

# Inline – compact I/O technology in the control cabinet

**Rexroth Inline is the flexibly scalable modular I/O system with IP20 protection for time-saving installation in a control cabinet – whether locally at the IndraControl L or as a distributed I/O station.**

Rexroth Inline is available for all current fieldbus systems in the following two versions:

- ▶ Inline Modular – finely scalable modular I/O system for individual configuration
- ▶ Inline Block – bus coupler with preconfigured I/O as an ideal solution for nodes with limited I/O scope

## Fieldbus coupler

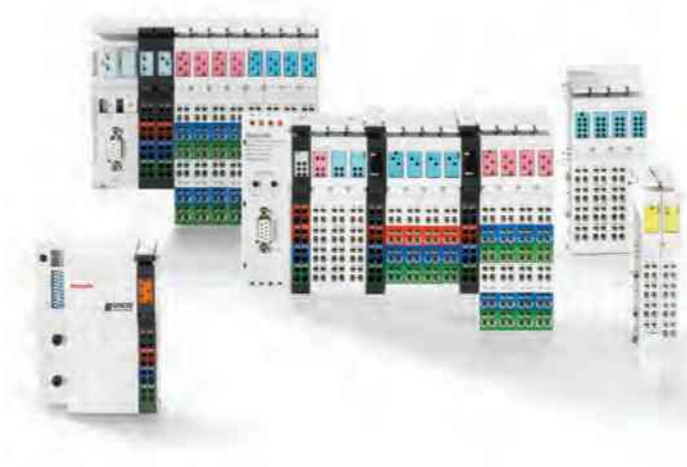


Fieldbus couplers form the first module in an Inline station and are the interface to the fieldbus system. The various I/O modules can be directly connected to these fieldbus couplers.

## Digital modules



Digital I/O modules – for connection of digital signals, from pushbuttons, limit switches, or proximity switches.



Rexroth Inline – the flexible I/O system for centralized and distributed system architectures



### Compact, modular, and simple

- ▶ Space-saving I/O technology for attachment to standard rails
- ▶ Individually combinable modules
- ▶ Well-considered assembly and installation design



#### Analog modules



Analog I/O modules allow the measurement and output of analog signals from standard sensors and analog actuators with 16-bit resolution.

#### Power supply/segment modules



Power supply/segment modules allow the insertion of logic voltage or to isolate segments in Inline stations.

#### Technology modules



Technology modules solve special tasks, for example the detection of relative, absolute or angular positions.

#### Relay modules



Relay modules allow switching of an isolated voltage of up to 230 V AC.

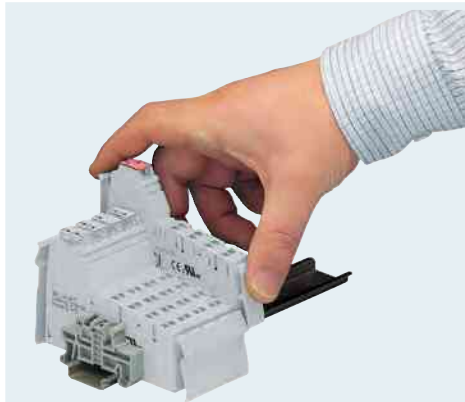
#### Block I/O modules



Digital block I/O modules can be connected to all common fieldbus systems using the integrated bus coupler. The complete module minimizes costs compared to modular stations and is the ideal solution for assembly in compact control cabinets.

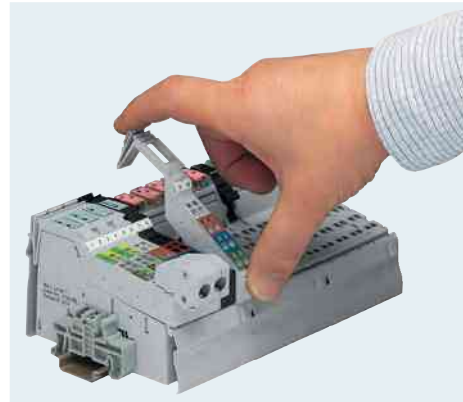
# Inline – for quick and easy assembly

## Time-saving combination of bus couplers and modules



The bus coupler is the head of an Inline station. The I/O modules are simply connected to it end-to-end. All the voltages needed for these modules and the sensors/actuators are automatically cross-wired via the lateral contacts within an Inline station. As a result, all peripheral voltages can be directly tapped.

## Flexible connection through permanent wiring

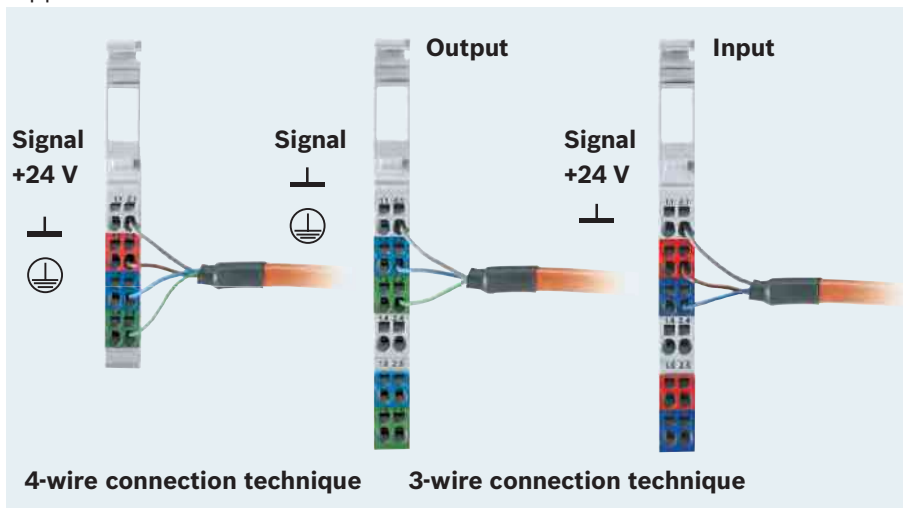


Using snap-on connectors you can quickly make connections to sensors/actuators in the field and release them again without any complex labeling of individual cores. Shielded cables can be connected directly to functional ground using connectors with an integrated shield connection.

## Easy connection of conductors



Conductors with stripped ends are simply inserted in the spring-loaded terminals of the Inline connectors without any connector sleeves. Connection cross-sections in the range from 0.2 mm<sup>2</sup> to 1.5 mm<sup>2</sup> are possible.



## Cost-effective multi-wire connection technique

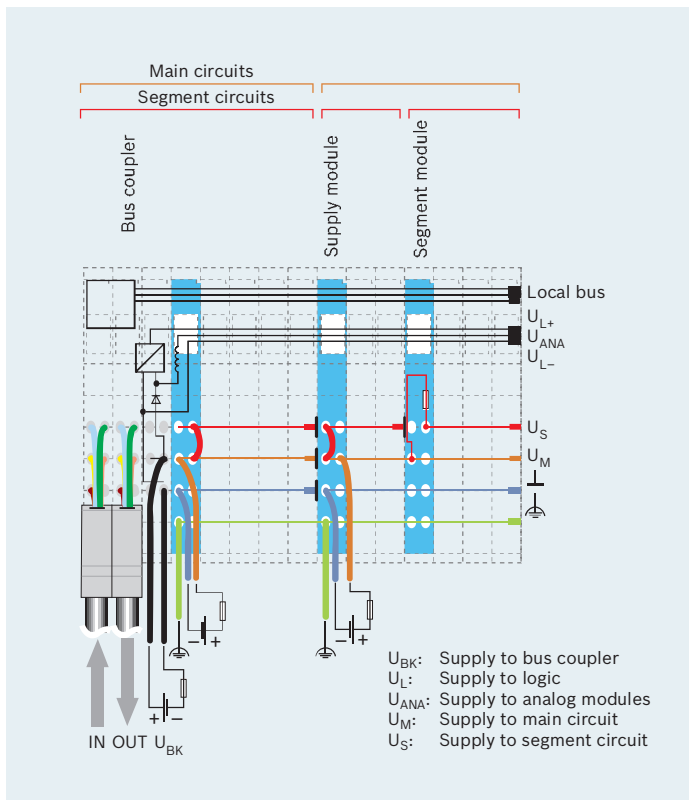
With the multi-wire connection technique there are no longer any strapping terminals in the control cabinet – this saves money and cuts installation time. The 1-wire connection technique provides you with particularly compact high-density modules with 32 channels.

The multi-wire connection technique minimizes your wiring costs.

# Inline – with intelligent voltage distribution

**Rexroth Inline is a convincing solution with its intelligent distribution concept for all voltages. The internal contacts of the modules automatically connect to the cross-wiring for the internal local bus as well as for the voltage supply to the logic, analog modules, sensors and actuators. Separate protection arrangements, electrical isolation and the formation of segments can be implemented very easily.**

**What this means to you: All voltages can be directly taken from the Inline modules and no additional distribution modules are necessary. This saves space, reduces costs and prevents wiring errors.**



## Supply to the bus coupler and provision of primary voltage

The voltages  $U_L$  for the logic circuit and  $U_{ANA}$  for analog modules are generated from the supply voltage  $U_{BK}$  which is connected to the bus coupler. The 24 V voltage supply to the main circuit  $U_M$  is fed in likewise at the bus coupler.

## Main and segment circuits

The signal and actuator supply to the digital I/Os is provided by the segment voltage  $U_S$ . It is diverted from the main circuit  $U_M$  at the bus coupler via a bridge, an external fuse or a switch. Through the separation of  $U_M$  and  $U_S$  it is very easy to form segments which can be separately switched or protected. Neighboring terminals and their I/Os continue to be supplied when, for example, a single segment circuit is switched off.

## Supply and segment modules

$U_M$  and  $U_S$  can be fed in by means of supply modules if the power required by the signal and actuator supply exceeds the maximum distributable value. It is also possible to construct electrically-isolated main circuits within an Inline station. Inline segment modules enable several segment circuits to be constructed within a main circuit.

Easy setup of main and segment circuits – thanks to Inline.



