

P-Connect connection gateway

BP series

Wiring instructions

INDEX

1 Information on this document 4
1.1 Function 4
1.2 Target audience 4
1.3 Application field 4
1.4 Original instructions 4
2 Symbols used 4
3 Safety instructions 4
3.1 Device description 4
3.2 Intended use 4
3.3 Qualified personnel 5
3.4 Validation and periodic testing 5
3.5 Applicable directives and standards 6
3.6 Limits of liability 6
4 Wiring instructions 7
4.1 Wiring – Article BP A1•L2001 7
4.1.1 List of components – Gateway BP A1•L2001 7
4.1.2 Connector for power supply and data network 7
4.1.3 Safety device connectors 8
4.2 Wiring – Article BP A1•L2002 10
4.2.1 List of components – Gateway BP A1•L2002 10
4.2.2 Connectors for power supply and data network 10
4.2.3 Safety device connectors 10
4.3 Wiring – Article BP A1•L2003 13
4.3.1 List of components – Gateway BP A1•L2003 13
4.3.2 Connectors for power supply and data network 13
4.3.3 Safety device connectors 13
4.4 Wiring – Article BP A1•L2004 16
4.4.1 List of components – Gateway BP A1•L2004 16
4.4.2 Connector for power supply and data network 16
4.4.3 Safety device connectors 16
5 Communication data – Articles BP A1PL•••• 19
5.1 Diagnostic functions 19
5.2 Communication data BP A1PL2001 20
5.3 Communication data BP A1PL2002 22
5.4 Communication data BP A1PL2003 24
5.5 Communication data BP A1PL2004 26
6 Communication data – Articles BP A1CL•••• 28
6.1 Communication data BP A1CL2001 28
6.2 Communication data BP A1CL2002 32
6.3 Communication data BP A1CL2003 36
6.4 Communication data BP A1CL2004 40
7 Communication data – Articles BP A1EL•••• 44
7.1 Communication data BP A1EL2001 44
7.2 Communication data BP A1EL2002 46
7.3 Communication data BP A1EL2003 48
7.4 Communication data BP A1EL2004 50
8 Support 52
8.1 Website 52
8.2 Technical support 52
9 SPECIAL VERSIONS ON REQUEST 52
10 DISPOSAL 52

2024 © Pizzato Elettrica S.r.l.

11 SUPPORT 52
12 EC DECLARATION OF CONFORMITY 53

2024 © Pizzato Elettrica S.r.l.

1 INFORMATION ON THIS DOCUMENT

1.1 Function

This document provides information on the wiring and communication data of the P-Connect connection gateway and should be used in conjunction with the user instructions specific to the device in use.

1.2 Target audience

The operations described in this instruction manual must be carried out by qualified personnel only, who are fully capable of understanding them, and with the technical qualifications required for operating the machines and plants in which the safety devices are to be installed.

1.3 Application field

These instructions apply exclusively to the P-Connect connection gateway and to its accessories.

1.4 Original instructions

The Italian language version is the original set of instructions for the device. Versions provided in other languages are translations of the original instructions.

2 SYMBOLS USED

This manual uses various symbols, with the following meanings:

This symbol is used to indicate information or instructions that are very important for safety. Failure to observe such instructions may represent a serious risk to personnel.

This symbol indicates the presence of additional information, useful for a better understanding of the content provided.

3 SAFETY INSTRUCTIONS

3.1 Device description

The BP series P-Connect gateway is a network-based I/O interface device with safety functions designed for use in industrial contexts.

The gateway integrates a network switch that facilitates "daisy-chain" connection without any additional hardware.

3.2 Intended use

The device described in these operating instructions is designed to be applied on industrial machines for state monitoring of movable guards.

The direct sale of this device to the public is prohibited. Installation and use must be carried out by qualified personnel only.

The use of the device for purposes other than those specified in these operating instructions is prohibited.

Any use other than as expressly specified in these operating instructions shall be considered unintended by the manufacturer.

2024 © Pizzato Elettrica S.r.l.

Also considered unintended use:

a) Using the device after having made structural, technical, or electrical modifications to it;
b) Using the product in a field of application other than as described in chapter TECHNICAL DATA of the "Operating Instructions" manual.

3.3 Qualified personnel

The installation of the BP series P-Connect gateway and its configuration must be performed by qualified personnel.

The term "qualified personnel" refers to an individual who, based on their education, experience and training in the fields of industrial automation, safety and hazard prevention, has gained the following knowledge and skills:

- Knowledge of the BP series P-Connect gateway used and its application limits, as set out in this document as well as in the operating instructions, in addition to knowledge of devices connected to it (switches, control device units, handles, etc.) and relevant application limits.
- Knowledge of EU Directives applicable to the machinery on which the safety circuit managed by the gateway will be installed and, consequently, knowledge of the specific standards required to perform risk assessment on the machinery, and standards necessary to select safety measures aimed at preventing or mitigating the risks identified.

