

Programmable Relays



Product Overview

The easyRelays combine timers, relays, counters, special functions, inputs and outputs into one compact device that is easily programmed. The easyRelay family of products provides an exceptional level of flexibility together with a substantial savings of commissioning time and effort.

The easyRelays are available in more than 35 styles that support from 12 I/O up to a network of up to 320 I/O points, providing the ideal solution for lighting, energy management, industrial control, irrigation, pump control, HVAC and home automation.

Once easyRelays are installed, changes are easily accomplished through front panel programming, eliminating the need to change wiring and minimizing downtime.

The easy802/806 relays are even more powerful than the easy800 series and include an integrated SmartWire-DT gateway. Conventional hardwiring to pushbuttons, selector switches, pilot devices and contactors can now be eliminated, allowing for a dramatic increase in panel wiring productivity. For more information on SmartWire-DT and how it can increase productivity, go to www.eaton.com/smartwiredt.

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Application Description

The easyRelays excel in traditional applications where multiple relays, timers and pushbuttons are used. Applications span residential, commercial and industrial installations.

Typical control applications are:

- Lighting controls
- Duplex pump controls
- Water fountain controls
- Parking garage access controls
- Refrigeration control system
- Greenhouse temperature and ventilation controls
- Booster pump controls

See publication no. **AP05013001E** for the easyRelay application guide. Download from www.eaton.com/easyrelays.

easy500/700/800 Programmable Relays



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easy500/700/800 Programmable Relays

Product Description

Three families make up the easyRelay programmable relay product line. All models are available with and without displays. DIN rail mounted.

easy500—for controlling small applications with up to 12 input/output signals. Connectable to Ethernet.

easy700—for controlling medium-sized applications with 20 I/O points (expandable to 40 I/O points). Connectable to Ethernet and bus systems.

easy800—for controlling large-scale applications with 20 points, expandable to 40 points locally, and expandable using the easyNet network up to 320 I/O points. Connectable to Ethernet and bus systems.

The easyNet integrated network provides easy and inexpensive linking of up to eight easy800 devices over a distance of up to 1000 meters. Each easy800 device can run its own program, or be used as a distributed input/output module. Connect up to eight controllers with up to 40 I/O to obtain 320 I/O.

Standards

- CSA C22.2 No. 142-M1987
- CSA C22.2 No. 213-M1987
- EN 55011
- EN 50178
- EN 61131-2
- IEC EN 61000-4
- IEC 60068-2-6
- IEC 60068-2-27
- UL 508

Certifications

- UL
- CSA
- CE
- CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C
- C-Tick
- GOST-R
- Ukrain-GOST



Shipping Approvals

- Bureau Veritas
- Det Norske Veritas
- Germanischer Lloyd
- Lloyd's Register of Shipping

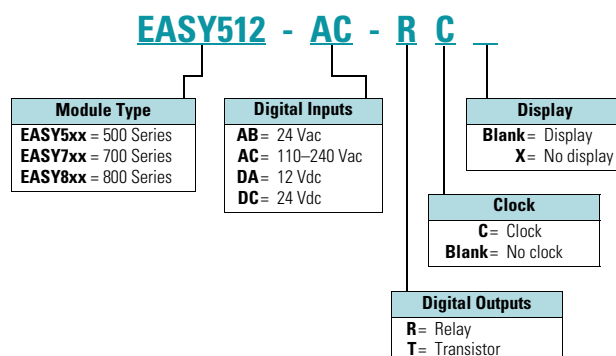
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Catalog Number Selection

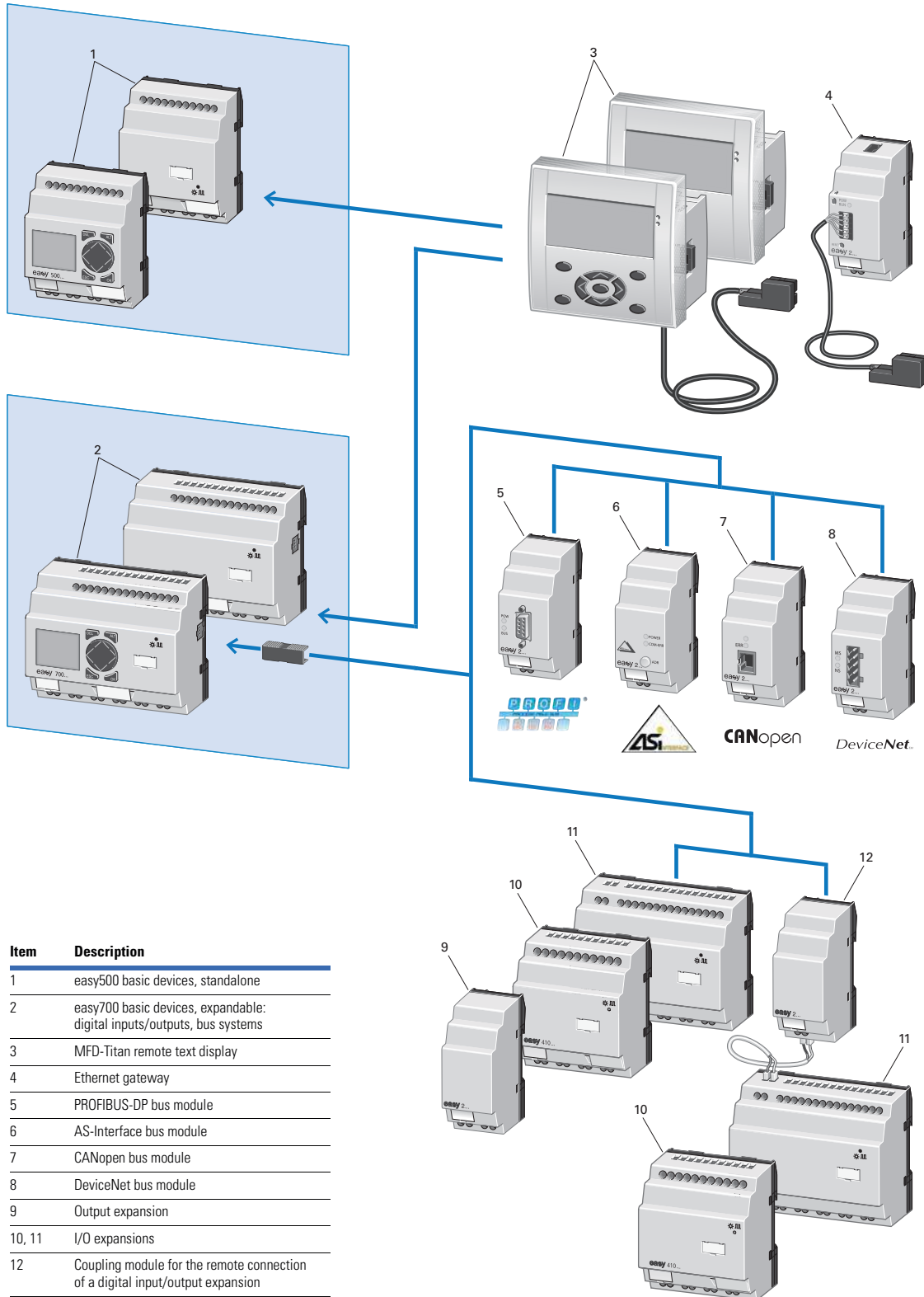
easy500/700/800



Note: Not all combinations are possible. See selection tables.