# Fieldbus coupler – technical data

Technical data	R-IBS IL 24 BK-DSUB-PAC	R-IBS IL 24 BK-T/U-PAC	R-IL SE BK	R-IL PB BK DP/V1-PAC
<b>Communication</b>				
Interfaces	INTERBUS	INTERBUS	sercos II (FO)	PROFIBUS
	Local bus	Local bus	Local bus	Local bus
<b>System data</b>				
Number of segments per station	Max. 63	Max. 63	Max. 40	Max. 63
Total of all I/O data per station	Max. 192 bytes	Max. 192 bytes	Max. 32 bytes inputs	Max. 184 bytes in IL PB BK mode Max. 176 bytes in IL PB BK DP/V1 mode
Transmission speed in the local bus	500 kbaud	500 kbaud	500 kbaud	500 kbaud
<b>Segment feed <math>U_s/U_M</math></b>				
Nominal value	24 V DC	24 V DC	24 V DC	24 V DC
Tolerance	-15/+20%	-15/+20%	-15/+20%	-15/+20%
Load current	Max. 8 A	Max. 8 A	Max. 8 A	Max. 8 A
<b>Logic supply <math>U_L</math></b>				
Nominal value	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)
Load current	Max. 2 A	Max. 2 A	Max. 2 A	Max. 2 A
<b>Analog supply <math>U_{ANA}</math></b>				
Nominal value	24 V DC	24 V DC	24 V DC	24 V DC
Tolerance	-15/+20%	-15/+20%	-15/+20%	-15/+20%
Permissible voltage range	19 to 30 V DC	19 to 30 V DC	19 to 30 V DC	19 to 30 V DC
Load current	Max. 0.5 A	Max. 0.5 A	Max. 0.5 A	Max. 0.5 A
<b>Ambient conditions</b>				
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)	90 x 120 x 70 mm	48.8 x 120 x 70 mm	90 x 121 x 70 mm	85 x 120 x 72 mm
Dimensional drawing (see pp. 172–175)	Type 2	Type 3	Type 2	Type 2
Weight (including plug)	210 g	210 g	210 g	297 g
Protection category	IP20	IP20	IP20	IP20





Technical data	R-IL S3 BK D18 DO4-PAC	R-IL PN BK D18 DO4-PAC	R-IL EIP BK D18 DO4 2TX-PAC	R-IL ETH BK D18 DO4 2TX-PAC	R-IL PB BK D18 DO4/CN-PAC
<b>Communication</b>					
Interfaces	sercos	PROFINET IO	EtherNET/IP	Modbus/TCP (UDP)	PROFIBUS
	Local bus	Local bus	Local bus	Local bus	Local bus
<b>System data</b>					
Number of segments per station	Max. 63 (incl. 2 at bus coupler)	Max. 63 (incl. 2 at bus coupler)	Max. 63 (incl. 2 at bus coupler)	Max. 63 (incl. 2 at bus coupler)	Max. 63 (incl. 2 at bus coupler)
Total of all I/O data per station	Max. 244 bytes	Max. 244 bytes	Max. 244 bytes	Max. 244 bytes	Max. 244 bytes
Transmission speed in the local bus	500 kbaud	500 kbaud	500 kbaud	500 kbaud	500 kbaud
<b>Digital outputs</b>					
Number	4	4	4	4	4
Nominal output voltage $U_{Out}$	24 V	24 V	24 V	24 V	24 V
Differential voltage at $I_{Nom}$	$\leq 1$ V	$\leq 1$ V	$\leq 1$ V	$\leq 1$ V	$\leq 1$ V
Nominal current $I_{Nom}$ per channel	0.5 A	0.5 A	0.5 A	0.5 A	0.5 A
Nominal current tolerances	10%	10%	0.1	0.1	10%
Total current	2 A	2 A	2 A	2 A	2 A
Protection	Short-circuit, overload	Short-circuit, overload	Short-circuit, overload	Short-circuit, overload	Short-circuit, overload
Actuator connection type	2, 3-wire connection	2, 3-wire connection	2, 3-wire connection	2, 3-wire connection	2, 3-wire connection
<b>Digital inputs</b>					
Number	8	8	8	8	8
Design	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1
Switching thresholds:					
Max. voltage at low level $U_{Lmax}$	< 5 V	< 5 V	< 5 V	< 5 V	< 5 V
Max. voltage at high level $U_{Hmax}$	> 15 V	> 15 V	> 15 V	> 15 V	> 15 V
Common potentials	Segment supply, ground	Segment supply, ground	Segment supply, ground	Segment supply, ground	Segment supply, ground
Nominal input voltage $U_{INom}$	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Permissible nominal input voltage range	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC
Nominal input current at $U_{INom}$	Typ. 3 mA	Typ. 3 mA	Typ. 3 mA	Typ. 3 mA	Typ. 3 mA
Permissible line length	30 m	30 m	30 m	30 m	30 m
Sensor connection type	2-wire and 3-wire connection	2-wire and 3-wire connection	2-wire and 3-wire connection	2-wire and 3-wire connection	2-wire and 3-wire connection
<b>Segment feed <math>U_S/U_M</math></b>					
Nominal value	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Tolerance	-15/+20%	-15/+20%	-15/+20%	-15/+20%	-15/+20%
Load current	Max. 8 A	Max. 8 A	Max. 8 A	Max. 8 A	Max. 8 A
<b>Logic supply <math>U_L</math></b>					
Nominal value	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)	7.5 V (from ext. 24 V DC)
Load current	Max. 0.8 A	Max. 0.8 A	Max. 0.8 A	Max. 0.8 A	Max. 0.8 A
<b>Analog supply <math>U_{ANA}</math></b>					
Nominal value	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Tolerance	-15/+20%	-15/+20%	-15/+20%	-15/+20%	-15/+20%
Permissible voltage range	19 to 30 V DC	19 to 30 V DC	19 to 30 V DC	19 to 30 V DC	19 to 30 V DC
Load current	Max. 0.5 A	Max. 0.5 A	Max. 0.5 A	Max. 0.5 A	Max. 0.5 A
<b>Ambient conditions</b>					
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>					
Dimensions (W x H x D)	80 x 121 x 70 mm	80 x 121 x 70 mm	80 x 121 x 70 mm	80 x 121 x 70 mm	80 x 121 x 70 mm
Dimensional drawing (see pp. 172-175)	Type 1	Type 1	Type 1	Type 1	Type 1
Weight (including plug)	320 g	320 g	320 g	320 g	320 g
Protection category	IP20	IP20	IP20	IP20	IP20



# Digital inputs – technical data

Technical data	R-IB IL 24 DI 2-PAC	R-IB IL 24 DI 4-PAC	R-IB IL 24 DI 8-PAC	R-IB IL 24 DI 8/HD-PAC
<b>Digital inputs</b>				
Number	2	4	8	8
Design	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1
<b>Switching thresholds</b>				
Max. voltage at low level $U_{Lmax}$	< 5 V	< 5 V	< 5 V	< 5 V
Max. voltage at high level $U_{Hmax}$	> 15 V	> 15 V	> 15 V	> 15 V
Common potentials	Segment supply, ground	Segment supply, ground	Segment supply, ground	Segment supply, ground
Nominal input voltage $U_{INom}$	24 V DC	24 V DC	24 V DC	24 V DC
Permissible nominal input voltage range	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC	$-30 < U_{INom} < +30$ V DC
Nominal input current at $U_{INom}$	Min. 5 mA	Min. 3 mA	Min. 3 mA	Min. 3 mA
Permissible line length	30 m	30 m	30 m	30 m
Sensor connection type	2, 3, and 4-wire connection	2, 3, and 4-wire connection	2, 3, and 4-wire connection	1-wire connection
<b>Electrical data</b>				
Logic voltage $U_L$	7.5 V	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	35 mA	40 mA	50 mA	50 mA
Nom. current consumption from $U_S$	Max. 0.5 A (2 x 0.25 A)	Max. 1.0 A	Max. 2.0 A	Max. 2.0 A
Operating mode: process data mode	2 bits	4 bits	8 bits	8 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud	500 kbaud
<b>Ambient conditions</b>				
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)	12.2 x 120 x 71.5 mm	12.2 x 141 x 71.5 mm	48.8 x 120 x 71.5 mm	12.2 x 141 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 4	Type 5	Type 6	Type 5
Weight (without plug)	38 g	44 g	118 g	44 g
Protection category	IP20	IP20	IP20	IP20



Technical data	R-IB IL 24 DI 16-PAC	R-IB IL 24 DI 16-NPN-PAC- NPN-switching	R-IB IL 24 DI 32/HD-PAC	R-IB IL 24 DI 32/HD-NPN-PAC- NPN-switching
<b>Digital inputs</b>				
Number	16	16	32	32
Design	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1	Acc. to EN 61131-2, Type 1
<b>Switching thresholds</b>				
Max. voltage at low level $U_{Lmax}$	< 5 V	< 5 V	< 5 V DC	< 5 V DC
Max. voltage at high level $U_{Hmax}$	> 15 V	> 15 V	> 15 V DC	> 15 V DC
Common potentials	Segment supply, ground	Segment supply, ground	Segment supply, ground	Segment supply, ground
Nominal input voltage $U_{INom}$	24 V DC	24 V DC	24 V DC	24 V DC
Permissible nominal input voltage range	-30 < $U_{INom}$ < +30 V DC	-30 < $U_{INom}$ < +30 V DC	-30 < $U_{INom}$ < +30 V DC	-30 < $U_{INom}$ < +30 V DC
Nominal input current at $U_{INom}$	Min. 3 mA	3 mA	2.8 mA	2.8 mA
Delay time $t_{On}$	-	-	2 ms	2 ms
Delay time $t_{Off}$	-	-	4 ms	4 ms
Permissible line length	30 m	30 m	30 m	30 m
Sensor connection type	2-wire and 3-wire connection	2-wire and 3-wire connection	1-wire connection	1-wire connection
<b>Electrical data</b>				
Logic voltage $U_L$	7.5 V	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	60 mA	60 mA	90 mA	90 mA
Nom. current consumption from $U_s$	Max. 4.0 A	Max. 4.0 A	-	-
Operating mode: process data mode	16 bits	16 bits	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud	500 kbaud
<b>Ambient conditions</b>				
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)	48.8 x 141 x 71.5 mm	48.8 x 141 x 71.5 mm	48.8 x 120 x 71.5 mm	48.8 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 7	Type 7	Type 6	Type 6
Weight (without plug)	122 g	122 g	125 g	125 g
Protection category	IP20	IP20	IP20	IP20





# Digital outputs – technical data

Technical data		R-IB IL 24 DO 2-2A-PAC	R-IB IL 24 DO 4-PAC	R-IB IL 24 DO 8-PAC
<b>Digital outputs</b>				
Number		2	4	8
Nominal output voltage $U_{Out}$		24 V DC	24 V DC	24 V DC
Differential voltage at $I_{Nom}$		≤ 1 V	≤ 1 V	≤ 1 V
Nominal current $I_{Nom}$ per channel		2 A	0.5 A	0.5 A
Nominal current tolerances		10%	10%	10%
Total current		4 A	2 A	4 A
Protection		Short-circuit/overload	Short-circuit/overload	Short-circuit/overload
Signal delay upon power up of	Nom. resistive load (12 Ω/48 W)	Typ. 200 μs	Typ. 100 μs	Typ. 100 μs
	Nom. lamp load (48 W)	Typ. 200 ms	Typ. 100 ms	Typ. 100 ms
	Nom. inductive load (1.2 H, 12 Ω)	Typ. 250 ms	Typ. 100 ms	Typ. 100 ms
Signal delay upon power down of	Nom. resistive load (12 Ω/48 W)	Typ. 200 μs	Typ. 1 ms	Typ. 1 ms
	Nom. lamp load (48 W)	Typ. 200 μs	Typ. 1 ms	Typ. 1 ms
	Nom. inductive load (1.2 H, 12 Ω)	Typ. 250 ms	Typ. 50 ms	Typ. 50 ms
Actuator connection type		2, 3, and 4-wire connection	2, 3-wire connection	2, 3, and 4-wire connection
<b>Electrical data</b>				
Logic voltage		7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$		Max. 35 mA	Max. 44 mA	Max. 60 mA
Segment supply voltage $U_s$		24 V DC (nominal)	24 V DC (nominal)	24 V DC (nominal)
Nominal current consumption from $U_s$		Max. 4 A (2 x 2 A)	Max. 2 A (2 x 0.5 A)	Max. 4 A (8 x 0.5 A)
Operating mode: process data mode		2 bits	4 bits	8 bits
Transmission speed		500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system		Short-circuit/overload of an output	Short-circuit/overload of an output	Short-circuit/overload of an output
<b>Ambient conditions</b>				
Permissible temperature (operation)		-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)		5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)		12.2 x 120 x 71.5 mm	12.2 x 141 x 71.5 mm	48.8 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)		Type 4	Type 5	Type 6
Weight (without plug)		46 g	46 g	130 g
Protection category		IP20	IP20	IP20



