / terminal diagram

Electrical connection (wiring diagram)

**Supply voltage**

Low voltage: 115 to 230 V_{AC} +10% -15%

Extra-low voltage: 24 to 48 V_{AC/DC} +10% -15%

Frequency

Low voltage: 48 to 63 Hz

Extra-low voltage: 0/48 to 63 Hz

Cable specification

Polarised screw/plug-in terminal blocks,

Digital I/O wire cross section: max. 1.5 mm² (0.0023 in²)

Mains/relay wire cross section: max. 2.5 mm² (0.0039 in²), (each with wire end sleeves)

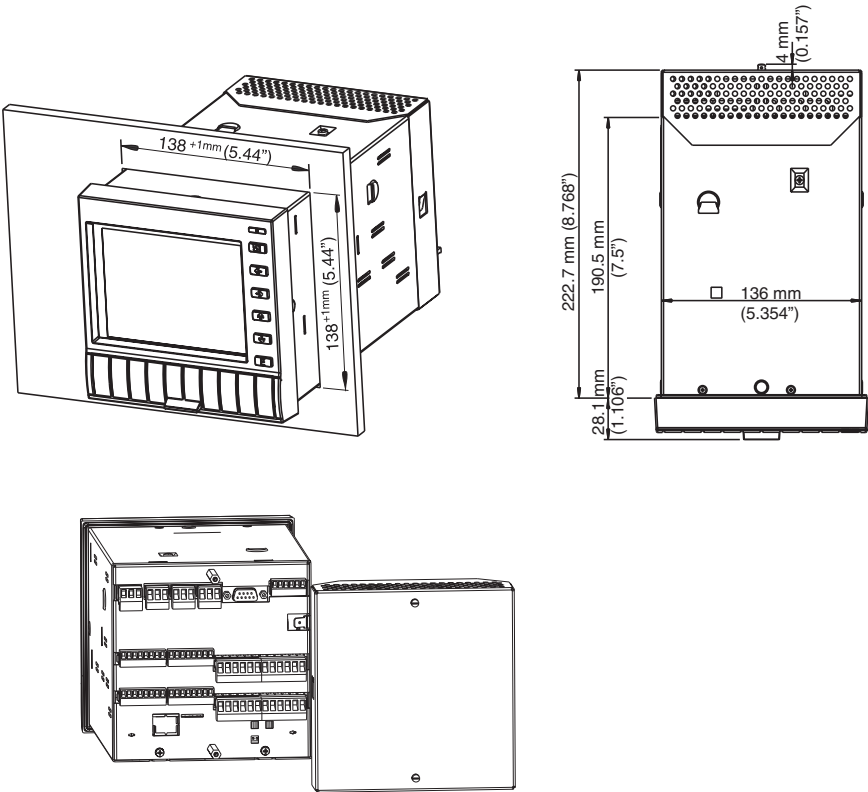
Power consumption	22 VA
Electrical safety	EN 61 010-1, protection class I Low voltage: overvoltage category II Extra-low voltage: overvoltage category III

Connection data interface

Serial interface (standard)	Rear-mounted RS 232 / RS 485 interface (9-pole, Sub-D, socket) Model (RS 232 / RS 485) and device address are adjustable Max. length of lead with screened cable: 15 m (49 ft) (RS 232) / 1000 m (3280 ft) (RS 485), galvanically isolated from the system; Direct connection of serial printers.
Ethernet interface (option)	Internal Ethernet interface 10BaseT, plug type RJ45, screened CAT 5 cable, allocation of the IP address via setup menu in the unit.

