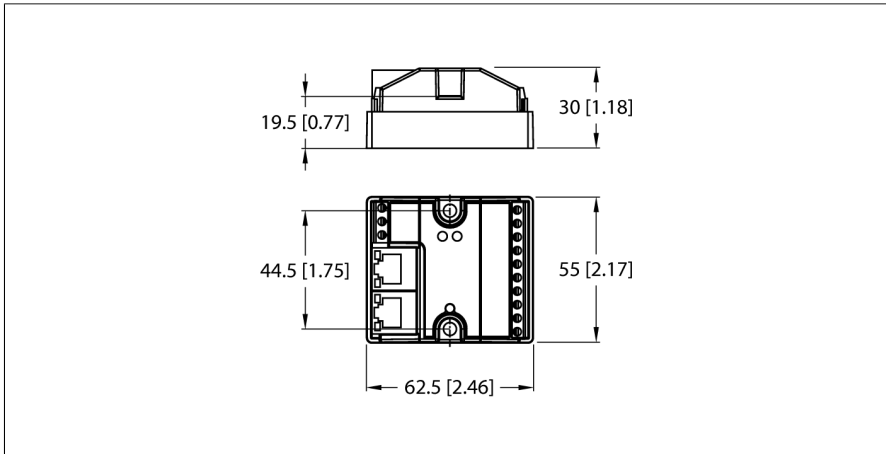


# Compact IP20 multiprotocol Ethernet I/O module

## Master to Master Data Exchange, NAT Router

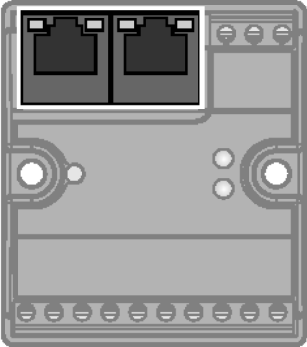

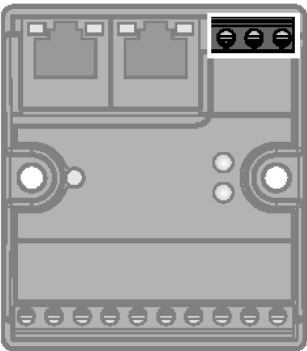

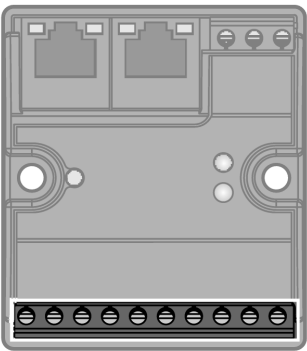
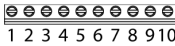
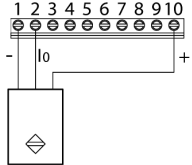
### FEN20-EN1



- Two separate, electrically isolated Ethernet interfaces
- Bi-directional data exchange between two networks
- Protocol conversion between EtherNet/IP, Modbus TCP and Profinet
- Profinet is supported on P2 Ethernet port
- 1:1 NAT router
- 10 Mbps/100 Mbps supported
- 2 RJ45 ports for the Ethernet connection
- 8 digital inputs
- 24 VDC, PNP
- Protection class IP20

Type	FEN20-EN1
ID	6931305
<b>Number of channels</b>	
Number of channels	8
Operating / load voltage	12...30 VDC
Operating current	100 mA
Electrical isolation	500 V between the I/O groups and to Ethernet
Supply voltage	24 VDC
Power dissipation, typical	≤ 2.4 W
Voltage supply connection	Screw terminals
<b>Inputs</b>	
Number of channels	8
Input voltage	24 VDC
Supply current	700 mA
Switching threshold	7V / 1.65 mA
Low-level signal voltage	< 7 VDC
High level signal voltage	7...30 VDC
Low level signal current	< 1.5 mA
High level signal current	> 2,5 mA
Input delay	2.5 ms
Max. input current	6 mA
<b>System data</b>	
Transmission rate	10/100 Mbps; Full/Half Duplex; Auto Negotiation; Auto Crossing
Addressing modes Ethernet:	via software
Connection technology Ethernet	2 × RJ45 female connector
Protocol detection	automatic
Web server	192.168.1.254 (default)
Service interface	Ethernet
Device Reset	via Push-button