Technical data		R-IB IL 24 DO 8/HD-PAC	R-IB IL 24 DO 8-2A-PAC	R-IB IL 24 DO 8-NPN-PAC - NPN-switching
<b>Digital outputs</b>				
Number		8	8	8
Nominal output voltage $U_{Out}$		24 V DC	24 V DC	24 V DC
Differential voltage at $I_{Nom}$		$\leq 1$ V	$\leq 1$ V	$\leq 1$ V
Nominal current $I_{Nom}$ per channel		0.5 A	2 A	0.5 A
Nominal current tolerances		0.1	10%	10%
Total current		4 A	8 A (with 50% synchronization)	4 A
Protection		Short-circuit/overload	Short-circuit/overload	Short-circuit/overload
Signal delay upon power up of	Nom. resistive load (12 $\Omega$ /48 W)	Typ. 500 $\mu$ s	Typ. 50 $\mu$ s	Typ. 100 $\mu$ s
	Nom. lamp load (48 W)	Typ. 100 ms	Typ. 75 ms	Typ. 100 ms
	Nom. inductive load (1.2 H, 12 $\Omega$ )	Typ. 100 ms	Typ. 50 ms	Typ. 100 ms
Signal delay upon power down of	Nom. resistive load (12 $\Omega$ /48 W)	Typ. 1 ms	Typ. 500 $\mu$ s	Typ. 1 ms
	Nom. lamp load (48 W)	Typ. 1 ms	Typ. 500 $\mu$ s	Typ. 1 ms
	Nom. inductive load (1.2 H, 12 $\Omega$ )	Typ. 50 ms	Typ. 150 ms	Typ. 50 ms
Actuator connection type		1-wire connection	2, 3, and 4-wire connection	2, 3, and 4-wire connection
<b>Electrical data</b>				
Logic voltage		7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$		Max. 45 mA	Max. 60 mA	Max. 60 mA
Segment supply voltage $U_S$		24 V DC (nominal)	24 V DC (nominal)	24 V DC (nominal)
Nominal current consumption from $U_S$		Max. 4 A (8 x 0.5 A)	Max. 8 A	Max. 4 A (8 x 0.5 A)
Operating mode: process data mode		8 bits	8 bits	4 bits
Transmission speed		500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system		Short-circuit/overload of an output	-	Short-circuit/overload of an output
<b>Ambient conditions</b>				
Permissible temperature (operation)		-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)		5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)		12.2 x 120 x 71.5 mm	48.8 x 120 x 71.5 mm	48.8 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)		Type 4	Type 6	Type 6
Weight (without plug)		60 g	130 g	130 g
Protection category		IP20	IP20	IP20



# Digital outputs – technical data

Technical data	R-IB IL 24 DO 16-PAC	R-IB IL 24 DO 32/HD-PAC	R-IB IL 24 DO 32/HD-NPN-PAC - NPN-switching
<b>Digital outputs</b>			
Number	16	32	32
Nominal output voltage $U_{Out}$	24 V DC	24 V DC	24 V DC
Differential voltage at $I_{Nom}$	$\leq 1$ V	$\leq 1$ V	$\leq 1$ V
Nominal current $I_{Nom}$ per channel	0.5 A	0.5 A	0.5 A
Nominal current tolerances	10%	10%	10%
Total current	8 A	8 A	8 A
Protection	Short-circuit/overload	Short-circuit/overload	Short-circuit/overload
Signal delay upon power up of	Nom. resistive load (12 $\Omega$ /48 W)	Typ. 500 $\mu$ s	Typ. 500 $\mu$ s
	Nom. lamp load (48 W)	Typ. 100 ms	Typ. 100 ms
	Nom. inductive load (1.2 H, 12 $\Omega$ )	Typ. 100 ms	Typ. 100 ms
Signal delay upon power down of	Nom. resistive load (12 $\Omega$ /48 W)	Typ. 1 ms	Typ. 1 ms
	Nom. lamp load (48 W)	Typ. 1 ms	Typ. 1 ms
	Nom. inductive load (1.2 H, 12 $\Omega$ )	Typ. 50 ms	Typ. 50 ms
Actuator connection type	2, 3-wire connection	1-wire connection	1-wire connection
<b>Electrical data</b>			
Logic voltage	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	Max. 90 mA	Max. 140 mA	Max. 140 mA
Segment supply voltage $U_s$	24 V DC (nominal)	24 V DC (nominal)	24 V DC (nominal)
Nominal current consumption from $U_s$	Max. 8 A (16 x 0.5 A)	Max. 8 A (16 x 0.5 A)	Max. 8 A (16 x 0.5 A)
Operating mode: process data mode	16 bits	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system	Short-circuit/overload of an output	Short-circuit/overload	Short-circuit/overload
<b>Ambient conditions</b>			
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	48.8 x 141 x 71.5 mm	48.8 x 120 x 71.5 mm	48.8 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 7	Type 6	Type 6
Weight (without plug)	130 g	135 g	135 g
Protection category	IP20	IP20	IP20



Technical data	R-IB IL 24/230 DOR 1/W-PAC	R-IB IL 24/230 DOR4/W-PAC
<b>Relay output</b>		
Number	1	4
Max. switching voltage	253 V AC, 250 V DC	253 V AC, 250 V DC
Max. switching capacity	750 VA	750 VA
<b>Electrical data</b>		
Logic voltage	7.5 V	7.5 V
Power consumption from local bus U <sub>L</sub>	Max. 60 mA	Max. 187 mA
Operating mode: process data mode	2 bits	4 bits
Transmission speed	500 kbaud	500 kbaud
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	12.2 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 4	Type 6
Weight (without plug)	46 g	46 g
Protection category	IP20	IP20



# Analog inputs – technical data

Technical data	R-IB IL AI 2/SF-230-PAC	R-IB IL AI 2/SF-PAC	R-IB IL AI 4/EF-PAC
<b>Analog inputs</b>			
Number	2 analog single-ended inputs	2 analog single-ended inputs	4 analog single-ended inputs
Digital filtering (averaging)	Across 16 measurement values (can be switched off)	Across 16 measurement values (can be switched off)	None or across 4, 16 or 32 measurement values
Conversion time of A/D converter	Typ. 120 µs	Typ. 120 µs	Max. 10 µs
<b>Voltage inputs</b>			
Measuring ranges	0 to 10 V, ±10 V	0 to 10 V, ±10 V	0 to 10 V; ± 10 V; 0 to 5 V; ± 5 V
Input resistance	> 220 kΩ	> 220 kΩ	Approx. 300 kΩ
Limit frequency (-3 dB) of input filters	230 Hz	40 Hz	500 Hz
Process data update of either channel	< 1.5 ms	< 1.5 ms	< 1 ms
<b>Current inputs</b>			
Input resistance	50 Ω	50 Ω	Approx. 110 Ω
Measuring ranges	0 to 20 mA, ±20 mA, 4 to 20 mA	0 to 20 mA, ±20 mA, 4 to 20 mA	0 to 20 mA; ± 20 mA; 4 to 20 mA
Limit frequency (-3 dB) of input filters	230 Hz	40 Hz	500 Hz
Process data update of either channel	< 1.5 ms	< 1.5 ms	< 1 ms
Max. permissible current in each input	±100 mA	±100 mA	Protected against overload
Resolution	16 bits	16 bits	16 bits
Sensor connection type	2-wire and 3-wire connection	2-wire and 3-wire connection	2, 3, and 4-wire connection
<b>Electrical data</b>			
Logic voltage U <sub>L</sub>	7.5 V	7.5 V	7.5 V
Power consumption from local bus U <sub>L</sub>	Typ. 45 mA	Typ. 45 mA	Typ. 85 mA
Peripheral supply voltage U <sub>ANA</sub>	24 V DC	24 V DC	24 V DC
Power consumption from U <sub>ANA</sub>	Typ. 12 mA	Typ. 12 mA	Typ. 13 mA
Operating mode: process data mode	32 bits	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure of supply voltage U <sub>ANA</sub> , peripheral/user error	Failure of supply voltage U <sub>ANA</sub> , peripheral/user error	Failure of supply voltage U <sub>ANA</sub> , peripheral/user error
<b>Ambient conditions</b>			
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	10 to 95%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	12.2 x 135 x 71.5 mm	12.2 x 135 x 71.5 mm	48.8 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 8	Type 8	Type 10
Weight (without plug)	47 g	47 g	125 g
Protection category	IP20	IP20	IP20





Technical data	R-IB IL AI 8/IS-PAC	R-IB IL AI 8/SF-PAC	R-IB IL SGI 2/F-PAC <sup>1)</sup>
<b>Analog inputs</b>			
Number	8 analog single-ended inputs	8 analog single-ended inputs	2 input channels for strain gauges (4 voltage inputs)
Digital filtering (averaging)	None or across 4, 16 or 32 measurement values	None or across 4, 16 or 32 measurement values	-
Conversion time of A/D converter	Max. 10 µs	Max. 10 µs	-
Bridge voltage $U_0$	-	-	3.3 V ( $\pm 0.5$ V) or 5 V ( $\pm 0.5$ V)
Measurement representation	-	-	15 bits + sign bit
Process data update	-	-	Synchronous with the bus
Bus cycle time	-	-	$\geq 1$ ms
Limit frequency of differential bridge input	-	-	Typ. 1.6 kHz
Sensor connection type	-	-	6-wire and 4-wire connection
<b>Voltage inputs</b>			
Measuring ranges	-	0 to 10 V, $\pm 10$ V, 0 to 5 V, $\pm 5$ V, 0 to 25 V, $\pm 25$ V, 0 to 50 V	-
Input resistance	-	Min. 240 k $\Omega$	-
Limit frequency (-3 dB) of input filters	-	3.5 kHz	-
Process data update of either channel	-	< 1.5 ms	-
<b>Current inputs</b>			
Input resistance	25 $\Omega$	25 $\Omega$	-
Measuring ranges	0 to 20 mA, 4 to 20 mA, $\pm 20$ mA, 0 to 40 mA, $\pm 40$ mA	0 to 20 mA, 4 to 20 mA, $\pm 20$ mA, 0 to 40 mA, $\pm 40$ mA	-
Limit frequency (-3 dB) of input filters	3.5 kHz	3.5 kHz	-
Process data update of either channel	Synchronous with the bus	< 1.5 ms	-
Max. permissible current in each input	$\pm 100$ mA	$\pm 100$ mA	-
Resolution	16 bits	16 bits	-
Sensor connection type	2-wire and 3-wire connection	2-wire connection	-
<b>Outputs</b>			
Number	-	-	2
Total impedance of Inline module	-	-	Voltage outputs ( $U_V = 3.3$ V, $U_V = 5$ V) > 60 $\Omega$
<b>Electrical data</b>			
Logic voltage $U_L$	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 52 mA, max. 65 mA	Typ. 52 mA, max. 65 mA	Typ. 75 mA
Peripheral supply voltage $U_{ANA}$	24 V DC	24 V DC	24 V DC
Power consumption from $U_{ANA}$	Typ. 31 mA, max. 40 mA	Typ. 31 mA, max. 40 mA	Typ. 8 mA, 32 mA ( $U_V = 5$ V)
Operating mode: process data mode	32 bits	32 bits	48 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure of supply voltage $U_{ANA}$ , peripheral/user error	Failure of supply voltage $U_{ANA}$ , peripheral/user error	Yes
<b>Ambient conditions</b>			
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	48.8 x 135 x 71.5 mm	48.8 x 135 x 71.5 mm	48.8 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 10	Type 10	Type 10
Weight (without plug)	125 g	125 g	125 g
Protection category	IP20	IP20	IP20