System Overview

easy500/700 Programmable Relays

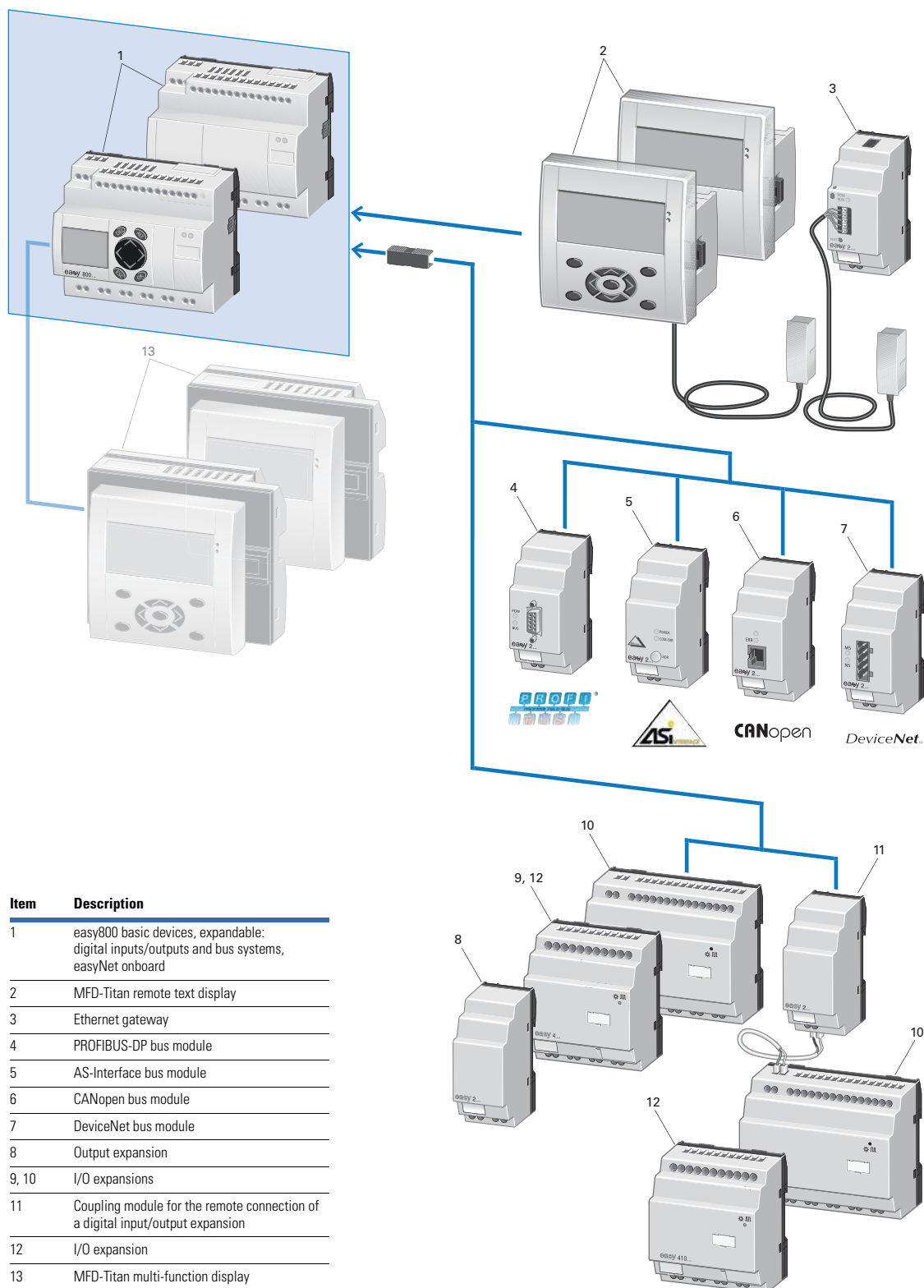


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Control Relays and Timers

Programmable Relays

easy800 Programmable Relay



Product Selection

easy500—Display



easy500 Programmable Relays (Standalone)

Description	Inputs					Outputs		Catalog Number
	24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analog ^①	Relay	Transistor	
Display								
12 I/O, no clock	—	8	—	—	—	4	—	EASY512-AC-R
	—	—	—	8	2	4	—	EASY512-DC-R
12 I/O, clock	8	—	—	—	2	4	—	EASY512-AB-RC
	—	8	—	—	—	4	—	EASY512-AC-RC
	—	—	8	—	2	4	—	EASY512-DA-RC
	—	—	—	8	2	4	—	EASY512-DC-RC
	—	—	—	8	2	—	4	EASY512-DC-TC
	—	—	—	8	2	—	4	EASY512-DC-TC
No Display								
12 I/O, clock	8	—	—	—	2	4	—	EASY512-AB-RCX
	—	8	—	—	—	4	—	EASY512-AC-RCX
	—	—	8	—	2	4	—	EASY512-DA-RCX
	—	—	—	8	2	4	—	EASY512-DC-RCX
	—	—	—	8	2	—	4	EASY512-DC-TCX

easy500—No Display



easy700—Display



easy700 Programmable Relays (Expandable and Networkable)

Description	Inputs				Analog ^①	Outputs		Catalog Number
	24 Vac	110–240 Vac	12 Vdc	24 Vdc		Relay	Transistor	
Display								
18 I/O, clock	12	—	—	—	4	6	—	EASY719-AB-RC
	—	12	—	—	—	6	—	EASY719-AC-RC
	—	—	12	—	4	6	—	EASY719-DA-RC
	—	—	—	12	4	6	—	EASY719-DC-RC
20 I/O, clock	—	—	—	12	4	—	8	EASY721-DC-TC
No Display								
18 I/O, clock	12	—	—	—	4	6	—	EASY719-AB-RCX
	—	12	—	—	—	6	—	EASY719-AC-RCX
	—	—	12	—	4	6	—	EASY719-DA-RCX
	—	—	—	12	4	6	—	EASY719-DC-RCX
20 I/O, clock	—	—	—	12	4	—	8	EASY721-DC-TCX

easy700—No Display



easy800—Display



easy800 Programmable Relays (Expandable and Networkable)

Description	Inputs			Analog ^①	Outputs			Catalog Number
	110–240 Vac	24 Vdc			Relay	Transistor	Analog	
Display								
18 I/O, clock	12	—	—	6	—	—	EASY819-AC-RC	
	—	12	4	6	—	—	EASY819-DC-RC	
19 I/O, clock	—	12	4	6	—	1	EASY820-DC-RC	
20 I/O, clock	—	12	4	—	8	—	EASY821-DC-TC	
21 I/O, clock	—	12	4	—	8	1	EASY822-DC-TC	
No Display								
18 I/O, clock	12	—	—	6	—	—	EASY819-AC-RCX	
	—	12	4	6	—	—	EASY819-DC-RCX	
19 I/O, clock	—	12	4	6	—	1	EASY820-DC-RCX	
20 I/O, clock	—	12	4	—	8	—	EASY821-DC-TCX	
21 I/O, clock	—	12	4	—	8	1	EASY822-DC-TCX	

easy800—No Display

**Note**

^① Analog inputs optional. Use of analog inputs will result in a decrease in the same number of available digital inputs.

3.3

Control Relays and Timers

Programmable Relays

Technical Data and Specifications

easy500 Series

Type	EASY512-AB...	EASY512-AC...	EASY512-DA...	EASY512-DC-R...	EASY512-DC-TC.
Supply voltage	24 Vac	100–240 Vac	12 Vdc	24 Vdc	24 Vdc
Heat dissipation	5 VA	5 VA	2 W	2 W	2 W
Continuous current outputs ^①	8 A	8 A	8 A	8 A	0.5 A
Short-circuit proof with power factor 1	Line protection B16, 600 A				—
Short-circuit proof with power factor 0.7...0.7	Line protection B16, 900 A				—
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet				
Connection cables					
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

easy700 Series

Type	EASY719-AB...	EASY719-AC...	EASY719-DA...	EASY719-DC-RC...	EASY721-DC-TC.
Supply voltage	24 Vac	100–240 Vac	12 Vdc	24 Vdc	24 Vdc
Heat dissipation	7 VA	10 VA	3.5 W	3.5 W	3.5 W
Continuous current outputs ^①	8 A	8 A	8 A	8 A	0.5 A
Short-circuit proof with power factor 1	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	—
Short-circuit proof with power factor 0.7...0.7	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	—
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet				
Connection cables					
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

easy800 Series

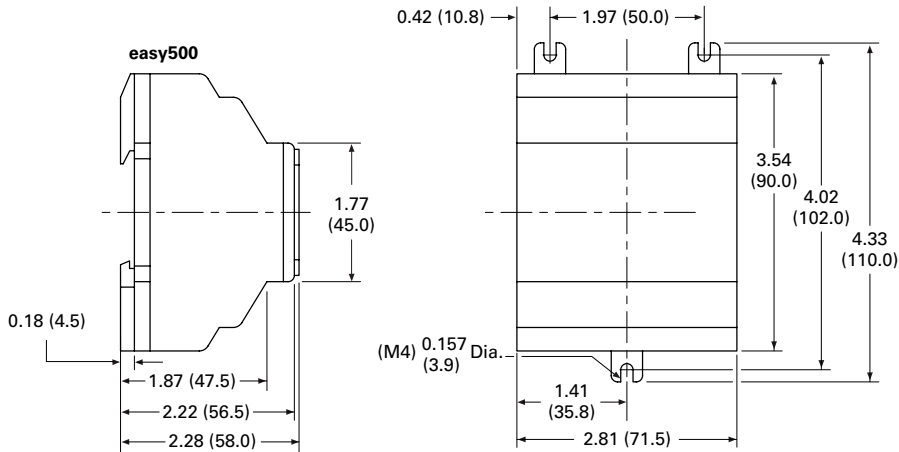
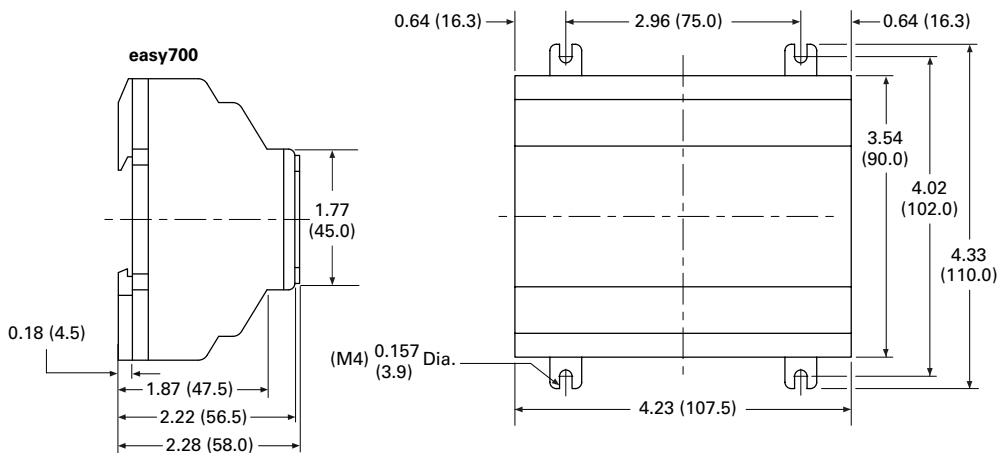
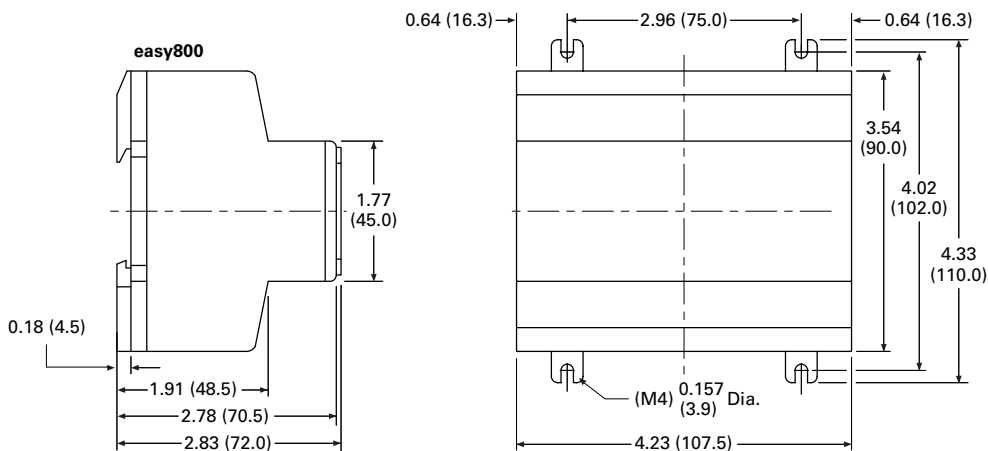
Type	EASY819-AC...	EASY819-DC-RC...	EASY820-DC-RC...	EASY821-DC-TC...	EASY822-DC-TC.
Supply voltage	100–240 Vac	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Heat dissipation	10 VA	3.4 W	3.4 W	3.4 W	3.4 W
Continuous current outputs ^①	8 A	8 A	8 A	8 A	0.5 A
Short-circuit proof with power factor 1	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	—
Short-circuit proof with power factor 0.7...0.7	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	—
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet				
Connection cables					
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4				
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C				

