

DIGICONTROL

Joint efforts towards a secure and networked future

Current and future developments in digital transformation will significantly change the way buildings and their building automation and control systems are planned, constructed and operated in the upcoming years.

Trendsetting technologies such as IoT and cloud computing as well as innovative processes within the value chain open a wide range of opportunities for implementing highly efficient, new services with significant added value for investors, planners, installers, operators, and users.

The technologies and services associated with DIGICONTROL, and its automation equipment set new standards with unique BACS solutions in terms of comfort, efficiency, transparency, cost-effectiveness, sustainability, and availability of modern buildings.

DIGICONTROL already represents the next generation of Building automation and Control Systems (BACS). By outsourcing BACS services, DIGICONTROL becomes part of a global infrastructure and gains the benefits that come with it.



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DIGICONTROL makes buildings safer, more comfortable and more efficient

DIGICONTROL ems5 comprises the directive-compliant implementation of plant and room automation as well as the integration of the technical building equipment in accordance with VDI 3814 and DIN EN ISO 16484. Furthermore, the integrated Building Edge and IoT Controller provides the basis for the implementation of new Smart Building concepts in the context of digital transformation.

Outstanding performance

The outstanding performance of the CPU and memory ensures short response times and enables the implementation of complex mathematical calculations and algorithms that are the basis for intelligent building automation and control functions within smart BACS solutions.

IT and data security

DIGICONTROL ems5 provides comprehensive security features such as TLS, SSH, VPN and BACnet/SC.

Graphical web server

The graphical web server of the ems5 allows the autonomous communication and operation of the plants of the building services with the building automation and control system via web browser. This comprises alarm management, trends and the visualisation of plants.

SD card

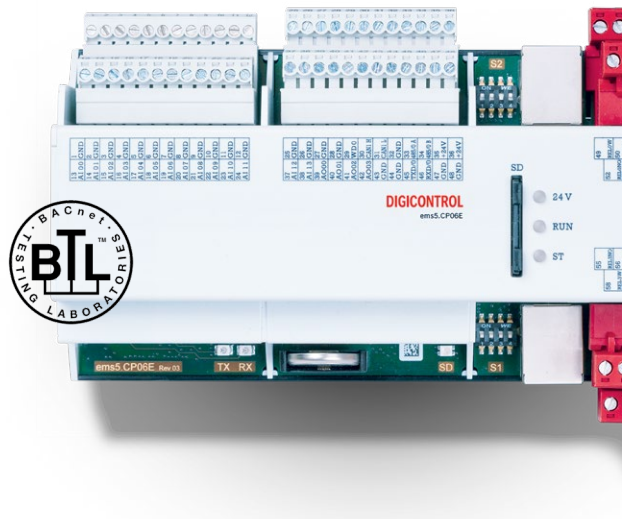
The SD card saves relevant building automation and control data as well as historical trend data directly on site, without a management and control equipment.

Individual extendibility of the hardware according to the systems of the building services and rooms

Depending on the dimensions of the building services plants, the automation device ems5 is extended by modules of the ems series - economic modular system - which provide a variety of input and output modules for top hat rail, door, field and electrical distribution mounting with or without „local override“ (LOC).

Multifunctional interfaces

Die ems5-Automationseinrichtung ist kompakt und gleichzeitig modular, denn die 14 Inputs sind frei konfigurierbar als PT/Ni1000, 0-10 VDC oder DE 24 VDC. Ebenfalls auf board sind 4 AnalogOutputs 0-10VDC und 6 potenzialfreie RelaisOutputs 230 VAC/6A.



BACnet

DIGICONTROL ems5 can be used as a BACnet Building Controller (B-BC) according to the BACnet Standardised Device Profile L (ANSI ASHRAE standards 135-2001 or DIN EN 16484-5). The communication is performed via BACnet/IP and BACnet MS/TP. BACnet Protocol Rev. 1.15 / AMEV profile AS-B according to "BACnet 2017" (identical with BACnet 2011 V1.2).

Integration solutions

The ems5 is the central unit of the building automation network and integrates all components of the building services into the building automation and control system. Connections to KNX, DALI, Modbus, M-Bus, SMI, EnOcean as well as to proprietary systems such as Grundfos, Wilo, Belimo MP-Bus, Schüco, ebm-papst and others are possible via extensions using ems4 integration modules.

iBASuite - intelligent programming and configuration of the automation equipment

iBASuite - intelligent Building Automation Suite

The tool for programming and configuring automation equipment, the iBASuite, provides comprehensive tools for constructing intelligent smart buildings and for configuring, parameterising and programming the automation equipment ems5.

The suite comprises all software modules and macros for the BACS implementation as well as tools for setting up and customising the graphical webserver, a BACnet browser and a generator for the automatic generation of BACS documentations.

The iBASuite Cloud is currently in progress. Being an integral part of the DIGICONTROL Cloud, the iBASuite Cloud will make all applications and data available online, at any time, any place, in the office or at the construction site:

- ▮ iBASuite applications, tools and macros
- ▮ License service
- ▮ IoT services
- ▮ Up-to-date project software
- ▮ Live data and historical project data

www.digicontrol.info/ems5

Find further information on the building automation and control system DIGICONTROL and the automation equipment ems5 on our website **www.digicontrol.info/ems5**

2 DIGICONTROL Building automation and control systems

AUTOMATION EQUIPMENT

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ems5.CP05E

Automation station
BACnet Building Controller
(B-BC)

14 universal inputs,
freely configurable as:

- PT/Ni1000, 12 Bit
- 0...10 V DC, 12 Bit
- DI 24 V DC

4 x AO
0 ... 10 V DC, 10 Bit

6 x DO relay
230 V AC / 6 A
potential-free make contact

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ems2.CP14D

Automation station with display
BACnet Building Controller
(B-BC)

8-line display (lines have 40
digits)
multifunctional keyboard

14 universal inputs,
freely configurable as:

- PT/Ni1000, 12 Bit
- 0 ... 10 V DC, 12 Bit
- DI 24 V DC

4 x AO
0 ... 10 V DC, 10 Bit

6 x DO relay
230 V AC / 6 A
potential-free make contact

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ems2.R4D1B

Automation station
BACnet Building Controller
(B-BC)

14 universal inputs,
freely configurable as:

- PT/Ni1000, 12 Bit
- 0 ... 10 V DC, 12 Bit
- DI 24 V DC

4 x AO
0 ... 10 V DC, 10 Bit

4 x DO relay
230 V AC / 6 A

2 x TRIAC outputs

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ems4.CP02B

Automation station

4 x integrated DI
24 V DC

4 x DO 24 V DC

BINARY INPUT MODULES

page 42



ems4.DE07E

10 digital inputs
24 V DC
individually confi-
gurable

page 58



ems4.DE02F

8 digital inputs
24 V DC
polarity can be set
individually

page 48



ems4.ME01E

10 inputs configurable as:
PT/Ni 1000, 0/2...10 V or 24 V DC

System module page 57



ems4.DE00F

One ems4.DE00F system
module must be included
in a 19" subrack.

Inputs

LED

DIN rail mounting

19" front panel mounting

Installation in small
distribution cabinets

green / red /orange
configurable

ANALOGUE INPUT MODULES

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ems4.AE03B

8 x Universal inputs PT1000 | Ni1000 |
DC 0(2) to 10 V | 0(4) to 20 mA

page 48



ems4.ME01E







10 inputs configurable as:
PT/Ni 1000, 0/2...10 V or 24 V DC

Inputs





DIN rail mounting

Installation in small
distribution cabinets




**BINARY
OUTPUT MODULES**

	page 44	page 45	page 54	page 59	page 55	page 60
						
	ems4.DA01E	ems4.DA02E	ems4.DAH2E	ems4.DA02F	ems4.DAH3E	ems4.DA03F
Outputs	16 x 24 V DC 0,5 A transistor	4 x 230 V AC 6 A make contact	4 x 1 level 230 V AC 6 A make contact	4 x 1 level 230 V AC 6 A make contact	2 x 2-level 230 V AC 6 A make contact	2 x 2-level 230 V AC 6 A make contact
Inputs			4 x fb + 4 x fault	4 x fb + 4 x fault	4 x fb + 2 x fault + 2 free	4 x fb + 2 x fault
LOD			•	•	•	•
Inputs LOD (switch position)			12 x	12 x	8 x	8 x
DIN rail mounting	•	•	•		•	
19" front panel mounting				•		•
Installation in small distribution cabinets	•	•	•		•	

**ANALOGUE
OUTPUT MODULES**

	page 47	page 56	page 61	page 62
				
	ems4.AA01E	ems4.AAH3E	ems4.AA03F	ems4.AA04F
Outputs	4 analogue outputs 0 ... 10 V DC or 0/4 ... 20 mA	4 analogue outputs 0 ... 10 V DC	2 analogue outputs 0 ... 10 V DC	4 analogue outputs 0 ... 10 V DC
Inputs		4 analogue inputs 0 ... 10 V DC	2 analogue inputs 0 ... 10 V DC	4 analogue inputs 0 ... 10 V DC
LOD		•	•	•
Inputs LOD (switch position)		12 x	6 x	12 x
DIN rail mounting	•	•		
19" front panel mounting			•	•
Installation in small distribution cabinets	•	•		

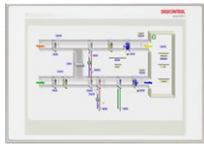
**COMBINED
I / O MODULES**

	page 49	page 50	page 52
			
	ems4.KM01E	ems4.KM02E	ems4.KM03E
Outputs	4 x AO 0/2...10V 3 x Relay 230V AC / 16A	6 x DO Relay 230V AC / 16A	4 x AO 0/2...10V 8 x DO Relay 230V AC / 16A
Inputs	each input configurable: 4 x PT/Ni 1000, 0/2...10V or 24V DC	each input configurable: 10 x PT/Ni 1000, 0/2...10V or 24V DC	each input configurable: 7 x PT/Ni 1000, 0/2...10V or 24V DC
LOD		•	•
Inputs LOD (switch position)		6 x	12 x
DIN rail mounting		•	•
Installation in small distribution cabinets	•	•	•

2 DIGICONTROL Building automation and control systems

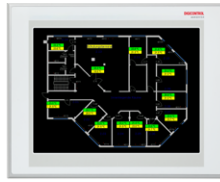
ems4 BACS interface modules

page 72



ems4.EC4-7

page 73



ems4.EC4-10.4

Operating unit

Touch panel 7"
800 x 480 px
65,535 colours

Touch panel 10.4"
800 x 600 px
262,144 colours

ems BACS interface modules

page 74



ems.EC6-7

page 75



ems.EC6-10.1

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ems.EC6-15.6

Operating unit

Touch panel 7"
1024 x 600 px
262,144 colours

Touch panel 10,1"
1280 x 800 px
16.7 M colours

Touch panel 15,6"
1920 x 1080 px
262,144 colours

ROOM interface modules

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R4D.RT7

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R4D.RC05 / RC06

Operating unit



Room touch panel 4,3"
480 x 272 px
65,535 colours

Room operating unit and controller
6 function buttons
Rotary pulse encoder



**BACS INTERFACE
MODULES**

	page 84	page 81	page 80	page 82	page 83	page 112
						
	ems4.MP01E	ems4.SM04E	ems4.SM03B	ems4.KNX1E	ems4.DALI	ems4.ENO1B
Integration			 weitere Schnittstellen ► siehe Produkt		DALI	EnOcean


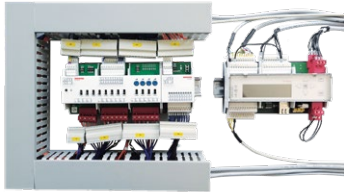
FIRE DAMPER MODULES

	page 89	page 88
		
	ems4.DEA2I	ems4.BKZ1E
Outputs	1 potential-free relay output for controlling the motorised fire damper 24 V DC or 230 V AC	
Inputs	2 digital inputs (galvanically separated) for connecting the fire damper position Configurable 24 V DC or potential-free	4 digital inputs 24V DC (polarity configurable via jumper J1)

**MODULE FOR SPECIAL
TASKS**

	page 92	page 41
		
	Retrofit ems4.RF01E	Storage module ems4.TLOG
	The DIGICONTROL Retrofit module ems4.RF01E enables the connection of ems automation stations to older types of input/output cards (I/O cards) in existing plants. Therefore older types of existing automation systems can be modernised easily and cost-efficiently.	

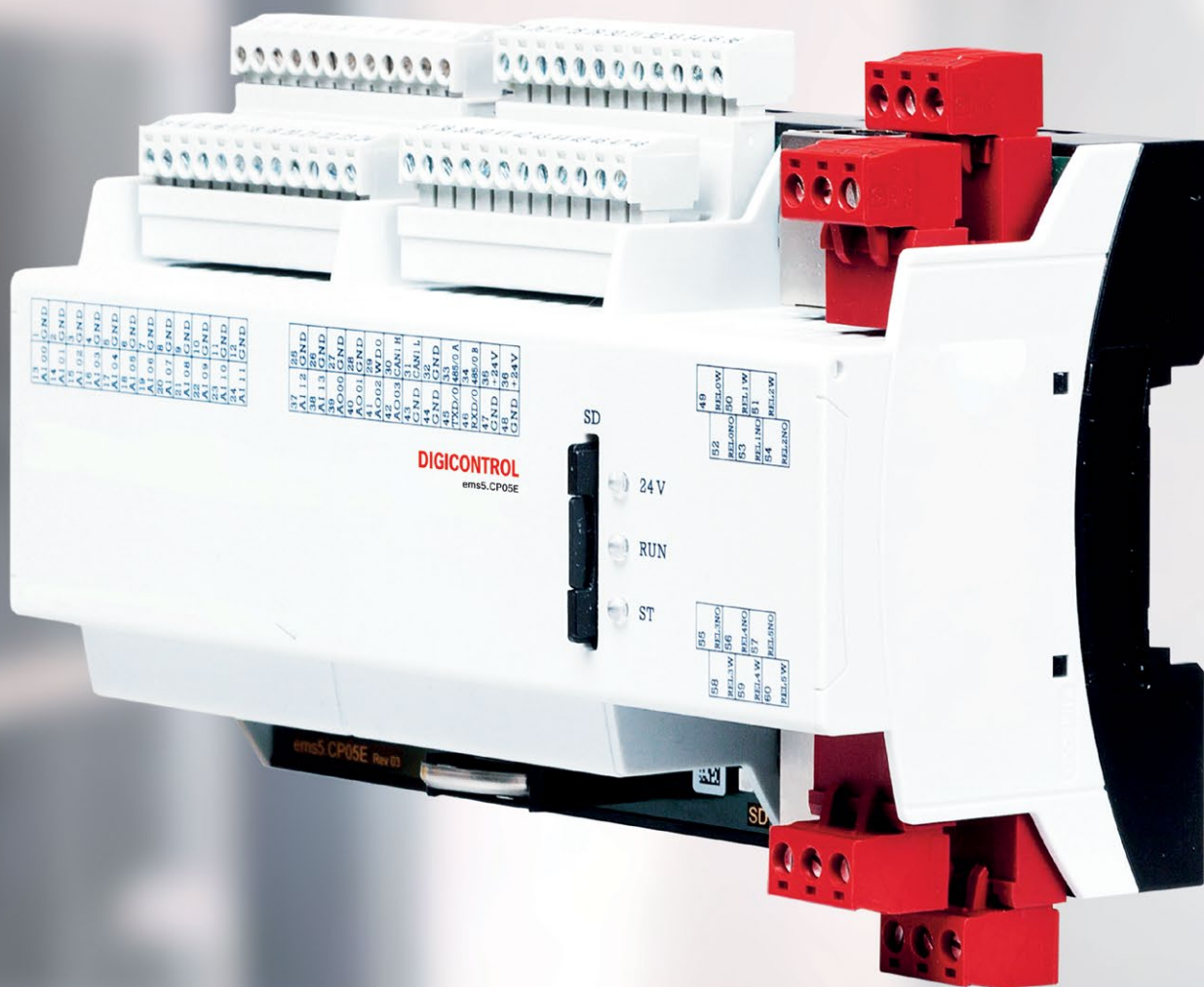
**MODULE FOR SPECIAL
TASKS****ecs3 -
Retrokit**

	page 94
	
	ems2.RTR-ECS-FR / ems2.RTR-ECS-FL
	Operators of DIGICONTROL ecs3 and ecs3.+ automation stations (AS) are enabled by the DIGICONTROL ecs3 Retrokit to have their existing automation stations replaced by automation stations of the latest DIGICONTROL generation - inexpensively, quickly and, in most cases, even without impairing the ongoing operation of the building.
	
	ems2.RTR-ECS-G

2.1 Automation equipment



DIGICONTROL ems5
Building Edge and IoT controller
BACnet B-BC, Protocol Rev. 1.15,
AMEV profile AS-B 2017



Open for universal applications in all areas of modern building and room automation - today and in the future.