<sup>1)</sup> Inline analog strain gauge input terminals



# Temperature modules – technical data

Technical data	R-IB IL TEMP 2 RTD-PAC	R-IB IL TEMP 2 UTH-PAC	R-IB IL TEMP 4/8 RTD-PAC
<b>Analog inputs</b>			
Number	2 inputs for resistive temperature sensors	2 inputs for thermocouples or linear voltages	8 inputs for resistive temperature sensors
Compatible sensor types	Pt, Ni, Cu, KTY	B, C, E, J, K, L, N, R, S, T, U, W, HK	Pt, Ni, Cu, KTY, linear resistors
Characteristic current	According to DIN According to SAMA	DIN EN 60584-1: 1995 (B, E, J, K, N, R, S, T) DIN 43710 (U, L)	Acc. to DIN EN 60751: 07/1996; acc. to SAMA RC 21-4-1966
Conversion time of A/D converter	Typ. 120 µs	Typ. 120 µs	Typ. 5 µs, max. 10 µs
Voltage input range	–	–15 to +85 mV	–15 to +85 mV
Process data update	Depending on connection technique	Max. 30 ms for either channel	Depending on connection technique
Both channels acc. to 2-wire connection	20 ms	–	–
One channel acc. to 2-wire connection, one channel acc. to 4-wire connection	20 ms	–	–
Both channels acc. to 3-wire connection	32 ms	–	–
Limit frequency of analog filter	–	48 Hz	–
Sensor connection type	2, 3, and 4-wire connection	2-wire connection	2-wire and 3-wire connection
<b>Electrical data</b>			
Logic voltage $U_L$	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 43 mA	Typ. 43 mA	Typ. 75 mA
Peripheral supply voltage $U_{ANA}$	24 V DC	24 V DC	24 V DC
Power consumption from $U_{ANA}$	Typ. 11 mA	Typ. 11 mA	Typ. 28 mA
Operating mode: process data mode	32 bits	32 bits	80 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure of supply voltage $U_{ANA}$ , peripheral/user error	Failure of supply voltage $U_{ANA}$ , peripheral/user error	Failure of supply voltage $U_{ANA}$ , peripheral/user error
<b>Ambient conditions</b>			
Permissible temperature (operation)	–25 to +55°C	–25 to +55°C	–25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	12.2 x 135 x 71.5 mm	12.2 x 135 x 71.5 mm	48.8 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 8	Type 8	Type 10
Weight (without plug)	46 g	46 g	125 g
Protection category	IP20	IP20	IP20



# Analog outputs – technical data

Technical data	R-IB IL AO 1/SF-PAC	R-IB IL AO 1/SF/CN-PAC	R-IB IL AO 2/SF-PAC
	Uniform terminal point designation		
<b>Analog outputs</b>			
Number	1, automatically configured in relation to the terminal point used	1, automatically configured in relation to the terminal point used	2, automatically configured in relation to the terminal point used
Current ranges	0 to 20 mA, 4 to 20 mA	0 to 20 mA, 4 to 20 mA	0 to 20 mA, 4 to 20 mA
Voltage ranges	0 to 10 V	0 to 10 V	0 to 10 V
Basic error limit	–	–	±0.003%
Output load, voltage output	2 kΩ	2 kΩ	Min. 2 kΩ
Output load, current output	0 to 500 Ω	0 to 500 Ω	0 to 500 Ω
Resolution	16 bits	16 bits	16 bits
Process data update incl. conversion time of D/A converter	< 1 ms	< 1 ms	< 1 ms
Actuator connection type	2-wire connection	2-wire connection	2-wire connection
<b>Electrical data</b>			
Logic voltage $U_L$	7.5 V	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 30 mA, max. 40 mA	Typ. 30 mA, max. 40 mA	Typ. 36 mA, max. 45 mA
Peripheral supply voltage $U_{ANA}$	24 V DC	24 V DC	24 V DC
Power consumption from $U_{ANA}$	Typ. 50 mA, max. 65 mA	Typ. 50 mA, max. 65 mA	Typ. 75 mA, max. 95 mA
Operating mode: process data mode	32 bits	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure or logic voltage $U_L$ not reached	Failure or logic voltage $U_L$ not reached	Failure of supply voltage $U_{ANA}$
<b>Ambient conditions</b>			
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	24.4 x 135 x 71.5 mm	24.4 x 135 x 71.5 mm	48.8 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 9	Type 9	Type 10
Weight (without plug)	48 g	48 g	125 g
Protection category	IP20	IP20	IP20



# Analog outputs – technical data

Technical data	R-IB IL AO 2/SF/CN-PAC	R-IB IL AO 2/U/BP-PAC
	Uniform terminal point designation	
<b>Analog outputs</b>		
Number	2, automatically configured in relation to the terminal point used	2 single-ended outputs
Current ranges	0 to 20 mA, 4 to 20 mA	
Voltage ranges	0 to 10 V	-10 to +10 V, 0 to +10 V
Basic error limit	±0.003%	±0.02%
Output load, voltage output	Min. 2 kΩ	Min. 2 kΩ
Output load, current output	0 to 500 Ω	
Resolution	16 bits	16 bits
Process data update incl. conversion time of D/A converter	< 1 ms	< 1 ms
Actuator connection type	2-wire connection	2-wire connection
<b>Electrical data</b>		
Logic voltage $U_L$	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 36 mA, max. 45 mA	Typ. 33 mA, max. 40 mA
Peripheral supply voltage $U_{ANA}$	24 V DC	24 V DC
Power consumption from $U_{ANA}$	Typ. 75 mA, max. 95 mA	Typ. 25 mA, max. 35 mA
Operating mode: process data mode	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure of supply voltage $U_{ANA}$	Failure or logic voltage $U_L$ not reached
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	48.8 x 135 x 71.5 mm	12.2 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 10	Type 8
Weight (without plug)	125 g	48 g
Protection category	IP20	IP20



# Feed/segment modules – technical data

Technical data		R-IB IL 24 PWR IN-PAC	R-IB IL 24 PWR IN/R-PAC	R-IB IL 24 PWR IN/R/L-0.8A-PAC
<b>24 V power supply for generation of U<sub>L</sub> and U<sub>ANA</sub></b>				
Rated value		–	24 V DC	24 V DC
Permissible range		–	19.2 to 30 V DC	19.2 to 30 V DC
<b>Power consumption at nominal voltage</b>				
24 V module supply		–	1.25 A	1.25 A
Logic supply	Rated value	–	7.5 V DC	7.5 V DC
	Max. output current	–	2.0 A	0.8 A
Analog supply	Rated value	–	24 V DC	–
	Max. output current	–	0.5 A	–
<b>24 V peripheral supply (main circuit U<sub>M</sub>)</b>				
Rated value		24 V DC	24 V DC	24 V DC
Permissible range		19.2 to 30 V	19.2 to 30 V	19.2 to 30 V
Permissible current		Max. 8 A	Max. 8 A	Max. 8 A
Power supply		–	–	–
<b>Electrical data</b>				
Transmission speed		500 kbaud	500 kbaud	500 kbaud
<b>Ambient conditions</b>				
Permissible temperature (operation)		-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)		5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>				
Dimensions (W x H x D)		12.2 x 120 x 71.5 mm	48.8 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)		Type 4	Type 6	Type 4
Weight (without plug)		44 g	44 g	44 g
Protection category		IP20	IP20	IP20





# Feed/segment modules – technical data

Technical data	R-IB IL 24 SEG-PAC	R-IB IL 24 SEG/F-D-PAC	R-IB IL 24 SEG/F-PAC
<b>24 V peripheral supply (main circuit U<sub>M</sub>)</b>			
Power supply	Voltage infeed is in the bus terminal or in the infeed terminal. No connections for the supply voltage are required at the segment terminal. The appropriate terminal points are available for testing purposes.	Voltage infeed is in the bus terminal or in the infeed terminal.	Voltage infeed is in the bus terminal or in the infeed terminal. No connections for the supply voltage are required at the segment terminal. The appropriate terminal points are available for testing purposes.
<b>Permissible total current in the potential terminals of the main and segment circuits</b>			
Nominal terminal current	6.0 A	6.0 A	6.0 A
Max. permissible value	8.0 A	8.0 A	8.0 A
<b>Electrical data</b>			
Transmission speed	500 kbaud	500 kbaud	500 kbaud
<b>Ambient conditions</b>			
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>			
Dimensions (W x H x D)	12.2 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 4	Type 4	Type 4
Weight (without plug)	44 g	44 g	44 g
Protection category	IP20	IP20	IP20



Technical data	R-IB IL PD 24V-PAC	R-IB IL PD GND-PAC
	Inline potential distributor	
<b>24 V peripheral supply (main circuit U<sub>M</sub>)</b>		
Rated value	24 V DC	24 V DC
Permissible range	19.2 to 30 V	19.2 to 30 V
Permissible current	Max. 8 A	Max. 8 A
Power supply	Inline potential distributor. Voltage infeed is in the bus terminal or in the infeed terminal.	Inline potential distributor. Voltage infeed is in the bus terminal or in the infeed terminal.
<b>Electrical data</b>		
Transmission speed	500 kbaud	500 kbaud
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	12.2 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 4	Type 4
Weight (without plug)	44 g	44 g
Protection category	IP20	IP20



# Technology modules – technical data

Technical data	R-IB IL CNT-PAC	R-IB IL INC-IN-PAC	
	Counter module	Incremental encoder module	
<b>Digital inputs</b>			
Number	1 counter input for 24 V signals 1 counter input for 5 V signals 1 control input for 24 V signals 1 control input for 5 V signals	3 – – –	
Design of input	–	According to EN 61131-2, Type 1	
Nominal input voltage $U_{in}$	24 V DC	24 V DC	
Permissible range	–	-30 < $U_{in}$ < +30 V DC	
Nominal input current at $U_{in}$	5 mA	Typ. 2.7 mA	
Delay time	< 5 $\mu$ s	< 1 ms	
Sensor connection type	–	2-wire and 3-wire connection	
24 V sensor connection type	2-wire and 3-wire connection	–	
5 V sensor connection type	2-wire connection	–	
Number	1	–	
Nominal output voltage $U_{out}$	24 V DC	–	
Nominal current $I_{Nom}$	Max. 0.5 A	–	
<b>Digital outputs</b>			
Number	–	1 (double assignment of input E3)	
Output type	–	NPN (switches against ground)	
Actuator connection type	–	2-wire and 3-wire connection	
<b>Encoder inputs</b>			
Number	–	1	
Type	–	Incremental encoder	
Encoder signals	–	2 pulse strings (A and B, electrically shifted by 90°) and 1 reference signal (Z)	
<b>Encoder types</b>			
Symmetrical incremental-value encoders (symmetrical pulse train (RS422) with transverse trace)	Encoder supply	–	5 or 24 V DC
	Signal connection type	–	A and A inverted, B and B inverted, Z and Z inverted
	Input frequency	–	Max. 300 kHz
Asymmetrical incremental-value encoder (asymmetrical pulse train without transverse trace)	Encoder supply	–	5 or 24 V DC
	Signal connection type	–	A, B, Z
	Input frequency	–	Max. 300 kHz
<b>Electrical data</b>			
Logic voltage $U_L$	7.5 V	7.5 V	
Power consumption from local bus $U_L$	Typ. 40 mA, max. 50 mA	Max. 70 mA	
Nominal voltage $U_S$	24 V DC	24 V DC	



