

BlueLine I/O Expander Type 8981A

- Extension module for inputs and outputs of BlueLine systems
- Transmission of digital control signals between machine and BlueLine system
- Galvanic separation against Bus-In/Out
- Each device can be galvanically separated by separate power supply
- Connection technology via spring terminal blocks with separate GND per Input / Output
- Clearly arranged status display via dual-colour LEDs
- Protection against short-circuit, overvoltage and reverse polarity
- Mechanically robust, space-saving and cascadable
- Connection with adjacent I/O modules without cable connections via top hat rail



Description

The I/O Expander type 8981A is an extension module within the BlueLine system with digital inputs and outputs. Its main function is transmitting control signals between the injection molding machine and the BlueLine system.

The spring-cage terminals of the I/O Expander have separate grounding for each input and output and guarantee a simple connection. The outputs are protected against short-circuits, overvoltage and reverse polarity. Thanks to the two-colour LEDs, the status of the inputs and outputs can be checked at a glance at any time.

The voltage inputs energize both the I/O Master logic and the outputs. The I/O Expander is galvanically isolated from the rest of the bus. The galvanic isolation between the bus participants enables a flexible and yet simple system structure because no separate supply of each output is necessary. All outputs are read back by the I/O Expander and permanently checked for their status. If the level of an output differs from its setpoint state, the I/O Master detects it and informs you that an error of the relevant output has occurred.

The bus signal is coupled with the I/O Expander via the Bus In connection. The following I/O Expanders or Bus Interfaces are connected via the top hat rail bus that is included in the delivery. This enables omitting external cabling between adjacent I/O modules. To enable bus signal transmission for the remote bus participants, the Bus Interface Type 8982A is used as a connection between the top hat rail bus and the Hybrid-Bus connecting cable Type 1280A.

The two rotating Coding Switches are used for setting the Function group and the Channel group of the I/O Expander.

Technical Data

General

Property	Specification
Dimension (L × W × H)	107.6 × 61 × 90 mm
Weight	0.397 kg
Working temperature range	0 ... 60 °C
Storage temperature range	-40 ... 80 °C
Conductor connection technology	Spring Terminal Blocks
Hot-plug	Yes
Assembly	Top hat rail
ESD protection	4 kV
RoHS-compliant	Yes

Power Supply

Property	Specification
Voltage range	18 ... 36 V
Standby current consumption	< 100 mA
Max. current consumption	8 A
Power supply via bus	No
Electrically separated against Bus In / Out	Yes
Electrically separated against Inputs / Outputs	No

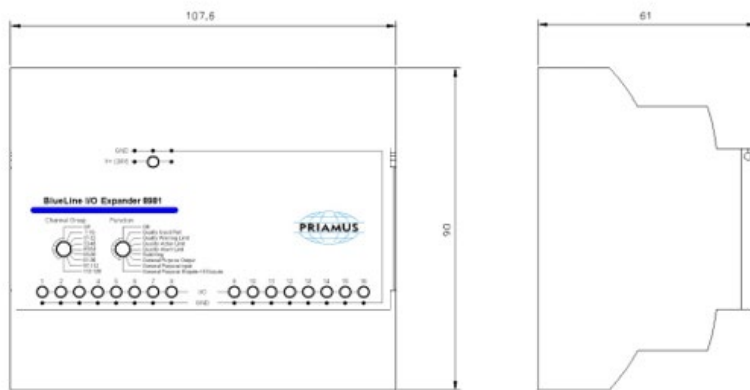
Outputs

Property	Specification
Continuous current (at 25 °C)	2 A
Peak current (self-limiting)	6 A
Short-circuit-proof	Yes
Rated contact voltage	8 ... 36 V
Surge protection (load dump)	52 V
Potential difference (at 2 A load)	0,4 V
Leakage current	< 10 µA
Switch-on delay	< 180 µs
Switch-off delay	< 200 µs
Maximum switchable inductance (at 2 A load)	< 20 mH
Status display on output HIGH	green
Status display on error (surge, short-circuit) against 24 V	red