Note

^① Relay = 8 A (10 A to UL) with resistive load, 3 A with inductive load. Transistor outputs = 0.5 A/24 Vdc, maximum four outputs switchable in parallel.

Dimensions

Approximate Dimensions in Inches (mm)

easy500 Series, Drawing Number MD05013001E**easy700 Series, Drawing Number MD05013002E****easy800 Series, Drawing Number MD05013003E**

easy802/806 Programmable Relays with SmartWire-DT



easy802/806 Programmable Relays with SmartWire-DT

Product Description

SmartWire-DT is a high-performance system that can be used to quickly and easily connect motor control components such as relays, contactors, pilot devices, manual motor protectors, soft starters ^① and variable frequency drives ^② as well as digital and analog input/output modules. On the new easy800 with integrated SmartWire-DT master, up to 99 SmartWire-DT devices in total with up to 166 inputs/outputs can be connected via the SmartWire-DT line. All required supply voltages, including those for bus devices as well as 24 Vdc for the contactors, are provided directly with the flat eight-pole SmartWire-DT bus line. This reduces wiring effort and troubleshooting and saves time and costs.

The easy802 features a POW power feeder for regulating power to the device as well as the SmartWire-DT devices. A second AUX power feeder provides the connected contactors with 24 Vdc. A separate 24 Vdc power supply is required to provide 24 Vdc power to the easy802 or easy806 controllers. The configuration of the SmartWire-DT devices is undertaken at a touch of the provided Configuration button. LEDs provide feedback on the connecting states on the device and the SmartWire-DT line. The serial interface serves for programming as well as for connection of a remote text display, touch panel or for connection to the Ethernet.

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Standards

- EN 50178
- IEC/EN 60947
- UL 508

Certifications

- cULus
- CE
- C-Tick



In addition to the functionality of the easy802, the easy806 also features four fast inputs (5 kHz). Two of the four inputs can also be configured as fast outputs (5 kHz) (transistor 24 Vdc, 0.1 A). In addition to the additional inputs/outputs on easy806, there is a connection option to the easyNet. Up to eight EASY806-DC-SWD controllers can be connected via easyNet, allowing up to 1360 inputs/outputs.

For more information on SmartWire-DT and related components, see **Tab 9** of this volume or go to www.eaton.com/smartwiredt.

Note

- ^① Soft starters and variable frequency drives will be available with direct SmartWire-DT connectivity in late 2013.

Product Selection

Control relay for connection of SmartWire-DT and simultaneously for supply of power to the SmartWire-DT devices, such as switchgear and contactors.

EASY802-DC-SWD



easy800 with SmartWire-DT

Supply Voltage	Description	Catalog Number
24 Vdc	Control relay with SmartWire-DT	EASY802-DC-SWD

EASY806-DC-SWD



24 Vdc	Control relay with SmartWire-DT, four inputs, two of which can be used as outputs (transistor 24 Vdc, 0.1 A), easyNet onboard	EASY806-DC-SWD
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Remote Displays

Both the easy802 and easy806 controllers can be connected to a MFD remote display or a XV touch panel display with Galileo.

Accessories

MFD-80



Accessories—easy800

Description	Catalog Number
MFD display, NEMA 4X indoor rated	MFD-80

MFD-CP4



24 Vdc power / communication module	MFD-CP4
easy802/806 to MFD-CP4 communication cable, 1.5m	EU4A-RJ45-CAB2
easy802/806 to XV HMI communication cable, 2m	EU4A-RJ45-CAB1

3.3

Control Relays and Timers

Programmable Relays

Technical Data and Specifications

easy802/806 Programmable Relays with SmartWire-DT

Description	Unit	Specification
Ambient Climatic Conditions		
Cold to IEC 60068-2-1, heat to IEC 60068-2-2, damp heat, constant, to IEC 60068-2-78; cyclical to IEC 60068-2-30; temperature change to IEC 68000-2-14		
Operating ambient temperature	°C (°F)	–25 ° to +55 ° (–13 ° to +131 °)
Condensation		Prevent condensation by means of suitable measures
LCD display (reliable legible)	°C (°F)	0 ° to +55 ° (32 ° to +131 °)
Storage	°C (°F)	–40 ° to +70 ° (–40 ° to +158 °)
Relative humidity, noncondensing (IEC EN 60068-2-30)	%	5 to 95
Air pressure (in operation)	hPa	795 up to 1080
Ambient Mechanical Conditions		
Protection type EN 50178, IEC 60529, VBG4		IP20
Vibrations (IEC EN 60068-2-6)		
Constant amplitude: easy800-SWD; 3.5 mm	Hz	5–8.4
Constant acceleration: easy800-SWD: 1g	Hz	8.4–150
Mechanical shock resistance (IEC EN 60068-2-27) semi-sinusoidal 15g / 11 ms	Shocks	18
Drop (IEC EN 60068-2-31)	Drop height	mm
Free fall, packaged (IEC EN 60068-2-32)	m	0.3
Electromagnetic Compatibility (EMC)		
Electrostatic discharge (ESD), to IEC EN 61000-4-2		
Air discharge	kV	8
Contact discharge	kV	6
Electromagnetic fields (RFI), to IEC EN 61000-4-3		
0.8–1.0 GHz	V/m	10
1.4–2.0 GHz	V/m	3
2.0–2.7 GHz	V/m	1
Radio interference suppression		EN 55011 Class B
Burst, to IEC EN 61000-4-4		
Supply cables	kV	2
Signal cables	kV	2
easyNet	kV	2
SWD-line	kV	2
Power pulses (surge), to IEC EN 61000-4-5 (supply cables, symmetrical)	kV	1
Radiated RFI, to IEC EN 61000-4-6	V	10
Insulation Resistance		
Overvoltage category		III
Pollution degree		2
Clearance in air and creepage distances		EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance		EN 50178
Terminal Capacity		
Solid, minimum to maximum	mm ²	0.2 to 1.5 (AWG 24–16)
Flexible with ferrule, minimum to maximum	mm ²	0.2 to 1.5 (AWG 24–16)
DC POW Rated Operational Voltage		
Rated value U _e	V _{dc} , (%)	24 DC (–15/+20)
Permissible range ^①	V _{dc}	20.4–28.8
Residual ripple	%	≤ 5
Protection against polarity reversal		Yes
Input current		
At rated operating voltage	mA	easy802: 500 / easy806: 900
Inrush current and duty factor		12.5 A for 6 ms
Voltage dips (IEC EN 61131-2)	ms	10

Note

^① Use power-feed modules if the cable length of the SWD line causes excessive voltage drop.

easy802/806 Programmable Relays with SmartWire-DT, continued

Description	Unit	Specification
Heat dissipation At 24 Vdc	W	easy802: max. 5 / easy806: max. 6
Fuse	A	≥ 3
Potential isolation (easy800-SWD)		
To auxiliary ^①		Yes
To easyNet ^①		Yes
To serial interface		Yes
To easyLink ^①		No
To inputs ^①		No
To outputs ^①		No
To SWD ^①		No
DC AUX Rated Operational Voltage (easy800-SWD)		
Rated value U _e	Vdc, (%)	24 (–15/+20)
Permissible range U _{AUX}	Vdc	20.4–28.8
Residual ripple	%	≤ 5
Input current ^② (max.)	A	2 (UL) / 3 (CE)
Rated operational voltage of the 24 Vdc stations	V	U _{AUX} – 0.3 V
Protection against polarity reversal		Yes
Short-circuit strength		No
Fuse	A	≤ 2 (UL) external fuse with FAZ B2
Heat dissipation At 24 Vdc	W	Normally 1
Potential isolation (easy800-SWD)		
To POW power supply, inputs and outputs		Yes
To PC interface (COM), easyNet		Yes
To SWD		Yes

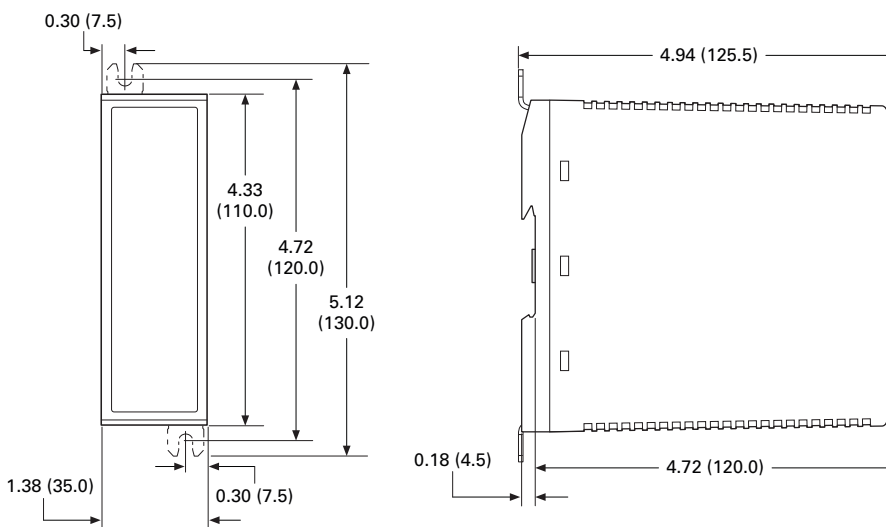
Notes

^① If present.

