IP20 I/O family

SIMATIC ET 200BL

Technical Slides

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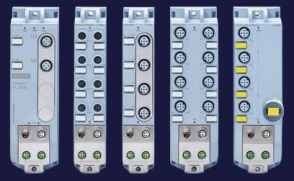
SIMATIC ET 200 for discrete industries
Portfolio Overview

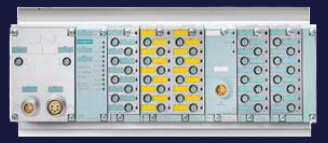
OUTSIDE THE CABINET

mixed use



ET 200AL

modular



ET 200pro

block

ET 200eco PN

ET 200clean

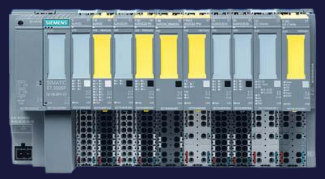
AUTOMATION LEVEL

INSIDE THE CABINET

ET 200BL

decentral

ET 200SP



decentral

ET 200MP

central

- Flexible communication
- Efficient engineering
- Consistent diagnostics
- Safety Integrated*
- Universal scalability
- Integrated technology*

* available for selected product families

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Key points of the SIMATIC ET 200BL system

- **One slice I/O in IP20**
- High channel density on 15mm width
- Designed for **simple applications and low investment costs**
- **Removable terminal block:** Module replacement without wiring removal
- **Future-proof system:** Backplane bus and integrated 24V power bus
- Integration up to 16 I/Os
- PROFINET 2xRJ45 connector with 1ms cycle time and IRT support
- Basic I/O-functionality, supports GSDML V2.45 engineered in TIA Portal
- Ambient conditions: from -30˚C to 60˚C, 5000m altitudes
- All country specific approvals for **global sales**:
  CE, UKCA, UL, EAC, KC, RCM, CSA

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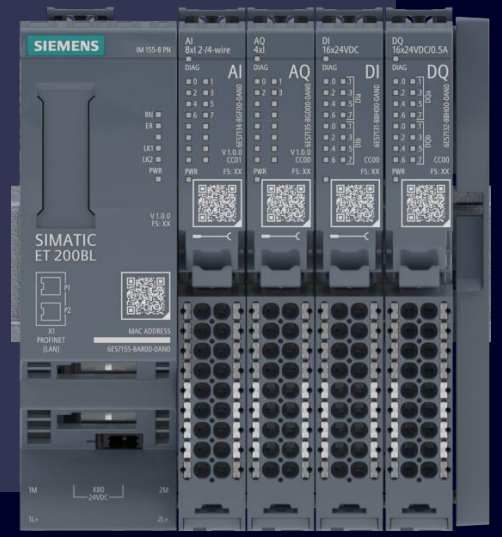
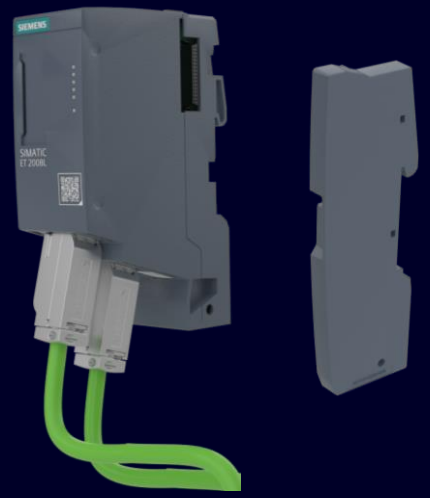
SIMATIC ET 200BL
Portfolio

Interface module
- PROFINET Interface module with two integrated RJ45 sockets
- Removable 24VDC connector, internally bridged
- End cover

I/O modules
- Connection between sensors and actuators
- I/O module with integrated backplane bus and removable terminal block
- Integrated power bus for power supply of the modules
- LEDs for diagnostics, channel status & supply voltage



Interface module with end cover



I/O module with removable terminal block

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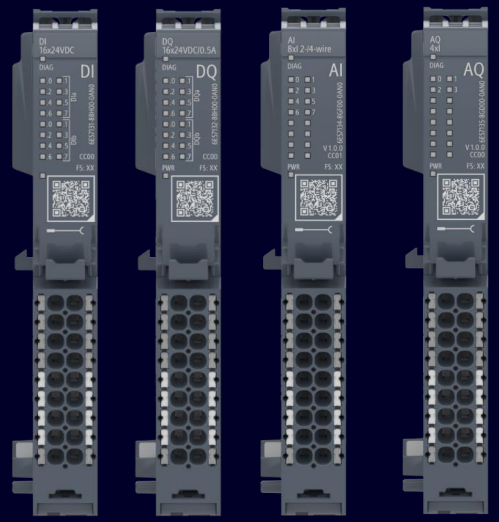
SIMATIC ET 200BL
Key components – Station Set-up

A station is built by the following key components

Interface module

6ES7155-8AR00-0AN0
(IM 155-8 PN Interface Module incl. end cover)

I/Os



ET 200BL I/Os with removable terminal block as an integral part of the module

End cover

ET 200BL end cover as part of the Interface Module

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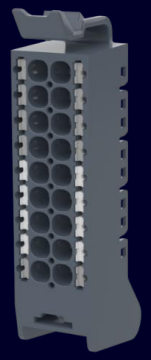
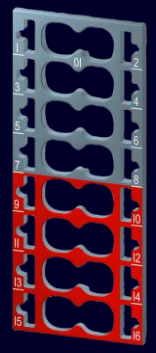
SIMATIC ET 200BL
Accessories & spare parts