DIGICONTROL ems2, ems4 and ems5 - economic modular system - are network-based, interdisciplinary and freely programmable automation systems for universal tasks in all areas of building and room automation of every plant dimension.

2.1.1 AUTOMATION EQUIPMENT

Expandable automation station (B-BC)	DIGICONTROL ems5.CP05E	32
Expandable automation station (B-BC) with integrated display	DIGICONTROL ems2.CP14D	34
Expandable automation station (B-BC)	DIGICONTROL ems2.R4D1B	37
Modular automation station	DIGICONTROL ems4.CP02B	39

2.1.2 SAVING MODULE

Module for saving signal data of automation systems	DIGICONTROL ems4.TLOG	41
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2.1.3 BINARY INPUT MODULES

Digital input module with 10 digital inputs	DIGICONTROL ems4.DE07E	42
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2.1.4 BINARY OUTPUT MODULES

Digital output module for DIN rail mounting	DIGICONTROL ems4.DA01E	44
Digital output module for DIN rail mounting	DIGICONTROL ems4.DA02E	45

2.1.5 ANALOGUE INPUT MODULES

Analogue input module for DIN rail mounting	DIGICONTROL ems4.AE03B	46
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2.1.6 ANALOGUE OUTPUT MODULES

Analogue output module for top hat rail mounting	DIGICONTROL ems4.AA01E	47
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2.1.7 MULTIFUNCTIONAL INPUT MODULES

Multifunction input module with 10 multifunctional inputs	DIGICONTROL ems4.ME01E	48
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2.1.8 COMBINATION INPUT AND OUTPUT MODULES

Multifunction modul	DIGICONTROL ems4.KM01E	49
Multifunction module with integrated local priority operating level (LOD)	DIGICONTROL ems4.KM02E	50
Multifunction module with integrated local priority operating level (LOD)	DIGICONTROL ems4.KM03E	52

2.1.9 OUTPUT MODULES WITH LOCAL OVERRIDE DEVICE

Digital output module with local override for top hat rail mounting	DIGICONTROL ems4.DAH2E	54
Digital output module with local override for top hat rail mounting	DIGICONTROL ems4.DAH3E	55
Analogue output module with local override for top hat rail mounting	DIGICONTROL ems4.AAH3E	56

2.1.10 19" FRONT MODULES WITH LOCAL OVERRIDE DEVICE

System module 19" for front installation	DIGICONTROL ems4.DE00F	57
Digital input module 19" for front installation	DIGICONTROL ems4.DE02F	58
Digital output module 19" with LOD for front installation	DIGICONTROL ems4.DA02F	59
Digital output module 19" with LOD for front installation	DIGICONTROL ems4.DA03F	60
Analogue output module 19" with LOD for front installation	DIGICONTROL ems4.AA03F	61
Analogue output module 19" with LOD for front installation	DIGICONTROL ems4.AA04F	62
Carrier frame for ems4 front operating modules	DIGICONTROL ems4.TRSF	63
Carrier frame for 12 ems4 front operating modules	DIGICONTROL ems4.TRSF12	64

2.1.11 AE CONNECTION CABLE

Connection cables for automation equipment	DIGICONTROL	66
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Expandable automation station

DIGICONTROL ems5.CP05E



DIGICONTROL ems5.CP05E is a network-based, freely configurable automation station for the implementation of manifold tasks in all areas of building and room automation. The ems5.CP... is perfectly suited to meet all requirements of the future due to its open communication via all modern transmission channels, the utilisation of existing IT structures, the integration of different trades and systems and the extendable overall concept with a centralised and decentralised distribution of tasks by means of intelligent extension modules. Being a compact automation station it is used as expandable system in smaller plants and is applied in complex building and room automation systems. The ems5.CP05E is furnished with an embedded Web server for fully graphics-based remote control and monitoring of the automation functions. A fully graphical visualization of the plant information is supported as well. The ems5.CP05E can be used as BACnet® Building Controller (B-BC) pursuant to the BACnet® Standardized Device Profile in accordance with the Annex L of the ANSI ASHRAE Standard 135-2001 or DIN EN 16484-5. The communication is performed via BACnet/IP and BACnet MS/TP.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	5 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
LED display	24 V-LED (green), RUN-LED (green), ST-LED (red), RS232/RS485 TX (green), RX (orange), SD card DUO-LED
Housing	DIN rail housing for electrical subdistribution
Dimensions	162 x 90 x 62 mm
Protection class	IP20 acc. DIN 40050
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Service	Smart operation via WLAN with optional USB LAN adapter
Outputs	<ul style="list-style-type: none"> ■ 4 analogue outputs 0...10 V DC, 10 Bit, 3 mA ■ 6 digital relay outputs 230 V AC / 6 A / no-contact ■ 10 million mechanical switching cycles
Inputs	<ul style="list-style-type: none"> ■ 14 universal inputs, freely configurable as: ■ PT/Ni1000, 12 bit ■ 24 V DC digital inputs ■ 0...10 V DC, 12 bit
System bus	CAN bus
Interfaces	<ul style="list-style-type: none"> ■ 2x ethernet interfaces 10/100 Mbit via integrated switch at the RJ45 sockets ■ 1x RS232/485 ■ 1x CAN bus ■ 1x SD card interface
Other remarks	Watchdog output 24 V DC Integrated SD card slot

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TYPE LIST

TYPE MICROPROCESSOR SYSTEM

ems5.CP05E	CPU: ARM Cortex™-A5, Cortex™-M4, 500 MHz (A5), 167 MHz (M4) Memory: 256 MB RAM, 512 MB FLASH
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ACCESSORY

TYPE DESCRIPTION

ems4.HBUS-161	Mounting rail bus connector HBUS 161,6
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ems5.CBM	DIGICONTROL ems5 expansion license for CAN bus module license for an extension module. The license is required from 13th extension module on.
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ems5.FBM	DIGICONTROL ems5 extension license for CAN fieldbus modules, such as ems4.DEA2I or R4D.RCxx. License for an expansion module. The license is required from the 13th expansion module.
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ems5.MOBM2	DIGICONTROL ems5 expansion license of ems5 for the embedded Modbus RTU Master interface via the integrated RS232-/RS485-interface
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ems5.LM	DIGICONTROL ems5 expansion license for load management load group with 8 loads
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ems5.VPN	DIGICONTROL ems5 extension license for a secure VPN communication. Furthermore as Smart Building Connector for the communication with the DIGIVISION - Smart Building as a Service or as BACnet-IP-Gateway for the connection of further BACnet components.
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ems5.EMAIL	DIGICONTROL ems5 expansion license for email dispatch from automation stations
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emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.
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R4D.UV	ROOM4D mounting variation distribution boards DIGICONTROL R4D.UV Small plastic distribution boards for hollow wall installation in accordance with DIN VDE 0603/1 and DIN 43 871. For installing devices up to 63 A with 70 mm installation depths in compliance with measurement standard DIN 43 880, measurement voltage 400 V/50 Hz, protection class IP30, degree of protection class II insulated. Dimensions (WxHxD): 348 x 505 x 94.5 mm on request.
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R4D.DV	ROOM4D mounting variation small distributor DIGICONTROL R4D.DV Small distributor, single-row, 14 subunits, Ui=400 V, screw-less PE/N terminal strip, flexible cable inlay at the top, with cover and label strips, additional double seal cable glands. Dimensions (WxHxD): 300 x 300 x 142 mm
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R4D.FV	ROOM4D mounting variation terminal board DIGICONTROL R4D.FV Terminal board, manufactured using 1mm galvanised steel plate, tight-fitting M25 cable entry grommets with puncture membrane, cover with quick release fastener, protection class IP40. Dimensions (WxHxD): 500 x 350 x 80 mm
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Expandable automation station with integrated display

DIGICONTROL ems2.CP14D

BACnet Building Controller (B-BC) / AMEV profile AS-B

Data sheet number 18015



DIGICONTROL ems2.CP14D is a network-based, freely programmable and expandable controller for the implementation of various tasks in all areas of building and room automation. The ems2.CP14D is ideally suited to meet all requirements of the future because of the open communication via all modern methods of transmission, the utilisation of existing IT infrastructures, the integration of different trades and systems and the expandable overall concept with central and local distribution of responsibilities by means of intelligent (ems4) extension modules. Being a compact controller with integrated display and integrated operating keys, it is used in smaller plants. It is also applied in more complex building and room automation networks as it is an extensible system.

The ems2.CP14D is equipped with an embedded web-server for the entire remote control and the monitoring of controller functions. A fully-graphical visualisation of the plant characteristics is supported as well.

The ems2.CP14D can be used as BACnet® Building Controller (B-BC) according to the BACnet® Standardised Device Profile in compliance with the Annex L of the ANSI ASHRAE-Standards 135-2001 and DIN EN 16484-5. The communication is effected by BACnet/IP or BACnet MS/TP.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %, alternativ "Power over Ethernet" (PoE)
Power consumption	6 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
LED display	24 V-LED (green), RUN-LED (green), ST-LED (red)
Microprocessor system	Coldfire-CPU, MCF 5329, 240 MHz, 16 MB FLASH, 16 MB SDRAM, 4 MB SRAM
RTC	Embedded hardware clock with date and time
Buffering	For SRAM and RTC by means of battery CR2032 (buffering 1-3 years)
Housing	DIN rail housing for electrical subdistribution
Dimensions	162 x 90 x 62 mm
Protection class	IP20 acc. DIN 40050
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS







Outputs	<ul style="list-style-type: none"> ■ 4 analogue outputs 0...10 V DC, 10 Bit, 3 mA ■ 6 digital relay outputs 230 V AC / 6 A / no-contact
Inputs	<ul style="list-style-type: none"> ■ 14 universal inputs, freely configurable as: <ul style="list-style-type: none"> ■ PT/Ni1000, 12 bit ■ 24 V DC digital inputs ■ 0...10 V DC, 12 bit
Display	Integrated display with multifunctional keyboard for set point input, polling actual values, notifications, etc.

◀ CONTINUED FROM PAGE 34

Interfaces

- 2 x RS232 / RS485, of which one RS232 (COM-B) is used with DCD-, DSR- and DTR signal modem operation
- 2 x CAN bus for a maximum of 1MBit/s, bus connection via slider
- 1 x LIN bus
- Ethernet interface, 10/100 MBit, RJ45 at the bottom of the housing link LED


TYPE**ems2.CP14D****ACCESSORY**

TYPE	DESCRIPTION	
ems2.AD90	Adaptor for a 90° shifted installation of automation components on a top-hat rail	
ems4.HBUS-161	Mounting rail bus connector HBUS 161,6	
ems2.CBM	DIGICONTROL ems2 extension license for can bus modules License for one extension module. The license is required as of the 7th extension module.	
ems2.BACNET	DIGICONTROL ems2 extension license for BACnet server	
ems2.GWS	DIGICONTROL ems2 extension license for graphics-capable web server	
ems2.MOBM2	DIGICONTROL ems2 extension license for Modbus	
ems2.LM	DIGICONTROL ems2 extension license for load management	
ems2.EMAIL	DIGICONTROL ems2 extension license for e-mail dispatch from the automation station	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	
ems2.FR	Front mounting frame for automation stations ems2.CP14D and ems2.R4D1B	
R4D.UV	ROOM4D mounting variation distribution boards DIGICONTROL R4D.UV Small plastic distribution boards for hollow wall installation in accordance with DIN VDE 0603/1 and DIN 43 871. For installing devices up to 63 A with 70 mm installation depths in compliance with measurement standard DIN 43 880, measurement voltage 400 V/50 Hz, protection class IP30, degree of protection class II insulated. Dimensions (WxHxD): 348 x 505 x 94.5 mm on request.	
R4D.DV	ROOM4D mounting variation small distributor DIGICONTROL R4D.DV Small distributor, single-row, 14 subunits, Ui=400 V, screw-less PE/N terminal strip, flexible cable inlay at the top, with cover and label strips, additional double seal cable glands. Dimensions (WxHxD): 300 x 300 x 142 mm	

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◀ CONTINUED FROM PAGE 35

ACCESSORY

TYPE	DESCRIPTION	
R4D.FV	<p>ROOM4D mounting variation terminal board DIGICONTROL R4D.FV</p> <p>Terminal board, manufactured using 1mm galvanised steel plate, tight-fitting M25 cable entry grommets with puncture membrane, cover with quick release fastener, protection class IP40.</p> <p>Dimensions (WxHxD): 500 x 350 x 80 mm</p>	

Expandable automation station

DIGICONTROL ems2.R4D1B

BACnet Building Controller (B-BC) / AMEV profile AS-B

Data sheet number 18050

DIGICONTROL ems2.R4D1B is a network-based, freely programmable, expandable controller for the implementation of manifold tasks in all fields of building and room automation. The open communication via all modern transmission methods, the utilisation of existing IT infrastructures, the integration of different trades and systems as well as the expandable overall concept with centralised and local distribution of tasks via fine modular intelligent (ems4) expansion modules mean that the ems2.R4D1B is perfectly suited for all future requirements. Since the ems2.R4D1B is a compact controller, it is used in smaller plants. It is also applied in more complex building and room automation networks as it is an extensible system.

The ems2.R4D1B is equipped with an embedded web-server for the entire remote control and the monitoring of controller functions. A fully-graphical visualisation of plant characteristics is supported as well.

The ems2.R4D1B can be used as BACnet® Building Controller (B-BC) according to the BACnet® Standardised Device Profile in compliance with the Annex L of the ANSI ASHRAE-Standards 135-2001 and DIN EN 16484-5. The communication is effected by BACnet/IP or BACnet MS/TP.