^② If contactors with a higher total power consumption are connected, an EU5C-SWD-PF1 or EU5C-SWD-PF2 power-feed module must be used.

Dimensions

Approximate Dimensions in Inches (mm)

easy802 and easy806 Controllers

easyRelay Expansion Modules



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easyRelay and MFD Expansion Modules

Product Description

Expansion modules are available for increasing the input/output of the easy700/800 and MFD-Titan multi-function displays to 24 inputs and up to 16 outputs. Expansion modules can be mounted directly to the easy700 or easy800 relays or up to 98 ft (30m) away using coupling module EASY200-EASY.

Standards

- CSA C22.2 No. 142-M1987
- CSA C22.2 No. 213-M1987
- EN 55011
- EN 50178
- EN 61131-2
- IEC EN 61000-4
- IEC 60068-2-6
- IEC 60068-2-27
- UL 508

Certifications

- UL
- CSA
- CE
- CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C
- C-Tick
- GOST-R
- Ukrain-GOST



Shipping Approvals

- Bureau Veritas
- Det Norske Veritas
- Germanischer Lloyd
- Lloyd's Register of Shipping

Product Selection

EASY618



Digital I/O Expansion Modules

Can be used via easyLink.

Supply Voltage	Digital Inputs	Outputs Relay 10 A (UL)	Transistor	Catalog Number
100–240 Vac	12	6	—	EASY618-AC-RE
24 Vdc	12	6	—	EASY618-DC-RE
24 Vdc	12	—	8	EASY620-DC-TE
24 Vdc	6	4	—	EASY410-DC-RE
24 Vdc	6	—	4	EASY410-DC-TE
24 Vdc	—	2	—	EASY202-RE
For distributed connection of a digital input/output expansion at up to 98 ft (30m) distance				EASY200-EASY

EASY406



Analog I/O Expansion Modules

Can be used via easyLink.

Supply Voltage	Inputs		Digital Outputs		Analog Outputs	Catalog Number
	Digital/ Analog	Can Be Used for Digital	Relay 10 A (UL)	Transistor		
24 Vdc	1/2	2	—	2	1	EASY406-DC-ME
24 Vdc	1/6	2	—	2	2	EASY411-DC-ME

Technical Data and Specifications

easyRelay I/O Expansion Modules

Type	EASY202-RE	EASY618-AC-RE	EASY618-DC-RE	EASY620-DC-TE	EASY200-EASY
Supply voltage	—	100 – 240 Vac	24 Vac	24 Vac	—
Heat dissipation	1 W	10 VA	4 W	4 W	1 W
Continuous current outputs ^①	8 A	8 A	8 A	0.5 A	—
Short-circuit proof with power factor 1	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	—
Short-circuit proof with power factor 0.7...0.7	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	Line protection B16, 900 A	—
Connection cables					
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4				
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C
Certification, standards	EN 50178, IEC/EN 60947, UL, CSA				
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet				

3.3

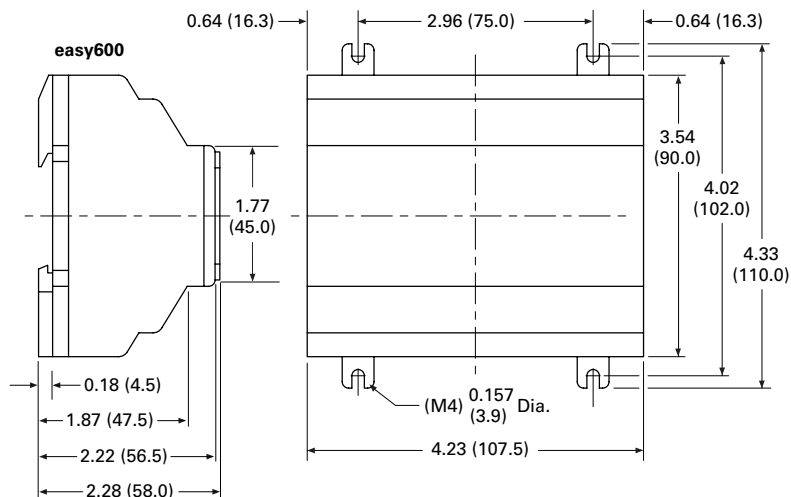
Control Relays and Timers

Programmable Relays

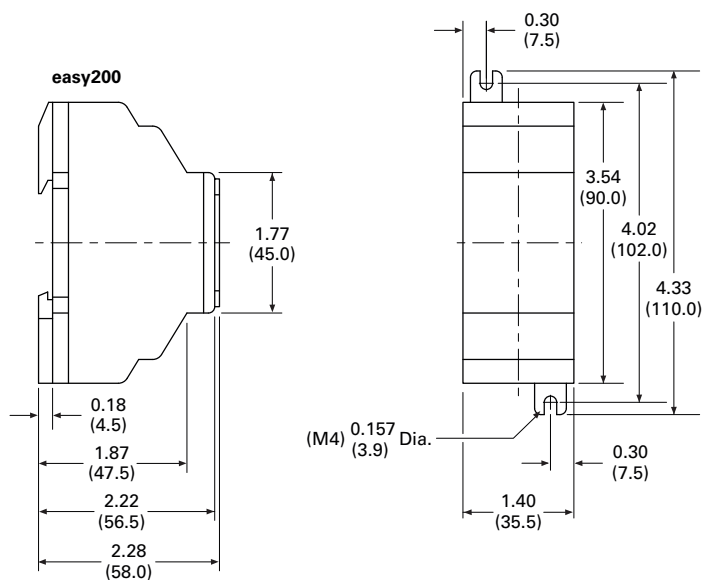
Dimensions

Approximate Dimensions in Inches (mm)

easy600 Series, Drawing Number MD05013002E



EASY202-RE/EASY200-EASY/EASY205-ASI Series, Drawing Number MD05013012E



MFD-Titan Multi-Function Displays**Contents****Description****Page**

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MFD-Titan Multi-Function Displays**Product Description**

The MFD-Titan multi-function displays can be used as remote text displays for easy500, easy700, easy800 and easy802/806 relays or can be configured as standalone or networked multi-function displays. As a multi-function display, the MFD-Titan combines the control functions of an easy800 with a door-mounted graphics display.

MFD-Titan multi-function display is comprised of three parts: display, controller and I/O modules. Match each piece to the needs of your application. If you need to both monitor and modify parameters within your application, choose the MFD-80-B display. The preprogrammed and user programmable buttons give you the capability to make small changes to the way your application is running, start or stop a process, or change your program completely. Select a controller with or without easyNet support, and with AC or DC power. Finally, add the MFD I/O module that best suits your application.

MFD-Titan—for controlling small applications that require graphic visualization and for large-scale applications with 20 points, expandable to 40 points locally, and expandable using the easyNet network up to 320 I/O points.

The MFD-Titan display can be linked to the easy500/700/800 models to provide an enhanced text based operator interface.

The easyNet integrated network provides easy and inexpensive linking of up to eight MFD-Titan devices over a distance of up to 1000 meters. Each MFD-Titan device can run its program, or be used as a distributed input/output module. Connect up to eight controllers with up to 40 I/O to obtain 320 I/O.

Standards

- CSA C22.2 No. 142-M1987
- CSA C22.2 No. 213-M1987
- EN 55011
- EN 50178
- EN 61131-2
- IEC EN 61000-4
- IEC 60068-2-6
- IEC 60068-2-27
- UL 508

Certifications

- UL
- CSA
- CE
- CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C
- C-Tick
- GOST-R
- Ukrain-GOST

**Shipping Approvals**

- Bureau Veritas
- Det Norske Veritas
- Germanischer Lloyd
- Lloyd's Register of Shipping