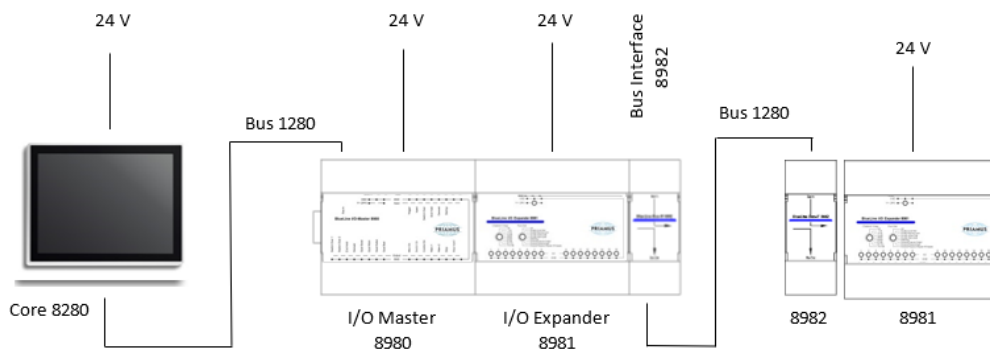
Inputs

Property	Specification
Max. voltage	52 V
Logic level for HIGH	> 3 V
Logic level for LOW	< 1.5 V
Current consumption	> 3 mA
Status display on input HIGH	green

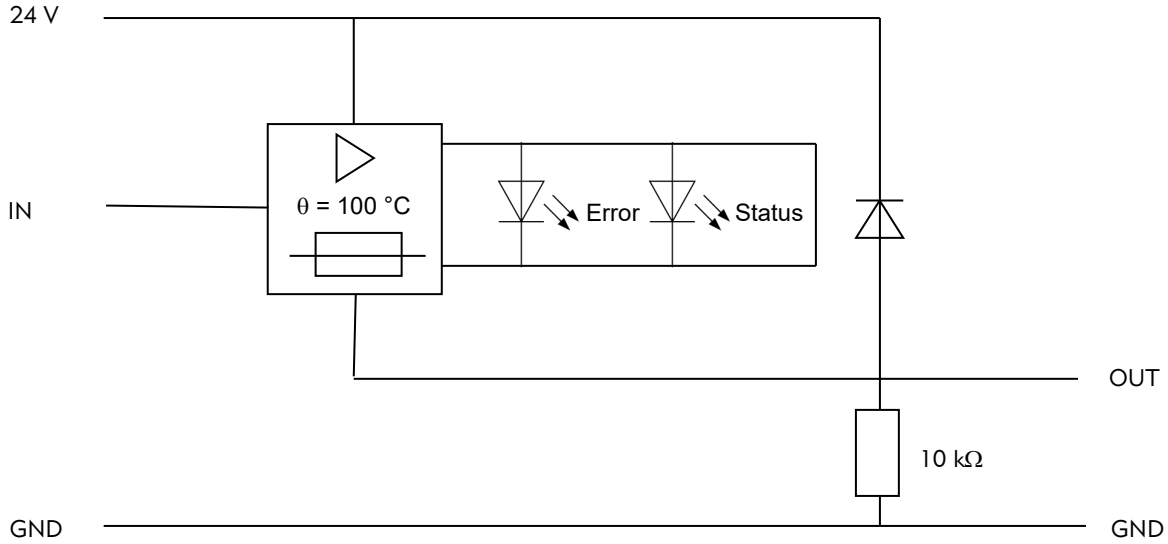
Dimension (in mm)



Interconnection Example in the Bus



Switching Diagram



Rotating Coding Switches for Function Groups

Position	Function Group Name	Explanation
1	Off	Not Defined → Warning
2	Quality Good Part	Quality Signal: Single Output Good part
3	Quality Warning Limit	Quality Signal: Single Output Warning Limit violated
4	Quality Action Limit	Quality Signal: Single Output: Intervention limit violated
5	Quality Alarm Limit	Quality Signal: Single Output: Alarm limit violated
6	Switching	Switching Signal: Single Output for switching operations (cascade, valve
7	General Purpose Output	General purpose output (reserve) for further outputs
8	General Purpose Input	General purpose output (reserve) for further outputs
9	General Purpose	8 Inputs + 8 Outputs

Rotating Coding Switches for Channel Groups

Position	Channel Group Name
1	1-16
2	17-32
3	33-48
4	49-64
5	65-80
6	81-96
7	97-112
8	113-128

Variant – External Interface

For mounting outside of the control cabinet, the separate housing type 8981A-E is available.