Installation

Orientation	Position of use as per DIN 16 257, NL 90 ± 30
Installation instructions	Panel cutout / panel mounting:

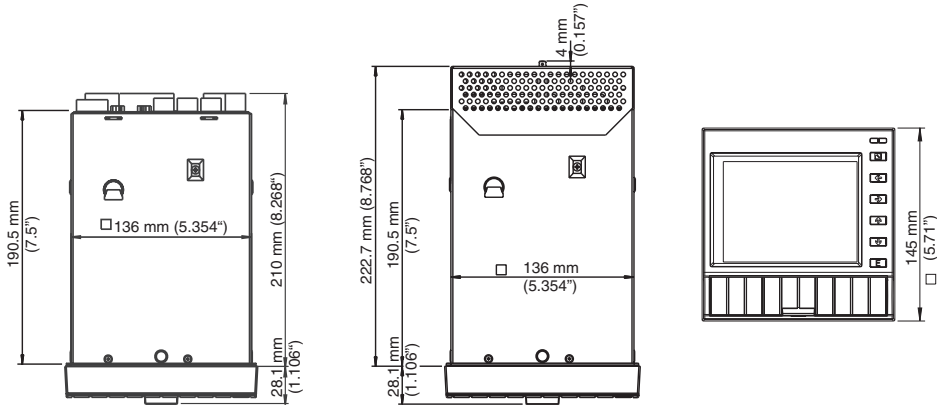


- Installation depth approx. 210 mm (8.268") including terminals;
- Installation depth approx. 227 mm (8.937") including optional rear panel cover (sealable)
- Panel cutout 138 + 1 x 138 + 1 mm (5.433 + 0.039 x 5.433 + 0.039")
- Panel thickness 2 to 40 mm (0.079 to 1.575")
- Mounting as per DIN 43 834

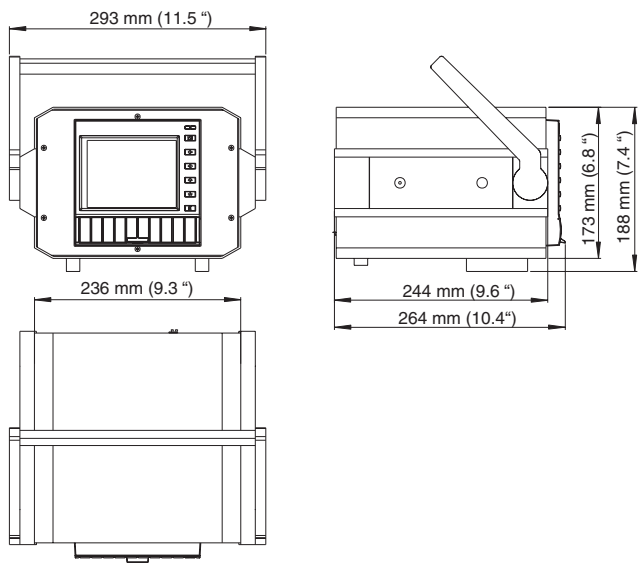
Environment

Emission EN 61326	Class A (operation in industrial environment)
Ambient temperature range	0 to 50 °C (32 to 122 °F)
Storage temperature	-20 to +70 °C (-4 to +158 °F) (10 to 75% rel. moisture without condensation)
Climate class	As per EN 60654-1: B1
Degree of protection	Front-mounted IP 54 (EN 60 529, Cat. 2) Rear-mounted IP 20 (EN 60 529, Cat. 2) Field housing IP 65
Electrical safety	To IEC 61010-1: Environment < 2000 m height above MSL
Electromagnetic compatibility (EMC)	Interference immunity: EN 61 326-1 NAMUR recommendation NE21: <ul style="list-style-type: none">- ESD (electrostatic discharge): EN 61 000-4-2 severity 3 (6/8 kV)- electromagnetic interference fields: EN 61 000-4-3: severity 3 (10 V/m)- Burst (quick transient interference variables): EN 61 000-4-4 severity 3 (1 kV signal, 2 kV mains)- Surge on power cable: EN 61 000-4-5: 2 kV unsymmetrical, 1 kV symmetrical- Surge on signal cable: EN 61 000-4-5: 1 kV unsymmetrical (with external protection element DI power supply unit KI ±91 to 94) - Mains interruptions EN 61 000-4-11: > 20 ms