3.4 Validation and periodic testing

It is good practice and an obligation under applicable standards to perform initial and periodic testing on safety devices for machinery.

It is recommended to perform functional tests on the BP series P-Connect gateway when commissioning the machinery and at least once per year (or after a prolonged shut-down period).

The sequence of functional tests may vary depending on the complexity of the machine and its circuit diagram. An example of a minimal and non-exhaustive test sequence is provided in the "Operating Instructions" manual (see chapter MAINTENANCE AND FUNCTIONAL TESTS).

All BP series P-Connect gateways must be tested and qualified on machinery prior to commissioning of the machinery. Tests and validation must be repeated following any changes to the safety configuration of the machinery, both in the case of changes to configuration of the gateway or changes to machinery hardware. Note that many industrial components performing equivalent functions have different electrical parameters (contact bounces, response times, etc.) and safety parameters (PFHd or B10d).

2024 © Pizzato Elettrica S.r.l.

3.5 Applicable directives and standards

Machinery manufacturers intending to install and use a BP series P-Connect gateway for safety functions are responsible for checking compliance with all applicable European Directives prior to commissioning of the machinery.

Below is a non-exhaustive list providing examples of machinery directives:

Machinery Directive 2006/42/EC

Low Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

For application of CE marking to the machinery, the manufacturer may decide to use the harmonised EN standards appropriate for the machinery in question. As a reminder, some of the main standards employed for risk assessment and design in relation to the safety of machinery are listed below:

Standard	Content
EN ISO 13849-1/2	Safety of machinery — Safety-related parts of control systems
EN ISO 13850	Safety of machinery — Emergency stop function
EN ISO 12100	Safety of machinery — General principles for design
EN IEC 62061	Safety of machinery — Functional safety of safety-related control systems
EN 60204-1	Safety of machinery — Electrical equipment of machines
EN ISO 14119	Safety of machinery — Interlocking devices associated with guards
EN ISO 13851	Safety of machinery — Safety of machinery — Two-hand control devices
EN ISO 13857	Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 13855	Safety of machinery — Positioning of safeguards with respect to the approach of the human body

3.6 Limits of liability

This manual has been prepared and checked to the best of our knowledge. This does not eliminate the possibility of imprecise information or mistakes or potential improvements to the document. Your suggestions are valued and welcomed. On our website www.pizzato.com, you can check for updated versions of this manual and access feedback tools to submit suggestions or report errors. Registration on the website will also enable us to notify you about software releases with new features, improvements, bug fixes and hardware updates.

Pizzato Elettrica reserves the right to correct and modify this manual and all information contained within it at its full discretion, at any time, and without prior notice.

The information contained in this document does not imply that Pizzato Elettrica assumes any responsibility beyond that set out in the general terms and conditions of sale, contained in the General Catalogue. Any further liability must be confirmed in writing by Pizzato Elettrica.

2024 © Pizzato Elettrica S.r.l.

4 WIRING INSTRUCTIONS

4.1 Wiring – Article BP A1•L2001

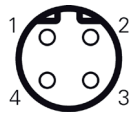
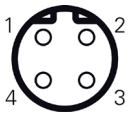
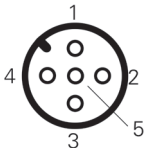
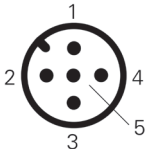
4.1.1 List of components – Gateway BP A1•L2001

Examples of devices that can be connected:

- NG series safety switch (only articles of batches produced after 06/2021)
- NS series safety switch (only articles of batches produced after 06/2019)
- NX series safety switch (only articles of batches produced after 03/2025)
- BN series control device unit
- AN series safety handle

4.1.2 Connectors for power supply and data network

The connectors for power supply and data transmission are positioned on the "Side with network and power connectors" and are labelled with the markings POWER IN, POWER OUT, ETH 1 and ETH 2.