GENERAL SPECIFICATIONS








Voltage	24 V DC +/- 10 %, alternativ "Power over Ethernet" (PoE)
Power consumption	4 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	Top hat rail 35 mm
LED display	24 V-LED (green), RUN-LED (green), ST-LED (red)
Housing	Plastic housing
Weight	375 g
Dimensions	162 x 90 x 62 mm
Protection class	IP20 acc. DIN 40050
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 4 analogue outputs 0...10 V DC, 10 bit ■ 4 digital relay outputs 230 V AC / 6 A / no-contact ■ 2 TRIAC outputs / max. 800 mA
Inputs	<ul style="list-style-type: none"> ■ 14 universal inputs, freely configurable as: <ul style="list-style-type: none"> ■ PT/NI1000, 12 bit ■ 0...10 V DC, 12 bit ■ 24 V DC digital inputs
System bus	CAN bus
Interfaces	<ul style="list-style-type: none"> ■ 2 x RS232 / RS485, of which one RS232 (COM-B) is used for modem operation ■ 2 x CAN bus ■ 1 x LIN bus ■ Ethernet interface, 10/100 MBit, RJ45

◀ CONTINUED FROM PAGE 37

TYPE**ems2.R4D1B****ACCESSORY**

TYPE	DESCRIPTION	
ems4.HBUS-161	Mounting rail bus connector HBUS 161,6	
ems2.CBM	DIGICONTROL ems2 extension license for can bus modules License for one extension module. The license is required as of the 7th extension module.	
ems2.BACNET	DIGICONTROL ems2 extension license for BACnet server	
ems2.GWS	DIGICONTROL ems2 extension license for graphics-capable web server	
ems2.MOBM2	DIGICONTROL ems2 extension license for Modbus	
ems2.LM	DIGICONTROL ems2 extension license for load management	
ems2.EMAIL	DIGICONTROL ems2 extension license for e-mail dispatch from the automation station	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	
ems2.FR	Front mounting frame for automation stations ems2.CP14D and ems2.R4D1B	
R4D.UV	ROOM4D mounting variation distribution boards DIGICONTROL R4D.UV Small plastic distribution boards for hollow wall installation in accordance with DIN VDE 0603/1 and DIN 43 871. For installing devices up to 63 A with 70 mm installation depths in compliance with measurement standard DIN 43 880, measurement voltage 400 V/50 Hz, protection class IP30, degree of protection class II insulated. Dimensions (WxHxD): 348 x 505 x 94.5 mm on request.	
R4D.DV	ROOM4D mounting variation small distributor DIGICONTROL R4D.DV Small distributor, single-row, 14 subunits, Ui=400 V, screw-less PE/N terminal strip, flexible cable inlay at the top, with cover and label strips, additional double seal cable glands. Dimensions (WxHxD): 300 x 300 x 142 mm	
R4D.FV	ROOM4D mounting variation terminal board DIGICONTROL R4D.FV Terminal board, manufactured using 1mm galvanised steel plate, tight-fitting M25 cable entry grommets with puncture membrane, cover with quick release fastener, protection class IP40. Dimensions (WxHxD): 500 x 350 x 80 mm	
ems2.AD90	Adaptor for a 90° shifted installation of automation components on a top-hat rail	

DIGICONTROL ems4.CP02B

Data sheet number 19020

The DIGICONTROL ems4.CP02B - economic modular system - is a network-based, interdisciplinary, freely programmable automation system for universal tasks in all areas of building automation for systems of all sizes. The control unit can communicate without any additional components and is networkable at automation and management level.

Features: Ethernet RJ45, integrated web server, Peer to Peer communication

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	3.8 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	On vertical surfaces (wall mounting, terminals at top and bottom)
LED display	4x Status LED
Microprocessor system	ColdFire MCF5282
Buffering	Lithium battery and Gold-Cap
Weight	250 g
Housing	Plastic housing
DIN rail bus connector CAN / LIN	Max. 30 mating cycles, contact load 1 A
Dimensions	45 x 100 x 115 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS




Outputs	<ul style="list-style-type: none"> 4 integrated digital outputs 24 V DC, transistor 500 mA, short-circuit proof LED status indicator for each output
Inputs	<ul style="list-style-type: none"> 4 integrated digital inputs 24 V DC LED status indicator for each input
System bus	CAN bus
Interfaces	<ul style="list-style-type: none"> 2 x RS232 / RS485 on terminals, one RS232 is modem-capable 1 x Ethernet 10/100 Mbit/s via RJ45 plug 2 x CAN interface 1 x LIN bus Integrated web server Can be expanded via interface modules (e.g. M-Bus, RS232 / RS485) IOs can be expded up to 61 ems4 modules without repeater via CAN interface

TYPE

ems4.CP02B



◀ CONTINUED FROM PAGE 39

ACCESSORY		
TYPE	DESCRIPTION	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	
ems4.PGU	The programming and charging cable ems4.PGU is used as connecting cable for a direct connection between the automation station (ems4.CP02B) and a notebook.	
ems4.TSBV5P	Mounting rail bus connector ems4.TSBV5P for ems4 modules	

Module for saving signal data of automation systems

DIGICONTROL ems4.TLOG

Data sheet number 19090

The module ems4.TLOG is used for saving signal data of a DIGICONTROL automation system and enables long-term logging of up to 54 different signals. These signals are saved on a USB stick or SD card. The configuration of the data to be saved is performed by means of the configuration tool web-CADpro. BACnet-compliant reading of the TrendLog objects is carried out by means of the ems2-CPU.

The data can be logged individually or in blocks of up to 6 signals. Signal logging can be performed periodically via an adjustable time and a parametrisable change of value. The USB stick included in the scope of delivery has a storage capacity of 8 GByte.



GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	Max. 3 W
Button	Front: 1x for CAN bus configuration
Mounting	DIN rail mounting
LED display	CAN bus activity: (red /green) (front of device) LED1 (green) USB stick has been detected LED2 (yellow) data logging LED3 (green) SD card has been detected LED4 (red) fault, data logging not
Housing	Housing for use in distribution boards in accordance with DIN 43880
Weight	120 g
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

System bus	CAN bus
Interfaces	<ul style="list-style-type: none"> ■ LIN bus ■ USB 2.0 for memory stick (Format: FAT32, max. Size: 32 GByte) ■ SD card interface (Format: FAT32, max. Size: 32 GByte)

TYPE

ems4.TLOG

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-53	Mounting rail bus connector H bus 53.6



Digital input module with 10 digital inputs

DIGICONTROL ems4.DE07E

Data sheet number 19250



The ems4.DE07E is a module for logging digital input signals 24 V DC. As it relates to polarity, the input signals have to be configured individually by means of the software. The respective status of the input signal is displayed in the configured colour via the 10 LEDs on the device front. De-bouncing the input signals is performed by means of the software and can be parameterised within wide limits. Each digital input can be individually configured as signal input and message output. Furthermore, there is the option to directly control outputs of additional bus modules depending of the input signals. The module automatically detects the speed of the connected CAN bus system.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.2 W
Mounting	Top hat rail 35 mm
LED display	CAN bus activity: (red /green), LED D1 on PCB 10 signal LEDs on front of the device. LED color configurable by software: green, red, orange
Weight	105 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Inputs	<ul style="list-style-type: none"> 10 digital inputs 24 V DC LED status indicator per input Configuration of inputs regarding polarity (jointly for all 10 inputs) Configuration of each individual input as meter is possible. The maximum counter frequency is 50 Hz (pulse / pause ratio = 1). Configuration of each individual input as “sensor input” with configurable sensor pulse extension Status LEDs are separately configurable RED / GREEN / ORANGE for each input. Direct control of any number of digital inputs depending on the configuration or the input signal
Interfaces	CAN

TYPE
ems4.DE07E

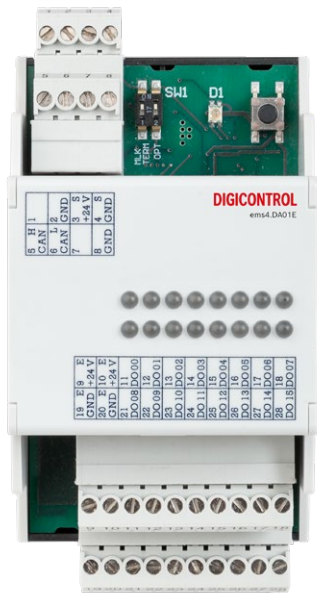
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ACCESSORY**TYPE DESCRIPTION****ems4.HBUS-53** Mounting rail bus connector H bus 53.6

Digital output module

DIGICONTROL ems4.DA01E

Data sheet number 19315



The DA01E module enables the switching of 1...16 digital outputs (transistor outputs). A common status signal is provided for each two outputs, which can be used to detect a short circuit at the output, for example. Each output of the ems4.DA01E has special protection mechanisms:

- Short-circuit-proof
- Overload protection
- Current limitation
- Thermal shutdown

A separate power supply for the load circuit is required.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1 W without load at the outputs
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
Mounting	DIN rail mounting
Bus connector	DIN rail mounting connector (HBUS)
LED display	1x CAN bus activity (red/green), LED D1 on printed circuit board 16x LED for transistor outputs (green) on front of device
Weight	105 g
Housing	Plastic housing
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Ambient temperature	+5...+45 °C
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	16x transistor outputs 24 V DC, 0.5 A
System bus	CAN bus
Interfaces	CAN
Other remarks	Push-button on printed circuit board for CAN bus configuration

TYPE
ems4.DA01E

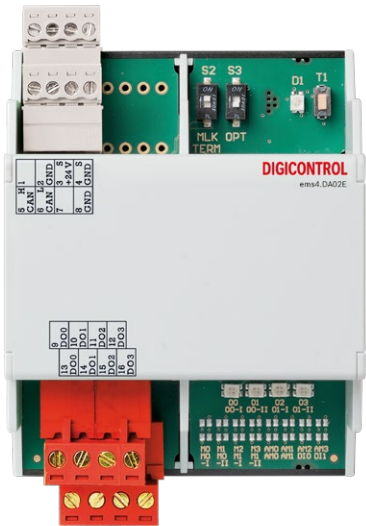
Digital output module for top hat rail mounting

DIGICONTROL ems4.DA02E

Data sheet number 19330

The digital output module ems4.DA02E serves as an extension module for automation equipment in the DIGICONTROL ems series. It has 4 relay outputs for maximum 230 V AC, 6 A (AC1), 2 A (AC1).

GENERAL SPECIFICATIONS	
Voltage	24 V DC +/- 10 %
Electrical connection	Via screw terminals for wires up to 1.5 mm²
Mounting	DIN rail mounting
LED display	1x CAN bus activity (Red /Green) 4x LED for relay outputs (Green)
Weight	140 g
Housing	Plastic housing
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration
TECHNICAL SPECIFICATIONS	
Outputs	<ul style="list-style-type: none">■ 4x relay outputs■ Potential-free normally open contact■ Switching current 230 V AC 6 A (AC1), 2 A (AC3)
System bus	CAN bus
Interfaces	CAN



TYPE
ems4.DA02E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



Analogue input module for DIN rail mounting

DIGICONTROL ems4.AE03B

Data sheet number 19430



The ems4.AE03B is a module for logging temperatures of the resistance thermometer PT/Ni/CU 1000 or input signals 0(2)...10 V DC / 0(4) ... 20 mA with an integrated microcontroller and memory module for accommodating a specially customised programme. Two measuring ranges are available for temperature measurement, which cover different temperature ranges depending on the sensor type. The respective input signal type (PT-/Ni-/CU-1000 / 0(2)...10 V DC / 0(4)...20 mA) and the measuring range required (for temperature measurements) are configured separately for each input using the configuration tool.

GENERAL SPECIFICATIONS	
Voltage	24 V DC +/- 10 %
Power consumption	1.5 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	On vertical surfaces (wall mounting, terminals at top and bottom)
LED display	Via Duo LED
Housing	Plastic housing
Weight	130 g
DIN rail bus connector CAN / LIN	Max. 30 mating cycles, contact load 1 A
Dimensions	22.5 x 100 x 115 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration
TECHNICAL SPECIFICATIONS	
Inputs	■ 8 analogue inputs PT-/Ni-/CU-1000 / 0(2)...10 V DC / 0(4) ... 20 mA , 16 Bit ■ 2 selectable temperature measuring ranges
System bus	CAN bus
Interfaces	1 x LIN bus

TYPE
ems4.AE03B

ACCESSORY

TYPE	DESCRIPTION
ems4.TSBV5P	Mounting rail bus connector ems4.TSBV5P for ems4 modules



Analogue output module for top hat rail mounting

DIGICONTROL ems4.AA01E

Data sheet number 19350

The analogue output module ems4.AA01E serves as an extension module for automation equipment in the DIGICONTROL ems series. It has 4 analogue outputs which can be individually configured for voltage (0...10 V) or current (0/4...20 mA).

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	2.1 W (maximum load of analogue outputs)
Electrical connection	Via screw terminals for wires up to 1.5 mm²
Mounting	DIN rail mounting
LED display	CAN bus activity: (red/green)
Housing	Plastic housing
Weight	100 g
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration



TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none">■ 4 analogue outputs 0...10 V DC or 0/4...20 mA, maximum output load per output with configuration■ Voltage: 5 mA■ Current: load 350 - 500 Ohm■ 10 bit resolution
System bus	CAN bus
Interfaces	CAN

TYPE
ems4.AA01E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



CAN-Multifunction input module with 10 multifunctional inputs

DIGICONTROL ems4.ME01E

Data sheet number 57100



The ems4.ME01E has 10 multifunctional inputs which can be used as digital, analogue and temperature sensor input. Temperature sensors of type PT1000, NI1000(DIN) or NI1000(TKR5000) can be connected. The analogue (0...10 V) signal can also be scaled. If the input is used as digital input, it can be differentiated between a switching signal (ON/OFF) and a pushbutton. The digital signal is debounced by means of an adjustable time (identification time) which can be set via the module parameters. There is the additional option to directly control a digital output module (DAOxB). The module automatically detects the speed of the connected CAN bus system.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	62
Button	Front: 1x CAN bus configuration
Mounting	DIN rail mounting
LED display	CAN bus activity: (red /green)
Weight	100 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Inputs	<ul style="list-style-type: none">■ 10 multifunction inputs (selectable)■ Analogue 0/2...10 V input (scalable) - 12 Bit■ PT1000, NI1000 - 12 bit (temperature range: -50°C...+150°C)■ Digital input (24 V)
Interfaces	CAN, LIN

TYPE
ems4.ME01E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-53	Mounting rail bus connector H bus 53.6



Multifunction modul

DIGICONTROL ems4.KM01E

Data sheet number 57080

The ems4.KM01E module is used to switch 1 ... 3 digital outputs (relay outputs). Moreover, it has 4 multi-function inputs and 4 analogue outputs. It can be installed in switching cabinets and electrical sub-distribution racks or it can even be mounted under the floor.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	3 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ² (relay outputs), up to 1.5 mm ² (all other screw terminals)
Mounting	Top hat rail 35 mm
LED display	Device front: CAN bus activity (LED red/green) Circuit board: LED 1-4
Weight	206 g
Housing	Plastic housing, for use in distribution boards in accordance with DIN 43880
Dimensions	107.6 x 110 x 62.2 (incl. terminals) mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration

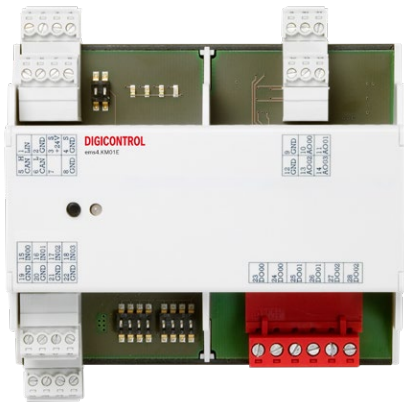
TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none">■ 4 analogue outputs 0 ... 10 V or 2 ... 10 V, max. 3.5 mA■ 3 relay outputs 230 V, 16 A, approx 80 A inrush current
Inputs	4 multi-function inputs PT1000/NI1000/0 ... 10 V/ digital 24 V DC
System bus	CAN bus
Interfaces	LIN, CAN