Technical data	R-IB IL CNT-PAC	R-IB IL INC-IN-PAC
	Counter module	Incremental encoder module
Nominal current consumption from $U_s$	Max. 1 A	Typ. 340 mA
Operating mode: process data mode	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	Short-circuit/overload of sensor supply	Short-circuit/overload of sensor supply
Frequency measurement	$f \leq 100$ kHz	–
Event counter	$f \leq 100$ kHz	–
Time measurement	$0.25 \text{ ms} \leq t \leq 131 \text{ ms}$ (resolution 2 $\mu\text{s}$ , without reference conditions)	–
	$1 \text{ ms} \leq t \leq 131 \text{ ms}$ (resolution 2 $\mu\text{s}$ , with reference conditions)	–
	$2 \text{ ms} \leq t \leq 131 \text{ s}$ (resolution 2 ms)	–
Pulse generator	$10 \text{ ms} \leq t \leq 655 \text{ s}$ (resolution 10 ms)	–
	$1 \text{ kHz} \leq f \leq 10 \text{ kHz}$	–
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	24.4 x 135 x 71.5 mm	24.4 x 141 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 9	Type 9
Weight (without plug)	90 g	90 g
Protection category	IP20	IP20



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# Technology modules – technical data

Technical data		R-IB IL PWM/2-PAC PWM output module
<b>Digital outputs 24 V DC</b>		
Number		2
Nominal output voltage $U_{Out}$		24 V DC
Differential voltage at $I_{Nom}$		$\leq 1$ V
Nominal current $I_{Nom}$ per channel		0.5 A
Nominal current tolerances		10%
Protection		Short-circuit/overload
Signal delay upon power up of	Nominal resistive load (12 $\Omega$ /48 W)	Typ. 80 $\mu$ s
	Nominal lamp load (48 W)	Typ. 100 $\mu$ s
	Nominal inductive load (1.2 H, 12 $\Omega$ )	Typ. 150 $\mu$ s
Signal delay upon power down of	Nominal resistive load (12 $\Omega$ /48 W)	Max. 500 Hz
	Nominal lamp load (48 W)	Max. 500 Hz
	Nominal inductive load (1.2 H, 12 $\Omega$ )	Max. 0.3 Hz
Actuator connection type		2-wire and 3-wire connection
<b>Digital outputs 5 V DC</b>		
Number		2
Nominal output voltage $U_{Out}$		5 V DC
Differential voltage at $I_{Nom}$		0.5 V
Nominal current $I_{Nom}$ per channel		10 mA
Nominal current tolerances		10%
Protection		Short-circuit/overload
Signal delay upon power up of nominal resistive load		2 $\mu$ s
Signal delay upon power down of nominal resistive load		2 $\mu$ s
Switching frequency at a nominal resistive load		50 kHz
<b>Electrical data</b>		
Logic voltage $U_L$		7.5 V
Power consumption from local bus $U_L$		130 mA
Nominal voltage $U_s$		24 V DC
Nominal current consumption from $U_s$		Max. 1 A
Operating mode: process data mode		32 bits
Transmission speed		500 kbaud
Error message to the higher-level control system		Short-circuit/overload of sensor supply
<b>Ambient conditions</b>		
Permissible temperature (operation)		-25 to +55°C
Permissible relative humidity (operation)		5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)		24.4 x 135 x 71.5 mm
Dimensional drawing (see pp. 172–175)		Type 9
Weight (without plug)		90 g
Protection category		IP20

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Technical data	R-IB IL SSI-IN-PAC	R-IB IL SSI-PAC
	Input for absolute rotary system or distance measuring system with SSI interface	Positioning terminal module with SSI interface
<b>Digital inputs</b>		
Number	–	4
Design of input	–	According to EN 61131-2, Type 1
Nominal input voltage $U_{in}$	–	24 V DC
Permissible range	–	$-30 < U_{in} < +30$ V DC
Nominal input current at $U_{in}$	–	Typ. 5 mA
Delay time	–	< 1 ms
Sensor connection type	–	2-wire and 3-wire connection
<b>Digital outputs</b>		
Number	–	4
Nominal output voltage $U_{out}$	–	24 V DC
Nominal current per output $I_{Nom}$	–	0.5 A
Total current of output	–	2 A
Actuator connection type	–	2-wire and 3-wire connection
<b>Encoder inputs</b>		
Number	1	1
Encoder signals	Clock pulse, inverted clock pulse, data, inverted data	Clock pulse, inverted clock pulse, data, inverted data
<b>Encoder types</b>		
Types	Single-turn or multi-turn	Single-turn or multi-turn
Resolution	8 to 25 bits (configurable)	8 to 25 bits (configurable)
Code type	Gray code, binary code	Gray code, binary code
Parity monitoring	None, even, uneven	None, even, uneven
Rotation direction reversal	Yes, no (configurable)	Yes
Encoder supply	5 V (250 mA)	5 V (500 mA) or 24 V (500 mA)
Transmission frequency	100 kHz, 200 kHz, 400 kHz, 800 kHz, 1 MHz (configurable)	400 kHz
<b>Electrical data</b>		
Logic voltage $U_L$	7.5 V	7.5 V
Power consumption from local bus $U_L$	Max. 28 mA	Max. 60 mA
Nominal voltage $U_S$	24 V DC	24 V DC
Nominal current consumption from $U_S$	Max. 65.7 mA	Max. 2 A
Operating mode: process data mode	32 bits	32 bits
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	Failure or overload of encoder supply/ no encoder connected	Failure or overload of encoder supply/ no encoder connected
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	12.2 mm x 120 mm x 72 mm	48.8 x 141 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 4	Type 10
Weight (without plug)	71 g	210 g
Protection category	IP20	IP20



# Communication modules – technical data

Technical data	R-IB IL 24 FLM-PAC	R-IB IL 24 FLM MULTI-PAC
<b>Serial interface</b>		
Type	Fieldline M8 local bus	Fieldline M8 local bus
<b>Electrical data</b>		
Logic voltage $U_L$	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 110 mA	Typ. 110 mA
Segment supply voltage $U_s$	24 V DC	24 V DC
<b>Nominal current consumption from <math>U_s</math></b>		
Fieldline M8 local bus	Max. 3 A (with infeed through return line), max. 6 A (with infeed on either side)	Max. 3 A (with infeed through return line), max. 6 A (with infeed on either side)
Internal	Max. 55 mA	Max. 55 mA
Operating mode: process data mode	96 bits	96 bits
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	Through upstream segment terminal IB IL 24 SEG/F-D	Through upstream segment terminal IB IL 24 SEG/F-D
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	12.2 x 120 x 71.5 mm	12.2 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 8	Type 8
Weight (without plug)	43 g	43 g
Protection category	IP20	IP20



<b>Technical data</b>	<b>R-IB IL 24 LSKIP-PAC</b> Line skip module	<b>R-IB IL RS232-PRO-PAC</b>
<b>Serial interface</b>		
Type	Inline local bus, max. 20 m line length	V.24 interface with DTR/CTS handshake, designed as data terminal equipment (DTE), electrical data acc. to EIA (RS) 232, CCITT V.28, DIN 66259 Part 1
Transmission rate adjustable to	–	38.4 kbaud
Receiver buffer	–	4 kB
Transmitter buffer	–	1 kB
Rated value	24 V DC	–
Permissible range	19.2 to 30 V DC	–
Rated value	24 V DC	–
Permissible range	19.2 to 30 V DC	–
Permissible current	Max. 8 A	–
<b>Electrical data</b>		
Logic voltage $U_L$	–	7.5 V
Power consumption from local bus $U_L$	–	Typ. 170 mA
Operating mode: process data mode	–	96 bits
Transmission speed	–	500 kbaud
<b>Nominal current consumption from <math>U_s</math></b>		
Transmission speed	500 kbaud/2 Mbaud	–
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	48.8 x 134 x 72 mm	24.4 x 120 x 71.5 mm
Dimensional drawing (see pp. 172–175)	Type 3	Type 9
Weight (without plug)	150 g	90 g
Protection category	IP20	IP20



# Communication modules – technical data

Technical data	R-IB IL RS485/422-PRO-PAC	R-IB IL 24 IOL 4 DI 12-PAC
<b>Serial interface</b>		
Type	Half-duplex RS485 or full-duplex RS422, electrical data acc. to EIA (RS) 485, EIA (RS) 422, CCITT V.11	–
Transmission rate adjustable to	37.5 kbaud	–
Receiver buffer	4 kB	–
Transmitter buffer	1 kB	–
<b>IO-Link port</b>		
Number	–	4
Nominal current for every IO-Link port	–	Max. 200 mA
Permissible line length to the sensor	–	20 m
Number	–	4
Nominal input voltage	–	24 V DC
Permissible range	–	0 to 30 V DC
Nominal input current	–	5.5 mA
<b>Digital outputs in the SIO mode</b>		
Number of outputs	–	4
Nominal output voltage	–	≥ Segment supply voltage $U_s - 3 V$
Nominal current per channel	–	Max. 200 mA
<b>Digital inputs</b>		
Number	–	12
Nominal input voltage	–	24 V DC
Nominal input current	–	2.2 mA
Delay time	–	3 ms
Connection technique	–	2-wire and 3-wire connection
<b>Electrical data</b>		
Logic voltage $U_L$	7.5 V	7.5 V
Power consumption from local bus $U_L$	Typ. 170 mA	Max. 100 mA
Nominal voltage $U_M$	–	24 V DC
Nominal current consumption from $U_M$	–	Max. 800 mA
Operating mode: process data mode	96 bits	96 bits
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	–	Short-circuit of a digital output in the SIO mode
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	10 to 95%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	24.4 x 135 x 71.5 mm	48.8 x 120 x 72 mm
Dimensional drawing (see pp. 172–175)	Type 9	Type 6
Weight (without plug)	90 g	200 g
Protection category	IP20	IP20