			
ETH 2 M12, 4-pole, female D-coded	**ETH 1** M12, 4-pole, female D-coded	**POWER OUT** M12, 5-pole, female A-coded	**POWER IN** M12, 5-pole, male A-coded

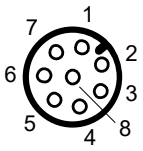
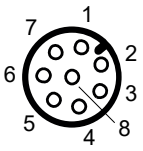
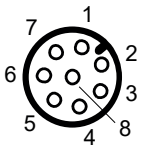
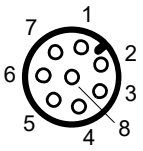
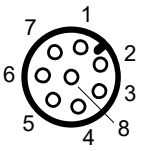
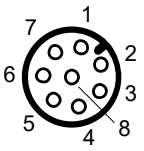
DATA connectors			POWER SUPPLY connectors		
ETH 1	**ETH 2**	**Function**	**POWER IN**	**POWER OUT**	**Function**
1	1	TX +	1	1	+24 Vdc
2	2	RX +	2	2	0 Vdc
3	3	TX -	3	3	0 Vdc
4	4	RX -	4	4	+24 Vdc
			5	5	GND

The device must be connected to earth using the conductor connected to the GND pin.

2024 © Pizzato Elettrica S.r.l.

4.1.3 Safety device connectors

The connectors for connecting the devices are positioned on the "Side with device connectors" and are indicated with the numbers 1, 2, 3, 4, 5, 6.

					
Connector no. 1	**Connector no. 2**	**Connector no. 3**	**Connector no. 4**	**Connector no. 5**	**Connector no. 6**
M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded

Connector no. 1: NG/NS series safety switches			
Pin	**Type**	**P-Connect side**	**NG/NS side**
1	O	+24 Vdc power supply	A1
2	I	Actuator enabled signal input	O3
3	O	0 Vdc power supply	A2
4	I	Safety input IS1	OS1
5	O	Solenoid activation command OS1	IE2
6	O	Actuator programming / reset	I3
7	I	Safety input IS2	OS2
8	O	Solenoid activation command OS2	IE1

Connector no. 2: NG/NS series safety switches			
Pin	**Type**	**P-Connect side**	**NG/NS side**
1	O	+24 Vdc power supply	A1
2	I	Actuator enabled signal input	O3
3	O	0 Vdc power supply	A2
4	I	Safety input IS3	OS1
5	O	Solenoid activation command OS1	IE2
6	O	Actuator programming / reset	I3
7	I	Safety input IS4	OS2
8	O	Solenoid activation command OS2	IE1

Connectors no. 3 & 4: BN AC3•••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	+24 Vdc power supply
2	I	Non-safety input for contact of button 1	Button 1 contact
3	-	Disconnected	Disconnected
4	I	Non-safety input for contact of button 2	Button 2 contact
5 (2)	O	Test output TO1	Emergency stop button test input
6 (2)	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
7 (2)	O	Test output TO2	Emergency stop button test input
8 (2)	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact

2024 © Pizzato Elettrica S.r.l.

Connectors no. 5 & 6: AN series safety handles			
Pin	**Type**	**P-Connect side**	**AN side**
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5 (1)	O	+24 V output for button contact	Button NO voltage-free contact input
6 (1)	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

Legend:			
A1	Supply input +24 Vdc	OSx	Safety outputs
A2	Supply input 0 V	I3	Actuator programming input/reset
IE1, IE2	Solenoid activation inputs	I5	EDM input (cannot be used on BP series)
O3	Signalling output, actuator inserted	I	Device input
O4	Signalling output, actuator inserted and locked	O	Device output
ISx	Safety inputs	NC	Normally closed contact

(1) Note: The output of pin 5 is intended for the control of a pulsed signal for testing a voltage-free contact. Pin 5 must be enabled by the PLC to supply 24 V at the input contact of the button. Monitoring of the contact commutation takes place via pin 6.

(2) Note: Test outputs TO1 and TO2 supply signals to the NC safety contacts of the emergency stop button. Safety inputs IS5 and IS6 are used to read the TOx signals fed through the NC safety contacts of the emergency stop button.

For more information about electrical connections of the safety devices, refer to the respective instructions for use, available on our website www.pizzato.com

2024 © Pizzato Elettrica S.r.l.

4.2 Wiring – Article BP A1•L2002

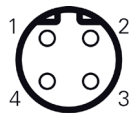
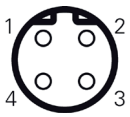
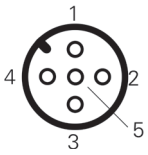
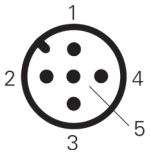
4.2.1 List of components – Gateway BP A1•L2002

Examples of devices that can be connected:

- NG series safety switch (only articles of batches produced after 06/2021)
- NS series safety switch (only articles of batches produced after 06/2019)
- NX series safety switch (only articles of batches produced after 03/2025)
- BN series control device unit
- AN series safety handle
- Control unit with emergency stop and ES AC series luminous disc
- 1 safety device with OSSD safety outputs, at the user's choice
- 1 signalling device (for example: indicator light tower), at the user's choice

4.2.2 Connectors for power supply and data network

The connectors for power supply and data transmission are positioned on the "Side with network and power connectors" and are labelled with the markings POWER IN, POWER OUT, ETH 1 and ETH 2.