End cover as bundle with IM or as separate spare part in 5x PU: 6ES7193-8SE00-1AB0



Terminal block already integrated in IO or as separate spare part in 5x PU: 6ES7193-8ST00-1AN0

Labeling strips (same as ET 200SP): 6ES7193-6LR10-0AA0



Colour coded labels (same as ET 200SP), CC00 and CC01: 6ES7193-6CP00-2MA0 and 6ES7193-6CP01-2MA0

Equipment Identifier Plates (same as ET 200SP): 6ES7193-6LF30-0AW0

24V Connector already integrated at IM: 6ES7193-4JB00-0AA0

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SIMATIC ET 200BL
Lasering information – Interface module

1. Module type and name
2. LEDs for diagnostics
3. LEDs for PROFINET status
4. LED for supply voltage
5. Function and firmware version
6. ID Link
7. MAC address
8. Article number
9. 24V DC connection
10. 2x RJ45 PROFINET connection

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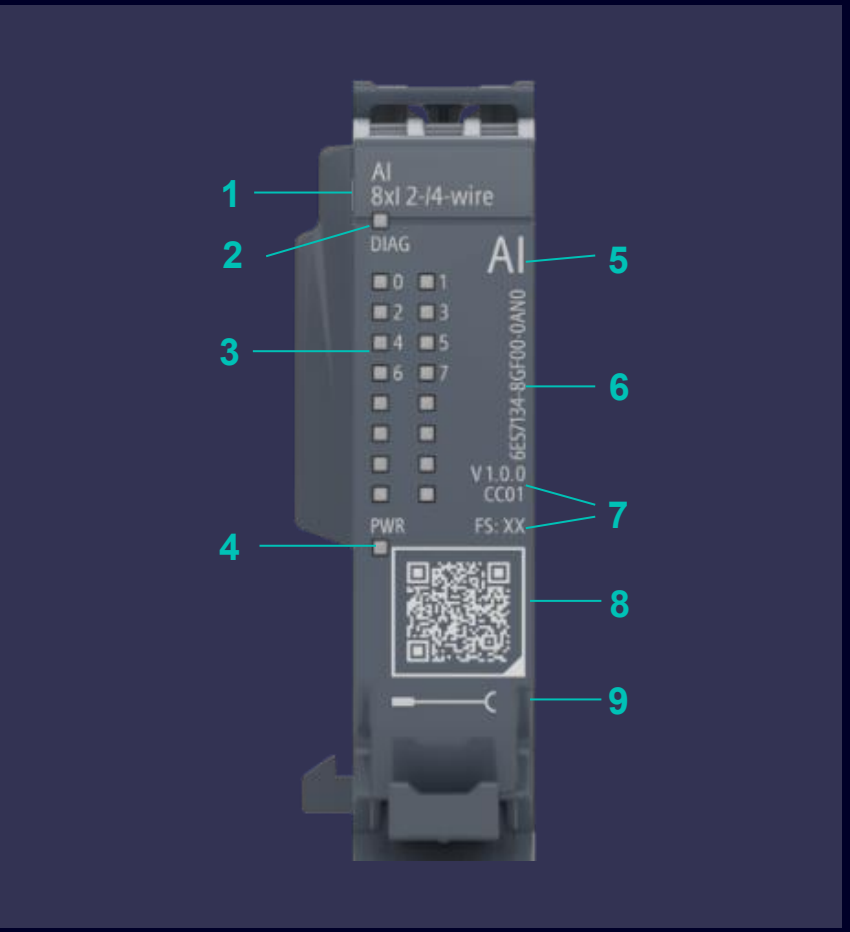
SIMATIC ET 200BL
Lasering information – I/O module



1. Module type and name
2. LED for diagnostics
3. LEDs for channel status
4. LED for supply voltage (not existing for DI)
5. Module type recognition
6. Article number
7. Function, firmware version, type of color-coded label
8. ID Link
9. Symbol for potential transport at DI, AI, AQ and CM
   No symbol at DQ

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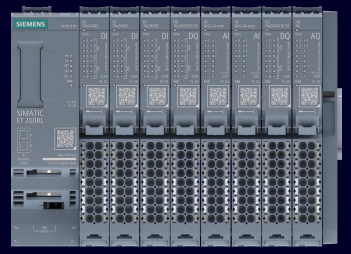
SIMATIC ET 200BL
Module and Component Overview incl. Highlights



INTERFACE MODULE

- PROFINET with 2×RJ45; Cycle time 1 ms; Supports 16× I/O modules; IRT support; GSDML engineering; Ambient −30 °C to +60 °C; Altitude 5000 m

DIGITAL INPUT

- **DI 16x24VDC:** 16x digital inputs (PNP)

DIGITAL OUTPUT

- **DQ 16x24VDC/0.5A:** 16x digital outputs (PNP); Total current per module 8A
- **DQ 4x24VDC/2A:** 4x digital outputs (PNP); Total current per module 8A
- **DQ 8x24VDC/2A:** 8x digital outputs (PNP); Total current per module 10A

ANALOG INPUT

- **AI 8xI 2/4-wire:** 8x analog inputs (current 0–20mA, 4–20mA, 20mA); 2-wire or 4-wire connection
- **AI 8xU:** 8x analog inputs (voltage ±10 V, 0 to 10V)
- **AI 4xRTD 2/3/4-wire:** 4x analog inputs for thermal resistor or resistor
- **AI 8xTC:** 8x analog inputs for thermalcouples or voltage