Accessories

Type number	Article
1041Ax	BlueLine connection cable for cavity pressure sensors Single-pin, with plastic sheath Both sides: Fischer connector type S 102 pos. TRIAX
1043Bx	BlueLine extension cable for cavity pressure sensors With metal sheath Side 1: Fischer connector type S 102 pos. TRIAX Side 2: Fischer connector type KBE 102 neg. TRIAX
1045Bx	BlueLine connection cable for cavity pressure sensors Multi-pin, with plastic sheath Side 1: Fischer connector type S 104 neg., 16-pin (Code 1) Side 2: 4 x Fischer connector type S 102 pos. TRIAX

Type number	Article
1047Ax	BlueLine connection cable for cavity pressure sensors Multi-pin, with plastic sheath Side 1: Fischer connector type S 104 neg., 16-pin (Code 1) Side 2: Fischer connector type S 102 pos. TRIAX
1049Bx	BlueLine connection cable for cavity pressure sensors Single-pin, with plastic sheath Both sides: Fischer connector type S 102 pos. TRIAX
1054Bx	BlueLine connection cable for cavity pressure sensors Multi-pin, with plastic sheath Both sides: Fischer connector type S 104 neg., 16-pin (Code 1)
1141Ax	BlueLine connection cable for cavity temperature sensors Single-pin, with plastic sheath Both sides: Fischer connector type S 101 pos. TRIAX
1142Bx	BlueLine extension cable for cavity pressure sensors Single-pin, with metal sheath Side 1: Fischer connector type S 101 pos. TRIAX Side 2: Fischer connector type KBE 101 neg. TRIAX
1144Ax	BlueLine connection cable for cavity temperature sensors Multi-pin, with plastic sheath Both sides: Fischer connector type S 104 neg. 19-pin (Code 2)
1145Ax	BlueLine connection cable for cavity temperature sensors Multi-pin, with plastic sheath Side 1: Fischer connector type S 104 neg. 19-pin (Code 2) Side 2: Fischer connector type S 101 pos. TRIAX
1147Bx	BlueLine connection cable for cavity temperature sensor Multi-pin, with plastic sheath Side 1: Fischer connector type S 104 neg. 19-pin (Code 2) Side 2: 4 x Fischer connector type S 101 pos. TRIAX
1149Bx	BlueLine connection cable for cavity temperature sensors Single-pin, with metal sheath Both sides: Fischer connector type S 101 pos. TRIAX
1194A-8T	BlueLine multi-channel connecting box for temperature signals For connecting a maximum of 8 cavity temperature sensors
1195A-8p	BlueLine multi-channel connecting box for pressure signals For connecting a maximum of 8 cavity pressure sensors

Type number	Article
5070A-2p2T-VARAN	BlueLine pressure and temperature amplifier VARAN Pressure: 2 × Single-channel connectors Fischer type 102 TRIAX / BNC Temperature: 2 × Single-channel connectors Fischer type 102 TRIAX
5080A-4p	BlueLine amplifier for cavity pressure signals with 4 channels 4 × single-channel connectors Fischer type 102 TRIAX
5080A-16p	BlueLine amplifier for cavity pressure signals with 16 channels 2 × multi-channel connectors Fischer type 104, 16-pin
5080A-4T	BlueLine amplifier for cavity temperature signals with 4 channels 4 × single-channel connectors Fischer type 101 TRIAX
5080A-16T	BlueLine amplifier for cavity temperature signals with 16 channels 2 × multi-channel connector Fischer type 104, 19-pin
8280C	BlueLine Core Control unit for monitoring and controlling of the injection molding process
8911A	BlueLine signal tester set Test device for checking cavity temperature and cavity pressure sensors. Complete set with numerous accessories in foam case
8952A	BlueLine signal tester Test device for checking cavity temperature and cavity pressure sensors.
8980C	BlueLine I/O Master Basic module for transmitting control signals between the injection molding machine and the BlueLine system.
8982A	BlueLine Bus Interface Coupling module between I/O modules for mounting on top hat rail bus, for transmitting control signals between the injection molding machine and the BlueLine system.
8983A	BlueLine Voltage input module For collecting voltage signals of the injection molding machine
8984A	BlueLine control cabinet Control cabinet with transparent front door for maximum 64 switching signals With 1 BlueLine I/O Master type 8980C and optionally 1–4 BlueLine I/O Expander type 8981A
8985A	BlueLine control cabinet Control cabinet with transparent front door for maximum 96 switching signals with 1 BlueLine I/O Master type 8980C and optionally 1–6 BlueLine I/O Expander type 8981A
9015A	BlueLine inductive switch for easy starting and measuring

Type number	Article
9016A	BlueLine power supply unit for: - BlueLine amplifiers types 5080A - BlueLine Core type 8280C
9080A	BlueLine top hat rail bus For mounting of several interconnected BlueLine devices such as I/O Master or I/O Expander