Modbus TCP	
Addressing	Static IP, BOOTP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23
Number of TCP connections	6
Input Data Size	max. 1 register
Input register start address	0 (0x0000 hex)
Output Data Size	max. 1 register
Output register start address	2048 (0x0800 hex)
Ethernet/IP	
Addressing	acc. to EtherNet/IP specification
Quick Connect (QC)	< 150 ms
Device Level Ring (DLR)	supported
Class 1 connections (CIP)	6
PROFINET	
Addressing	DCP
Conformance class	B (RT)
MinCycleTime	1 ms
Fast Start-Up (FSU)	< 150 ms
Diagnostics	acc. to PROFINET alarm handling
Topology detection	supported
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported
Dimensions (W x L x H)	
Dimensions (W x L x H)	55 x 62.5 x 30 mm
Housing material	glass fiber reinforced polyamide (PA6-GF30)
Ambient temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Protection class	IP20
MTTF	459 years acc. to SN 29500 (Ed. 99) 20 °C
Approvals	CE, cULus, Class I, Div. 2

	<p><b>Ethernet Ports</b></p>	<p>RJ45 Ethernet</p>  <p>87654321</p> <ul style="list-style-type: none"> <li>1 = TX +</li> <li>2 = TX -</li> <li>3 = RX +</li> <li>4 = n.c.</li> <li>5 = n.c.</li> <li>6 = RX -</li> <li>7 = n.c.</li> <li>8 = n.c.</li> </ul>
	<p><b>Power Supply</b> Recommended torque for screw terminals: 0.5 Nm (4.43 lb.in)</p>	<p>Power Supply</p>  <ul style="list-style-type: none"> <li>1 = ⊕</li> <li>2 = V1-</li> <li>3 = V1+</li> </ul>
	<p><b>Digital Inputs</b> Recommended torque for screw terminals: 0.5 Nm (4.43 lb.in)</p>	<p>Terminal Connection</p>  <ul style="list-style-type: none"> <li>1 = V1-</li> <li>2 = I0</li> <li>3 = I1</li> <li>4 = I2</li> <li>5 = I3</li> <li>6 = I4</li> <li>7 = I5</li> <li>8 = I6</li> <li>9 = I7</li> <li>10 = Vour1+</li> </ul> <p>3-wire</p> 

**LED Status Modul**

Beleuchtung:	Farbe	Status	Beschreibung
<b>ETH1 / ETH2</b>	grün	AN	Ethernet Link (100 Mbit/s)
		blinkt	Ethernet Kommunikation (100 Mbit/s)
	gelb	AN	Ethernet Link (10 Mbit/s)
		blinkt	Ethernet Kommunikation (10 Mbit/s)
		AUS	Kein Ethernet Link
<b>Bus</b>	grün	AN	Aktive Verbindung zu einem Master
		Blinkt	Betriebsbereit
	rot	AN	IP-Adressen Konflikt oder Statuswort aktiv
		Blinkt	Blink/Wink Kommando aktiv
		AUS	Keine Spannungsversorgung
<b>ERR</b>	grün	AN	Diagnosefunktion deaktiviert
	rot	AN	Kurzschluss

## Prozessdaten Mapping

### Modbus TCP Register Mapping

	Reg	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Inputs (RO)	0x0000	-	-	-	-	-	-	-	-	DI7	DI6	DI5	DI4	DI3	DI2	DI1	DI0
Status (RO)	0x0001	-	FCE	SPE2	SPE1	CFG	COM	V1 low	-	-	-	-	-	-	-	-	Diag
Diag (RO)	0x0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spanner Input	0x3000- 0x30EF	240 Words Data Exchange															
Spanner Output	0x3400x34EF00	240 Words Data Exchange															

### EtherNet/IP™ Data Mapping

INPUT	Word	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	FCE	SPE2	SPE1	CFG	-	V1 low	-	-	-	-	-	-	-	-	Diag
	1	-	-	-	-	-	-	-	-	DI7	DI6	DI5	DI4	DI3	DI2	DI1	DI0
	2	Reserved															
	3	Reserved															
	4 - 243	Eingangsdaten															
OUTPUT	Word	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0 - 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4 - 243	Ausgangsdaten															

### PROFINET Process Data

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Inputs	0	DI7	DI6	DI5	DI4	DI3	DI2	DI1	DI0
	1	-	-	-	-	-	-	-	-
Outputs	0	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-

Key:

Dlx	Digital input x	COM	Communication error on internal module bus
SPEx	Spanner established connection port x	CFG	I/O configuration error
V1 low	Undervoltage V1	FCE	I/O-ASSISTANT Force Mode active
Diag Warn	Diagnostic at least on 1 channel	Diag	I/O diagnostic detected

**Accessories**

Type code	Ident no.		Dimension drawing
FDN20-BKT-DIN	Z0076	Mounting adapter for mounting of 8-channel Fxx20 modules on DIN rail (TS 35)	