ANALOG OUTPUT

- **AQ 4xI:** 4x current analog outputs 2-wire connection (current 0 to 20mA, 4 to 20mA and ± 20mA)
- **AQ 4xU:** 4x voltage analog outputs 2-wire connection(voltage ±10 V, 0 to 10V)

COMMUNICATION

- **CM PtP RS422/485:** 1 channel RS422/RS485; Supported protocols: Freeport & Modbus RTU

ACCESSORIES

- **Terminal Block:** 18× push-in terminals; Terminal 17/18 for L+ and M
- **End Cover:** Completes ET 200BL station; Plastic cover protects open connector

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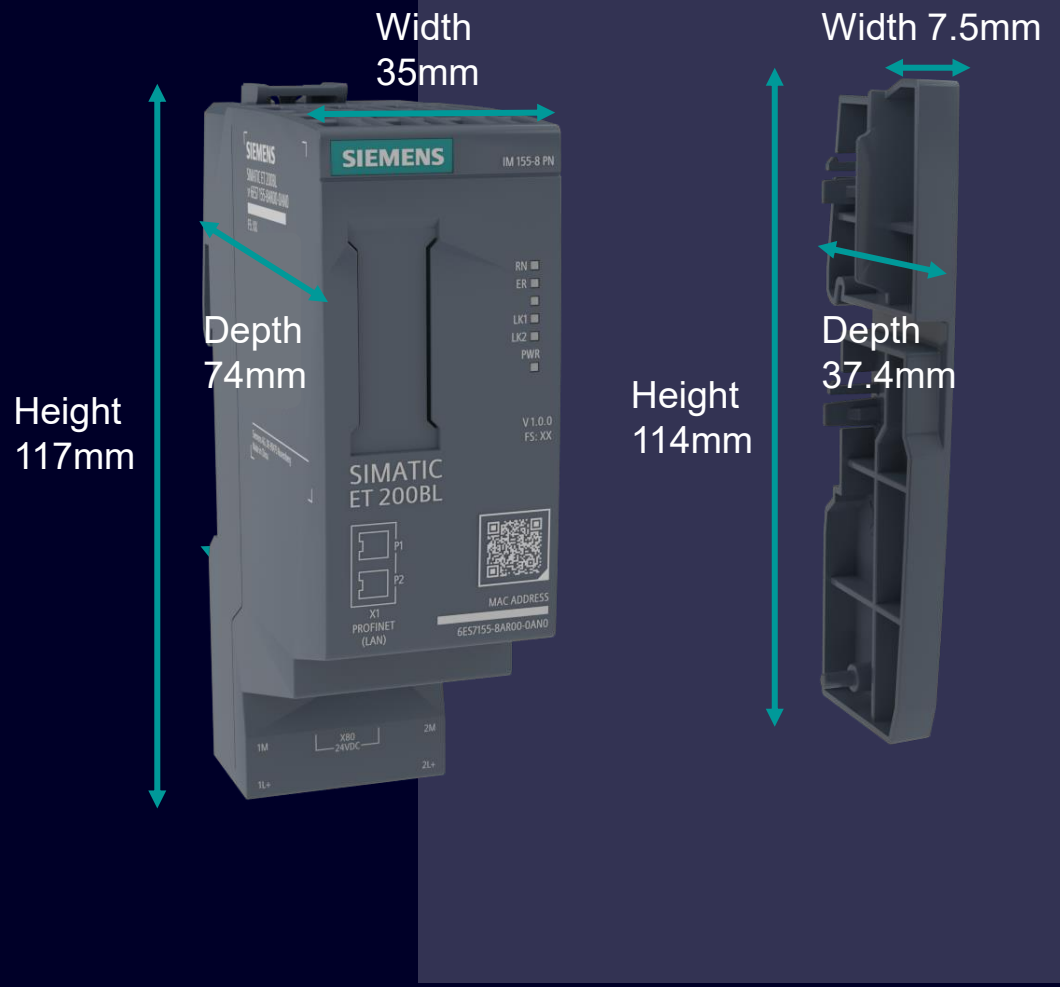
SIMATIC ET 200BL
Interface Module and End Cover

ET 200BL Interface Module

6ES7155-8AR00-0AN0 (MLFB bundle with end cover)

- PROFINET communication with 2xRJ45
- Cycle time 1ms
- Supports 16x I/O modules
- IRT support
- Engineering over GSDML
- Ambient conditions from -30˚C to 60˚C, 5000m altitudes



ET 200BL End Cover

Packed as bundle together with interface module

- Completes the ET 200BL station
- Plastic cover to protect the open connectors at the last module
- As spare part available in a package of 5x
  6ES7193-8SE00-1AB0

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SIMATIC ET 200BL
I/O module and terminal block