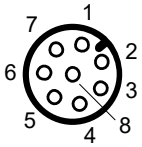
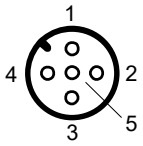
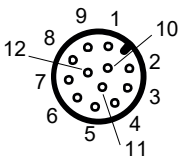
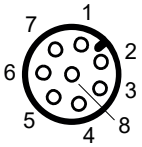
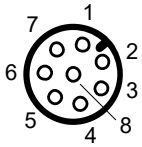
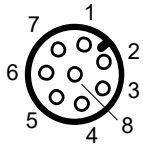
			
ETH 2 M12, 4-pole, female D-coded	**ETH 1** M12, 4-pole, female D-coded	**POWER OUT** M12, 5-pole, female A-coded	**POWER IN** M12, 5-pole, male A-coded

DATA connectors			POWER SUPPLY connectors		
ETH 1	**ETH 2**	**Function**	**POWER IN**	**POWER OUT**	**Function**
1	1	TX +	1	1	+24 Vdc
2	2	RX +	2	2	0 Vdc
3	3	TX -	3	3	0 Vdc
4	4	RX -	4	4	+24 Vdc
			5	5	GND

The device must be connected to earth using the conductor connected to the GND pin.

4.2.3 Safety device connectors

The connectors for connecting the devices are positioned on the "Side with device connectors" and are indicated with the numbers 1, 2, 3, 4, 5, 6.

					
Connector no. 1	**Connector no. 2**	**Connector no. 3**	**Connector no. 4**	**Connector no. 5**	**Connector no. 6**
M12, 8-pole, female, A-coded	M12, 5-pole, female, A-coded	M12, 12-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded

2024 © Pizzato Elettrica S.r.l.

Connector no. 1: NG/NS series safety switches			
Pin	**Type**	**P-Connect side**	**NG/NS side**
1	O	+24 Vdc power supply	A1
2	I	Actuator enabled signal input	O3
3	O	0 Vdc power supply	A2
4	I	Safety input IS1	OS1
5	O	Solenoid activation command OS1	IE2
6	O	Actuator programming / reset	I3
7	I	Safety input IS2	OS2
8	O	Solenoid activation command OS2	IE1

Connector no. 2: Safety sensor with OSSD outputs			
Pin	**Type**	**P-Connect side**	**Sensor side**
1	O	+24 Vdc power supply	A1
2	I	Safety input IS3	OS1
3	O	0 Vdc power supply	A2
4	I	Safety input IS4	OS2
5	O	Signalling input	O3

Connector no. 3: BN AC4•••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	Power supply +24 V
2	O	Position 1 LED control output	Position 1 LED control input
3	I	0 Vdc power supply	Power supply 0 V
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Position 3 LED control output	Position 3 LED control input
9	I	Input for button 4 contact	Button 4 contact
10	-	Disconnected	Disconnected
11	-	Disconnected	Disconnected
12	O	Position 4 LED control output	Position 4 LED control input

Connector no. 4: Luminous disc and emergency stop unit			
Pin	**Type**	**P-Connect side**	**Luminous disc and emergency stop unit side**
1	-	Disconnected	Disconnected
2	O	Control output luminous disc +24 Vdc	Control input luminous disc +24 V
3	O	Luminous disc power supply 0 Vdc	Power supply 0 V
4	-	Disconnected	Disconnected
5 (2)	O	Test output TO1	Emergency stop button test input
6 (2)	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
7 (2)	O	Test output TO2	Emergency stop button test input
8 (2)	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact

2024 © Pizzato Elettrica S.r.l.

Connector no. 5: AN series safety handles			
Pin	**Type**	**P-Connect side**	**AN side**
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5 (1)	O	+24 V output for button contact	Button NO voltage-free contact input
6 (1)	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

Connector no. 6: Indicator light tower (reference wiring diagram)			
Pin	**Type**	**P-Connect side**	**Indicator light tower side**
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input LED 1
4	O	Control output LED 4	Control input LED 4
5	O	Buzzer control output	Buzzer control input
6	I	Signalling input	Signalling output
7	O	Control output LED 2	Control input LED 2
8	O	Control output LED 3	Control input LED 3

Legend:			
A1	Supply input +24 Vdc	OSx	Safety outputs
A2	Supply input 0 V	I3	Actuator programming input/reset
IE1, IE2	Solenoid activation inputs	I5	EDM input (cannot be used on BP series)
O3	Signalling output, actuator inserted	I	Device input
O4	Signalling output, actuator inserted and locked	O	Device output
ISx	Safety inputs	NC	Normally closed contact

(1) Note: This function is dedicated to the control of a button with a voltage-free contact. Pin 5 must be enabled by the PLC to supply 24 V at the input contact of the button. Monitoring of the contact commutation takes place via pin 6.

