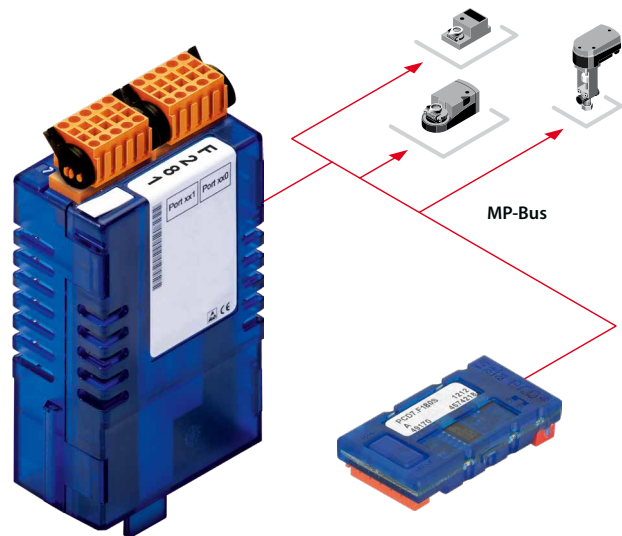# PCD3.F281
Belimo MP-Bus with slot for PCD7.F1xxS modules

Belimo MP-Bus interface module for up to 8 drives and 1 socket for PCD7.F1xxS module.

PCD3 modules of type PCD3.F281 can be used on each slot "#0…3" of a PCD3 CPU and a PCD3 smart RIO.

MP-Bus

LEDs and connection terminals

LED 0…7   Terminal Block Port #0

Description label

LED-Colour	Signal	
Yellow	Tx	0
Yellow	Rx	1
Yellow	Status	2
Yellow	n.r.	3
Yellow	Tx	4
Yellow	Rx	5
Yellow	Status	6
Yellow	n.r.	7

n.r. = not relevant

F281

Description label

Port xx0	Tx	MP-Bus
	Rx	Belimo
	Status	
Port xx1	Tx	PCD7.F___
	Rx	_____
	Status	

F281

PCD3.F281
Port 0: MP-Bus
Port 1: PCD7.F1xxS
Saia PCD®

Terminal Block Port #1   Addresslabel

Open the module housing

Open

On each of the two narrow sides of the housing are two snap-in clips. Lift these gently with your fingernails on one side then the other and separate the two parts of the housing.
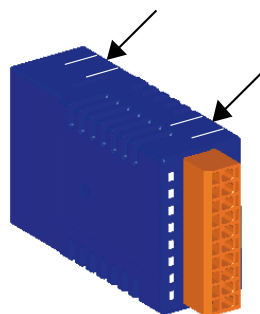
Close

To close the housing, lay the bottom part on a flat surface (table etc.). Ensure that the circuit board is precisely located in this part of the housing. Press top part onto bottom until you hear the snap-in clips engage. Ensure that all four clips are correctly engaged.

Position of the optional PCD7.F1xxS

PCD7.F180S
B
49190
1241
4619308
RX TX
Saia PCD®
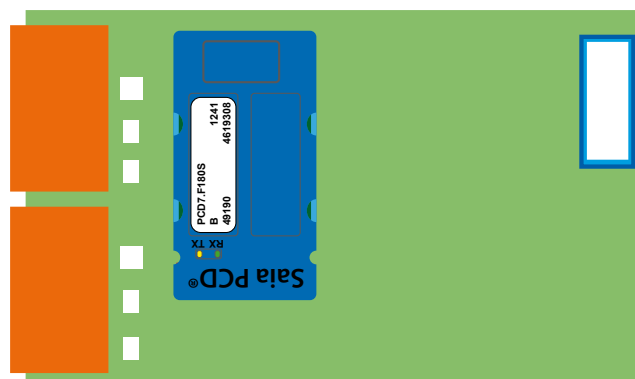
On this circuit board there are components that are sensitive to electrostatic discharges.
Recommendation: Before coming into contact with electrical components, you should at least touch the Minus of the system (cabinet of PGU connector). It is better to use a grounding wrist strap with its cable permanently attached to the Minus of the system.