ET 200BL I/O module

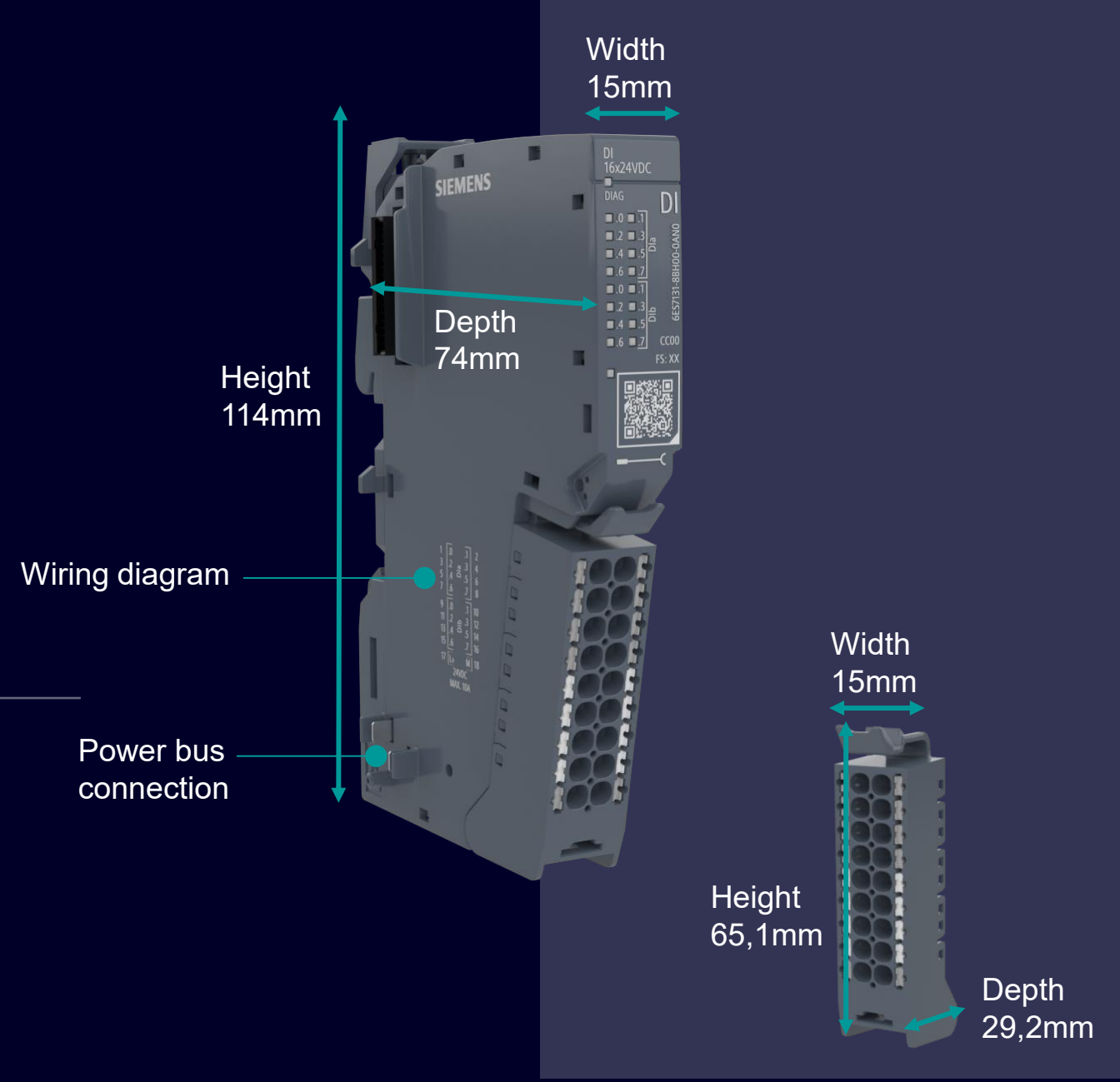
Hull MLFB: 6ES713*-8****-0AN0

- LED for diagnostic status
- LEDs for channel status
- LED for supply voltage
- Ambient conditions from -30˚C to 60˚C, 5000m altitudes
- Wiring diagram lasered on the side

ET 200BL Terminal block

Already integrated by ordering the I/O module

- Removable terminal block with push-in terminals
- 18x push-in terminals
- Terminal 17 and 18 field power supply, L+ 17 and M 18
- As spare part available in a package of 5x 6ES7193-8ST00-1AN0



SIMATIC ET 200BL
Digital input and output modules

SIMATIC ET 200BL digital input

DI 16x24VDC
6ES7131-8BH00-0AN0

- 16x digital inputs (PNP)
- Input type 1 (IEC 61131)
- Cable length up to 1000m
- Color code CC00

SIMATIC ET 200BL digital output

DQ 16x24VDC/0.5A
6ES7132-8BH00-0AN0

- 16x digital outputs (PNP)
- Output type 0,5 (IEC 61131)
- Total current per module 8A
- Cable length up to 1000m
- Color code CC00

SIMATIC ET 200BL digital output

DQ 4x24VDC/2A
6ES7132-8BD20-0AN0

- 4x digital outputs (PNP)
- Output type 2 (IEC 61131)
- Total current per module 8A
- You can connect 2 actuators per output
- Cable length up to 1000m
- Color code CC02

SIMATIC ET 200BL digital output

DQ 8x24VDC/2A
6ES7132-8BF20-0AN0

- 8x digital outputs (PNP)
- Output type 2 (IEC 61131)
- Total current per module 10A
- Cable length up to 1000m
- Color code CC02

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SIMATIC ET 200BL
Analog input modules

SIMATIC ET 200BL analog input

AI 8xI 2-/4-wire
6ES7134-8GF00-0AN0

- 8x analog inputs (current 0 to 20mA, 4 to 20mA and ± 20mA)
- 2-wire or 4-wire connection
- Wire break diagnostic at 4 to 20mA
- Short circuit protection for power supply 24V DC
- Cable length shielded up to 200m
- Color code CC01