(2) Note: Test outputs TO1 and TO2 supply signals to the NC safety contacts of the emergency stop button. Safety inputs IS5 and IS6 are used to read the TOx signals fed through the NC safety contacts of the emergency stop button.

For more information about electrical connections of the safety devices, refer to the respective instructions for use, available on our website www.pizzato.com

2024 © Pizzato Elettrica S.r.l.

4.3 Wiring – Article BP A1•L2003

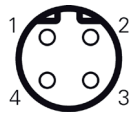
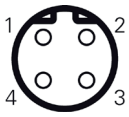
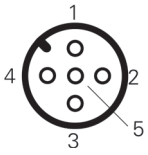
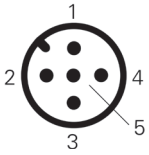
4.3.1 List of components – Gateway BP A1•L2003

Examples of devices that can be connected:

- 2 NG/NS series safety switches with integrated command devices (only articles of batches produced after 06/2021)
- 2 AN series safety handles

4.3.2 Connectors for power supply and data network

The connectors for power supply and data transmission are positioned on the "Side with network and power connectors" and are labelled with the markings POWER IN, POWER OUT, ETH 1 and ETH 2.

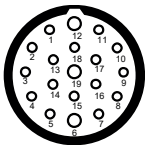
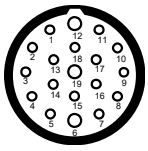
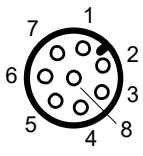
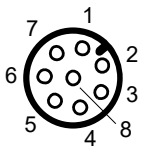
			
ETH 2 M12, 4-pole, female D-coded	**ETH 1** M12, 4-pole, female D-coded	**POWER OUT** M12, 5-pole, female A-coded	**POWER IN** M12, 5-pole, male A-coded

DATA connectors			POWER SUPPLY connectors		
ETH 1	**ETH 2**	**Function**	**POWER IN**	**POWER OUT**	**Function**
1	1	TX +	1	1	+24 Vdc
2	2	RX +	2	2	0 Vdc
3	3	TX -	3	3	0 Vdc
4	4	RX -	4	4	+24 Vdc
			5	5	GND

The device must be connected to earth using the conductor connected to the GND pin.

4.3.3 Safety device connectors

The connectors for connecting the devices are positioned on the "Side with device connectors" and are indicated with the numbers 1, 2, 3, 4.

			
Connector no. 1	**Connector no. 2**	**Connector no. 3**	**Connector no. 4**
M23, 19-pole, female, A-coded	M23, 19-pole, female, A-coded	M12, 8-pole, female, A-coded	M12, 8-pole, female, A-coded

2024 © Pizzato Elettrica S.r.l.

Connector no. 1: NG/NS series safety switches			
Pin	**Type**	**P-Connect side**	**NG/NS side**
1	O	Single-channel solenoid activation output	I4
2	O	Short circuit +24 VDC	IS1
3	O	Short circuit +24 VDC	IS2
4	I	Safety input IS1	OS1
5	I	Safety input IS2	OS2
6	O	+24 Vdc power supply	A1
7	O	Actuator programming / reset	I3
8	I	Signalling input, actuator inserted	O3
9	I	Locked guard signal input	O4
10 (2)	O	Test output TO1	Emergency stop button test input
11 (2)	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	-	Not connected	I5
13 (2)	O	Test output TO2	Emergency stop button test input
14 (2)	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
15	I	Input for position 2 contact	Position 2 contact
16	O	Position 2 LED control output	Position 2 LED control input
17	I	Input for position 1 contact	Position 1 contact
18	O	Position 1 LED control output	Position 1 LED control input
19	I	0 Vdc power supply	A2

Connector no. 2: NG/NS series safety switches			
Pin	**Type**	**P-Connect side**	**NG/NS side**
1	O	Single-channel solenoid activation output	I4
2	O	Short circuit +24 VDC	IS1
3	O	Short circuit +24 VDC	IS2
4	I	Safety input IS3	OS1
5	I	Safety input IS4	OS2
6	O	+24 Vdc power supply	A1
7	O	Actuator programming / reset	I3
8	I	Signalling input, actuator inserted	O3
9	I	Locked guard signal input	O4
10 (2)	O	Test output TO1	Emergency stop button test input
11 (2)	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	-	Not connected	I5
13 (2)	O	Test output TO2	Emergency stop button test input
14 (2)	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
15	I	Input for position 2 contact	Position 2 contact
16	O	Position 2 LED control output	Position 2 LED control input
17	I	Input for position 1 contact	Position 1 contact
18	O	Position 1 LED control output	Position 1 LED control input
19	I	0 Vdc power supply	A2

2024 © Pizzato Elettrica S.r.l.