Plug Numbering
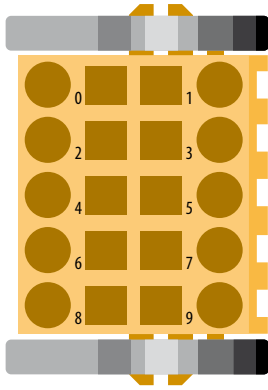
Onboard interface RS-485/422

Connections port x.0			Important
Belimo MP-Bus			Module: PCD7.F180S
0	PGND	MP	1	- Belimo MP-Bus interface module
2	‚MFT‘	‚IN‘	3	- maximum 8 drives and sensors connectable
4		PGND	5	
6			7	
8			9	

Optional interfaces

Connections port x.1			Important
RS-232			Module: PCD7. F121S
0	PGND	TxD	1	- galvanically connected
2	RxD	RTS	3	- Up to 115 kbit/s
4	CTS	PGND	5	- suitable for modem connection
6	DTR	DSR	7	
8	COM	DCD	9	
RS-422			Module: PCD7. F110S
0	PGND	Tx	1	- galvanically connected
2	/Tx	Rx	3	Switch position: Always on
4	/Rx	PGND	5	'O' for OPEN (without line termination)
6	RTS	/RTS	7	For the RS-422 interfaces, only the cable ends are terminated:
8	CTS	/CTS	9	Rx/Rx and CTS/CTS are always terminated
RS-485			Module: PCD7.F110S
0	PGND	Rx-Tx	1	- galvanically connected
2	/Rx-/Tx		3	
4		PGND	5	Modul: PCD7.F150S
6			7	- with galvanic isolation
8	SNGD		9	
TTY (CL)			Module: PCD7.F130
0	PGND	TS	1	- current loop
2	RS	TA	3	⚠ is no longer produced!
4	RA	PGND	5	
6	TC	RC	7	
8	TG	RG	9	
Belimo MP-Bus			Module: PCD7.F180S
0	PGND	MP	1	- Belimo MP-Bus interface module
2	‚MFT‘	‚IN‘	3	- maximum 8 drives and sensors connectable
4		PGND	5	
6			7	
8			9	