TYPE
ems4.KM01E

ACCESSORY

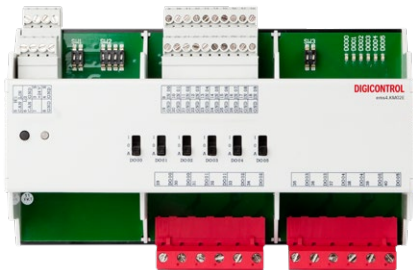
TYPE	DESCRIPTION
ems4.HBUS-107	Mounting rail bus connector H bus 107.6



Multifunction module with integrated local priority operating level (LOD)

DIGICONTROL ems4.KM02E

Data sheet number 57082



The ems4.KM02E is equipped with 10 multi-functional inputs which serve, depending on the specific needs, as analogue, digital or temperature sensor input. Temperature sensors of type PT1000, NI1000 (DIN) or NI1000 (TKR5000) can be connected. The analogue (0...10 V) signal can additionally be scaled. If the input is used as digital input, it can be differentiated between a switching signal (ON/OFF) and a push button. In addition to the input signals, the ems4.KM02E module also has 6 digital outputs. The control of the digital output by a different input module (DE0xB) is possible. The state of the digital outputs is displayed by the status LEDs of the module. All physical outputs are modifiable via the local priority operating level. Slide switches with the positions AUTO-0-I are available for this purpose.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	5 W (all relays switched on)
Electrical connection	2.5 mm ² (Relay outputs), 1.5 mm ² (all other screw terminals)
Current measurement relay output	2x, I2.5 = 0...16 A, resolution approx. 15 mA
Function	Shutter control / 3 point, the electrical interlock of the handsets is configurable
Mounting	DIN rail mounting
LED display	6x Status LED for relay outputs (green), 1x CAN bus activity (red/green)
Weight	370 g
Housing	Plastic housing
Dimensions	161.6 x 110 x 62.2 (incl. clamps) mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS


Outputs	<ul style="list-style-type: none">■ 6 relay outputs 230 V AC, 16 A ohmic load, approx. 80 A switch-on current■ (6 x status LED - switching status of relay outputs)■ AC1: 16 A/250 V AC■ AC3: 8 A/250 V AC■ 2x 3-phase (configurable via DIP switches)■ Slide switch for local priority operating level (LOD) AUTO – 0- 1
Inputs	<ul style="list-style-type: none">■ 10 universal inputs, freely configurable as:<ul style="list-style-type: none">■ PT/NI1000, resolution 12 bit, (temperature: -50 °C...+150 °C)■ Digital inputs 24 V DC■ 0...10 V DC, resolution 12 Bit
Local override device	<ul style="list-style-type: none">■ Relay outputs: Operation via slide switch (Manual-Off-AUTO)■ 6 inputs for feedback of all switch positions of the local override operation level

◀ CONTINUED FROM PAGE 50

System bus	CAN bus
Interfaces	LIN, CAN
Other remarks	Exposed circuit parts have to be treated according to the ESD standard.

TYPE
ems4.KM02E

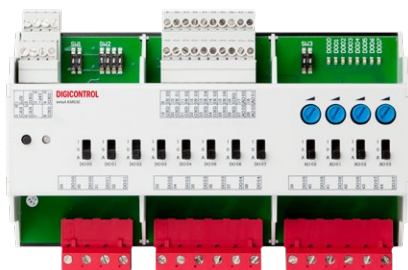
ACCESSORY

TYPE	DESCRIPTION	
ems4.HBUS-161	Mounting rail bus connector HBUS 161,6	

Multifunction module with integrated local priority operating level (LOD)

DIGICONTROL ems4.KM03E

Data sheet number 57084



The ems4.KM03E is equipped with 7 multi-functional inputs which serve, depending on the specific needs, as analogue, digital or temperature sensor input. Temperature sensors of type PT1000, NI1000 (DIN) or NI1000 (TKR5000) can be connected. The analogue (0...10 V) signal can additionally be scaled. If the input is used as digital input, it can be differentiated between a switching signal (ON/OFF) and a push button. In addition to the input signals, the ems4.KM03E module also has 4 analogue and 8 digital outputs. As it relates to the analogue output, the user can choose between a 0...10V and a 2...10V signal. The control of the digital outputs by means of another input module (DE0xB) is also possible. The status (switched) of the digital outputs is displayed by the status LEDs of the module. All physical outputs are modifiable via the local priority operating level. Slide switches with the positions AUTO-0-I are available for this purpose. The analogue outputs are equipped with additional potentiometers which enable the setting of the analogue voltage in the manual mode.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	5.5 W (all relays switched on)
Button	Front: 1x for CAN bus configuration
Electrical connection	2.5 mm ² (Relay outputs), 1.5 mm ² (all other screw terminals)
Current measurement relay output	4x, I0,1,4,7 = 0...16 A, resolution approx. 15 mA
Mounting	DIN rail mounting
Function	Shutter control / 3 point, the electrical interlock of the handsets is configurable
LED display	8x Status LED for relay outputs (green), 1x CAN-Bus-Activity (red/green)
Weight	370 g
Housing	Plastic housing
Dimensions	161.6 x 110 x 62.2 (incl. clamps) mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS


Outputs	<ul style="list-style-type: none"> ■ 4 analogue outputs 0/2...10 V DC, 4 mA current load per output ■ 8 relay outputs 230 V AC, 16 A ohmic load, approx. 80 A switch-on current ■ 8 x status LED - switching status of relay outputs ■ AC1: 16 A/250 V AC / AC3: 8 A/250 V AC ■ Slide switch for local priority operating level (LOD) AUTO – 0- 1 ■ 2x 3-phase (configurable, about DIP switches)
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Inputs	<ul style="list-style-type: none">■ 7 universal inputs, freely configurable as:■ PT/Ni1000, resolution 12 bit (temperature: -50 °C...+150 °C)■ Digital inputs 24 V DC■ 0...10 V DC, resolution 12 bit
Local override device	<ul style="list-style-type: none">■ Relay outputs: operation by means of slide switch (MANUAL-OFF-AUTO)■ Analogue outputs: operation by means of slide switch (MANUAL-OFF-AUTO) and potentiometer (0-100%)■ 12 inputs for feedback of all switch positions of the local operating level
System bus	CAN bus
Interfaces	LIN, CAN

TYPE
ems4.KM03E

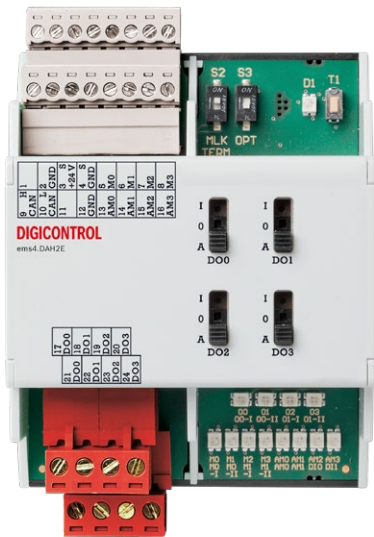
ACCESSORY

TYPE	DESCRIPTION	
ems4.HBUS-161	Mounting rail bus connector HBUS 161,6	

Digital output module with local override for top hat rail mounting

DIGICONTROL ems4.DAH2E

Data sheet number 19635



Output modules with local override combine electrical outputs with the possibility of manual intervention. They are designed for installation in a control cabinet (top hat rail).ems4.DAH2E is a module for switching up to four relay outputs with an additional local override. It serves as an extension module for automation equipment of the DIGICONTROL ems series.The module’s software enables the processing of all signals in the automatic and manual mode. furthermore, additional functions (processing of the fault signal inputs, command execution control...) are performed by the module software.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1 W
Electrical connection	Via screw terminals for wires up to 1.5 mm²
Mounting	DIN rail mounting
LED display	1x CAN bus activity (Red /Green) 4x LED for relay outputs (Green) 8x LED for digital Inputs (Red/Green parameterized)
Housing	Plastic housing
Weight	170 g
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 4x relay outputs ■ Potential-free normally open contact ■ Switching current 230 V AC, 6 A (AC1), 2 A (AC3)
Inputs	<ul style="list-style-type: none"> ■ 4x four digital inputs (24 V DC) for connection to feedback message, feedback optionally via digital input or direct use of the output signal (configurable) ■ 4x digital fault message inputs (24 V DC) ■ Programmable command execution control
System bus	CAN bus
Interfaces	CAN

TYPE
ems4.DAH2E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



Digital output module with local override for top hat rail mounting

DIGICONTROL ems4.DAH3E

Data sheet number 19640

Output modules with local override combine electrical outputs with the possibility of manual intervention. They are designed for installation in a control cabinet (top hat rail). ems4.DAH3E is a module for switching up to 2 x 2-stage relay outputs with an additional local override. It serves as an extension module for automation equipment of the DIGICONTROL ems series. The module's software enables the processing of all signals in the automatic and manual mode. Furthermore, additional functions (processing of the fault signal inputs, command execution control...) are performed by the module software.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1 W
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
Mounting	DIN rail mounting
LED display	1x CAN bus activity (Red /Green) 4x LED for relay outputs (Green) 8x LED for digital Inputs (Red/Green parameterized)
Housing	Plastic housing
Weight	170 g
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> 2x 2-stage relay outputs Potential-free normally open contact Switching current 230 V AC 6 A (AC1), 2 A (AC3)
Inputs	<ul style="list-style-type: none"> 4x digital feedback message inputs (24 V DC) 2x digital fault message inputs (24 V DC) 2x digital inputs (24 V DC) Programmable command execution control
System bus	CAN bus
Interfaces	CAN

TYPE

ems4.DAH3E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



Analogue output module with local override for top hat rail mounting

DIGICONTROL ems4.AAH3E

Data sheet number 19340



Output modules with local override combine electrical outputs with the possibility of manual intervention. They are designed for installation in a control cabinet (top hat rail).ems4.AAH3E is a module for the output of analogue voltages 4x 0...10 V DC with additional local override.It services as an extension module for automation equipment of the DIGICONTROL ems series. The module`s software enables the processing of all signals in automatic and manual mode. furthermore, additional funcitons (e.g. value adjustment, command execution control, ...) are performed by the module software.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.5 W (maximum load of analogue outputs)
Electrical connection	Via screw terminals for wires up to 1.5 mm²
Mounting	DIN rail mounting
LED display	CAN bus activity´: (red/green)
Housing	Plastic housing
Weight	170 g
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 4x analogue outputs 0...10 V DC, maximum output ■ 10 bit resolution
Inputs	<ul style="list-style-type: none"> ■ 4x analogue outputs 0...10 V DC for connection to feedback message ■ Feedback optionally via analogue input or direct use of the output signal (configurable) ■ Configurable value indication of the feedback can be adjusted to the output signal via tolerance specification ■ Prgrammable command execution control
System bus	CAN bus
Interfaces	CAN

TYPE
ems4.AAH3E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



System module 19" for front installation

DIGICONTROL ems4.DE00F

Data sheet number 19710

The ems4.DE00F system module is to be arranged in a 19" subrack. This module supplies power (24 V DC system, 24 V DC emergency, CAN, LIN) to all other 19" modules. Five freely configurable signals are available for display on the module. The signals are sent from the control unit to the ems4.DE00F, where they are displayed via LEDs (red / green). The module also contains a Piezo signal generator which enables audible signalling, e.g. of a system malfunction. Two potential-free outputs (relay changers) allow an additional signal output for any remote display panels or for switching a consumer. These can either be switched on or off in a defined manner by the control unit, or an automatic on/off function (configurable frequency) can be implemented using the ems4.DE00F.



GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
LED display	Via Duo LED
Housing	Aluminium front panel with front film
Weight	230 g
Dimensions	12HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 3 x push button switch, potential-free NO contact load 24 V, 30 mA ■ 2 x potential-free changeover contact 24 V AC, 2.5 A ohmic load ■ Transistor output for flashing cycle of all connected 19" modules with alarm inputs ■ Piezo signal transmitter
Inputs	1 x digital 24 V DC
System bus	CAN bus
Interfaces	1 x LIN

TYPE

ems4.DE00F

Digital input module 19" for front installation

DIGICONTROL **ems4.DE02F**

Data sheet number 19730



The ems4.DE02F is a module for recording digital 24 V DC input signals for the 19" front panel installation. The respective status of the input signal is displayed via the LEDs on the front of the unit. The colour of the LED (red / green / orange) can be configured individually for each input. The polarity of the input signals can be individually adjusted for all 8 inputs. The LEDs are displayed depending on the polarity. The input signals are debounced by the software and can be configured within broad limits. Each digital input of the module can be configured individually as a signal input, a counter or a sensor input. A "switch impulse stretching" can also be configured in the "pushbutton input" function. As an alternative to using the digital inputs, each input can be configured individually as signal output. For this operating mode applies that not the electrical signal at the module input determines LED control but the connected controller by regulating the virtual outputs (LED control). In this configuration, the LEDs are controlled exclusively by the controller and not by the signal of the digital input.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	0.8 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
LED display	Via Duo LED
Housing	Aluminium front panel with front film
Weight	190 g
Dimensions	8HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Inputs	<ul style="list-style-type: none">■ 8 x digital, 24 V DC■ Polarity switching for each input can be configured separately via sliding switches■ Status LEDs can be configured separately for each input as RED / GREEN / ORANGE via software■ Each individual input can be configured as a counter. The maximum counting frequency is 50 Hz (pulse / pause ratio = 1)■ Configuration of each individual input as a "sensor input" with configurable sensor pulse extension.
System bus	CAN bus
Interfaces	1 x LIN

TYPE
ems4.DE02F

Digital output module 19" with LOD for front installation

DIGICONTROL ems4.DA02F

Data sheet number 19610

The ems4.DA02F is a module for switching up to 4 relay outputs with LOD (local override device) in a 19" configuration; it is intended for installation in the front of the switch cabinet and is equipped with an integrated microcontroller and memory module for accommodating a specially coordinated programme.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.8 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
Weight	260 g
Housing	Aluminium front panel with front film
Dimensions	8HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 4 x relay, potential-free NO contact, 230 V AC, 6 A ohmic load ■ Feedback with regard to manual and output value per output on the control unit Processing of short-term pulses from 20 ms ■ LED status indicator for the outputs ■ LED status indicator for bus activity ■ LED status indicator for alarm
Inputs	8 x digital, 24 V DC, short-term pulses of at least 20 ms
Local override device	<ul style="list-style-type: none"> ■ Operation via rotary switch (MANUAL-OFF-AUTO) ■ 12 digital inputs for the feedback signal from all switch positions of the LOD
System bus	CAN bus
Interfaces	1 x LIN

TYPE

ems4.DA02F



Digital output module 19" with LOD for front installation

DIGICONTROL ems4.DA03F

Data sheet number 19620



The ems4.DA03F is a module for switching up to 2 x 2-stage relay outputs with LOD (local override device) in a 19" configuration; it is intended for installation in the front of the switch cabinet and is equipped with an integrated microcontroller and memory module for accommodating a specially coordinated programme.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.8 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
Weight	260 g
Housing	Aluminium front panel with front film
Dimensions	8HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none">■ 2 x 2 (4 internally connected relays) 230 V AC 6 A ohmic load■ Feedback with regard to manual and output value per output on the control unit■ LED status indicator for the outputs■ LED status indicator for bus activity■ LED status indicator for alarm
Inputs	6 x digital, 24 V DC, short-term pulses of at least 20 ms
Local override device	<ul style="list-style-type: none">■ Operation via rotary switch (STAGE2-STAGE1-OFF-AUTO)■ 8 digital inputs for the feedback signal from all switch positions of the LOD■ Also active without standard supply voltage 24 V or without microprocessor and system bus CAN
System bus	CAN bus
Interfaces	1 x LIN

TYPE
ems4.DA03F

Analogue output module 19" with LOD for front installation

DIGICONTROL ems4.AA03F

Data sheet number 19910

The ems4.AA03F is a module for the output of analogue voltages 2 x 0 ... 10 V DC with LOD (local override device) in a 19" configuration; it is intended for installation in the front of the switch cabinet and is equipped with an integrated microcontroller and memory module for accommodating a specially coordinated programme.