Connectors no. 3 & 4: AN series safety handles			
Pin	**Type**	**P-Connect side**	**AN side**
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5 (1)	O	+24 V output for button contact	Button NO voltage-free contact input
6 (1)	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

Legend:			
A1	Supply input +24 Vdc	OSx	Safety outputs
A2	Supply input 0 V	I3	Actuator programming input/reset
IE1, IE2	Solenoid activation inputs	I5	EDM input (cannot be used on BP series)
O3	Signalling output, actuator inserted	I	Device input
O4	Signalling output, actuator inserted and locked	O	Device output
ISx	Safety inputs	NC	Normally closed contact

(1) Note: This function is dedicated to the control of a button with a voltage-free contact. Pin 5 must be enabled by the PLC to supply 24 V at the input contact of the button. Monitoring of the contact commutation takes place via pin 6.

(2) Note: Test outputs TO1 and TO2 supply signals to the NC safety contacts of the emergency stop button. Safety inputs IS5 and IS6 are used to read the TOx signals fed through the NC safety contacts of the emergency stop button.

For more information about electrical connections of the safety devices, refer to the respective instructions for use, available on our website www.pizzato.com

2024 © Pizzato Elettrica S.r.l.

4.4 Wiring – Article BP A1•L2004

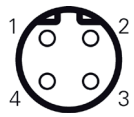
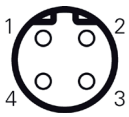
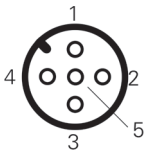
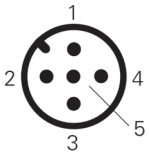
4.4.1 List of components – Gateway BP A1•L2004

Examples of devices that can be connected:

- 4 BN series control device units
- 2 safety devices with OSSD safety outputs, at the user's choice

4.4.2 Connectors for power supply and data network

The connectors for power supply and data transmission are positioned on the "Side with network and power connectors" and are labelled with the markings POWER IN, POWER OUT, ETH 1 and ETH 2.

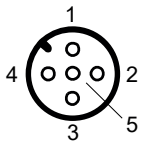
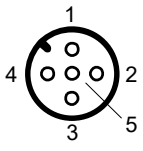
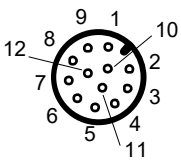
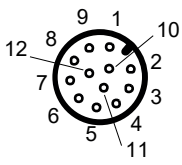
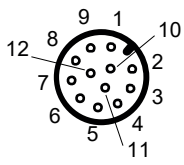
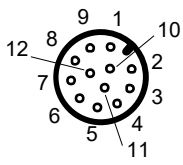
			
ETH 2 M12, 4-pole, female D-coded	**ETH 1** M12, 4-pole, female D-coded	**POWER OUT** M12, 5-pole, female A-coded	**POWER IN** M12, 5-pole, male A-coded

DATA connectors			POWER SUPPLY connectors		
ETH 1	**ETH 2**	**Function**	**POWER IN**	**POWER OUT**	**Function**
1	1	TX +	1	1	+24 Vdc
2	2	RX +	2	2	0 Vdc
3	3	TX -	3	3	0 Vdc
4	4	RX -	4	4	+24 Vdc
			5	5	GND

The device must be connected to earth using the conductor connected to the GND pin.

4.4.3 Safety device connectors

The connectors for connecting the devices are positioned on the "Side with device connectors" and are indicated with the numbers 1, 2, 3, 4, 5, 6.

					
Connector no. 1	**Connector no. 2**	**Connector no. 3**	**Connector no. 4**	**Connector no. 5**	**Connector no. 6**
M12, 5-pole, female, A-coded	M12, 5-pole, female, A-coded	M12, 12-pole, female, A-coded	M12, 12-pole, female, A-coded	M12, 12-pole, female, A-coded	M12, 12-pole, female, A-coded

Connector no. 1: Series NG/NS/NX/ST safety switches via VF CY			
Pin	**Type**	**P-Connect side**	**Switch side**
1	O	+24 Vdc power supply	A1
2	I	Safety input IS1	OS1
3	O	0 Vdc power supply	A2
4	I	Safety input IS2	OS2
5	O	Safety output DO1	I3/IE1

2024 © Pizzato Elettrica S.r.l.

