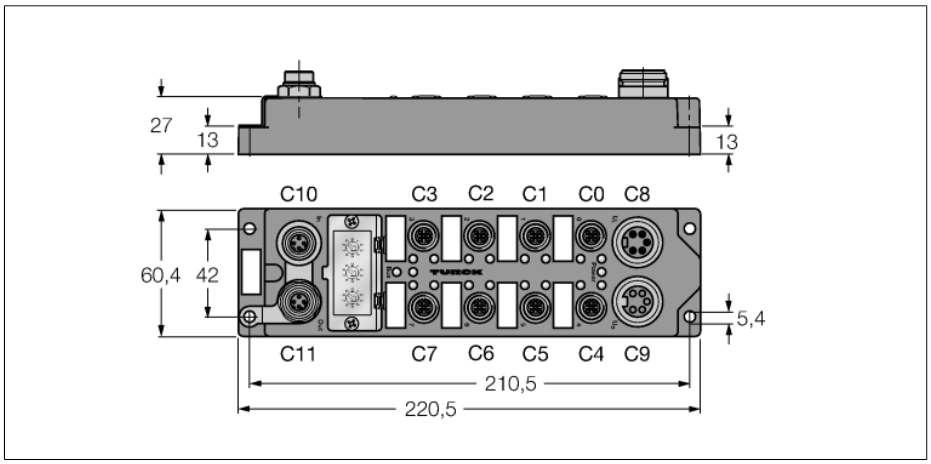
Compact multiprotocol I/O module for Ethernet
8 digital PNP inputs
8 digital outputs 2 A
FGEN-IOM88-5001



- **Multiprotocol I/O module for the Ethernet protocols Modbus TCP®, EtherNet/IP™ und PROFINET®**
- **PROFINET® supports Fast Start-Up (FSU)**
- **EtherNet/IP™ supports QuickConnect (QC)**
- **Integrated Ethernet switch**
- **FDT/DTM supported**
- **Input diagnostics per port**
- **Output diagnostics per channel**
- **Two inputs or outputs per port**
- **7/8", 5-pin, for power supply**
- **Power supply, galvanically separated**
- **Fibre-glass reinforced PA6 housing**
- **Vibration and shock-resistant**
- **Encapsulated module electronics**
- **Metal connector**
- **Protection class IP67**

Type code	FGEN-IOM88-5001
Ident no.	6825424
Operating / load voltage	18…30 VDC
Electrical isolation	operating and load voltage galvanically separated
Voltage supply connection	2 x 7/8"
Inputs	
Number of channels	(8) 3-wire pnp sensors
Input voltage	18…30 VDC from operating voltage UB
Supply current	120 mA per port, short-circuit proof
Switching threshold	EN 61131-3 low max.: 1.5 mA / high min.: 2 mA
Input delay	2.5 ms
Max. input current	7 mA
Electrical isolation	galvanically separated against the bus and outputs
Outputs	
Number of channels	(8) DC actuators
Output voltage	18…30 VDC from load voltage
Output current per channel	2.0 A, short-circuit proof
Load type	resistive, inductive, lamp load
Simultaneity factor	0.25 for entire module 1* 2A or 2* 1A per port total current max. 9 A per module
Electrical isolation	galvanically separated against bus and inputs
System data	
Transmission rate	10/100 Mbps; Full/Half Duplex; Auto Negotiation; Auto Crossing
Connection technology Ethernet	female M12 x 2, 4-pin,D-coded
Protocol detection	automatic
Web server	from FW 3.1.0.0
Service interface	Ethernet
Modbus TCP	
Addressing	Static IP, BOOTP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23
Simultaneous CIP connections	6
EtherNet/IP™	
Addressing	acc. to EtherNet/IP™ specification
Quick Connect (QC)	< 150 ms
Device Level Ring (DLR)	supported
Simultaneous CIP connections	6

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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

Dimensions (W x L x H)	60.4x220.5x27mm
Housing material	fibre-glass reinforced Polyamide (PA6-GF30)
halogen-free	yes
Mounting	4 mounting holes Ø 5,4 mm
Operating temperature	0…+55 °C
Storage temperature	-25 …+70 °C
Vibration test	acc. to EN 60068-2-6
Shock test	acc. to EN 60068-2-27
Electro-magnetic compatibility	acc. to EN 61000-6-2/EN 61000-6-4
Protection class	IP67
MTTF	197 years acc. to SN 29500 (Ed. 99) 20°C
Approvals	CE, cULus
UL conditions	pol. deg.2, env. temp. max. 40 °C, cl.2 ps req.

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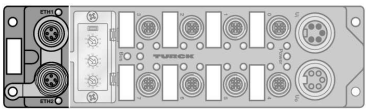
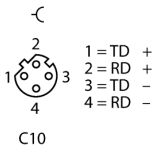
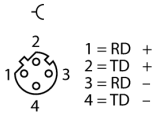
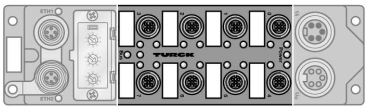
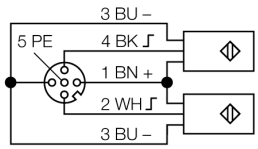
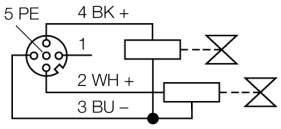
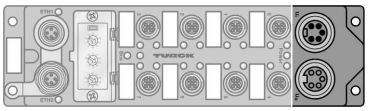
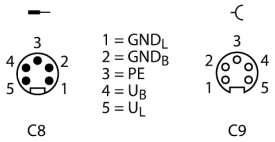
	**Note** Ethernet cable (example): RSSD-RSSD-441-2M/S2174 Ident no. 6914218	Ethernet M12 x 1  C10  C11
	**Note** Actuator/sensor cable, PUR extension cable RKC4.4T-2-RSC4.4T/TXL Ident. no. 6625608 Extension cable with Y-piece for single assignment (example): FSM4-2WAK3-1/1/P00 Ident-No. 8009560	Input M12 x 1  C0...C3 output M12 x 1  C4...C7
	**Note** Power supply cable (example): RKM52-1-RSM52 Ident no. 6914149	Voltage supply 7/8"  C8 C9

