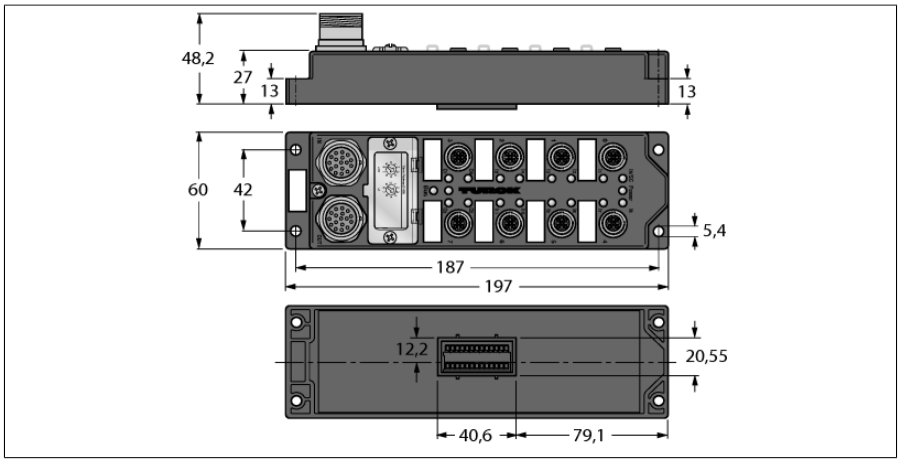
I/O Module for DeviceNet Fieldbus
12 digital pnp inputs
4 digital outputs 2 A
FDNL-S1204H-0142



- For robot applications
- Robust electromechanics
- High magnetic field immunity
- Intelligent terminating resistor
- Module-related diagnostics
- Short-circuit - group signal
- IP20 terminal connection
- Fiber-glass reinforced housing
- Shock and vibration tested
- Encapsulated module electronics
- Metal connector
- Degree of protection IP67

Type	FDNL-S1204H-0142
ID	F0142
Number of channels	16
Operating / load voltage	18…30 VDC
Operating current	< 150 mA
Configuration file	FDNL-S1204H-0142_R3.eds
Inputs	
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
Switching frequency	≤ 100 Hz
Max. input current	7 mA
Electrical isolation	galvanic isolation against the bus
Outputs	
Outputs	(4) DC actuators
Output voltage	24 VDC
Output current per channel	2.0 A, short-circuit proof
Load type	resistive, inductive, lamp load
Switching frequency	≤ 100 Hz
Simultaneity factor	1
Electrical isolation	galvanic isolation against the bus
Fieldbus transmission rate	125/250/500 kbps
Fieldbus addressing	0…63 (dezimal) über Drehcodierschalter
Electrical isolation	to operating and load voltage

Functional principle

The FDNL-S1204H-0142 is a compact fieldbus I/O module for DeviceNet and especially designed for robotic systems resp. automatic tool changers. The module is available in degree of protection IP67 and features 12 digital pnp inputs and 4 digital 2A outputs.

DeviceNet and power supply are jointly connected via a multibus cable with M23 connection technology which was especially developed for robotic applications. The module also features a 13-pole IP20 terminal on the bottom side. Via this electromechanical link, additional analog signals like those of the current stabilizer are supplied to the multibus cable (quasi-parallel wiring).

Due to the target application, the module also features an intelligent terminating resistor. The terminating resistor is automatically connected if the roboter module is the last slave at the DeviceNet branch. Once a further DeviceNet slave is added, the terminating resistor is automatically disconnected. Automatic connection of the internal terminating resistor is always carried out, if pin 15 and 16 of the M23 coupling (OUT) are not short-circuited.

The diagnostic message of the load voltage can be activated or deactivated via EDS parameterization.