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Technical data	R-IB IL DALI/PWR-PAC	R-IB IL DALI-PAC
<b>Interface</b>		
Type	1-channel DALI master; with integrated DALI power supply unit; safe electrical isolation	1-channel DALI master; extension to IB IL DALI/PWR-PAC
Bus voltage	Typ. 14 V	–
Maximum bus load	128 mA	128 mA
Short circuit current	≤ 250 mA	≤ 250 mA
Transmission speed	12 kbaud	12 kbaud
Maximum addressable upstream devices	64	64
Protective device	Bus protected up to maximum 250 V	Bus protected up to maximum 250 V
<b>Electrical data</b>		
Logic voltage $U_L$	7.5 V	7.5 V
Power consumption from local bus $U_L$	≤ 38 mA	≤ 38 mA
Nominal voltage $U_M$	24 V DC	–
Nominal current consumption from $U_M$	$IM \approx 0.86 * \sum I_{DALI}$	–
Operating mode: process data mode	Process data mode with 2 words	Process data mode with 2 words
Transmission speed	500 kbaud	500 kbaud
Error message to the higher-level control system	Peripheral error message if the DALI bus voltage fails or has a short-circuit	Peripheral error message if the DALI bus voltage fails or has a short-circuit
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	75% on average, occasionally 85% (no dewing)	75% on average, occasionally 85% (no dewing)
<b>Mechanical data</b>		
Dimensions (W x H x D)	48.8 mm x 120 mm x 72 mm	12.2 mm x 120 mm x 72 mm
Dimensional drawing (see pp. 172–175)	Type 6	Type 4
Weight (without plug)	190 g	60 g
Protection category	IP20	IP20



# Block I/O modules – technical data

Technical data	R-ILB PB 24 DI16/DO16	R-ILB S3 24 DI16 DIO16
<b>Communication</b>		
Interfaces	PROFIBUS	sercos III
<b>Digital inputs</b>		
Number	16	32 (16 fixed, 16 user-configurable)
Design	According to EN 61131-2, Type 1	According to EN 61131-2, Type 1
Switching thresholds	Max. voltage at low level $U_{Lmax}$	< 5 V
	Max. voltage at high level $U_{Hmax}$	> 15 V
Common potentials	Segment supply, ground	Segment supply, ground
Nominal input voltage $U_{INom}$	24 V DC	24 V DC
Permissible nominal input voltage range	-30 < $U_{INom}$ < +30 V DC	-30 < $U_{INom}$ < +30 V DC
Nominal input current at $U_{INom}$	Min. 3 mA	Min. 3 mA
Delay time $t_{On}$	–	–
Delay time $t_{Off}$	–	–
Permissible line length	30 m	30 m
Sensor connection type	2-wire and 3-wire connection	2-wire and 3-wire connection
<b>Digital outputs</b>		
Number	16	16
Nominal output voltage $U_{Out}$	24 V DC	24 V DC
Differential voltage at $I_{Nom}$	≤ 1 V	≤ 1 V
Nominal current $I_{Nom}$ per channel	1 A	1 A
Nominal current tolerances	10%	10%
Total current	8 A	8 A
Protection	Short-circuit/overload	Short-circuit/overload
Signal delay upon power up of	Nominal resistive load (12 Ω/48 W)	Typ. 500 μs
	Nominal lamp load (48 W)	Typ. 100 ms
	Nominal inductive load (1.2 H, 12 Ω)	Typ. 100 ms
Actuator connection type	2-wire and 3-wire connection	2-wire and 3-wire connection
<b>Ambient conditions</b>		
Permissible temperature (operation)	-25 to +55°C	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing	5 to 90%, no dewing
<b>Mechanical data</b>		
Dimensions (W x H x D)	155.8 x 141 x 55 mm	155.8 x 141 x 55 mm
Dimensional drawing (see pp. 172–175)	Type 11	Type 11
Weight (including plug)	500 g	500 g
Protection category	IP20	IP20





Technical data	R-ILB S3 AI12 AO4 SSI-IN4
<b>Communication</b>	
Interfaces	sercos III
<b>Absolute-value encoder inputs</b>	
Number	4
Encoder signals	Clock pulse, inverted clock pulse, data, inverted data (acc. to RS-422)
<b>Encoder types</b>	
Types	Single-turn or multi-turn
Resolution	8 to 31 bits
Code type	Gray code, binary code
Parity monitoring	None, even, uneven (configurable)
Rotation direction reversal	Yes, no (configurable)
Encoder supply	24 V DC
Current carrying capacity	Max. 200 mA
Transmission frequency	67.5 kHz, 100 kHz, 125 kHz, 200 kHz, 250 kHz, 300 kHz, 400 kHz, 500 kHz, 600 kHz, 700 kHz, 800 kHz, 900 kHz, 1 MHz, 2 MHz, 4 MHz (configurable)
<b>Analog differential inputs</b>	
Number	12
Input filter	10 kHz HW filter, averaging via software filter
Conversion time of A/D converter	75 µs
Resolution of measurements	16 bits
Sensor connection type	2, 3-wire connection; shielded cable, twisted in pairs
<b>Voltage inputs</b>	
Measuring ranges	0 to 10 V; ±10 V
Input resistance	≥ 260 kΩ
Limit frequency (-3 dB) of input filters	10 kHz
<b>Current inputs</b>	
Measuring ranges	±10 mA; 0 to 20 mA; 4 to 20 mA; ±20 mA
Input resistance	240 Ω
Limit frequency (-3 dB) of input filters	10 kHz
<b>Analog outputs</b>	
Number	4
Current ranges	±10 mA; 0 to 20 mA; 4 to 20 mA; ±20 mA
Voltage ranges	0 to 10 V; ±10 V
Output load, voltage output	2 kΩ
Output load, current output	0 to 500 Ω
Resolution	16 bits
Process data update incl. conversion time of D/A converter	75 µs
Actuator connection type	2-wire connection; shielded cable, twisted in pairs
<b>Ambient conditions</b>	
Permissible temperature (operation)	-25 to +55°C
Permissible relative humidity (operation)	5 to 90%, no dewing
<b>Mechanical data</b>	
Dimensions (W x H x D)	156 mm x 141 mm x 59 mm
Dimensional drawing (see pp. 172–175)	Type 11
Weight (including plug)	505 g
Protection category	IP20

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# Inline – ordering data

Ordering data for fieldbus coupler	
Description	Type code
Inline INTERBUS bus coupler*, D-SUB connection, 24 V DC	R-IBS IL 24 BK-DSUB-PAC
Inline INTERBUS bus coupler*, copper connection, 24 V DC	R-IBS IL 24 BK-T/U-PAC
Inline PROFIBUS bus coupler DP/V1*, 8 inputs 24 V DC, 4 outputs 24 V DC, 500 mA, 2, 3-wire connection, consecutive terminal point labeling	R-IL PB BK DI8 DO4/CN-PAC
Inline PROFIBUS bus coupler DPV/1*	R-IL PB BK DP/V1-PAC
Inline sercos III bus coupler*, 8 inputs 24 V DC, 4 outputs 24 V DC, 500 mA, 2, 3-wire connection	R-IL S3 BK DI8 DO4-PAC
Inline PROFINET bus coupler*, 8 inputs 24 V DC, 4 outputs 24 V DC, 500 mA, 2, 3-wire connection	R-IL PN BK DI8 DO4-PAC
Inline EtherNet/IP bus coupler*, 8 inputs 24 V DC, 4 outputs 24 V DC, 500 mA, 2, 3-wire connection	R-IL EIP BK DI8 DO4 2TX-PAC
Inline Modbus/TCP (UDP) bus coupler*, 8 inputs 24 V DC, 4 outputs 24 V DC, 500 mA, 2, 3-wire connection	R-IL ETH BK DI8 DO4 2TX-PAC
Inline sercos II bus coupler*	R-IL SE BK
Ordering data for digital modules	
Description	Type code
Inline digital input module*, 2 inputs, 24 V DC, 4-wire connection	R-IB IL 24 DI 2-PAC
Inline digital input module*, 4 inputs, 24 V DC, 3-wire connection	R-IB IL 24 DI 4-PAC
Inline digital input module*, 8 inputs, 24 V DC, 4-wire connection	R-IB IL 24 DI 8-PAC
Inline digital input module*, 8 inputs, 24 V DC, 1-wire connection	R-IB IL 24 DI 8/HD-PAC
Inline digital input module*, 16 inputs, 24 V DC, 2, 3-wire connection	R-IB IL 24 DI 16-PAC
Inline digital input module*, 16 inputs, 24 V DC, NPN-switching, 2, 3-wire connection	R-IB IL 24 DI 16-NPN-PAC
Inline digital input module*, 32 inputs, 24 V DC, 1-wire connection	R-IB IL 24 DI 32/HD-PAC
Inline digital input module*, 32 inputs, 24 V DC, NPN-switching, 1-wire connection	R-IB IL 24 DI 32/HD-NPN-PAC
Inline digital output module*, 2 outputs, 24 V DC, 2 A, 4-wire connection	R-IB IL 24 DO 2-2A-PAC
Inline digital output module*, 4 outputs, 24 V DC, 500 mA, 3-wire connection	R-IB IL 24 DO 4-PAC
Inline digital output module*, 8 outputs, 24 V DC, 500 mA, 4-wire connection	R-IB IL 24 DO 8-PAC
Inline digital output module*, 8 outputs, 24 V DC, 500 mA, 1-wire connection	R-IB IL 24 DO 8/HD-PAC
Inline digital output module*, 8 outputs, 24 V DC, 2 A, 4-wire connection	R-IB IL 24 DO 8-2A-PAC
Inline digital output module*, 8 outputs, 24 V DC, NPN-switching, 500 mA, 2, 3-wire connection	R-IB IL 24 DO 8-NPN-PAC
Inline digital output module*, 16 outputs, 24 V DC, 500 mA, 3-wire connection	R-IB IL 24 DO 16-PAC
Inline digital output module*, 32 outputs, 24 V DC, 500 mA, 1-wire connection	R-IB IL 24 DO 32/HD-PAC
Inline digital output module*, 32 outputs, 24 V DC, NPN-switching, 500 mA, 1-wire connection	R-IB IL 24 DO 32/HD-NPN-PAC
Inline digital output module*, 1 relay changeover contact/gold contact, 5-253 V AC, 3 A	R-IB IL 24/230 DOR 1/W-PAC
Inline digital output module*, 4 relay changeover contacts/gold contacts, 5-253 V AC, 3 A	R-IB IL 24/230 DOR4/W-PAC
Inline distance terminal*	R-IB IL DOR LV-SET-PAC
Ordering data for analog modules	
Description	Type code
Inline analog input module*, 2 inputs, 0-20 mA, 4-20 mA, $\pm 20$ mA, 0-10 V, $\pm 10$ V, 3-dB cut-off frequency at 230 Hz, 2-wire connection	R-IB IL AI 2/SF-230-PAC
Inline analog input module*, 2 inputs, 0-20 mA, 4-20 mA, $\pm 20$ mA, 0-10 V, $\pm 10$ V, 2-wire connection	R-IB IL AI 2/SF-PAC
Inline analog input module with differential input channels*, 4 inputs, 0-20 mA, 4-20 mA, $\pm 20$ mA, 0-10 V, $\pm 10$ V, 0-5 V, $\pm 5$ V, 2, 3, or 4-wire connection	R-IB IL AI 4/EF-PAC
Inline analog input module*, 8 inputs, 0-20 mA, 4-20 mA, 0-40 mA, $\pm 20$ mA, $\pm 40$ mA, 2, 3-wire connection	R-IB IL AI 8/IS-PAC
Inline analog input module*, 8 inputs, 0-20 mA, 4-20 mA, $\pm 20$ mA, 0-10 V, $\pm 10$ V, (additionally 0-40 mA, $\pm 40$ mA, 0-5 V, $\pm 5$ V, 0-25 V, $\pm 25$ V, 0-50 V), 2-wire connection	R-IB IL AI 8/SF-PAC
Inline analog input module*, 2 inputs, RTD (resistance temperature detector), 2-, 3-, 4-wire connection	R-IB IL TEMP 2 RTD-PAC
Inline analog input module*, 2 inputs, TC (thermocouple), 2-wire connection	R-IB IL TEMP 2 UTH-PAC
Inline analog input module*, 8 channels, RTD (resistance temperature detector), 2, 3-wire connection	R-IB IL TEMP 4/8 RTD-PAC
Inline analog output module*, 1 output, 0-20 mA, 4-20 mA, 0-10 V, 2-wire connection	R-IB IL AO 1/SF-PAC
Inline analog output module*, 1 output, 0-20 mA, 4-20 mA, 0-10 V, 2-wire connection, consecutive terminal point labeling	R-IB IL AO 1/SF/CN-PAC
Inline analog output module*, 2 outputs, 0-20 mA, 4-20 mA, 0-10 V, 2-wire connection	R-IB IL AO 2/SF-PAC
Inline analog output module*, 2 outputs, 0-20 mA, 4-20 mA, 0-10 V, 2-wire connection, consecutive terminal point labeling	R-IB IL AO 2/SF/CN-PAC
Inline analog output module*, 2 outputs, 0-10 V, $\pm 10$ V, 2-wire connection	R-IB IL AO 2/U/BP-PAC