3.3

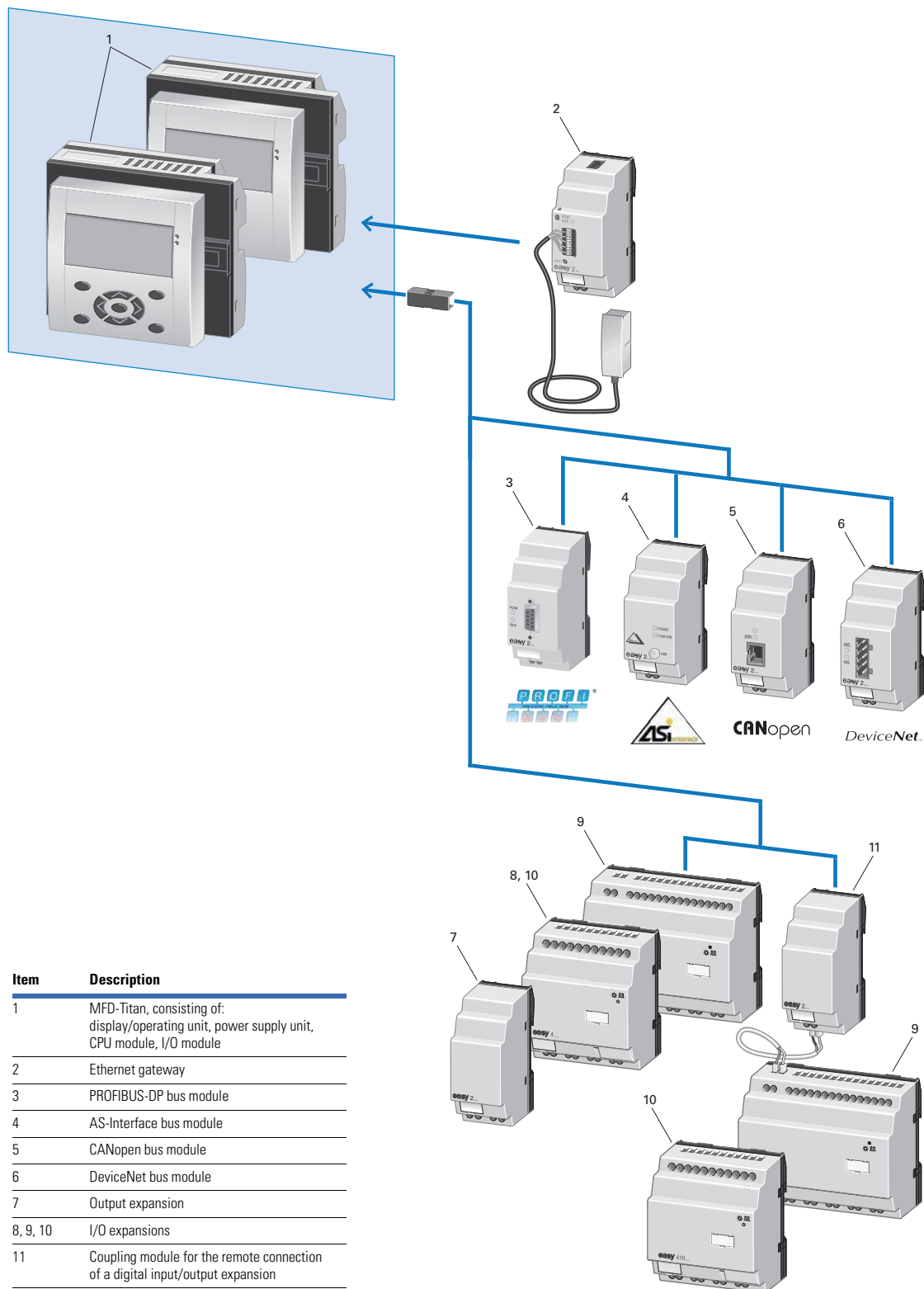
Control Relays and Timers

Programmable Relays

System Overview

MFD-Titan Multi-Function Display

3



Product Selection

MFD-80-B



MFD-Titan Display/Operator Units

Monochrome display 132 x 64 pixels with switchable backlight and removable front frame.

Description	Keypad	Eaton Logo	Custom Engraving	Catalog Number
MFD display, NEMA 4X indoor rated	—	—	—	MFD-80-X
MFD display, NEMA 4X indoor rated	—	■	—	MFD-80
MFD display, NEMA 4X indoor rated	—	—	■	MFD-80-ETCH ①
MFD display with keypad ②	■	—	—	MFD-80-B-X
MFD display with keypad ②	■	■	—	MFD-80-B
MFD display with keypad ②	—	—	■	MFD-80-B-ETCH ①

MFD-CP4



MFD-Titan Text/Graphics Display Power Module

For use with MFD-Titan displays for use as remote text/graphics display.

Supply Voltage	Description	Catalog Number
100–240 Vac	AC power supply / communication module (no cable)	MFD-AC-CP4
	AC module for easy500/700 relays and cable MFD-CP4-500-CAB5	MFD-AC-CP4-500
	AC module for easy800 relays and cable MFD-CP4-800-CAB5	MFD-AC-CP4-800
24 Vdc	DC power supply / communication module (no cable)	MFD-CP4
	DC module for easy500/700 relays and cable MFD-CP4-500-CAB5	MFD-CP4-500
	DC module for easy800 relays and cable MFD-CP4-800-CAB5	MFD-CP4-800

MFD-CP



MFD-Titan Controller Modules

For use with MFD-Titan display/operator units.
Add MFD-Titan I/O modules as needed.

Supply Voltage	Description	Catalog Number
100–240 Vac	Program and screen memory	MFD-AC-CP8-ME
	Program and screen memory, with easyNet	MFD-AC-CP8-NT
24 Vdc	Program and screen memory	MFD-CP8-ME
	Program and screen memory, with easyNet	MFD-CP8-NT
	Double program and screen memory (as MFD-CP8)	MFD-CP10-ME
	Double program and screen memory (as MFD-CP8), with easyNet	MFD-CP10-NT

Notes

- ① To order an MFD display with custom engraving, a marking file with the required text and/or graphics must be created as a Labeleditor ZIP file. The ZIP file has to be sent to the Eaton factory, and the name of the file must be referenced in the order notes section. To download the Labeleditor configuration software, please visit www.eaton.com/software.
- ② To obtain a NEMA 4X indoor rating on MFD displays with keypads, use with a protective membrane cover MFD-XM-80.

3.3

Control Relays and Timers

Programmable Relays

MFD-R16



MFD-Titan I/O Modules

For use with MFD-Titan controller modules.

Supply Voltage	Description	Inputs		Outputs			Catalog Number
		Digital	Analog ^①	Relay	Transistor	Analog	
100–240 Vac	16 I/O	12	—	4	—	—	MFD-AC-R16
		12	4	4	—	—	MFD-R16
		12	4	—	4	—	MFD-T16
24 Vdc	17 I/O	12	4	4	—	1	MFD-RA17
		12	4	—	4	1	MFD-TA17

MFD-TP_



MFD-Titan I/O Modules with Temperature Detection

For use with MFD-CP8_ ^② and MFD-CP10_ MFD-Titan controller modules.

Supply Voltage	Inputs			Outputs			Temperature Ranges	Catalog Number
	Digital	Can Be Used For Analog	Pt100	Relay 10 A (UL)	Transistor	Analog		
24 Vdc	6	2	2	—	4	—	–40 ° to +90 °C/0 ° to +250 °C/0 ° to +400 °C	MFD-TP12-PT-A
	6	2	2	—	4	—	–200 ° to +200 °C/0 ° to +850 °C	MFD-TP12-PT-B
	6	2	—	—	4	—	–40 ° to +90 °C/0 ° to +250 °C	MFD-TP12-NI-A
	6	2	2	—	4	1	–40 ° to +90 °C/0 ° to +250 °C/0 ° to +400 °C	MFD-TAP13-PT-A
	6	2	2	—	4	1	–200 ° to +200 °C/0 ° to +850 °C	MFD-TAP13-PT-B
	6	2	—	—	4	1	–40 ° to +90 °C/0 ° to +250 °C	MFD-TAP13-NI-A

Accessories

Miscellaneous Parts

Description	Catalog Number
MFD-Titan display protective membrane cover	MFD-XM-80
MFD-Titan display protective plastic cover	MFD-XS-80
MFD-Titan display DIN rail mount kit	MFD-TS-144

Notes

- ^① Analog inputs optional. Use of analog inputs will result in a decrease in the same number of available digital inputs
^② Version 8 and higher MFD-CP8_ controllers are compatible with the temperature detection modules.

Technical Data and Specifications

MFD-80, MFD-CP4, MFD-CP8

Type	MFD-80...	MFD-CP4/CP8
Connection cables		
Solid	—	0.2–4.0 mm ² (AWG 22–12)
Flexible	—	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP65	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4
Ambient operating temperature	Clearly legible at –5 °C to +50 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C
Hazardous location	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C	CSA Class I, Div. 2, Groups A, B, C, D; Temp. Code T3C

MFD-Titan I/O Modules

Type	MFD-AC-R16	MFD-R16	MFD-RA17	MFD-T16	MFD-TA17
Supply voltage	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module	Supply via MFD-CP8 module
Heat dissipation	0.5 W	0.5 W	0.5 W	0.5 W	0.5 W
Continuous current outputs ^①	8 A	8 A	8 A	0.5 A	0.5 A
Short-circuit proof with power factor 1	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	—	—
Short-circuit proof with power factor 0.7...0.7	Line protection B16, 600 A	Line protection B16, 600 A	Line protection B16, 600 A	—	—
Connection cables					
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20	IP20	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4				
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C	–40 °C to +70 °C
Mounting	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module	Snap fitted to MFD-CP8 module

MFD-CP4 and CP8 Communication Modules

Type	MFD-80...	MFD-CP4-...	MFD-CP8...	MFD-AC-CP8...
Supply voltage	Supply from -CP	24 Vdc	24 Vdc	100–240 Vac
Heat dissipation	3 W	1.5 W	3 W	8 VA
Mounting	Front mounting in 2 x 22.5 mm Standard drill holes	Snap fitted to MFD-80	Snap fitted to MFD-80 or on 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet	

Note

- ^① Relay = 8 A with resistive load, 3 A with inductive load.
Transistor outputs = 0.5 A/24 Vdc, maximum four outputs switchable in parallel.