Connector no. 2: Series NG/NS/NX/ST safety switches via VF CY			
Pin	**Type**	**P-Connect side**	**Switch side**
1	O	+24 Vdc power supply	A1
2	I	Safety input IS3	OS1
3	O	0 Vdc power supply	A2
4	I	Safety input IS4	OS2
5	O	Safety output DO2	I3/IE1

Connector no. 3: BN AC••••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	Power supply +24 V
2	I	Position 1 LED control output	Position 1 LED control input
3	O	0 Vdc power supply	Power supply 0 V
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Test output TO1 (1)	Emergency stop button test input
9	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
10	O	Test output TO2 (1)	Emergency stop button test input
11	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	O	Position 3 LED control output	Position 3 LED control input

Connector no. 4: BN AC••••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	Power supply +24 V
2	I	Position 1 LED control output	Position 1 LED control input
3	O	0 Vdc power supply	Power supply 0 V
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Test output TO1 (1)	Emergency stop button test input
9	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
10	O	Test output TO2 (1)	Emergency stop button test input
11	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	O	Position 3 LED control output	Position 3 LED control input

2024 © Pizzato Elettrica S.r.l.

Connector no. 5: BN AC••••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	Power supply +24 V
2	I	Position 1 LED control output	Position 1 LED control input
3	O	0 Vdc power supply	Power supply 0 V
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Test output TO1 (1)	Emergency stop button test input
9	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
10	O	Test output TO2 (1)	Emergency stop button test input
11	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	O	Position 3 LED control output	Position 3 LED control input

Connector no. 6: BN AC••••• series control device units			
Pin	**Type**	**P-Connect side**	**BN side**
1	O	+24 Vdc power supply	Power supply +24 V
2	I	Position 1 LED control output	Position 1 LED control input
3	O	0 Vdc power supply	Power supply 0 V
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Test output TO1 (1)	Emergency stop button test input
9	I	Safety input IS5 for NC contact of emergency stop button	Emergency stop button NC safety contact
10	O	Test output TO2 (1)	Emergency stop button test input
11	I	Safety input IS6 for NC contact of emergency stop button	Emergency stop button NC safety contact
12	O	Position 3 LED control output	Position 3 LED control input

Legend:			
A1	Supply input +24 Vdc	OSx	Safety outputs
A2	Supply input 0 V	I3	Actuator programming input/reset
IE1, IE2	Solenoid activation inputs	I5	EDM input (cannot be used on BP series)
O3	Signalling output, actuator inserted	I	Device input
O4	Signalling output, actuator inserted and locked	O	Device output
ISx	Safety inputs	NC	Normally closed contact

(1) Note: Test outputs TO1 and TO2 supply signals to the NC safety contacts of the emergency stop button. Safety inputs IS5 and IS6 are used to read the TOx signals fed through the NC safety contacts of the emergency stop button.

For more information about electrical connections of the safety devices, refer to the respective instructions for use, available on our website www.pizzato.com

2024 © Pizzato Elettrica S.r.l.

5 COMMUNICATION DATA – ARTICLES BP A1PL•••

5.1 Diagnostic functions

Module	Byte	Bit	Ref.	Function
Error Flags	0	0	PWR_GD	Supply voltage exceeds specified limits
		1	TEMP	Temperature exceeds specified limits
		2	PWR_CS	Power supply current of the connected devices exceeds the specified limits
		3	SIG_CS	Current of non-safety outputs exceeds the specified range
		4	N.A.	
		5	N.A.	
		6	N.A.	
		7	N.A.	
Warning Flags	0	0	PWR_GD	Supply voltage exceeds the specified range
		1	TEMP	Temperature exceeds the specified range
		2	PWR_CS	Device current exceeds the specified range
		3	SIG_CS	Current at non-safety outputs exceeds the specified range
		4	N.A.	
		5	N.A.	
		6	N.A.	
		7	SAFETY_ MOD	Fault in safe channel
Diagnostic Data Monitor	0	-	Voltage	Supply voltage [mV]
	1			
	2	-	Temperature	Device internal temperature [°C + 100]
	3			
	4	-	Current	Current consumption of connected devices [mA]
	5			
	6	-	-	RESERVED
	7			

2024 © Pizzato Elettrica S.r.l.