GENERAL SPECIFICATIONS

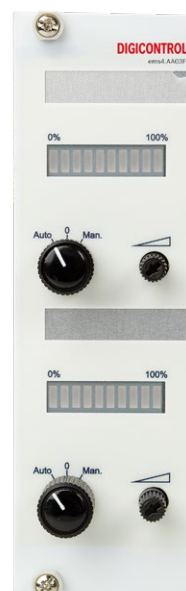
Voltage	24 V DC +/- 10 %
Power consumption	2.1 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
Weight	220 g
Housing	Aluminium front panel with front film
Dimensions	8HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	2 analogue outputs, 0 ... 10 V DC, 10 bit (load 2.5 mA)
Inputs	2 x analogue, 0–10 V DC
System bus	CAN bus
Interfaces	1 x LIN

TYPE

ems4.AA03F



Analogue output module 19" with LOD for front installation

DIGICONTROL ems4.AA04F

Data sheet number 19920



The ems4.AA04F is a module for the output of analogue voltages 4 x 0 ...10 V DC with LOD (local override device) in a 19" configuration; it is intended for installation in the front of the switch cabinet and is equipped with an integrated microcontroller and memory module for accommodating a specially coordinated programme.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	0.8 W
Electrical connection	Via screw terminals for wires up to 2.5 mm ²
Mounting	19" rack
Weight	220 g
Housing	Aluminium front panel with front film
Dimensions	8HP x 3RU x 75 mm
Protection class	IP20 front, IP00 rear
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	4 analogue outputs, 0 ... 10 V DC, 10 bit (load 2.5 mA)
Inputs	4 x analogue, 0–10 V DC
System bus	CAN bus
Interfaces	1 x LIN

TYPE

ems4.AA04F

Carrier frame for ems4 front operating modules

DIGICONTROL ems4.TRSF

Data sheet number 19950

The system support frame ems4.TRSF is used for the installation of up to 10 ems4 front modules with modular width 8 and 3 height modules each. It has to be fixed with 4 screws type M6 in the control cabinet door. The cutting edges are covered by the surrounding frame. Protection class IP54 via surrounding polyurethane sealing.



GENERAL SPECIFICATIONS

Housing	Plastic ABS (PA6-GF10) and macrolon, colour: similar RAL 7039
Dimensions	483 x 178 x 54 (construction height) / 32 (installation depth) mm
Protection class	IP54
Storage temperature	-20...+70 °C
Operating temperature	0...+50 °C
Ambient humidity	5...95 % rh. (non-condensing)
Standards/rules/guidelines/approvals	Fire behaviour: similar like flammability class UL94 group V2, self-extinguishing

TYPE

ems4.TRSF

Carrier frame with viewing window

DIGICONTROL ems4.TRSF12

Data sheet number 42001



The ems4.TRSF12 carrier frame is used to install 12 control cards, each with 8 DU and 3 RU. Various 19" plug-in units with 10 DU and 3 RU each can be mounted in the carrier. The built-in units are fixed with M2.5 screws. The frame has to be fixed in the control cabinet door with 4 M6 screws. The cut edges are covered by the surrounding frame. Protection class IP54 due to polyurethane seal all around. Lockable using of a lock.

GENERAL SPECIFICATIONS

Housing	Plastic ABS (PA6-GF10) and Makrolon, colour RAL 9005 black
Dimensions	313 x 180 x 48 (construction height) / 32 (installation depth) mm
Protection class	IP54
Storage temperature	-20...+70 °C
Operating temperature	0...+50 °C
Ambient humidity	5...95 % rh. (non-condensing)
Standards/rules/guidelines/ approvals	Fire behaviour: similar like flammability class UL94 group V2, self-extinguishing

TYPE

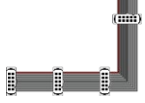
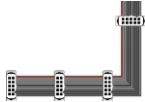
ems4.TRSF12

ACCESSORY

TYPE	DESCRIPTION	
ems4.VK10	The cable ems4.VK10 is used as connection cable for the MultiLink (CAN bus) for a multiple-row system of ems4 modules within a control cabinet field and as connection cable between ems4 modules in two control cabinet fields in series.	
ems4.VK20	The cable ems4.VK20 is used as connection cable for the MultiLink (CAN bus) between ems4 modules (T connectors) and the module ems4.DE00F (front mounting).	
ems4.VK30	The cable ems4.VK30 is used as connection cable for the MultiLink (CAN bus) between ems4 modules (T connector) and the adapter module ems4.AM01F (serves the system connection of ems4. modules (front mounting) without module ems4.DE00F).	
ems2.VK10	The cable ems2.VK10 is used as connection cable for the MultiLink (CAN bus) for a multiple-row system of emsX modules (H connectors) within a control cabinet field and as connection cable between emsX modules in two control cabinets in series.	
ems2.VK20	The cable ems2.VK20 is used as connection cable for the MultiLink (CAN bus) between the automation station (H connector) (ems2.CP14D, ems2.R4D1B) and the module ems4.DE00F (front mounting).	
ems2.VK30	The cable ems2.VK30 is used as connection cable for the MultiLink (CAN bus) between the automation station (H connector) (ems2.CP14D, ems2.R4D1B) and the adapter module ems4.AM01F (serves the system connection of ems4. modules (front mounting) without module ems4.DE00F).	

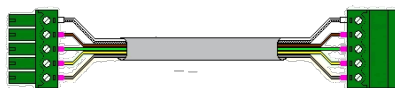
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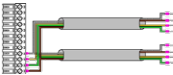
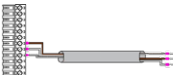
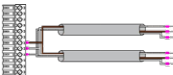
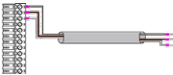
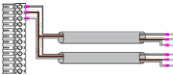
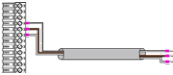
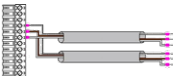
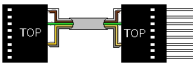
ACCESSORY

TYPE	DESCRIPTION	
ems4.FBK01	The ribbon cable ems4.FBK01 is used as connection cable for the Multilink (CAN bus) between ems4 modules (front mounting). Up to 10 front mounting modules can be connected with each other.	
ems4.FBK02	The ribbon cable ems4.FBK02 is used as connection cable for the Multilink (CAN bus) between ems4 modules (front mounting). Up to 11 front mounting modules can be connected with each other. One connector is located separately to enable a bus connection to another 19" rack with 10 slots.	
ems4.BP4	19" dummy plate, width 4 HP	
ems4.BP8	19" dummy plate, width 8 HP	
ems4.AH10	Protective cover for the rear of 19" systems	
ems4.AM01F	Adapter module for system connection of 19" systems	



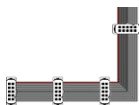
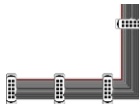







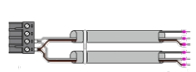
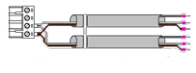
Connection cables for automation equipment

DIGICONTROL




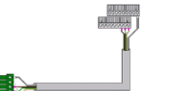








TYPE	DESCRIPTION	
emsX.AKL4	This terminal serves as coupling for an existing plug of an ems4 module of type ME (e.g. ems4.DE01B).	
ems2.MK10	The modem cable ems2.MK10 is used in the control cabinet as connection cable between the automation station (ems2.CP14D, ems2.R4D1B) and a standard modem (e.g. DC-CIMO).	
ems2.SK10	The control cabinet cable ems2.SK10 is used in the control cabinet as connection cable for the Multilink (CAN bus) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the communication with external emsX modules.	
ems2.SK12	The control cabinet cable ems2.SK12 is used in the control cabinet as connection cable for the Multilink (CAN bus) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems2.SK20	The control cabinet cable ems2.SK20 is used in the control cabinet as connection cable for the SysLink (CAN bus) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the communication with an external display (e.g. ems4.ec3-TE).	
ems2.SK22	The control cabinet cable ems4.SK22 is used in the control cabinet as connection cable for the SysLink (CAN bus) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems2.SK30	The control cabinet cable ems2.SK30 is used in the control cabinet as connection cable for the T bus (RS485) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the communication with an external display (e.g. ems4.ec3-TE).	
ems2.SK32	The control cabinet cable ems2.SK32 is used in the control cabinet as connection cable for the T bus (RS485) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems2.SK40	The control cabinet cable ems2.SK40 is used in the control cabinet as connection cable for the S bus (RS485) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the communication with external components.	
ems2.SK42	The control cabinet cable ems2.SK42 is used in the control cabinet as connection cable for the S bus (RS485) between the automation station (ems2.CP14D, ems2.R4D1B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems2.VK10	The cable ems2.VK10 is used as connection cable for the MultiLink (CAN bus) for a multiple-row system of emsX modules (H connectors) within a control cabinet field and as connection cable between emsX modules in two control cabinets in series.	

◀ CONTINUED FROM PAGE 66

TYPE	DESCRIPTION	
ems2.VK20	The cable ems2.VK20 is used as connection cable for the MultiLink (CAN bus) between the automation station (H connector) (ems2.CP14D, ems2.R4D1B) and the module ems4.DE00F (front mounting).	
ems2.VK30	The cable ems2.VK30 is used as connection cable for the MultiLink (CAN bus) between the automation station (H connector) (ems2.CP14D, ems2.R4D1B) and the adapter module ems4.AM01F (serves the system connection of ems4. modules (front mounting) without module ems4.DE00F).	
ems4.FBK01	The ribbon cable ems4.FBK01 is used as connection cable for the Multilink (CAN bus) between ems4 modules (front mounting). Up to 10 front mounting modules can be connected with each other.	
ems4.FBK02	The ribbon cable ems4.FBK02 is used as connection cable for the Multilink (CAN bus) between ems4 modules (front mounting). Up to 11 front mounting modules can be connected with each other. One connector is located separately to enable a bus connection to another 19" rack with 10 slots.	
ems4.MK10	The modem cable ems4.MK10 is used as connection cable between the automation station ems4.CP02B and a modem (e.g. DC-cimo).	
ems4.MK20	The modem cable ems4.MK20 is used as connection cable between the automation station ems4.CP02B and other common modems.	
ems4.PGU	The programming and charging cable ems4.PGU is used as connecting cable for a direct connection between the automation station (ems4.CP02B) and a notebook.	
ems4.SK00	The control cabinet cable ems4.SK00 is used in the control cabinet as connection cable for the MultiLink (CAN bus) between the automation station (ems4.CP02B) and the terminal strip. It serves the communication with external emsX modules.	
ems4.SK10	The control cabinet cable ems4.SK10 is used in the control cabinet as connection cable for the SysLink (CAN bus) between the automation station (ems4.CP02B) and the terminal strip. It serves the communication with an external display (e.g. ems4.ec3-TE) or external emsX modules.	
ems4.SK20	The control cabinet cable ems4.SK20 is used in the control cabinet as connection cable for the T bus (RS485) between the automation station (ems4.CP02B) and the terminal strip. It serves the communication with an external display (e.g. ems4.ec3-TE).	
ems4.SK30	Use: The control cabinet cable ems4.SK30 is used in the control cabinet as connection cable for the S bus (RS485) between the automation station (ems4.CP02B) and the terminal strip. It serves the communication with the automation station or the building control system.	
ems4.SK40	The control cabinet cable ems4.SK40 is used in the control cabinet as connection cable for the SysLink (CAN bus) between the automation station (ems4.CP02B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems4.SK50	The control cabinet cable ems4.SK50 is used in the control cabinet as connection cable for the T bus (RS485) between the automation station (ems4.CP02B) and the terminal strip. It serves the integration of an automation station in a bus line.	

◀ CONTINUED FROM PAGE 67

TYPE	DESCRIPTION	
ems4.SK60	The control cabinet cable ems4.SK60 is used in the control cabinet as connection cable for the S bus (RS485) between the automation station (ems4.CP02B) and the terminal strip. It serves the integration of an automation station in a bus line.	
ems4.SK70	The control cabinet cable ems4.SK70 is used in the control cabinet as connection cable for the SysLink (CAN bus) between the automation station (ems4.CP02B) and the terminal strip. It serves the integration of an additional automation station in a bus line.	
ems4.VK10	The cable ems4.VK10 is used as connection cable for the MultiLink (CAN bus) for a multiple-row system of ems4 modules within a control cabinet field and as connection cable between ems4 modules in two control cabinet fields in series.	
ems4.VK20	The cable ems4.VK20 is used as connection cable for the MultiLink (CAN bus) between ems4 modules (T connectors) and the module ems4.DE00F (front mounting).	
ems4.VK30	The cable ems4.VK30 is used as connection cable for the MultiLink (CAN bus) between ems4 modules (T connector) and the adapter module ems4.AM01F (serves the system connection of ems4. modules (front mounting) without module ems4.DE00F).	
ems4.VK_RF01E_1	The cable ems4.VK_RF01E_1 is used as connection cable between the Retrofit module ems4.RF01E and an older type of a DIGICONTROL-CPU. Cable length 0.5 m; completely pre-assembled	
ems4.VK_RF01E_2	The cable ems4.VK_RF01E_2 is used as connection cable between the Retrofit module ems4.RF01E and an older type of a DIGICONTROL-CPU. Cable length 2.0 m; completely pre-assembled	
emsX.AK24	The adapter cable emsX.AK24 is used for connecting the Multilink (CAN bus) between ems-modules with HBUS connector and ems-modules with TBUS connector.	
emsX.AK42	The adapter cable emsX.AK42 is used as connection cable for the MultiLink (CAN bus) between ems4 modules (T connector) and ems4 modules (H connector).	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	



Visualisation and operation

Building and room automation shall be able to communicate with the user in a clear and understandable manner. The effective communication with people is one of the most important quality features of intelligent building automation and control systems.

The DIGICONTROL control units are characterised by comfort and high performance. Ethernet/IP, BACnet/IP and other interfaces of modern building automation and control systems allow direct integration into the BACS network. It is possible to install the operating and display units and touch panels at any location in the building and you can visualise and operate all BACS components and the integrated technical building services.