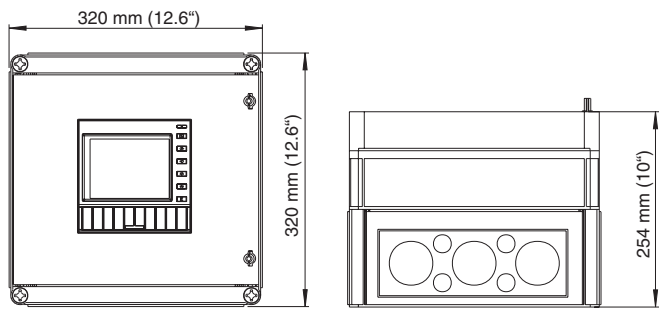
Mechanical construction

Design, dimensions	Panel-mounted instrument: 
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Desktop version:



Field housing IP 65:



Weight	■ Panel-mounted instrument: approx. 3.5 kg (7.72 lb)
	■ Device in desk top housing: approx. 6.4 kg (14.11 lb)
	■ Device in field housing: approx. 7.75 kg (17.09 lb)

Materials	Front frame / door made of metal die-cast, abrasion-proof matt chrome coating
	Extended diaphragm seal / rear panel: galvanized sheet metal
	Protective glass plate in front of display

Human interface

Display elements	Display: STN colour graphic display with 126 mm screen diagonal (5"), 76,800 pixels (320 x 240)
	Display modes (signal grouping of channels, i.e. 10 groups of 10 channels): graphic signal display of digital channels, digital combinations and relay statuses. Digital display, event list (limit values / power failure), history display in curve form with display of digital statuses, date and time, overview window, device information such as memory information.
	Signal analysis: quantities, operating times, display of the last 7 evaluations (intermediate, daily, monthly or annual evaluations) directly at the device.

Operating elements	Option of operation via 6 push buttons on the front side in interactive dialogue with the screen. Integrated operating instructions (at the push of a button). Setup: configuration of signal, measured variable, physical unit and measuring range (per channel).
Combinations	Digital channels can be arithmetically or logically combined with each other. 16 additional channels
Saving data	Data storage: <ul style="list-style-type: none">■ Selectable memory cycle 1s / 2s / 3s / 4s / 5s / 10s / 20s / 30s / 1min / 2min / 4min / 5min.■ Permanent storage of the set device parameters in the internal Flash memory (non-volatile) Internal memory: <ul style="list-style-type: none">■ Buffering ≥10 years for program / measured value memory (Flash memory, non-volatile), internal memory 2048 kSRAM■ Permanent storage of the set device parameters in the internal Flash memory (non-volatile) External memory: <ul style="list-style-type: none">■ Cyclic copying of the measured data for archiving on 3.5" / 1.44 MB disk
Remote operation	Configuring and archiving the device settings on disk, via rear-mounted serial interface RS 232 (e.g. modem), RS 485 or Ethernet with the PC software ReadWin® 2000.
Real time clock	Switchable summer / normal time automatic Buffering ≥4 years (at ambient temperature of 15 to 25 °C / 59 to 77 °F)

Certificates and approvals

CE mark	The measuring system meets the legal requirements of the EC directives. The manufacturer confirms successful testing of the device by affixing the CE mark.
Ex approval	Information about currently available Ex versions (ATEX, FM, CSA) can be supplied by your Sales Centre on request. All explosion protection data are given in a separate documentation which is available upon request. (See "Ordering information" and "Documentation")