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Dimensions (W x L x H)	60 x 197 x 40 mm
Housing material	fibre-glass reinforced Polyamide (PA6-GF30)
Mounting	4 mounting holes Ø 5,4 mm
Ambient temperature	-40…+70 °C
Protection class	IP67
Approvals	CE, UL, CSA, FM

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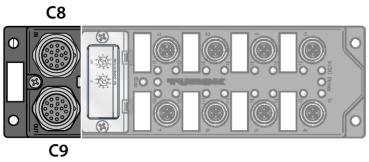


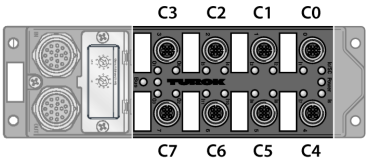
Note

Multibus robot cable (example):
The robot cables are exclusively sold by Ernst & Engbring GmbH & Co. KG.
Field-wireable M23 male connector:
M23, 17-pin, straight:
100020364 FW-CRKSM1717-P-C-0315
100020365 FW-CRSSM1717-P-C-0315
M23, 17-pin, angled:
100020366 FW-CWKSM1717-P-C-0314
100020367 FW-CWSSM1717-P-C-0314

M23 x 1 Fieldbus

17-pole round connector			
IN		OUT	
1		1	0 V (GND)
2		2	0 V (GND)
3		3	24 VDC (U_L)
4		4	24 VDC (U_B)
5		5	PE
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	CAN_H
14		14	CAN_L
15		15	reserved
16		16	reserved
17		17	

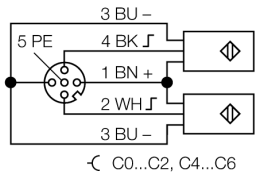
C8 C9

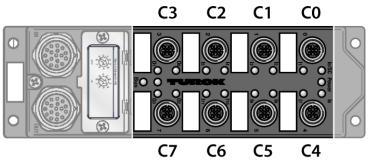


Note

Sensor/actuator cable (example):
6630869 RKC5.501T-5-RSC5.501T/TXL

M12 x 1 Input

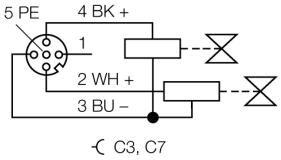


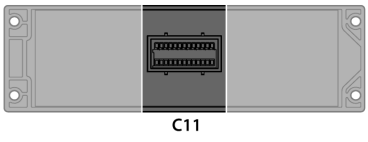


Note

Sensor/actuator cable (example):
6630869 RKC5.501T-5-RSC5.501T/TXL

M12 x 1 Output

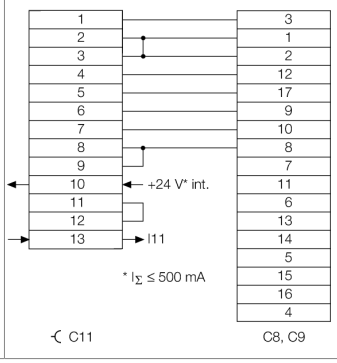




Note

Electrical connection between the 13-pole IP20 terminal on the module bottom side and the 17-pole M23 round connectors.

Terminal Connection



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LED status module

LED	Color	Status	Description
NET	green	on	Established connection
		flashing	Waiting for link connection
	red	on	Connection cannot be established
		flashing	Connection time-out
MOD	green	on	Error-free operation
		flashing	Searching transmission rate
	red	flashing	Short-circuit resp. overload at inputs
SC	red	on	Short-circuit group signal, inputs
Power	green	on	Operating and load voltage within the defined tolerances
	red	on	Load voltage below the defined tolerances
		off	Operating voltage below the defined tolerances

LED status IOs

LED	Color	Status	Description
Inputs	green	off	Input undamped (low)
		on	Input damped (high)
Outputs	green	off	Output undamped (low)
		on	Output damped (high)

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I/O and diagnostic display

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Input	**0**	C4P2	C4P4	C2P2	C2P4	C1P2	C1P4	C0P2	C0P4
	1	SC	-	-	-	C6P2	C6P4	C5P2	C5P4
Output	**0**	-	-	-	-	C7P2	C7P4	C3P2	C3P4

C2P4 - male connector 2 / pin 4

SC - short-circuit - group signal

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