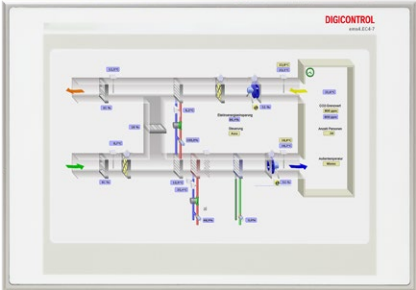
Our mobile operation is innovative: simple and intuitive, via smartphones and tablet PCs, via Internet and, if required, via Wi-Fi / WLAN. The ems5 meets all your requirements. You are independent and control everything comfortably and safely, even when you are not on site.

easy client - Ethernet 7" Touch panel	DIGICONTROL ems4.EC4-7	72
easy client - Ethernet 10,4" Touch panel	DIGICONTROL ems4.EC4-10.4	73
easy client - Ethernet 7" Touch panel	DIGICONTROL ems.EC6-7	74
easy client - Ethernet 10,1" Touch panel	DIGICONTROL ems.EC6-10.1	75
easy client - Ethernet 15,6" Touch panel	DIGICONTROL ems.EC6-15.6	76

easy client - Ethernet - 7" WEB touch panel

DIGICONTROL ems4.EC4-7

Data sheet number 19137



7" touch panel for the integration in Ethernet networks and as BACnet touch operator terminal for connection to the BACnet building controller ems2. CP14D and ems2.R4D1B, based on an embedded WEB server. The ems4. EC4-7 (Rev_1) can be used from the webCADpro 11.30 configuration tool.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %, via supplied connecting cable (fuse protection 1 A), using a power supply according to EN 61000-6-2
Power consumption	4.5 W (Background lighting on)
Mounting	Front Panel mounting directly with frame
Weight	610 g
Housing	Aluminium front panel with front film
Dimensions	202 x 142.3 x 29.5 mm
Protection class	IP54 front, IP20 rear
Storage temperature	-20...+70 °C
Operating temperature	0...+60 °C
Ambient humidity	95 % rh. (non-condensing)
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Display	<ul style="list-style-type: none">■ Graphics resolution: WVGA / 800 x 480 pixel / 7.0"■ 16Bit / 65,536 colours■ 4-wire analogue resistive touch technology■ 152.4 x 91.4 mm active area■ 178 mm diagonal■ LED background lighting
Interfaces	Ethernet 100 MBit/s
Trend	Graphically displayable
Graphic	Graphically and dynamically displayable

TYPE
ems4.EC4-7

ACCESSORY

TYPE	DESCRIPTION	
ems4.EC4-7-WAG	Wall-mounting housing for ems4.EC4-7	
ems4.EC4-7-WEG	Wall-installation housing for ems4.EC4-7	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	

easy client - Ethernet - 10.4" WEB touch panel

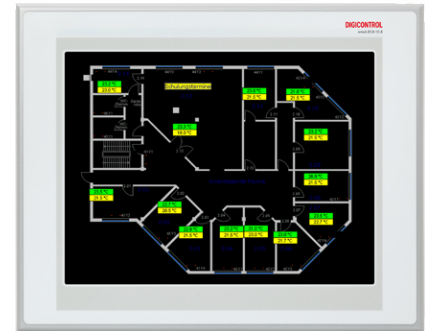
DIGICONTROL ems4.EC4-10.4

Data sheet number 19139

10.4" touch panel for the integration in Ethernet networks and as BACnet touch operator terminal for connection to the BACnet building controller ems2.CP14D and ems2.R4D1B, based on an embedded WEB server.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %, via supplied connecting cable (fuse protection 1 A), using a power supply according to EN 61000-6-2
Power consumption	7.2 W
Mounting	Front Panel mounting directly with frame
Weight	1600 g
Housing	Aluminium front panel with front film
Dimensions	291.2 x 236 x 36.14 mm
Protection class	IP65 front, IP20 rear
Storage temperature	-20...+70 °C
Operating temperature	0...+60 °C
Ambient humidity	5...90 % rh. (non-condensing)
Standards/rules/guidelines/approvals	See CE declaration





TECHNICAL SPECIFICATIONS

Display	<ul style="list-style-type: none"> ■ Graphics resolution: SVGA / 800 x 600 pixels / 10.4" ■ 18Bit / 262,144 colours ■ 4-wire analogue resistive touch technology ■ 264 mm diagonal ■ Active Area 211 x 158 mm ■ LED background lighting
Interfaces	Ethernet 10/100 MBit/s

TYPE

ems4.EC4-10.4

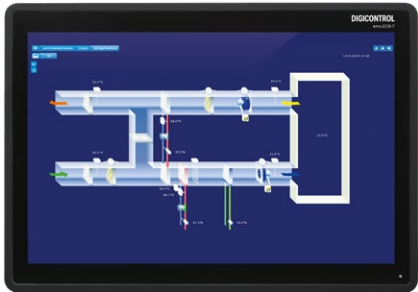
ACCESSORY

TYPE	DESCRIPTION	
ems4.EC4-10.4-WAG	Wall-mounting housing for ems4.EC4-10.4	
emsX.LAN	The Ethernet cable emsX.LAN is used as connection cable between automation station, display and a switch or a network socket.	

easy client - Ethernet - 7" WEB touch panel

DIGICONTROL **ems.EC6-7**

Data sheet number 31220



7-inch display for convenient operation of automation stations based on an HTML5-capable embedded web server. An integral component is the ability to independently perform all operating and monitoring functions via the embedded web server with “Onboard MCE” functions contained in the automation stations. Furthermore, the web touch panel is used for the graphical display of plant diagrams with dynamic overlays.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %, via supplied connecting cable (fuse protection 1 A), using a power supply according to EN 61000-6-2
Power consumption	Typ. 8 W
Mounting	Front panel mounting VESA 75
Housing	Silicone rim, ABS plastic bach casing, tempered glass front - reflection-reduced
Weight	approx. 1000 g
Dimensions	approx. 195.6 x 137.6 x 38.8 mm
Protection class	IP65 front, IP40 rear
Storage temperature	-20...+70 °C
Operating temperature	-10...+60 °C
Ambient humidity	10...90 % rh., non-condensing
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Display	<ul style="list-style-type: none">■ Graphic resolution WSVG / 1024 x 600 Pixel / 7"■ 18 bit / / 262.144 colours■ Capacitive Multi-touch technology■ 177.8 mm diagonal■ Active display area 154.2 x 85.9 mm■ LED backlight
Interfaces	Ethernet 10/100 MBit/s

TYPE
ems.EC6-7

easy client - Ethernet - 10.1" WEB touch panel

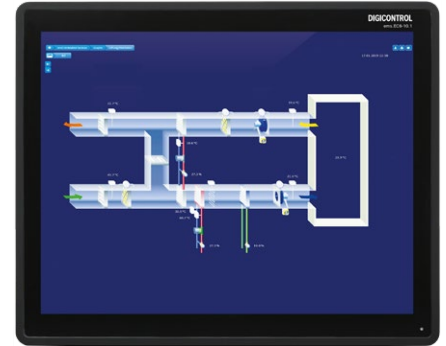
DIGICONTROL ems.EC6-10.1

Data sheet number 31230

10.1-inch display for convenient operation of automation stations, based on an HTML5-capable embedded web server. An integral component is the ability to independently perform all operating and monitoring functions via the embedded web server with "onboard MCE" functions contained in the automation stations. Furthermore, the web touch panel is used for the graphical display of plant diagrams with dynamic overlays.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %, via supplied connecting cable (fuse protection 1 A), using a power supply according to EN 61000-6-2
Power consumption	Typ. 11 W
Mounting	Front panel mounting with rear mounting brackets (264.0 x 180.0 mm)
Housing	Rubber frame, plastic back, tempered glass, front - anti-reflective
Weight	approx. 2100 g (without installation frame)
Dimensions	Approx. 278,0 x 203,6 x 33,3 mm (without installation frame)
Protection class	IP65 front, IP40 rear
Storage temperature	-20...+70 °C
Operating temperature	-10...+60 °C
Ambient humidity	10...90 % rh., non-condensing
Standards/rules/guidelines/approvals	See CE declaration



TECHNICAL SPECIFICATIONS

Display	<ul style="list-style-type: none"> ■ Graphics resolution WXGA / 1280 x 800 pixels / 10.1" ■ 24 bit / 16.7 M colours ■ Capacitive Multi touch technology ■ 256.5 mm diagonal ■ Active display area 217 x 136 mm ■ LED backlight
Interfaces	Ethernet 10/100 MBit/s

TYPE

ems.EC6-10.1

easy client - Ethernet - 15.6" WEB touch panel

DIGICONTROL **ems.EC6-15.6**

Data sheet number 31240



15.6-inch display for convenient operation of automation stations, based on an HTML5-capable embedded web server. An integral component is the ability to independently perform all operating and monitoring functions via the embedded web server with “onboard MCE” functions contained in the automation stations. Furthermore, the web touch panel is used for the graphical display of plant diagrams with dynamic overlays.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %, via supplied connecting cable (fuse protection 1 A), using a power supply according to EN 61000-6-2
Power consumption	Typ. 13 W
Mounting	Front panel mounting with rear mounting brackets (371.0 x 218.0 mm)
LED display	Operation indicator LED green in front of device
Weight	3400 g
Housing	Silicone rim, ABS plastic back casing, tempered glass front - reflection-reduced
Dimensions	386.3 x 246.8 x 33.3 mm
Protection class	IP65 front, IP40 rear
Storage temperature	-20...+70 °C
Operating temperature	-10...+60 °C
Ambient humidity	10...90 % rh., non-condensing
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Display	<ul style="list-style-type: none">■ Graphics resolution Full HD / 1920 x 1080 pixels / 15.6"■ 18 bit / 282.144 colours■ Capacitive multi-touch technology■ 396 mm diagonal■ Active display area 344.2 x 193.6 mm■ LED backlight
Interfaces	Ethernet 10/100 MBit/s

TYPE

ems.EC6-15.6



Solutions for holistic building automation and control systems

Anyone who wants to operate buildings in an energy-efficient way requires an innovative building automation and control system that can integrate all components of the building services.

It is no longer adequate to treat the heating and cooling energy centres, room air-conditioning systems, shading systems, façade control systems, lighting, etc. as self-sufficient trades. The building automation and control system as the core of the network has to collect and process information from all trades and transmit it to the corresponding individual trades. Innovative automation concepts consider all building states, making them independent of the building trade and obey the optimum energy yield.

All networks communicate with each other, regardless if communication standards like BACnet, KNX, DALI, M-Bus, Modbus, SMI or Profibus are applied. Furthermore, DIGICONTROL integrates manufacturer-specific connections, for example Schüco, Wilo, Grundfos, Belimo MP-Bus, ebm-papst, etc.

Interface module for integration of diverse BA-systems	DIGICONTROL ems4.SM03B	80
Communication interface for the integration of M-Bus	DIGICONTROL ems4.SM04E	81
Communication interface for the integration of KNX / EIB	DIGICONTROL ems4.KNX1E	82
Communication interface for the integration of DALI	DIGICONTROL ems4.DALI	83
Communication interface for the integration of Belimo MP-Bus	DIGICONTROL ems4.MP01E	84

Interface module for integration of diverse BA-systems

DIGICONTROL ems4.SM03B

Data sheet number 19180



The ems4.SM03B module serves as communication interface with 1 x RS232 / RS485, 2x CAN capability for connecting external components, such as: heat pumps, chillers, humidifiers, boilers, solar panels, windows, etc.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	2 W
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
LED display	1x Duo LED (operation and CAN bus: green / error: red)
Weight	100 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	36 x 109.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Protocols	<ul style="list-style-type: none">■ Modbus RTU Master■ Modbus RTU Slave■ GeniBus■ Wilo CAN■ ERC-Bus■ Schüco window control■ SMI integration via Vestamatic-Gateway IF SMI RS-485
System bus	CAN bus
Interfaces	Configuration of webCADpro

TYPE

ems4.SM03B

ACCESSORY

TYPE

DESCRIPTION

ems4.HBUS-35 Mounting rail bus connector H bus 35.6



Communication interface for the integration of M-Bus

DIGICONTROL ems4.SM04E

Data sheet number 19190

The module ems4.SM04E is used for the direct readout of up to 60 M-Bus-compatible meters (e.g. heat meters, water meters, electricity meters, pulse counters). The integrated M-Bus level converter saves the use of additional components. Once configured, the primary address, bus speed and readout frequency of the connected meters are parameterised, the ems4.SM04E then takes over the self-sufficient data communication.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.2 W (without M-Bus participants), 5 W (60 M-Bus participants)
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
Mounting	DIN rail mounting
LED display	1x Duo LED (operation and CAN bus: green / error: red), 1x green LED (Mbus data traffic), 1x red LED (Mbus overload)
Housing	Plastic housing
DIN rail bus connector CAN / LIN	Max. 30 mating cycles, contact load 1 A
Dimensions	53.6 x 109.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration



TYPE

ems4.SM04E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-53	Mounting rail bus connector H bus 53.6



Communication interface for the integration of KNX / EIB

DIGICONTROL ems4.KNX1E

Data sheet number 20000



The ems4.KNX1E module serves as a bi-directional gateway between the ems4/ems2 automation stations and the KNX/EIB instabus. The configuration tool is used to define all available KNX/EIB objects with respect to the address. The data types of the KNX/EIB objects are also determined here. The user can select between many different data types of the two standards, EIB Interworking and KNX data point. In polling mode, a data refresh method can be set for the actual values. Two options are available here: “Update according to system type” and “Cyclical polling”. Upon request, setpoints can be re-sent to the EIB/KNX object.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1 W
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
Mounting	On vertical surfaces (wall mounting, terminals at top and bottom)
LED display	1x Duo LED (operation and CAN bus: green / error: red)
Weight	120 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/ approvals	See CE declaration

TECHNICAL SPECIFICATIONS

System bus	CAN bus
Interfaces	<ul style="list-style-type: none">■ LIN, CAN, KNX■ EIB/KNX-Objects: 256■ Standards: EIB Interworking Standard (EIS) / KNX Datapoint Type (DPT)

TYPE
ems4.KNX1E

ACCESSORY

TYPE	DESCRIPTION
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ems4.HBUS-71	Mounting rail bus connector H bus 71.6
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Communication interface for the integration of DALI

DIGICONTROL ems4.DALI

Data sheet number 57090

The module ems4.DALI is used as bidirectional gateway between the automation stations ems2 / 4 / 5 and the Digital Addressable Lighting Interface (DALI) as DALI single master. This allows the set-up of an intelligent lighting system. The DALI module supports the connection of up to 64 DALI single lights (DALI light = DALI-ECG) in up to 16 groups with a maximum current consumption of 200mA.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	5.8 W
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
LED display	1x Duo LED (operation and CAN bus: green / error: red)
Weight	117 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	71.6 x 109.7 x 62.6 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

System bus	CAN bus
Interfaces	<ul style="list-style-type: none"> ■ LIN, CAN, DALI ■ Max. number of DALI EVGs: 64 ■ max. number DALI groups: 16

TYPE

ems4.DALI



ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-71	Mounting rail bus connector H bus 71.6



Communication interface for the integration of Belimo MP-Bus

DIGICONTROL ems4.MP01E

Data sheet number 19195



The module ems4.MP01E is used for the direct control of MP-Bus capable Belimo actuators. The module is equipped with two independent MP-Bus strands which each enable the communication with maximal 16 MP-Bus actuators. The module independently determines the speed of the connected CAN-Bus system.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.4 W
Electrical connection	Via screw terminals for wires up to 1.5 mm ²
Mounting	Top hat rail 35 mm
Weight	145 g
Housing	Housing for use in distribution boards in accordance with DIN 43880
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