3.3

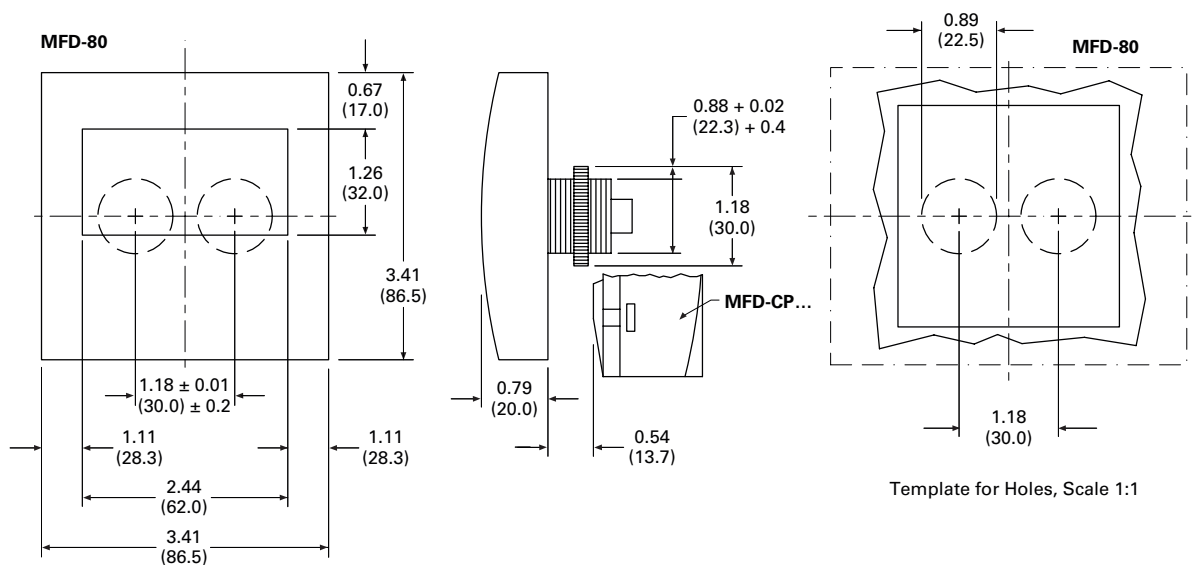
Control Relays and Timers

Programmable Relays

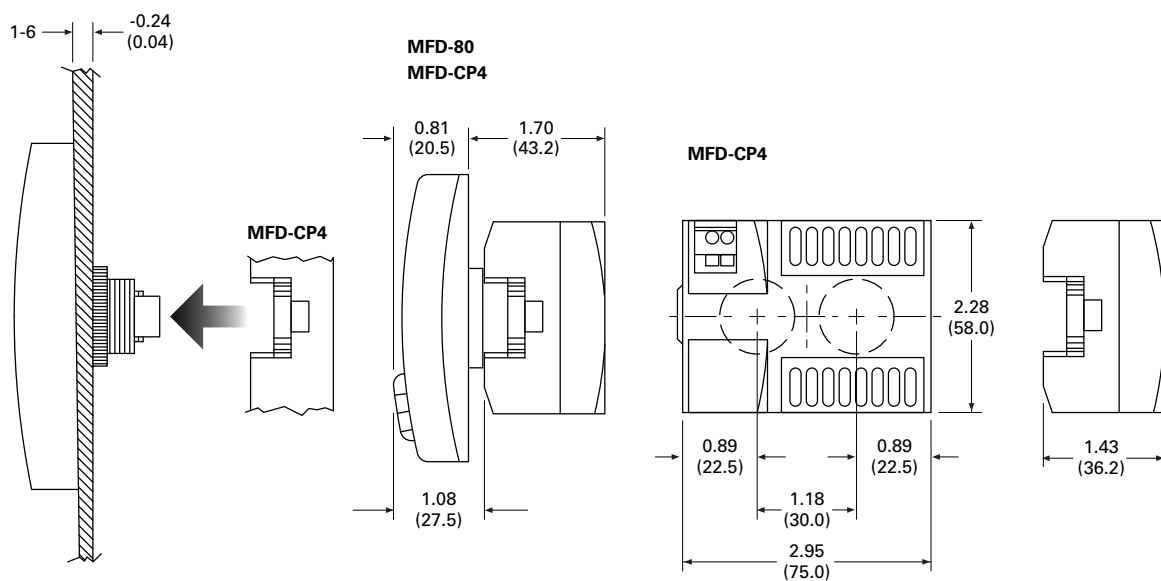
Dimensions

Approximate Dimensions in Inches (mm)

MFD-80 Series, Drawing Number MD05013005E

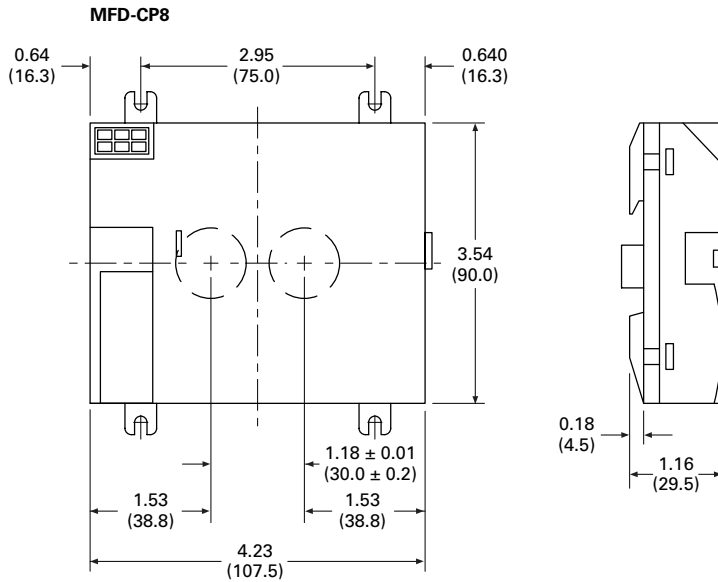


MFD-CP4, MFD-80 and MFD-CP4 Series Combined, Drawing Number MD013013E



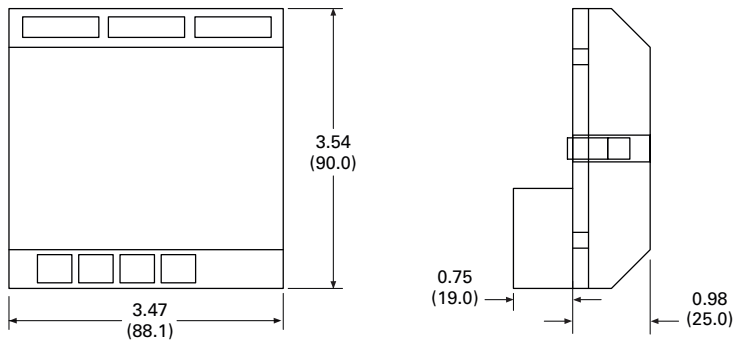
Approximate Dimensions in Inches (mm)

MFD-CP8 Series, Drawing Number MD05013006E



MFD-R/MFD-T I/O Module, Drawing Number MD05013007E

MFD-R and MFD-T I/O



easyRelay Communication Modules



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easyRelay
Communication Modules

Product Description

Four network modules are available for easily connecting to world-standard networks. The network modules can be used with the easy700/800 programmable relays and MFD-Titan multi-function displays.

Available communication modules support:

- DeviceNet
- PROFIBUS-DP
- AS-Interface
- CANopen

All modules operate exclusively as nodes on the given network.

Product Selection

The Ethernet gateway connects devices provided with an RS-232 serial interface with the Ethernet network. This gateway can be used with easy500 as well as easy700/800 relays and MFD-Titan displays.

EASY209-SE



Ethernet Gateway Module

Description		Catalog Number
Ethernet gateway	Serial interface easyRelay or MFD-...CP8/CP10_ to Ethernet, for connecting to easyOPC server, easySoft or easyCom	EASY209-SE ①

EASY204-DP



Network Interface Modules

Description		Catalog Number
DeviceNet interface module	Addresses available 0 to 63	EASY222-DN
PROFIBUS-DP interface module	Device addresses available 1 to 126	EASY204-DP
AS-Interface interface module with 4 in and 4 out	Device: 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31	EASY205-ASI
CANopen interface module	Addresses available 1 to 127	EASY221-CO

Note

① To set up the Ethernet gateway, download the EASY209-SE configuration software at www.eaton.com/easyrelays.

Technical Data and Specifications

easy700/800/MFD Communication Interface Modules EASY204-DP, EASY205-ASI, EASY221-CO, EASY222-DN, EASY209-SE ①

Description	Specification
Supply voltage	24 Vdc
Heat dissipation ②	1 W
Connection cables	
Solid	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4
Ambient operating temperature	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C
Certification, standards	EN 50178, IEC/EN 60947, UL, CSA
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet

Notes

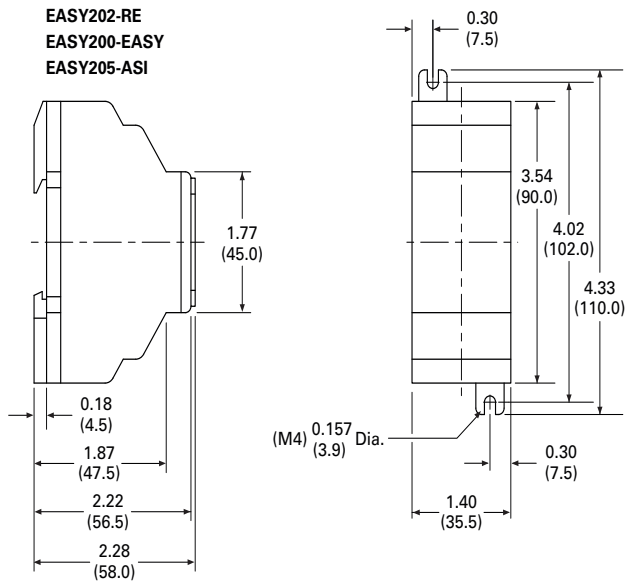
① EASY209-SE is also compatible with easy500 programmable relays.