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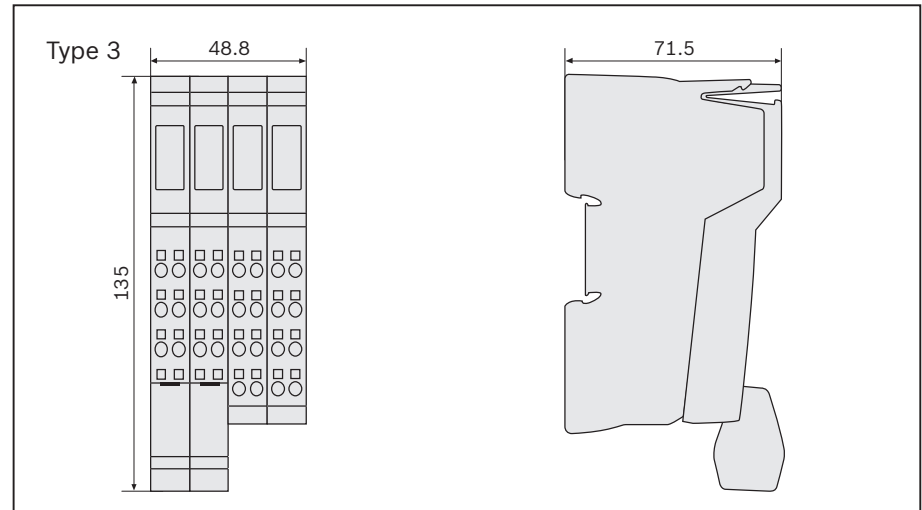
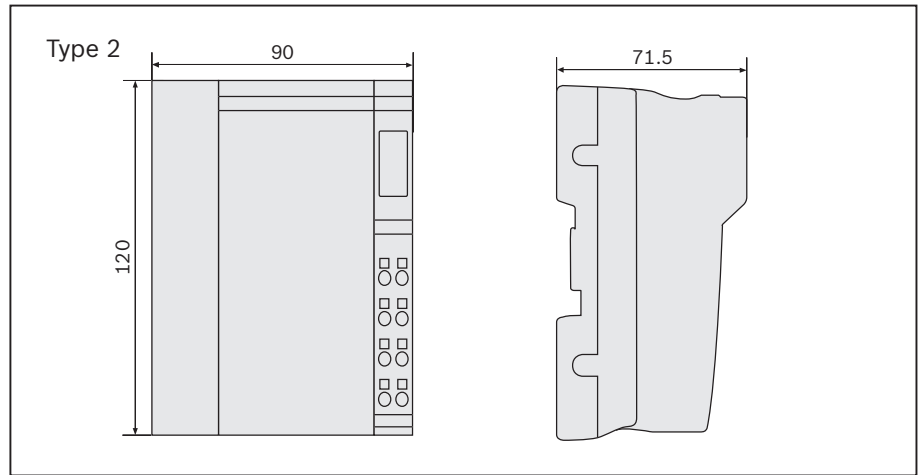
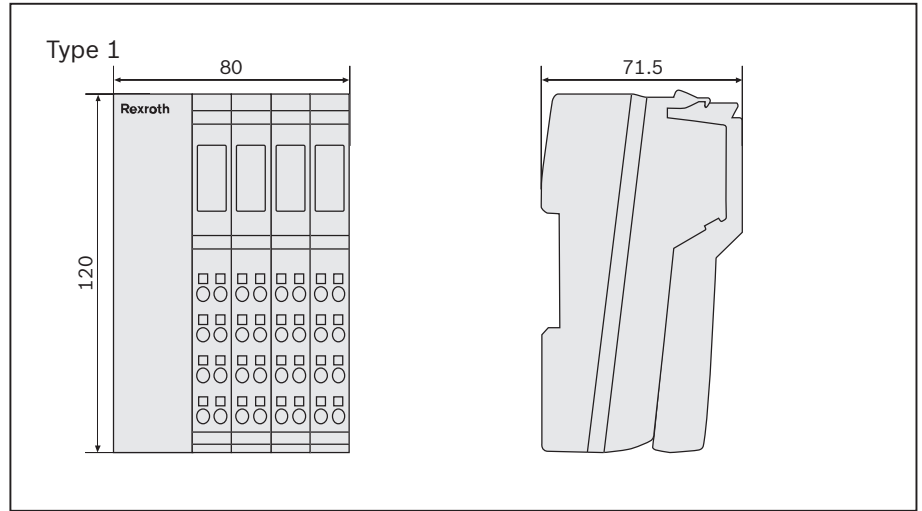
<b>Ordering data for feed/segment, technology, communication, relay modules</b>	
<b>Description</b>	<b>Type code</b>
Branch module for coupling a Fieldline Modular local bus M8 to the end of an Inline station*, change of Inline local bus physics to the physics of the Fieldline local bus	R-IB IL 24 FLM-PAC
Inline branch module for coupling a Fieldline Modular local bus M8 at any point of the Inline local bus*, change of Inline local bus physics to the physics of the Fieldline local bus	R-IB IL 24 FLM MULTI-PAC
Inline branch module to skip a line in an Inline local bus*	R-IB IL 24 LSKIP-PAC
Inline RS-232 function terminal*, for serial data transfer, 1 serial input and output channel in RS-232 version, complete with accessories*	R-IB IL RS232-PRO-PAC
Inline RS-485/-422 function terminal*, for serial data transfer, 1 serial input and output channel in RS-485/-422 version	R-IB IL RS485/422-PRO-PAC
Inline IO Link master*, 4 IO Link ports, 12 digital inputs, 24 V DC, 2, 3-wire connection	R-IB IL 24 IOL 4 DI 12-PAC
Inline 1-channel DALI master*; with integrated DALI power supply unit; safe electrical isolation	R-IB IL DALI/PWR-PAC
Inline 1-channel DALI master*; extension for IB IL DALI/PWR-PAC	R-IB IL DALI-PAC
Inline power module*, 24 V DC, without fuse	R-IB IL 24 PWR IN-PAC
Inline power module or boost terminal*, 24 V DC, without fuse	R-IB IL 24 PWR IN/R-PAC
Inline boost terminal for logic supply $U_L$ of 0.8 A*	R-IB IL 24 PWR IN/R/L-0.8A-PAC
Inline segment module*, 24 V DC, without fuse	R-IB IL 24 SEG-PAC
Inline segment module*, 24 V DC, with fuse and diagnosis	R-IB IL 24 SEG/F-D-PAC
Inline segment module*, 24 V DC, with fuse	R-IB IL 24 SEG/F-PAC
Inline module for distribution of potential (24 V)*, feeding out the 24 V supply voltage from the segment circuit ( $U_S$ )	R-IB IL PD 24V-PAC
Inline module for distribution of potential (GND)*, connections for GND	R-IB IL PD GND-PAC
Inline counter module*, 1 counter input, 1 control input, 1 output, 24 V DC, 500 mA, 3-wire connection	R-IB IL CNT-PAC
Inline detection terminal for position encoder*, 1 input for incremental encoder with square wave signal (symmetrical or asymmetrical), 3 digital outputs 24 V DC, 3-wire connection	R-IB IL INC-IN-PAC
Inline function module* for pulse widths and frequency modulation or control of step motor servo amplifiers with pulse/direction interface, 2 outputs for 5 V or 24 V	R-IB IL PWM/2-PAC
Inline analog strain gauge input module*, 2 high-speed inputs, 4, 6-wire connection	R-IB IL SGI 2/F-PAC
Inline detection terminal for absolute-value encoder*, 1 input for absolute rotary systems or distance measuring systems with SSI interface	R-IB IL SSI-IN-PAC
Inline positioning module*, 1 absolute-value encoder input, 4 digital inputs 24 V DC, 4 digital outputs 24 V DC, 500 mA, 3-wire connection	R-IB IL SSI-PAC
<b>Ordering data for block I/O modules</b>	
<b>Description</b>	<b>Type code</b>
Inline block I/O digital input/output module*, PROFIBUS, 16 inputs, 24 V DC, 2, 3-wire connection, 16 outputs, 24 V DC, 500 mA, 2, 3-wire connection	R-ILB PB 24 DI16 DO16
Inline block I/O digital input/output module*, sercos III, 16/32 inputs, 24 V DC, 16 outputs, 24 V DC, 500 mA, 2, 3-wire connection	R-ILB S3 24 DI16 DIO16
Inline block I/O analog input/output module*, sercos III, 4 inputs: 0-20 mA, 4-20 mA, $\pm 20$ mA, 0-5 V, $\pm 5$ V, 0-10 V, $\pm 10$ V, Pt 100, Pt 1000, Ni 1000..., 2 outputs: 0-5 V, $\pm 5$ V, 0-10 V, $\pm 10$ V, 0-20 mA, $\pm 20$ mA, 4-20 mA, 2, 3, 4-wire connection	R-ILB S3 AI4 AO2
<b>Ordering data for documentation</b>	
<b>Description</b>	<b>Type code</b>
Automation terminals of the Rexroth Inline product range	DOK-CONTRL-ILSYSINS***-AWxx-DE-P

Technical information and data sheets for Rexroth Inline are available from <http://www.boschrexroth.de/mediadirectory>

\* Complete with accessories (connection plug and labeling field)