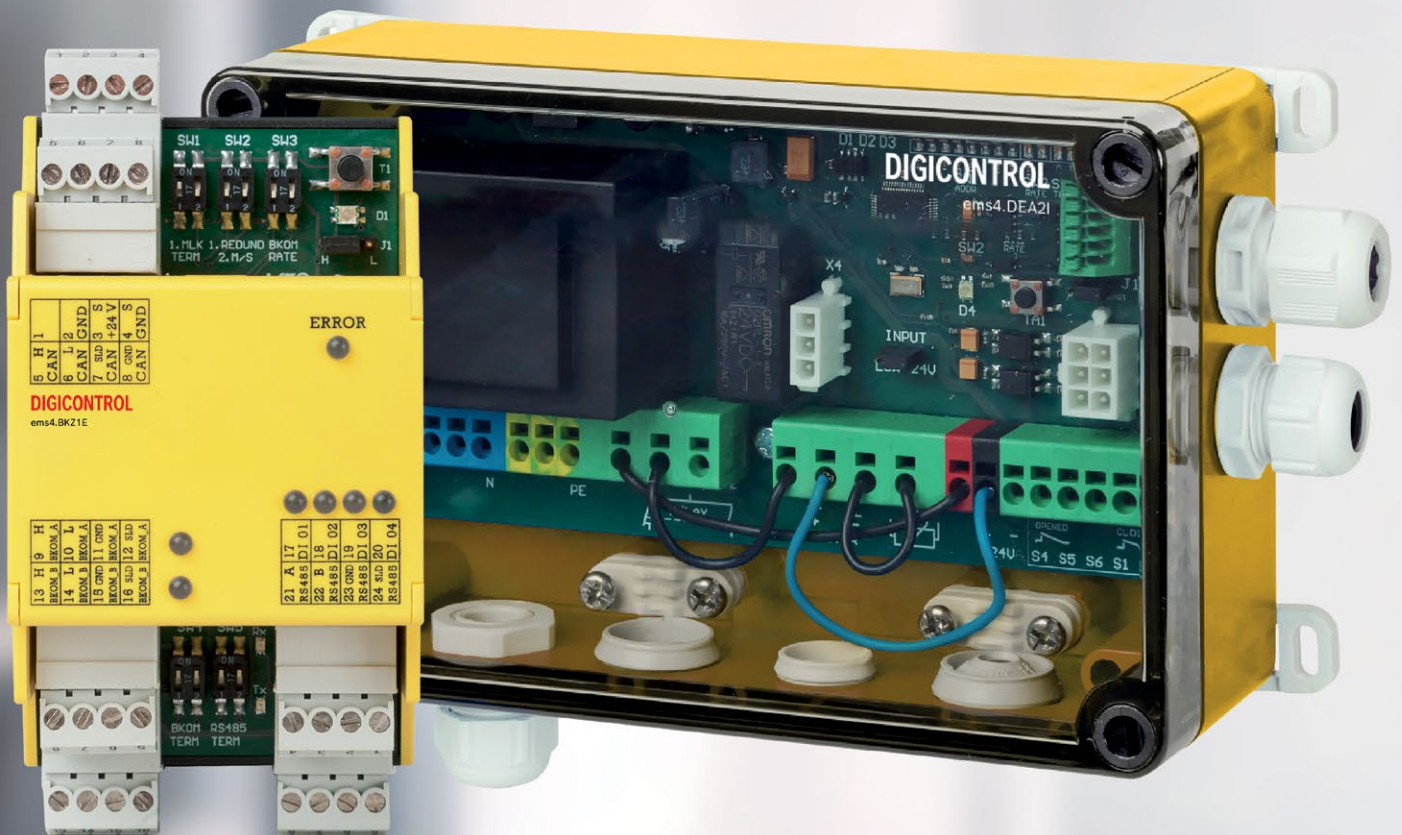
System bus	CAN bus
Interfaces	2 x MP-Bus

TYPE
ems4.MP01E

ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-53	Mounting rail bus connector H bus 53.6



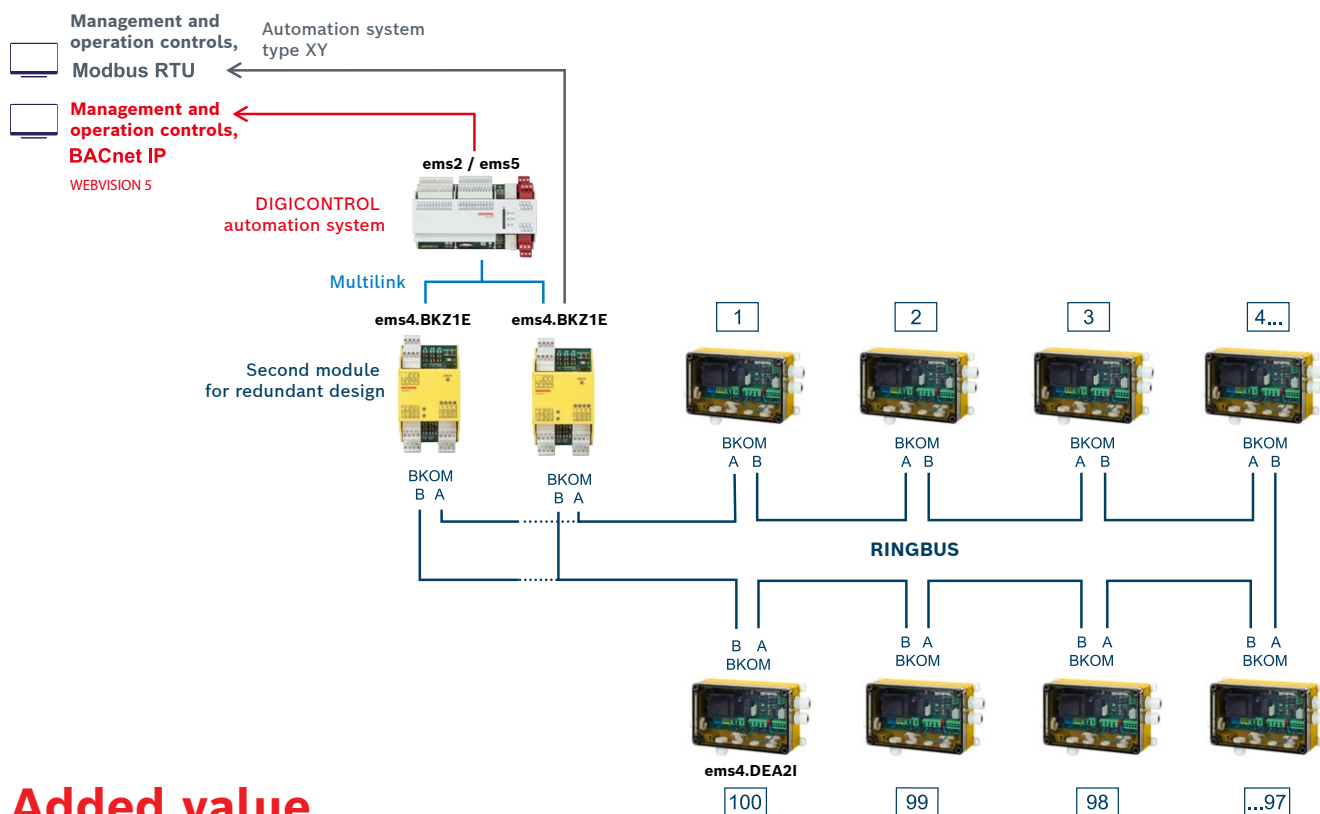


BKOM central module
DIGICONTROL ems4.BKZ1E

BKOM fire damper module
DIGICONTROL ems4.DEA2I

DIGICONTROL BKOM - The fire damper communication system with safety ring bus and Modbus interface

The DIGICONTROL BKOM system is designed for safe monitoring and control as well as for automatic test runs of fire dampers (BSK) with motorised actuators. It consists of a central module **ems4.BKZ1E** (in redundant design comprising two central modules), which communicates via a safety ring bus with up to 100 fire damper modules **ems4.DEA2I**, which can each connect a fire damper.



Added value

► High system availability due to BKOM ring bus topology

If a device or a connection is malfunctioning, the fire damper system continues to operate thanks to the ring bus topology. Furthermore, the used CAN technology guarantees fast responses and excellent performance. A redundant design of the central module (optional) provides even more safety.

► Fast analysis and diagnosis of faults

The central module uses the ring bus topology to detect and locate defective fire damper motors and interrupted or short-circuited bus connections. It provides the operator with a detailed fault description including the location of the fault source in case of a fault.

► Simple, semi-automated and time-saving commissioning

The addressing of the fire damper modules and the optimisation of the data transfer are automated. The commissioning of the ring bus system is supported by diagnostic tools.

► Integration in automation systems of all automation station types with Modbus

The Modbus interface, which is integrated in the central module, enables the BKOM system to be used as an independent unit within all automation systems, which are equipped with a Modbus interface. In this way, the BKOM system can also be used for applications other than DIGICONTROL systems.

► Cost-efficient

Due to the communication of the fire damper via a data bus, fewer electrical cables and a smaller cross-section are required. The simple commissioning also saves time and costs.

CAN-Central Module for Safety Ring Bus System

DIGICONTROL
ems4.BKZ1E

Data sheet number 19187



The module is the intelligent central module for a safety ring bus system for connecting e.g. fire damper modules for motor actuators and other ring bus compatible I/O modules. It automatically sets up and monitors the BKOM safety ring bus system with all its subscribers. It monitors the safety ring bus, automatically locates and eliminates any faults that occur (e.g. short circuit and interruption of the bus system) by communicating with the nodes via the undisturbed second bus connection. The modules reports the detected fault to a higher-level instance with the exact details of the subscriber. By using the central module, the availability of the safety ring bus system increases considerably compared to a line structure. Due to the symmetrical distribution of data transmission within the ring, the module additionally prevents transmission errors and simultaneously reduces communication times. The central module is already prepared for extensions with regard to different devices on the bus thanks to its internal modular structure. A further aspect increasing the safety of the system is the possibility of carrying out a redundant structure with a further central module. In the event of a fault, the fault-free central module will take over the function and additionally increase the overall availability of the system. For external connection, the modules provides communication to an automation station as well as a Modbus RTU slave interface based on RS485. The local configuration is performed by means of dedicated setting elements. In addition, the module provides digital inputs that can influence the functions of the safety ring bus subscribers as required.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	1.2 W
Button	1x for service function
Mounting	Top hat rail 35 mm
LED display	10x LED: system bus (red/green/orange), ring bus BKOM-A (green), ring bus BKOM-B (green), ringbus error (red), 4x input (red/green/orange), RS485-Tx (green), RS485-Rx (yellow)
Housing	Housing for use in distribution boards in accordance with DIN 43880
Weight	105 g
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+50 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Inputs	4 digital inputs 24 V DC (polarity configurable via jumper J1)
Interfaces	<ul style="list-style-type: none"> 3x CAN (1x system bus, 2 ring bus (BKOM)) 1x RS485

TYPE
ems4.BKZ1E

CAN Field Bus Fire Damper Module for Ring Bus System

DIGICONTROL **ems4.DEA2I**

Data sheet number 19851

The module is used for direct connection of a motorised fire damper with feedback signals and replaces the module ems4.DEA1I. The module is suitable for both 230 V and 24 V actuators. It enables the fire damper to be closed on a test basis via the system bus with simultaneous monitoring of the end positions. The direct connection of the fire damper actuator (voltage and feedback) is performed via standardised connection plugs on top of the connection terminals. An external thermoelectric tripping device is provided for connection. Due to its dual communication interface, ems4.DEA2I is suitable for use in a highly available ring bus system. This ensures continued communication in the event of a fault in the bus system, e.g. due to a short circuit or interruption. Thanks to its installation housing, the module is suitable for direct mounting in the immediate vicinity of the fire damper.

**GENERAL SPECIFICATIONS**

Voltage	230 V AC +/- 10 %, integrated fine-wire 5x20 mm, fuse 200 mA / 250 V AC
Power consumption	10 W (incl. load)
Inrush current	0.8 A for approx. 3 ms (without load)
Button	1x for service function
Electrical connection	Spring terminals CAN bus: 0.5 mm ² All other Connections: 2.5 mm ²
Mounting	Wall mounting
LED display	CAN bus activity: (red/green)
Weight	750 g
Housing	Housing for industrial installation polycarbonat (box: fiberglass reinforced, lid: transparent)
Dimensions	180 x 110 x 63 mm
Protection class	IP54
Storage temperature	-10...+60 °C
Operating temperature	0...+60 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 1 potential-free relay output for controlling the motorised fire damper 24 V DC or 230 V AC ■ Maximum switching capacity 1500 VA load AC15 (230 V AC) ■ 24 V DC, 300 mA, maximum inrush current 5.2 A for max. 5 ms
Inputs	<ul style="list-style-type: none"> ■ Two digital inputs (galvanically separated) for connecting the fire damper position ■ Configurable 24 V DC or potential-free
Interfaces	2x CAN

TYPE**ems4.DEA2I**

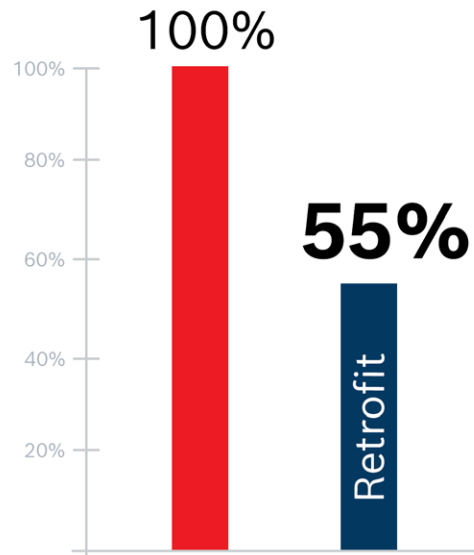


Cost-saving and effective refurbishment of existing DIGICONTROL and Saia systems

If new and extended requirements for the technical building equipment are laid down, the automation system usually has to be extended as well.

Although the hardware of the automation station is still in a good state, the entire automation station is replaced either because the existing automation station cannot be extended in a way to meet the requirements or due to limited availability.

ems4.RF01E enables the extension, refurbishment and repair of existing Saia and DIGICONTROL PCD 1-, PCD 2-, PCD 4- and PCD 1.NT automation systems without discarding the existing I/O automation hardware. Only the CPU module has to be replaced. Most switchgear cabinet components and the existing building management system can be kept. Therefore the expenses for the modification are significantly lower since only the required modules will be replaced / extended instead of replacing the entire system.



Savings up to 45% are realistic if you use DIGICONTROL Retrofit

A variety of applications

It is appropriate to use ems4.RF01E if new functions and extended requirements for an existing DIGICONTROL automation system are laid down which can be met without replacing the complete existing hardware. Benefit from the wide range of applications if you want:

- ▮ Integrate automation stations into the building automation network.
- ▮ To repair defective automation system hardware.
- ▮ To perform the migration - the customisation of existing building automation systems to new circumstances within a building.
- ▮ To extend the existing building automation system by additional building parts and components of the technical building equipment.
- ▮ To integrate further technical building equipment systems in the building automation system.
- ▮ To modernise building automation systems compliant to the BACnet standard without the need of replacing the automation station hardware.

The time factor – fast retrofitting during operation

The utilisation of the existing hardware can be continued by deploying the ems4.RF01E. Retrofitting the control cabinet can be performed quickly and easily because you just have to install the ems4.RF01E module and the new CPU of the automation station. The extension of the wiring can be carried out within a few hours and during operation without significant interruption. Replacing the entire automation system on-site would be by far more time-intensive and can only be realised if the complete system was switched off before.

Energy-efficiency and comfort

By using ems4.RF01E during the refurbishment process, building operators have the opportunity to update their control strategies and to improve the user-friendliness of the building automation system.

Planning and documentation

The expenses for planning and documentation can be reduced to a minimum by deploying ems4.RF01E as the building automation system is extended effectively instead of being reconstructed completely.