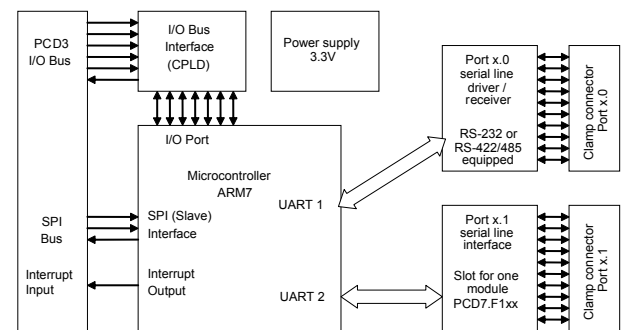## LEDs and their function

LED TxD x.0

LED RxD x.0

LED Status x.0
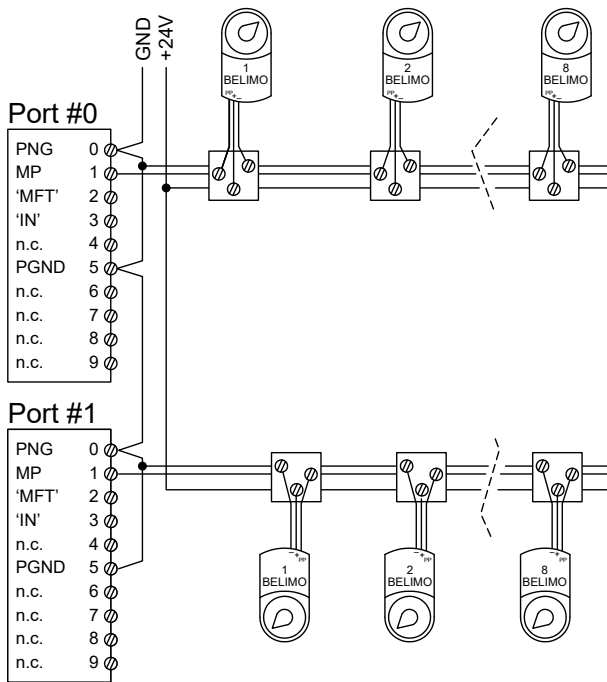
LED TxD x.1

LED RxD x.1

LED Status x.1
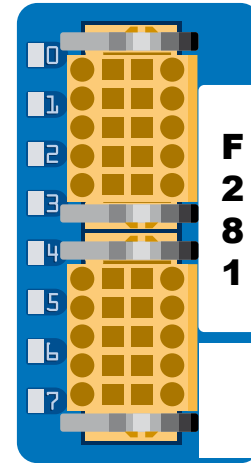
LED TxD: Transmit data
LED RxD: Receive data
LED Status: The state of the LED shows the state of the serial port:

| LED state	State of the serial port
constantly red	PCD3.F2xx does not work
green 25 % / red 75 %	PCD3.F2xx starts
green 50 % / red 50 %	PCD3.F2xx OK but no communication to PCD3
green 75 % / red 25 %	PCD3.F2xx OK - channel closed
green 90 % / red 10 %	PCD3.F2xx OK - channel open with error
green 100 %	PCD3.F2xx OK. - channel OK The port is working properly

Block diagram

Block diagram

Port #0

PNG	0
MP	1
'MFT'	2
'IN'	3
n.c.	4
PGND	5
n.c.	6
n.c.	7
n.c.	8
n.c.	9

Port #1

|	
PNG	0
MP	1
'MFT'	2
'IN'	3
n.c.	4
PGND	5
n.c.	6
n.c.	7
n.c.	8
n.c.	9

Calculation of line length

Connection of MP-Bus

▶ The network consists of a 3-wire connection (MP communication and 24 V supply).

▶ Special cable or line termination resistors are not required.

▶ Line lengths are limited
   - by the total power rating for all connected MFT/MFT2 actuators,
   - by the type of supply (24 VAC or 24 VDC via the bus)
   - and by the conductor cross-section.

Maximum line length for 24 VAC supply
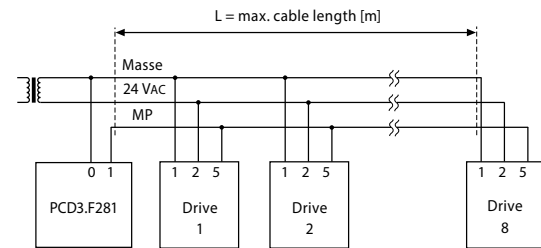
Overall dimensional output of MFT2 actuators [VA]

Cable length vs dimensional output applies to AC supply (minimum transformer voltage 21.6 VAC)
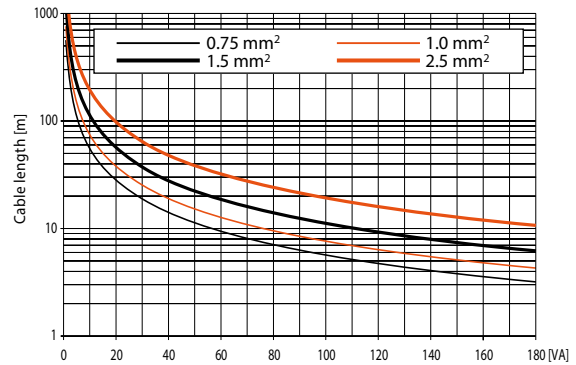
Important: For the NVF24-MFT2, dimensional output must be multiplied by a factor of 2.

Determining maximum line lengths

The dimensional outputs [VA] of all MFT (2) actuators used must be added together and the corresponding line lengths read from the diagram.

Example: 1 × NM.., 1 × AM.., 1 × AF.. and 1 × NV.. are connected to the MP-Bus.