SIMATIC ET 200BL analog input

AI 8xU
6ES7134-8FF00-0AN0

- 8x analog inputs (voltage ±10 V, 0 to 10V)
- 4 smoothing level
- Short circuit protection for power supply 24V DC
- Cable length shielded up to 200m
- Color code CC02

SIMATIC ET 200BL analog input

AI 4xRTD 2-/3-/4-wire
6ES7134-8LD00-0AN0

- 4x analog inputs (Thermal resistor and resistor)
- 4 smoothing level
- Cable length shielded up to 200m
- Color code CC00

SIMATIC ET 200BL analog input

AI 8xTC
6ES7134-8MF00-0AN0

- 8x analog inputs (Thermalcouple and voltage)
- Internal temperature compensation
- 4 smoothing level
- Cable length shielded up to 50m
- Color code CC00

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SIMATIC ET 200BL
Analog output modules

SIMATIC ET 200BL analog output

AQ 4xI
6ES7135-8GD00-0AN0

- 4x current analog outputs 2-wire connection (current 0 to 20mA, 4 to 20mA and ± 20mA)
- Wire break diagnostic
- Cable length shielded up to 1000m
- Color code CC00

SIMATIC ET 200BL analog output

AQ 4xU
6ES7135-8FD00-0AN0

- 4x voltage analog outputs 2-wire connection (voltage ±10 V, 0 to 10V)
- Cable length shielded up to 200m
- Color code CC00

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SIMATIC ET 200BL
Communication module

SIMATIC ET 200BL communication module

CM PtP RS422/485
6ES7137-8BA00-0AN0

- 1 channel RS422 or RS485
- Transmission rate 300 – 115200 bit/s
- Max. telegram length 1 kbyte
- Telegram buffer 2 kbyte
- Supported protocols
  - Freeport (ASCII)
  - Modbus RTU
- Cable length shielded up to 600 m
- Event trace for diagnostics on serial line communication

Supporting Library

LPtP

- For easy integration in engineering system
- Library available via SIOS or TIA Package Manager for
  - S7-1500 CPUs
  - S7-1200 CPUs
- SIOS ID: 109996604

Alternatively programming according to manual

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SIMATIC ET 200SP and ET 200BL - CM PtP Modules
Comparison Table

ET 200BL CM PtP RS422/485	Property	ET 200SP CM PtP
1	No. of interfaces	1
X	RS232	✓
✓	RS422 / RS485	✓
Terminal block	Connection technology	ET 200SP BU
115,200	Max. transmission rate (bit/s)	250,000
1	Max. telegram length (kbyte)	2
2	Receive buffer (kbyte)	4
✓	Freeport	✓
X	3964(R)	✓
✓	Modbus RTU (requires instructions)	✓
on request	USS	✓

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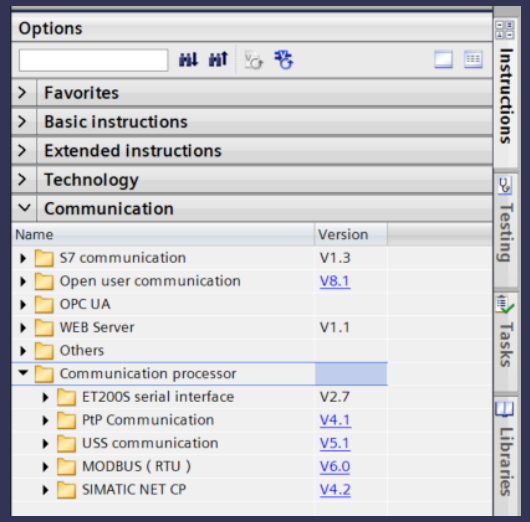
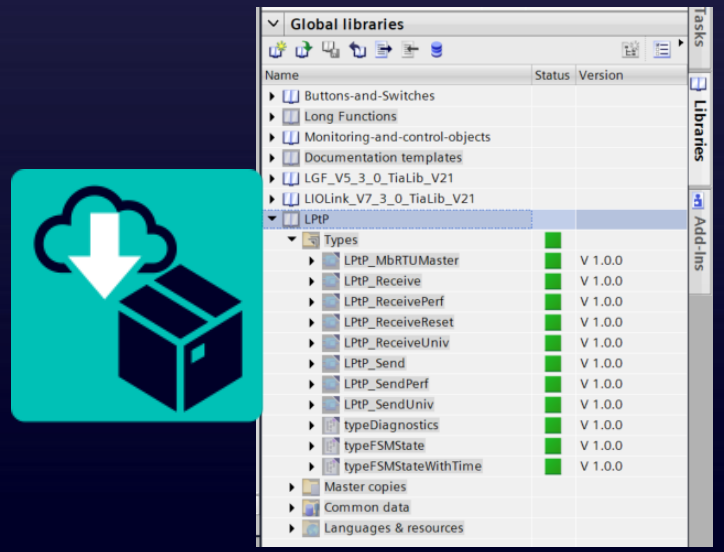
New library concept for CM PtP, introduced with ET 200BL CM PtP



Status quo:
FBs for communication available in TIA Portal - Communication instructions



Introduced with ET 200BL:
FBs for communication are available as LPtP Library in SIOS and TIA Package Manager