Ordering information

Ecograph C Colour graphic display 4 digital inputs, 3 relays Interactive dialogue operation with 6 push buttons Auxiliary power supply RS 232/485 2 limit values per channel PC software package ReadWin 2000									
Additional digital inputs, relays									
	A	No additional inputs/outputs							
	B	14 additional digital inputs, 6 relays (closing cont.)							
	C	28 additional digital inputs, 12 relays (closing cont.)							
Power supply									
	1	Power supply 115 to 230 VAC (-15%, +10%)							
	2	Power supply 24 to 48 VAC/DC (-15%, +10%)							
Interface / operating cable									
	A	RS 232/485, without operating cable							
	B	RS 232/485, with operating cable for RS 232							
	C	RS 232/485 + Ethernet, without operating cable							
	D	RS 232/485 + Ethernet, with operating cable							
Internal memory									
	B	2048 KByte, secure on power failure							
Additional equipment									
	1	Panel mounting, front bezel 144 x144 mm (5.669 x 5.669"), IP 54, without rear panel cover							
	2	Desk top version, connecting cable with safety plug							
	3	Desk top version, connecting cable with US plug							
	4	Desk top version connecting cable with standard Swiss plug							
	5	Field housing IP 65							
	6	Panel mounting 144 x144 mm (5.669 x 5.669"), IP 54, with rear panel cover							
Device software									
	A	Standard software							
	B	Telealarm software							
	C	Counter ext. controlled + min / max							
Operating language									
	A	German							
	B	English							
	C	French							
	D	Italian							
	E	Spanish							
	F	Dutch							
	G	Danish							
	H	US English							
	L	Swedish							
	M	Polish							
Version									
	A	Standard version without disk lock							
	B	Neutral version (without E+H Logo)							
	C	Standard version with disk lock							
	D	Neutral version with disk lock (without E+H Logo)							
Approvals / Certificates									
	A	No certificates							
	B	ATEX II3G EEx nP IIC T4 without disk drive (Only when installed in simple pressurised housing as per IEC 60079-2)							
RSG24-				B					Order code ⇐

Accessories

Scope of delivery

Device with screw/plug-in terminals for supply voltage and signal inputs, 2 fastening clips for control panel mounting, Operating Instructions, software package ReadWin® 2000 for PC

Accessories

The following accessories are available:

Order code	Accessory
RSG24A-E2	RS 232 Ethernet interface 230 VAC on DIN rail, including interface cable (approx. 2 m / 6.56 ft)
RSG24A-E3	RS 232 Ethernet interface 115 VAC on DIN rail, including interface cable (approx. 2 m / 6.56 ft)
RSG24A-E4	RS 485 Ethernet interface 230 VAC on DIN rail
RSG24A-E5	RS 485 Ethernet interface 115 VAC on DIN rail
RSG24A-H1	Field housing IP 65
RSG24A-LA	Retrofit-kit lock for disk drive, complete
RSG24A-S1	RS 232 interface cable, 9-pole, for connection to PC
RSG24A-S2	RS 232 interface cable for connection to modem
RSG24A-S3	RS 232/RS 485 adapter set, 230 VAC, in compact housing, without galvanic isolation
RSG24A-S5	RS 232/RS 485 adapter set, 115 VAC, in compact housing, without galvanic isolation
RSG24A-S6	RS 232/RS 485 adapter set, DIN rail, 230 VAC, with galvanic isolation and interface cable for PC/modem
RSG24A-S7	RS 232/RS 485 adapter set, DIN rail, 115 VAC, with galvanic isolation and interface cable for PC/modem
RSG24A-RG	Rear panel cover
50078843	Terminal, 3-pole, for power supply
51001393	Terminal, pluggable, 3-pole, for relays
51000719	Terminal, pluggable, 6-pole, for digital inputs
50084844	Terminal, pluggable, 8-pole, for digital inputs
51005104	Terminal, pluggable, 6-pole, for relays

Documentation

- ☐ Data acquisition product brochure (FA014R/09/en)
- ☐ Ecograph C Operating Instructions (BA147R/09/)
- ☐ Additional Ex-documentation: ATEX (XA030R/09/a3)
- ☐ System information "ReadWin® 2000" (SI012R/09/en)

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