Total dimensional output:
3 VA + 5 VA + 10 VA + 5 VA = 23 VA

The following can be read from the family of curves:
• Cable with conductor Ø 0.75 mm² gives: Cable length 25 m
• Cable with conductor Ø 1.0 mm² gives: Cable length 33 m
• Cable with conductor Ø 1.5 mm² gives: Cable length 50 m
• Cable with conductor Ø 2.5 mm² gives: Cable length 85 m

Port assignments slot #0... #3
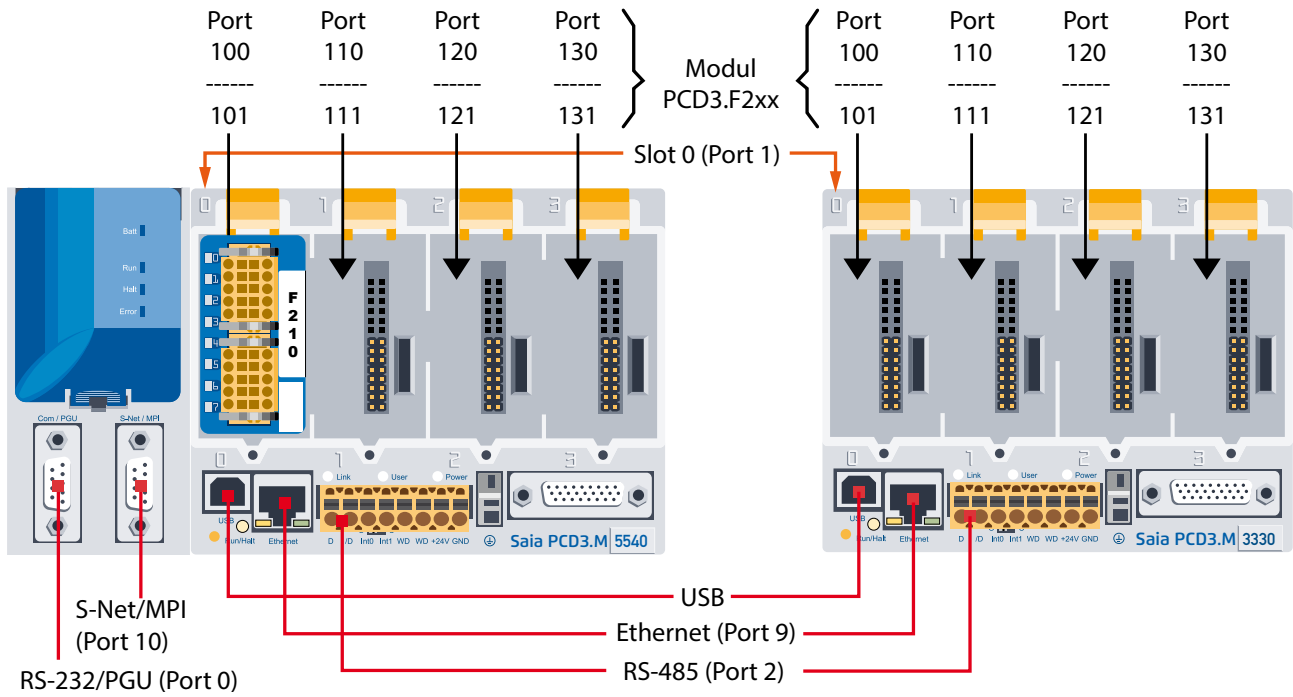
Ordering information

Type	Short description	Description	Weight
PCD3.F281	Belimo MP-Bus with slot for PCD7.F1xxS modules	Belimo MP-Bus interface module for up to 8 drives and 1 socket for PCD7.F1xxS module (2 connectors type K included)	110 g

Accessories

Type	Short description	Description	Weight
4 405 5048 0	Plug-in, type K	Plug-in spring terminal block, 2×5-pole up to 1.0 mm^2 (orange block), labelled 0 to 9, connector type "K"	15 g