In future:
LPtP Library for all ET 200 CM PtPs

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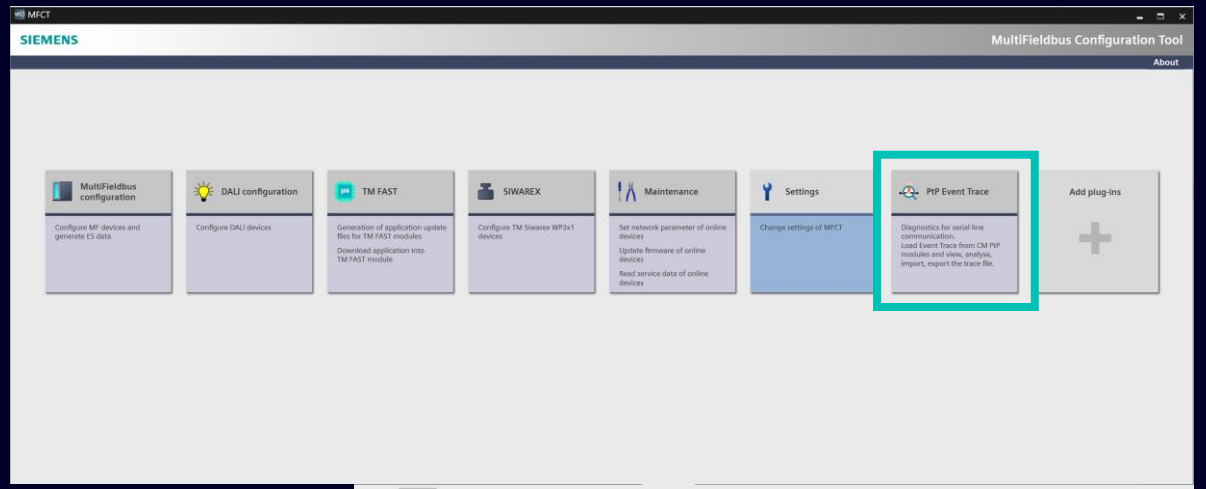
Event Trace Visualization with MFCT
available for all ET 200 CM PtPs



Online connection from MFCT to CM PtP to read out trace

Trace features

- Saving the 1000 previous events with detailed information:
  - type of events
  - input/output telegrams of CM PtP
  - processing in CM PtP
  - Timestamps
  - parametrization
- Colour highlighting* for better overview

Added value

- Structured and easy error tracking – for customers and Siemens support alike
- Holistic view on communication process during setup, maintenance and error handling

*available in MFCT V1.5.6.0

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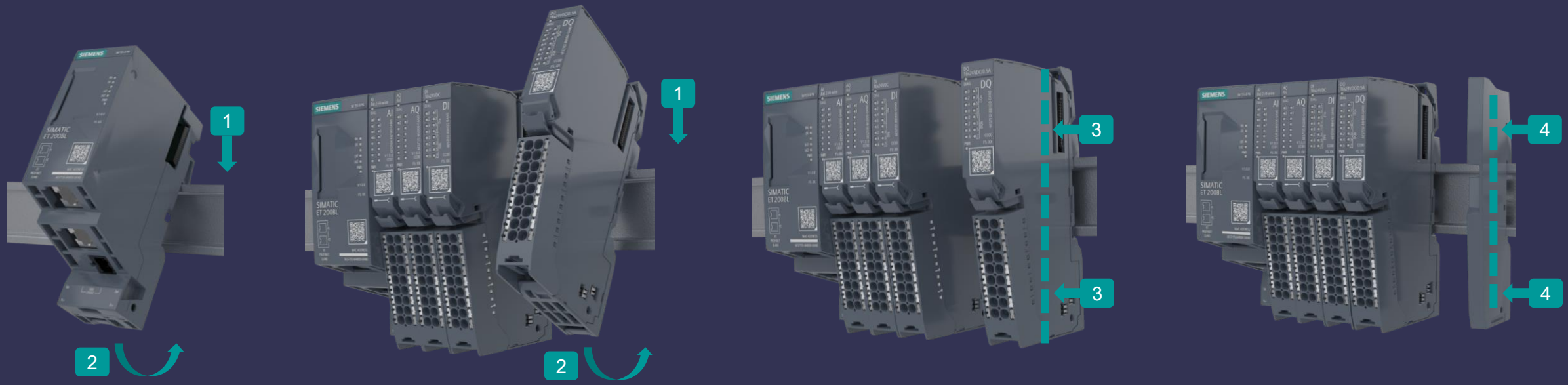
SIMATIC ET 200BL
Assembly



Assembling an ET 200BL I/O Station

1. Hook the device onto the mounting rail
2. Swivel the device back until you hear the mounting rail release button click into place
3. Move the I/O module parallel to the left until you hear it click into place at the interface module or the left I/O module
4. At last step click the end cover on the last used I/O module