② EASY204-DP dissipates 2 W.

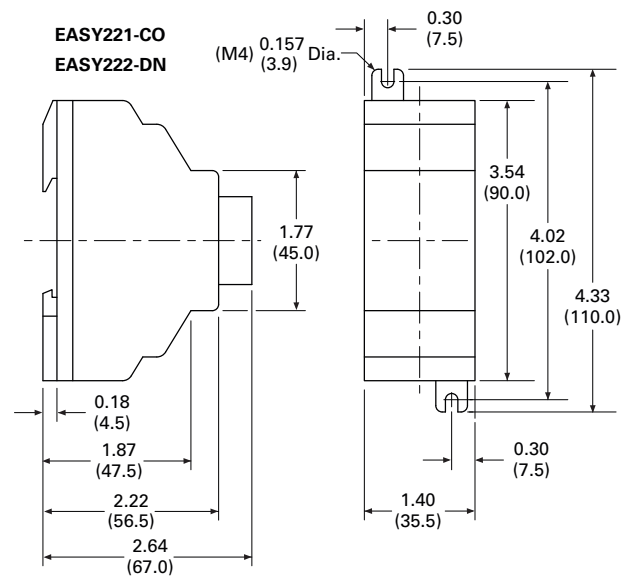
Dimensions

Approximate Dimensions in Inches (mm)

EASY202-RE/EASY200-EASY/EASY205-ASI/ EASY209-SE Series, Drawing Number MD05013012E



EASY221-CO/EASY222-DN Series, Drawing Number MD05013010E



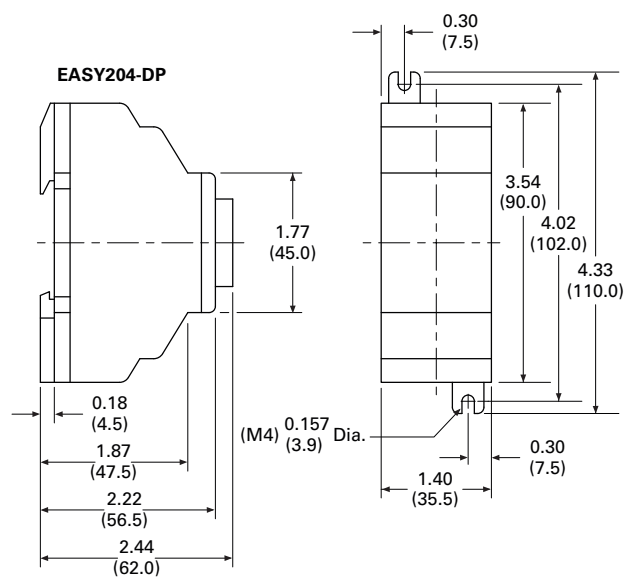
3.3

Control Relays and Timers

Programmable Relays

EASY204-DP Series,
Drawing Number MD05013011E

3



easyRelay Power Supplies, Accessories and Software



easyRelay Power Supplies, Accessories and Software

Product Description

Power Supplies—12 Vdc and 24 Vdc power supplies for applications where only 100–240 Vac is available.

Accessories—Memory modules, cables and other components to complete your automation solutions.

Software—The easySoft software is used to program all of the easyRelays and MFD-Titan displays. The Windows®-based software provides straightforward circuit diagram input and editing and the diagrams can be displayed in the format desired. When easy800 and MFD-Titan controllers are connected using easyNet, all connected devices can be accessed and their programs loaded from a single controller.

easySoft includes an integrated offline simulation tool that allows users to test a circuit diagram before commissioning.

Product Selection

Power supply units are primary switched-mode power supplies that are optimally suited for the easyRelay and easySafety product series in terms of functions and design. The new and high-performance power supply units support safe operation in plants and machines. They are simple and flexible in handling.

Contents

Description

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Fast diagnosis of the voltage output: continuous light on the LED—fault-free operation; flashing on the LED—short circuit or overload on voltage output.

- Suitable for worldwide use due to wide range input from 85 V to 264 Vac, 50/60 Hz
- Output voltages can be connected in parallel to increase power output or for redundant operation to achieve greater system availability
- Compliance with international standards and approvals

The primary switched-mode power supply units can be used everywhere:

- Safety extra low voltage (SELV to EN 60 950)
- Radio interference Class B to EN 55 011 and EN 55 022 for use in industrial and public networks

EASY...-POW



Power Supply Units

Rated input voltage 100–240 Vac, single-phase.

Input Voltage Range	Rated Output Voltage	Output Voltage Setting Range	Rated Output Power	Rated Output Current	Catalog Number
100–240 Vac	24 Vdc/12 Vdc	—	8 W	0.35 A/20 mA	EASY200-POW
	24 Vdc	—	30 W	1.25 A	EASY400-POW
	24 Vdc	—	60 W	2.5 A	EASY500-POW
	24 Vdc	—	100 W	4.2 A	EASY600-POW

3.3

Control Relays and Timers

Programmable Relays

Bluetooth Adapter

Conveniently commission and service machines and other equipment remotely.

- Simple communication with easy800 or MFD-Titan from outside loud and/or dangerous areas
- An 8-digit PIN security code prevents unauthorized remote access
- Simple recognition in Windows 7
- Full online functionality with easySoft-Pro V6.91 or higher
- Has all necessary radio type approvals for USA, Canada and Europe

EASY800-BLT-ADP



Bluetooth Adapter

Description	Catalog Number
easy800/MFD Bluetooth adapter	EASY800-BLT-ADP
The Bluetooth adapter provides wireless connectivity to easySoft-Pro for easy programming download and upload. Use it with the easyRemote Display Android App for simple and fast access to your easy800 relays up to a distance of 10 meters.	

Accessories

easySoft



Programming Software

Description	Catalog Number
Programming software for easy500/700	EASY-SOFT-BASIC
Programming software for easy800, easy 802/806 and MFD-Titan includes SWD-Assist for configuration of the SmartWire-DT network	EASY-SOFT-PRO

EASY-USB-CAB



Programming Cables

Description	Catalog Number
easy500/700 to PC programming cable—USB	EASY-USB-CAB
easy500/700 to PC programming cable—RS-232	EASY-PC-CAB
easy800/MFD to PC programming cable—RS-232	EASY800-PC-CAB
easy800/MFD to PC programming cable—USB	EASY800-USB-CAB
easy802/806 to PC programming cable—USB, 2m	EU4A-RJ45-USB-CAB1

MFD-CP4-800-CAB5



Cables and Connectors

Description	Catalog Number
easy500/700 to MFD-CP4 communication cable, 5m	MFD-CP4-500-CAB5
easy800 to MFD-CP4 communication cable, 5m	MFD-CP4-800-CAB5
easy800 to MFD-CP8 communication cable, 2m	MFD-800-CAB
easy800 to MFD-CP8 communication cable, 5m	MFD-800-CAB5
easy800 modem, printer, programming cable	EASY800-MO-CAB
easy802/806 to MFD-CP4 communication cable, 1.5m	EU4A-RJ45-CAB2
easy802/806 to XV HMI communication cable, 2m	EU4A-RJ45-CAB1
easy800/MFD easyNet cable, 0.3m networking cable	EASY-NT-30
easy800/MFD easyNet cable, 0.8m networking cable	EASY-NT-80
easy800/MFD easyNet cable, 1.5m networking cable	EASY-NT-150
easy800/MFD easyNet cable (cable only, no connectors, see EASY-NT-RJ45), 100m	EASY-NT-CAB
RJ45 network connectors for easyNet cable (EASY-NT-CAB), 10/pack	EASY-NT-RJ45
easy800/MFD network termination resistor, 2/pack	EASY-NT-R

EASY800-MO-CAB



EASY-M-32K**EASY-M-256K****Memory Storage Modules**

Description	Catalog Number
easy500/700 32K memory storage module	EASY-M-32K
easy800/MFD 256K memory storage module	EASY-M-256K
easy800/MFD 512K memory storage module	EASY-M-512K

Panel Window**Mounting Kit****Simulator****Miscellaneous Parts**

Description	Catalog Number
easy500 panel window	SKF-FF4
easy700/800 panel window	SKF-FF6
easy500/700/800 panel window mounting kit to front mount units	SKF-HA
High current input adapter, six-channel	EASY256-HCI
Base to expander, interface connector	EASY-LINK-DS
easy500 relay simulator	EASY412-DC-SIM-NA
Mounting feet, 9/pack	ZB4-101-GF1
Grounding kit	ZB4-102-KS1