Communication interface for the integration in existing DIGICONTROL systems

DIGICONTROL ems4.RF01E

Data sheet number 19185



The DIGICONTROL Retrofit module ems4.RF01E enables the connection of ems automation stations to older types of input/output cards (I/O cards) in existing plants. Therefore older types of existing automation systems can be modernised easily and cost-efficiently. If there are new or extended requirements on the systems of the technical equipment of a building, usually the automation system must be extended as well. Although the hardware of the automation station is still in good condition, the complete automation system will be replaced as the existing automation system cannot be extended in a way to meet the requirements or it is not available anymore. The module ems4.RF01E enables the extension, refurbishment and repair of existing DIGICONTROL automation stations of the types PCD 1 / PCD 2 / PCD 4 / PCD 1.NT while still using the existing I/O automation hardware. Only the CPU modules will be replaced by a combination of an ems CPU and the Retrofit module. The control of the switchgear cabinet will be kept. The connection between the Retrofit module and the I/O modules is performed by means of one of the cables which are available as accessories. There are two different cables available depending on the required length (see accessories).

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 10 %
Power consumption	Max. 5 W
Button	Front: 1x for CAN bus configuration
Mounting	DIN rail mounting
LED display	I/O-Bus: 1x send (green) 1x receipt (yellow) CAN-Bus activity: (red /green) (front view)
Housing	Housing for use in distribution boards in accordance with DIN 43880
Weight	105 g
Dimensions	53.6 x 99.7 x 62.2 mm
Protection class	IP20
Storage temperature	-10...+70 °C
Operating temperature	+5...+45 °C
Ambient humidity	Up to 85 % rh. without condensation acc. to VDE 0160, EN 50178, Class 3K3
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

System bus	CAN bus
Interfaces	<div> I/O bus </div> <div> LIN bus </div>

TYPE
ems4.RF01E





ACCESSORY

TYPE	DESCRIPTION
ems4.HBUS-53	Mounting rail bus connector H bus 53.6



◀ CONTINUED FROM PAGE 92

ACCESSORY

TYPE	DESCRIPTION	
ems4.VK_RF01E_1	The cable ems4.VK_RF01E_1 is used as connection cable between the Retrofit module ems4.RF01E and an older type of a DIGICONTROL-CPU. Cable length 0.5 m; completely pre-assembled	
ems4.VK_RF01E_2	The cable ems4.VK_RF01E_2 is used as connection cable between the Retrofit module ems4.RF01E and an older type of a DIGICONTROL-CPU. Cable length 2.0 m; completely pre-assembled	
ems4.AM_RF01E_1	The adaptor ems4.AM_RF01E_1 is used for connecting the Retrofit module ems4.RF01E with a SAIA PCD1. The adaptor is put on the existing bus connector (replacing the DIGICONTROL-CPU of older type), screw-mounted and connected with the Retrofit module via cable.	
ems4.AM_RF01E_4	The adapter ems4.AM_RF01E_4 serves for the connection of the Retrofit module ems4.RF01E at a PCD4 CPU slot. The adapter will be installed in the available slot replacing the CPU and will be connected to the Retrofit module by cable.	



Great benefit - Low costs - Versatile applications

The DIGICONTROL ecs3 Retrokit enables operators of DIGICONTROL ecs3 and ecs3.+ automation stations to have their existing automation stations replaced by automation stations of the latest DIGICONTROL generation - inexpensively, quickly and, in most cases, even without impairing the ongoing operation of the building.

The Retrokit can be applied when new requirements are specified for the ecs3 or ecs3.+ automation station, which it may not be able to meet, or simply when the ecs3 or ecs3.+ is defective.

Retrokits in practical use:

- ▮ Replacing ecs3 / ecs3.+ automation stations
- ▮ Integration of the automation system into existing Ethernet networks, BACnet and remote maintenance
- ▮ Customisation of the automation system to new requirements and energy efficiency measures in the building.
- ▮ Extension of the automation system to incorporate additional building components and components of technical building services.
- ▮ BACnet-compliant modernisation, as the Retrokit also includes a BACnet Building Controller (B-BC) of the latest generation if necessary (see accessories).
- ▮ Remote maintenance and operation of the automation system by means of the “Embedded webserver“, a management and operation controls and, if necessary, new touch panels.

Fast and cost-effective conversion during operation

The Retrokit is pre-wired ready to plug in, so that the existing ecs3 / ecs3.+ can simply be „unplugged“ and removed. The existing ecs3.+ plugs are simply inserted into the sockets of the Retrokit. The retrofitting times are therefore reduced to a minimum. For front mounting, use the supplied drilling template for the cut-out. Feel free to take advantage of our label service for marking the manual operating level: We produce the finished labels for you.

Update of the existing automation station software

The existing ecs3.+ - software is simply updated to the latest webCADpro version and loaded into the automation station ems2.CP14D of the Retrokit, and ready to go.

The control cabinet remains as it is

Modifications of the control cabinet control are not necessary for the installation of the Retrokit. If necessary, it is of course possible to add additional control modules, provided the necessary space is available in the cabinet.

More performance and comfort

The Retrokit contains a DIGICONTROL automation station of the latest generation, whose advantages can be enjoyed unrestrictedly by the operators after the retrofit: Enhanced processor performance leads to shorter response times, integration into modern management control systems and Ethernet/BACnet/IP networks means improved convenience for the operator.

Improved energy efficiency and cost-effectiveness

Due to the reorientation in dealing with the environment and energy and the accompanying revision of standards, a lot has happened in the area of energy efficiency in buildings in the recent years.

By using the Retrokit, building operators have the opportunity in the course of a modernisation to update their automation strategies to the latest state of the art.

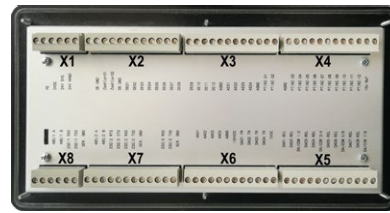
Minimal effort for planning and documentation

The use of the Retrokit minimises the effort for the planning and documentation of the refurbishment or repair, as the Retrokit is pre-wired, ready to plug in and fully documented. The corresponding circuit diagram sheets are enclosed with the Retrokit and are simply inserted.

Front panel mounting - DIGICONTROL ems2.RTR-ECS-F



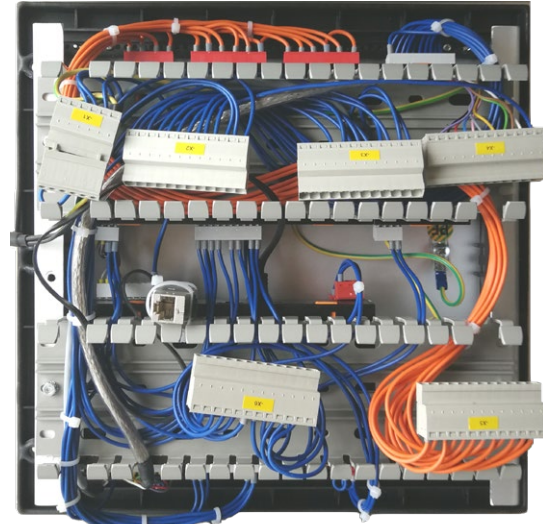
Front of the DIGICONTROL ecs3/ecs3.+ /Fr



Rear side with the reusable plugs



The Retrokit DIGICONTROL ems2.RTR-ECS-F for front panel mounting is lockable and IP 54 compliant. The housing is a bit bigger than the „old“ ecs3/ecs3.+ /Fr, but this is usually no problem due to the installation in the switch cabinet door.



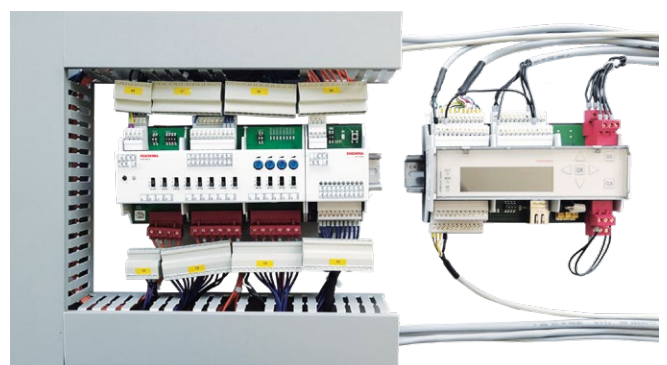
The Retrokit is pre-wired and ready to plug in. Simply connect the existing plugs of the removed ecs3/ecs3.+ /Fr with the sockets of the Retrokit, upgrade the software with webCADpro, and you are done.

Mounting on baseplate - DIGICONTROL ems2.RTR-ECS-G



DIGICONTROL ecs3.+ /G

The modification of the base plate version works in principle like the Retrokit for front panel mounting with the difference that the new manual control module and the input module are mounted on the base plate in place of the old ecs3.+ /G. due to space restrictions, the automation station ems2.CP14D of the Retrokit is located at a different location, for example in the control cabinet door. The cables and wiring of the Retrokit/G are designed to fit exactly for the integration on the base plate and installation in the cable ducts of the control cabinet.



DIGICONTROL ems2.RTR-ECS-G

Please note: The eight yellow marked connectors (X1-X8) disappear in the cable duct after the retrofit. The cable duct is for illustration purposes only and therefore not included in the scope of delivery.

System for repairing DIGICONTROL ecs3 existing plants (front installation)

DIGICONTROL ems2.RTR-ECS-F

Data sheet number 18080

The DIGICONTROL retrokit ems2.RTR-ECS-F enables operators of DIGICONTROL ecs3 automation systems to exchange their existing ecs3 automation stations (AS) for AS of the latest DIGICONTROL generation. This is accomplished quickly and cost-effectively, while the building is in operation. The retrokit can be used when new requirements are imposed on the automation station (e.g. Ethernet connection, graphical Webserver, BACnet, remote maintenance and operation) which cannot be met by an ecs3 automation station. Furthermore, the use of the retrokit in case of a defect in an existing plant with ecs3 automation station represents an economical alternative to a new construction. The original ecs3 plugs are connected to the prepared plug adapters of the retrokit. As a result, no wiring is required. DIGICONTROL ems2 can be used as BACnet® Building Controller (B-BC) according to the BACnet® Standardized Device Profile L (ANSI ASHRAE standards 135-2001 or DIN EN 16484-5). The communication is performed via BACnet/IP and BACnet MS/TP.



GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %
Power consumption	13 W
Electrical connection	Via screws terminals for wires up to 2.5 mm ² . Ready-to-plug mounting on existing System (ecs3 terminals)
Mounting	Front Panel mounting directly with Frame and door
LED display	ems2.CP14D: 24 V-LED (green), RUN-LED (green), ST-LED (red) ems4.KM03E: 8 x status LED for relay outputs (green), 1 x CAN bus-activity (red / green) ems4.DE07E: CAN bus-activity (red / green), LED 01 on printed circuit board, 10 signal LEDs on device front. LED colour configurable via software: green, red, orange
Housing	Material Plastic ABS (PA6-GF10) and macrolon
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none"> ■ 8 analogue outputs 0...10 V DC, 10 bit resolution, 3 mA ■ 14 digital relay outputs 230 V AC / 6 A / potential-free normally open contact
Inputs	<ul style="list-style-type: none"> ■ 21 universal inputs, freely configurable as: <ul style="list-style-type: none"> ■ PT/Ni1000, 12 bit resolution ■ Digital inputs 24 V DC ■ 0...10 V DC, 12 bit resolution ■ 10 digital inputs 24 V DC
Display	Integrated display with multifunctional keyboard for setpoint input, query of present values, notifications etc.
Local override device	<ul style="list-style-type: none"> ■ 8 relay outputs: operation via sliding switch (MANUAL-OFF AUTO) ■ 4 analogue outputs: operation via sliding switch (MANUAL-OFF AUTO) and potentiometer (0-100 %) ■ 12 inputs for feedback of switch positions of all local override operating levels
Interfaces	<ul style="list-style-type: none"> ■ 2 x RS232 / RS485, one of them is an RS232 (COM-B) with DCD-, DSR und DTR signal for modem operation ■ 2 x CAN bus for max. 1 MBit/s, bus connection via slide switch ■ 1 x LIN bus ■ Ethernet interface 10/100 MBit, RJ45 at the bottom of the housing Link-LED

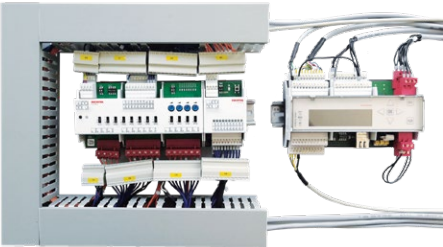
TYPE LIST

TYPE	DOOR HINGE
ems2.RTR-ECS-FL	Left
ems2.RTR-ECS-FR	Right

System for repairing DIGICONTROL ecs3 existing plant (baseplate mounting)

DIGICONTROL ems2.RTR-ECS-G

Data sheet number 18082



The DIGICONTROL retrokit ems2.RTR-ECS-G enables operators of DIGICONTROL ecs3 automation systems to exchange their existing ecs3 automation stations (AS) for AS of the latest DIGICONTROL generation. This is accomplished quickly and cost-effectively, while the building is in operation. The retrokit can be used when new requirements are imposed on the automation station (e.g. Ethernet connection, graphical Webserver, BACnet, remote maintenance and Operation) which cannot be met by an ecs3 automation station. Furthermore, the use of the retrokit in case of a defect in an existing plant with ecs3 automation station represents an economical alternative to a new construction. The original ecs3 plugs are connected to the prepared plug adapters of the retrokit. As a result, no wiring is required. DIGICONTROL ems2 can be used as BACnet® Building Controller (B-BC) according to the BACnet® Standardized Device Profile L (ANSI ASHRAE standards 135-2001 or DIN EN 16484-5). The communication is performed via BACnet/IP and BACnet MS/TP.

GENERAL SPECIFICATIONS

Voltage	24 V DC +/- 15 %
Power consumption	13 W
Electrical connection	Via screws terminals for wires up to 2.5 mm ² . Ready-to-plug mounting on existing System (ecs3 terminals)
Mounting	Baseplate mounting
LED display	ems2.CP14D: 14 V-LED (green), RUN-LED (green), ST-LED (red) ems4.KM03E: 8 x status LED for relay outputs (green), 1 x CAN bus-activity (red / green) ems4.DE07E: CAN bus-activity (red / green), LED D1 on printed circuit board, 10 signal LEDs on device front. LED colour configurable via software: green, red, orange
Standards/rules/guidelines/approvals	See CE declaration

TECHNICAL SPECIFICATIONS

Outputs	<ul style="list-style-type: none">■ 8 analogue outputs 0...10 V DC, 10 bit resolution, 3 mA■ 14 digital relay outputs 230 V AC / 6 A / potential-free normally open contact
Inputs	<ul style="list-style-type: none">■ 21 universal inputs, freely configurable as:<ul style="list-style-type: none">■ PT/Ni1000, 12 bit resolution■ Digital inputs 24 V DC■ 0...10 V DC, 12 bit resolution■ 10 digital inputs 24 V DC
Display	Integrated display with multifunctional keyboard for setpoint input, query of actual values, notifications etc.
Local override device	<ul style="list-style-type: none">■ 8 relay outputs: operation via sliding switch (MANUAL-OFF AUTO)■ 4 analogue outputs: operation via sliding switch (MANUAL-OFF AUTO) and potentiometer (0-100 %)■ 12 inputs for feedback of switch positions of all local override operating levels
Interfaces	<ul style="list-style-type: none">■ 2 x RS232 / RS485, one of them is an RS232 (COM-B) with DCD-, DSR and DTR signal for modem operation■ 2 x CAN bus for max. 1 MBit/s, bus connection via slide switch■ 1 x LIN bus■ Ethernet interface 10/100 MBit, RJ45 at the bottom of the housing Link-LED

TYPE
ems2.RTR-ECS-G