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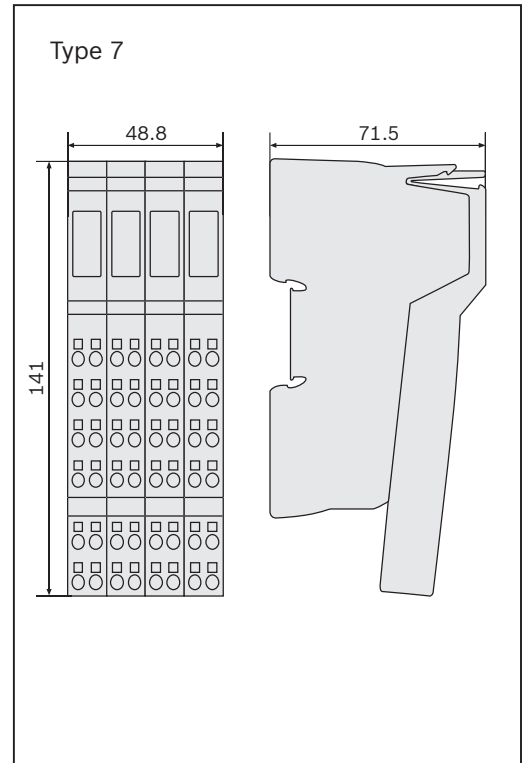
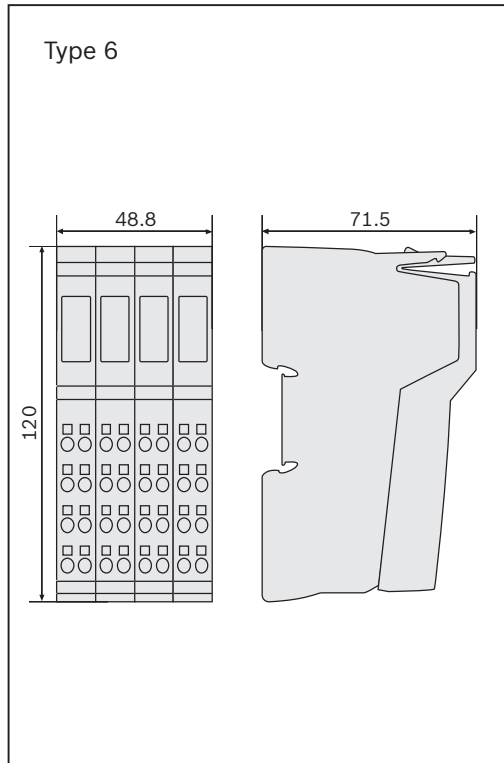
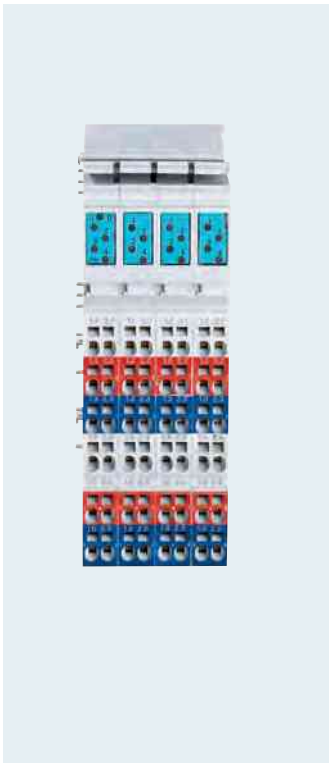
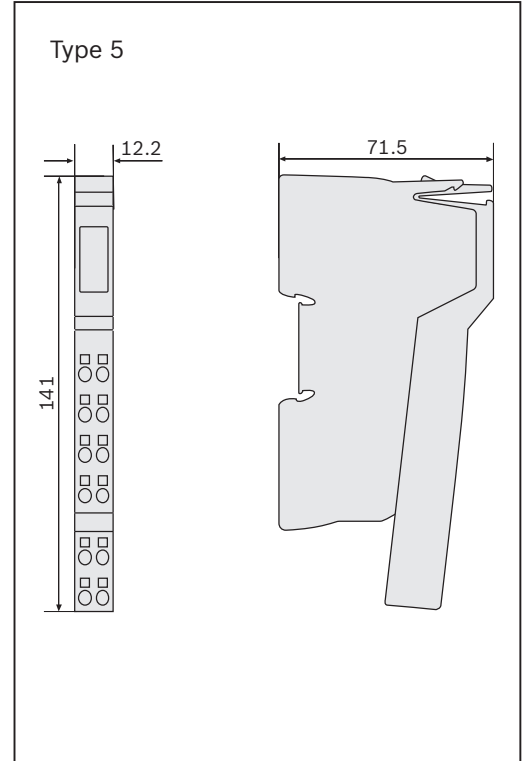
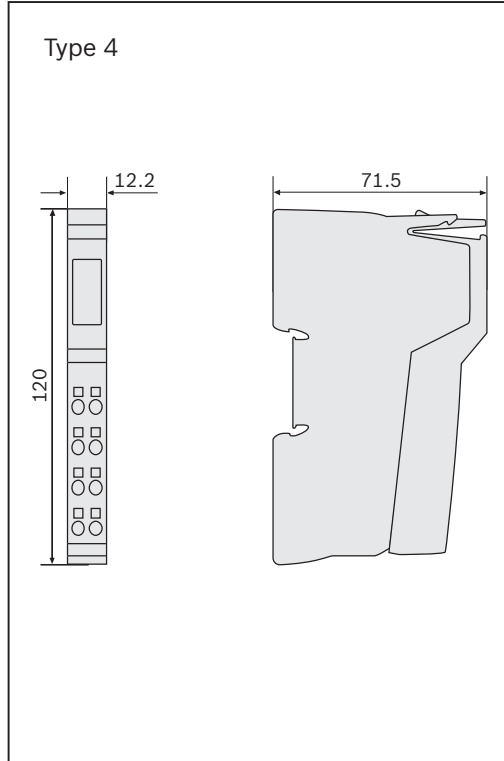
# Inline fieldbus coupler



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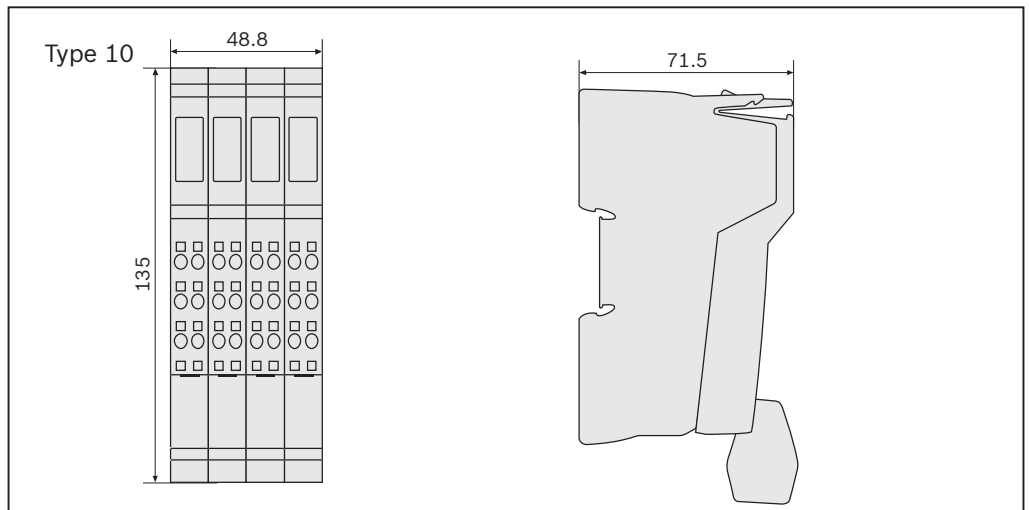
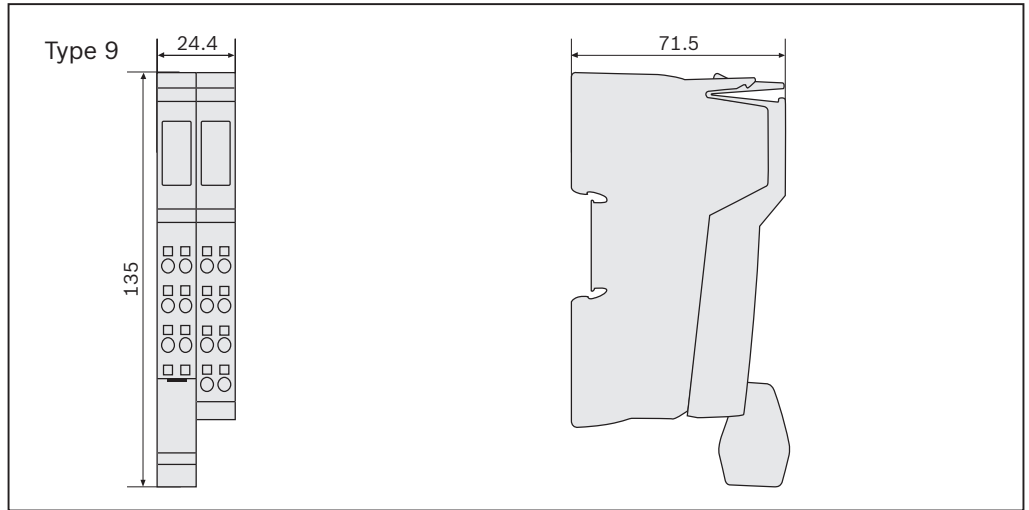
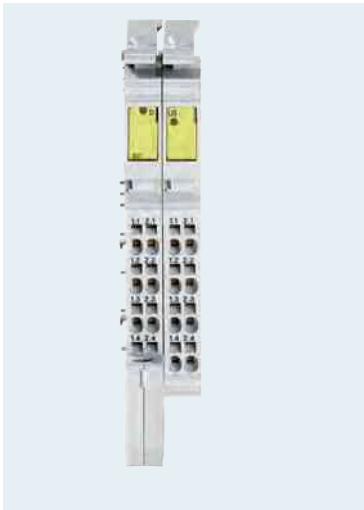
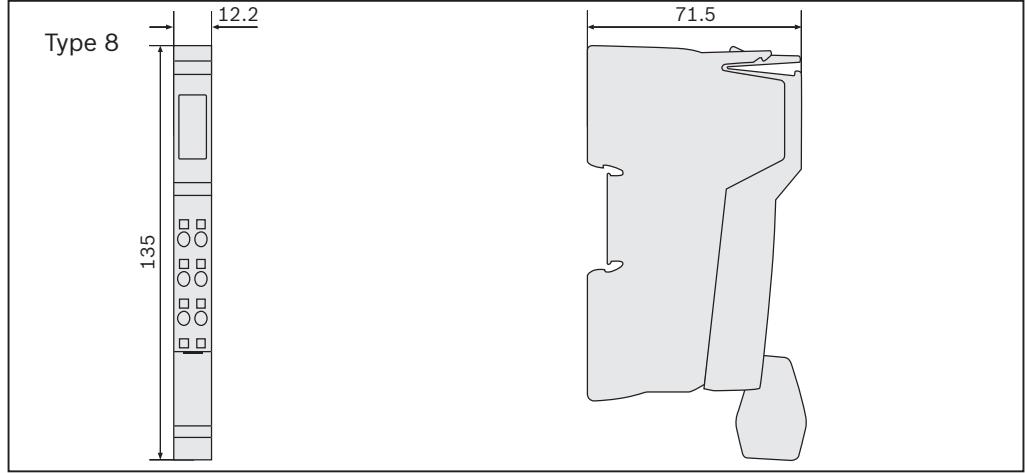
# Inline digital modules





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# Inline analog, temperature, communication, and function modules



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# Inline block I/O modules