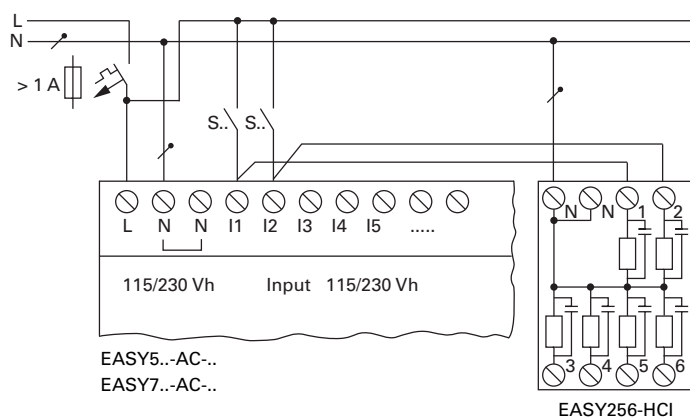
Technical Data and Specifications

easyRelay Power Supplies

Type	EASY200-POW	EASY400-POW
Supply voltage	100–240 Vac	100–240 Vac
Maximum range	85–264 Vac	85–264 Vac
Output voltage	24 Vdc ($\pm 3\%$)	24 Vdc ($\pm 3\%$)
Output current (rated value)	0.25 A	1.25 A
Overcurrent limitation form	0.3 A	1.4 A
Short-circuit proof (secondary)	Yes	Yes
Overload proof	Yes	Yes
Potential isolation (prim/sec.)	Yes, SELV, (to EN 600950, VDE 805)	Yes, SELV, (to EN 600950, VDE 805)
Others	Additional output voltage 12 DC, 20 mA	Additional output voltage 12 DC, 20 mA
Connection cables		
Solid	0.2–4.0 mm ² (AWG 22–12)	0.2–4.0 mm ² (AWG 22–12)
Flexible	0.2–2.5 mm ² (AWG 22–12)	0.2–2.5 mm ² (AWG 22–12)
Degree of protection	IP20	IP20
RFI suppression	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4
Ambient operating temperature	–25 °C to +55 °C	–25 °C to +55 °C
Transport and storage temperature	–40 °C to +70 °C	–40 °C to +70 °C
Mounting	On 35 mm DIN rail or screw mounting with ZB4-101-GF1 mounting feet	

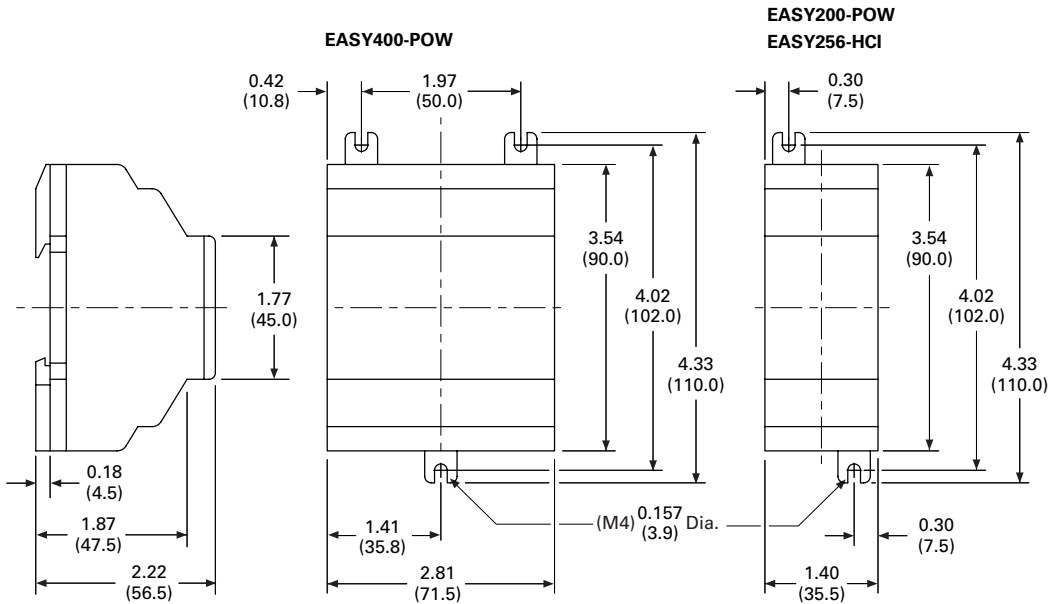
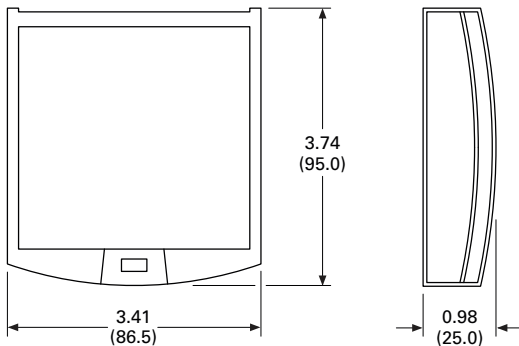
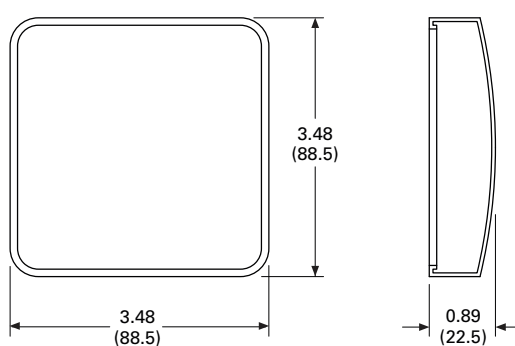
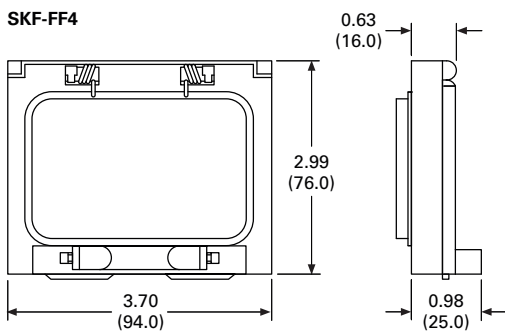
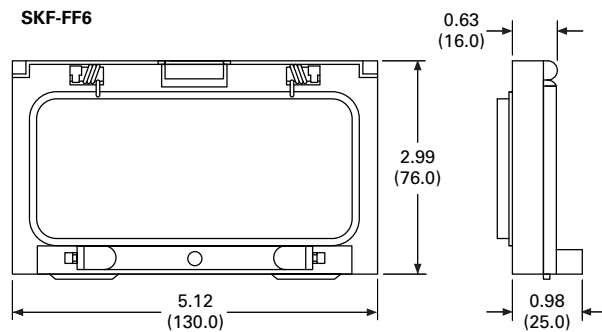
Wiring Diagram

EASY256-HCI



Dimensions

Approximate Dimensions in Inches (mm)

EASY200-POW/EASY256-HCI and EASY400-POW Series, Drawing Number MD05013004E**MFD-XS-80 and MFD-XM-80 Series, Drawing Number MD05013009E****MFD-XS-80****MFD-XM-80****SKF-FF4 and SKF-FF6 Series, Drawing Number MD05013014E****SKF-FF4****SKF-FF6**

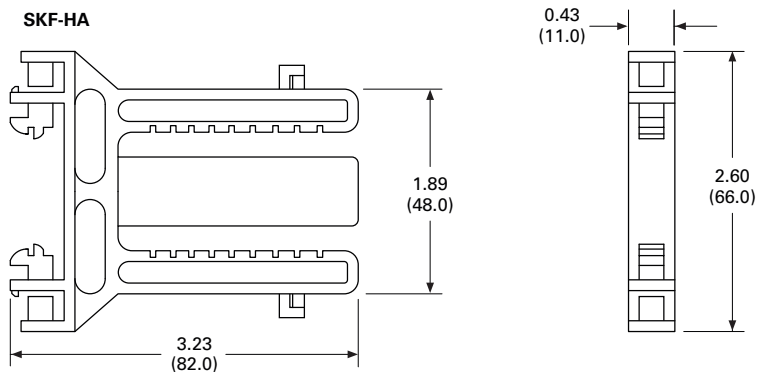
3.3

Control Relays and Timers

Programmable Relays

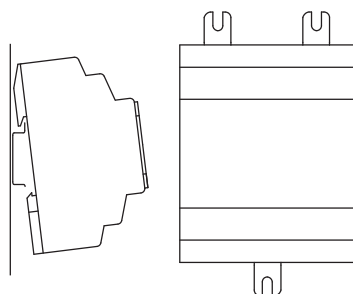
Approximate Dimensions in Inches (mm)

SKF-HA Series, Drawing Number MD05013015E

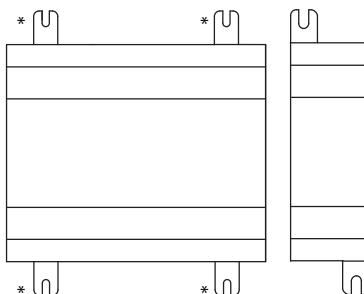


ZB4-101-GF1 Mounting Feet

Fitting on 35 mm Top-Hat Rail

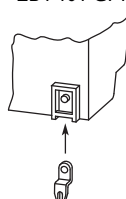


Fitting on Mounting Plate (Horizontal)

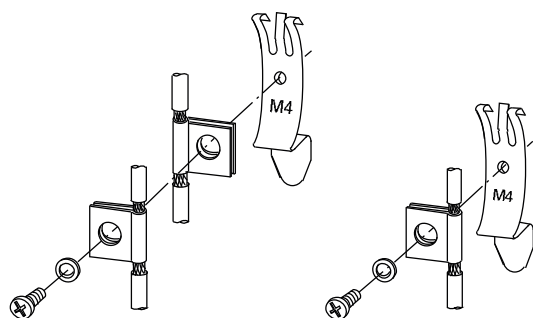


* 3 mounting feet are sufficient

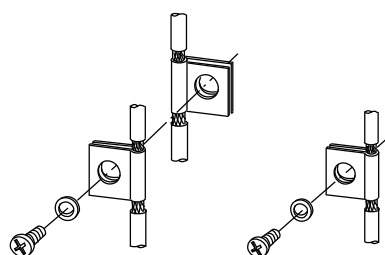
ZB4-101-GF1



ZB4-102-KS1 Series— Grounding the Screen for Top-Hat Rail



ZB4-102-KS1 Series— Grounding the Screen for Mounting Plate



EASY412-DC-SIM-NA Series