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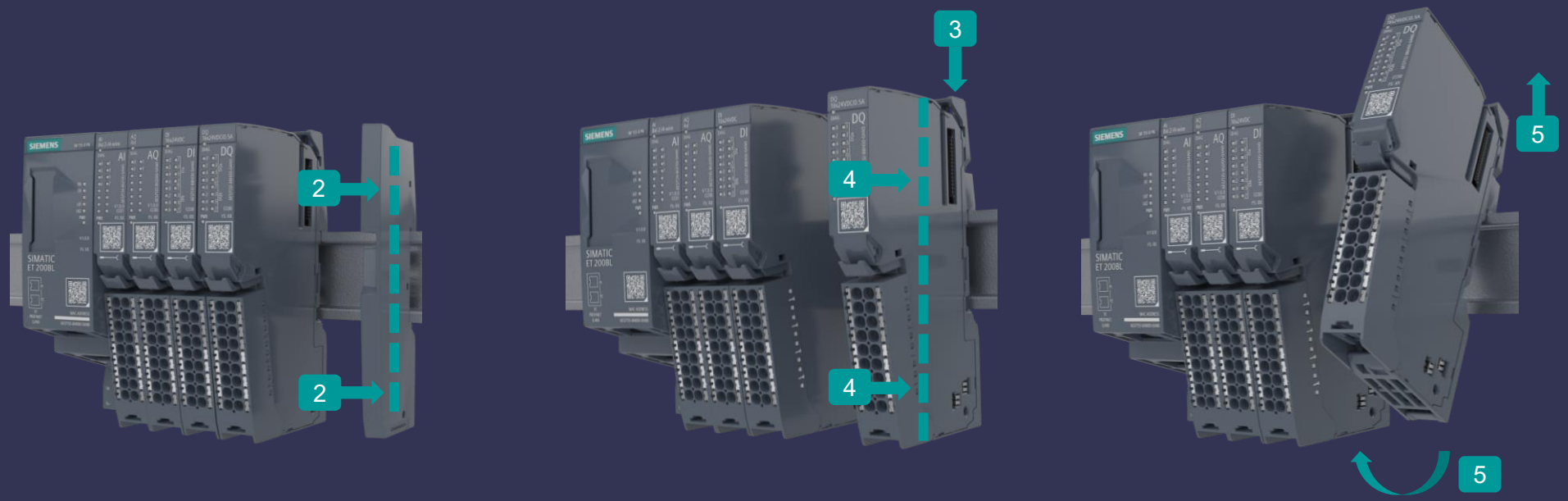
SIMATIC ET 200BL
Disassembly



Dissembling an ET 200BL I/O Station

1. Switch off all supply voltages on the ET 200BL distributed I/O system
2. Loose the end cover from the last I/O module
3. Press the mounting rail release firmly once on the I/O module that you want to remove
4. Move the I/O module parallel to the right and swivel the I/O module off the mounting rail
5. Swivel the I/O module out of the DIN rail

A complete I/O-Station can be plugged or removed in total from DIN-rail

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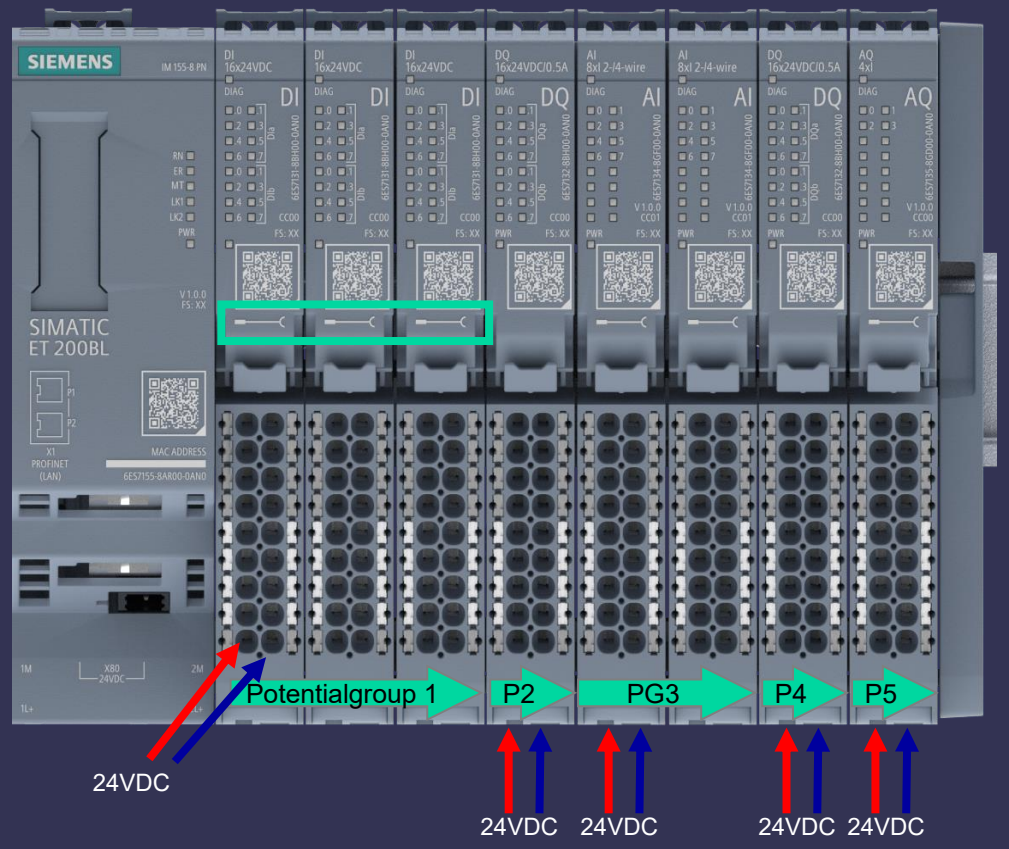
SIMATIC ET 200BL
Potential group building



Potential groups

Different types of modules

- DI-, AI-, and AQ-modules
  transfer 24VDC from left module to the right module
  only one module in the group has to be wired with power supply
- DQ modules
  uses their own potential
  → every module needs separate power supply