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LED status module

LED	Color	Status	Description
ETH1 / ETH2	green	on	Ethernet Link (100 Mbps)
		flashing	Ethernet communication (100 Mbps)
	yellow	on	Ethernet Link (10 Mbps)
		flashing	Ethernet communication (10 Mbps)
		off	no Ethernet link
Bus	green	on	Active connection to a master
		flashing	ready
	red	on	IP address conflict or Restore Mode
		flashing	Blink/Wink command active
		off	No power supply
Power	green	on	Operating voltage U_B and load voltage U_L within the defined tolerances
	red	on	Load voltage U_L below the defined tolerances
		off	Operating voltage U_B below the defined tolerances

LED status IOs

LED	Color	Status	Description
C0.I1 … C3.I8	green	on	Input active
	red	on	Overload of sensor supply at the corresponding connector
		off	Input inactive
C4.O9 … C7.O16	green	on	Output active
	red	on	Output active with overload / short circuit
		off	Output inactive

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Industrial Automation

Process data mapping of single protocols

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 C3P2	DI6 C3P4	DI5 C2P2	DI4 C2P4	DI3 C1P2	DI2 C1P4	DI1 C0P2	DI0 C0P4
Status (RO)	0x0001	-	FCE	-	-	CFG	COM	UB	-	UL	-	-	-	-	-	-	Diag Warn
Diag (RO)	0x0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	I/O Diag
Outputs (RW)	0x0800	-	-	-	-	-	-	-	-	DO7 C3P2	DO6 C3P4	DO5 C2P2	DO4 C2P4	DO3 C1P2	DO2 C1P4	DO1 C0P2	DO0 C0P4
I/O Diag (RO)	0xA000	SCO7	SCO6	SCO5	SCO4	SCO3	SCO2	SCO1	SCO0	-	-	-	-	SCS3	SCS2	SCS1	SCS0

EtherNet/IP™ data mapping with activated Scheduled Diagnostics

	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
Input data (Station -> Scanner)																	
GW Status	1	-	FCE	-	-	CFG	COM	UB	-	UL	-	-	-	-	-	-	Diag Warn
Inputs	2	-	-	-	-	-	-	-	-	DI7 C3P2	DI6 C3P4	DI5 C2P2	DI4 C2P4	DI3 C1P2	DI2 C1P4	DI1 C0P2	DI0 C0P4
Diag 1	3	-	-	Sched Diag	-	-	-	-	-	-	-	-	-	-	-	-	I/O Diag
Diag 2	4	SCO7	SCO6	SCO5	SCO4	SCO3	SCO2	SCO1	SCO0	-	-	-	-	SCS3	SCS2	SCS1	SCS0
Output (Scanner -> Station)																	
Control	1	reserved															
Outputs	2	-	-	-	-	-	-	-	-	DO7 C3P2	DO6 C3P4	DO5 C2P2	DO4 C2P4	DO3 C1P2	DO2 C1P4	DO1 C0P2	DO0 C0P4

EtherNet/IP™ data mapping with activated Summarized Diagnostics

	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
Input data (Station -> Scanner)																	
GW Status	1	-	FCE	-	-	CFG	COM	UB	-	UL	-	-	-	-	-	-	Diag Warn
Inputs	2	-	-	-	-	-	-	-	-	DI7 C3P2	DI6 C3P4	DI5 C2P2	DI4 C2P4	DI3 C1P2	DI2 C1P4	DI0 C0P2	DI0 C0P4
Diag 1	3	-							-								I/O Diag
Output (Scanner -> Station)																	
Control	1	reserved															
Outputs	2	-	-	-	-	-	-	-	-	DO7 C3P2	DO6 C3P4	DO5 C2P2	DO4 C2P4	DO3 C1P2	DO2 C1P4	DO0 C0P2	DO0 C0P4

Key:

DI	Digital input	COM	Communication error on internal module bus
DO	Digital output	CFG	I/O configuration error
Cx	female	FCE	I/O-ASSISTANT Force Mode aktiv
Px	Pin	I/ODiag	I/O diagnostic connected
DiagWarn	Diagnostic at least on 1 channel	SchedDiag	Manufacturer-specific diagnostic configured and active
UL	Undervoltage UL	SCSx	Short-circuit on sensor supply at female x
UB	Undervoltage UB	SCOx	Short-circuit output x

PROFINET process data

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Inputs	0	DI7 C3P2	DI6 C3P4	DI5 C2P2	DI4 C2P4	DI3 C1P2	DI2 C1P4	DI1 C0P2	DI0 C0P4
Outputs	0	DO15 C7P2	DO14 C7P4	DO13 C6P2	DO12 C6P4	DO11 C5P2	DO10 C5P4	DO9 C4P2	DO8 C4P4

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