+ Less wiring effort

+ Reduced complexity

Recognize a new potential group by the symbol of potential transport lasered on the front of the I/O module

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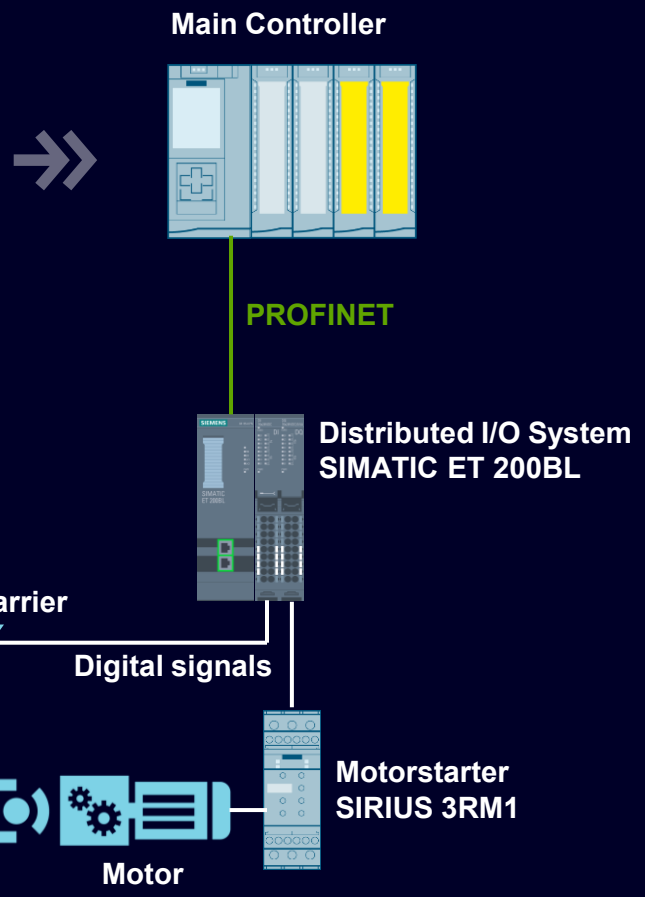
SIMATIC ET 200BL application example
Feeding boxes onto a main conveyor belt



CHALLENGE

As a machine builder, I am faced with the challenge of automating the transfer of empty cartons onto the main conveyor belt. In addition to the investment costs, integration into the overall automation system as well as reliability and quality play a significant role, as this sub-task is an important part of the overall process.

SOLUTION

SIMATIC ET 200BL offers the answer here as a cost-efficient decentralized peripheral. The I/O system precisely detects the position of the box via a light barrier and transmits the control signals to the motor. The result is automated, synchronized, and efficient box feeding that minimizes manual intervention and production disruptions.

TECHNICAL SOLUTION

The position of the box is detected by a light barrier. The signals are recorded by a digital input module of the ET 200BL and transmitted to the higher-level controller via PROFINET. Thanks to the supplied GSDML file, engineering is carried out as usual via the TIA Portal. Depending on the current production step, the controller starts or stops the motor for the conveyor belt via a digital output module of the periphery.

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Order details

	Device Designation	Article Number	Release date
First delivery stage			
Interface module	IM 155-8 PN	6ES7155-8AR00-0AN0	October 2025
Digital input module	DI 16x24VDC	6ES7131-8BH00-0AN0	October 2025
Digital output module	DQ 16x24VDC/0.5A	6ES7132-8BH00-0AN0	October 2025
Analogue input module	AI 8xI 2-/4-wire	6ES7134-8GF00-0AN0	October 2025
Analogue output module	AQ 4xI	6ES7135-8GD00-0AN0	October 2025
Accessories	Terminal block	6ES7193-8ST00-1AN0	October 2025
Accessories	End Cover	6ES7193-8SE00-1AB0	October 2025

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Order details

	Device Designation	MLFB	Release date
Second delivery stage			
Analogue input module	AI 8xU	6ES7134-8FF00-0AN0	March 2026
Analogue input module	AI 4xRTD	6ES7134-8LD00-0AN0	March 2026
Analogue input module	AI 8xTC	6ES7134-8MF00-0AN0	March 2026
Analogue output module	AQ 4xU	6ES7135-8FD00-0AN0	March 2026
Digital output module	DQ 8x24VDC/2A	6ES7132-8BF20-0AN0	March 2026
Digital output module	DQ 4x24VDC/2A	6ES7132-8BD20-0AN0	March 2026
Communication module	CM PtP RS422/485	6ES7137-8BA00-0AN0	March 2026

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SIMATIC ET 200BL
…discover more!

Website

https://siemens.com/et200bl

SIOS

https://support.industry.siemens.com/cs/ww/en/view/109991256

Manual

https://support.industry.siemens.com/cs/ww/en/view/109987784

Tools

https://support.industry.siemens.com/cs/ww/de/view/109991113

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Germany

http://www.siemens.com/et200bl

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Link collection

Manual collection ET 200BL:

DE: https://support.automation.siemens.com/WW/de/view/109987784
EN: https://support.automation.siemens.com/WW/en/view/109987784

GSDML File ET 200BL:

DE: https://support.industry.siemens.com/cs/ww/de/view/109991
EN: https://support.industry.siemens.com/cs/ww/en/view/109991

PRONETA

DE: https://www.siemens.com/de/de/produkte/automatisierung/industrielle-kommunikation/profinet/proneta.html
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TST:

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MFCT:

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