5.2 Communication data BP A1PL2001

Module	Byte	Bit	Ref.	Device	Function
Unsafe inputs	0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
		1	I1	-	N.A.
		2	I2	2	State of output O3 (guard closed) of safety interlock 2
		3	I3	-	N.A.
		4	I4	3	State of button 1 of the BN1 control device unit
		5	I5	3	Status of button 2 of the control device unit BN1
		6	I6	-	N.A.
		7	I7	-	N.A.
	1	0	I8	4	Status of button 1 of the control device unit BN2
		1	I9	4	Status of button 2 of the control device unit BN2
		2	I10	-	N.A.
		3	I11	-	N.A.
		4	I12	5	Status of button 1 of the AN1 safety handle
		5	I13	6	Status of button 1 of the AN2 safety handle
		6	N.A.	-	
		7	N.A.	-	
Unsafe Outputs	0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
		1	O1	2	Programming actuator / reset of interlock 2 (Input I3)
		2	O2	-	N.A.
		3	O3	-	N.A.
		4	O4	-	N.A.
		5	O5	-	N.A.
		6	O6	-	N.A.
		7	O7	-	N.A.
	1	0	O8	-	N.A.
		1	O9	-	N.A.
		2	O10	-	N.A.
		3	O11	-	N.A.
		4	O12	-	N.A.
		5	O13	-	N.A.
		6	O14	5	Control of Green colour (G) of the AN1 safety handle
		7	O15	5	Control of button LED of the AN1 safety handle
	2	0	O16	5	Output signal of NO contact of the AN1 safety handle
		1	O17	5	Control of Blu colour (B) of the AN1 safety handle
		2	O18	5	Control of Red colour (R) of the AN1 safety handle
		3	O19	6	Control of Green colour (G) of the AN2 safety handle
		4	O20	6	Control of button LED of the AN2 safety handle
		5	O21	6	Output signal of NO contact of the AN2 safety handle
		6	O22	6	Control of Blu colour (B) of the AN2 safety handle
		7	O23	6	Control of Red colour (R) of the AN2 safety handle

2024 © Pizzato Elettrica S.r.l.

Module	Byte	Bit	Ref.	Device	Function
Safety Inputs	0	0	DI1	1	State of safety output (OS1) of safety interlock 1
		1	DI2	1	State of safety output (OS2) of safety interlock 1
		2	DI3	2	State of safety output (OS1) of safety interlock 2
		3	DI4	2	State of safety output (OS2) of safety interlock 2
		4	DI5	3/4	State of emergency stop button
		5	DI6	3/4	State of emergency stop button
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	QDI1	1	State of the qualifier of the safety input 1
		1	QDI2	1	State of the qualifier of the safety input 2
		2	QDI3	2	State of the qualifier of the safety input 3
		3	QDI4	2	State of the qualifier of the safety input 4
		4	QDI5	3/4	State of the qualifier of the safety input 5
		5	QDI6	3/4	State of the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	QDO1	1	State of the safe output qualifier 1
		1	QDO2	2	State of the safe output qualifier 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
Safety Outputs	0	0	DO1	1	Electromagnet release command of safety interlock 1
		1	DO2	2	Electromagnet release command of safety interlock 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	ERDI1	1	Reset bit for the qualifier of the safety input 1
		1	ERDI2	1	Reset bit for the qualifier of the safety input 2
		2	ERDI3	2	Reset bit for the qualifier of the safety input 3
		3	ERDI4	2	Reset bit for the qualifier of the safety input 4
		4	ERDI5	3/4	Reset bit for the qualifier of the safety input 5
		5	ERDI6	3/4	Reset bit for the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	ERDO1	1	Reset bit for the qualifier of the safety output 1
		1	ERDO2	2	Reset bit for the qualifier of the safety output 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.

2024 © Pizzato Elettrica S.r.l.

5.3 Communication data BP A1PL2002

Module	Byte	Bit	Ref.	Device	Function
Unsafe Inputs	0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
		1	I1	-	N.A.
		2	I2	2	State of output O3 (guard closed) of safety interlock 2
		3	I3	-	N.A.
		4	I4	3	State of button 1 of the BN1 control device unit
		5	I5	3	Status of button 2 of the control device unit BN1
		6	I6	-	Status of button 3 of the control device unit BN1
		7	I7	-	Status of button 4 of the control device unit BN1
	1	0	I8	-	N.A.
		1	I9	-	N.A.
		2	I10	-	N.A.
		3	I11	-	N.A.
		4	I12	5	Status of button 1 of the AN1 safety handle
		5	I13	6	Status of button 1 of the AN2 safety handle
		6	N.A.	-	
		7	N.A.	-	
Unsafe Outputs	0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
		1	O1	-	N.A.
		2	O2	3	Control of LED 1 of control device unit BN1
		3	O3	3	Control of LED 2 of control device unit BN1
		4	O4	3	Control of LED 3 of control device unit BN1
		5	O5	-	N.A.
		6	O6	-	N.A.
		7	O7	3	Control of LED 4 of control device unit BN1
	1	0	O8	4	Control of emergency stop button luminous disc
		1	O9	-	N.A.
		2	O10	-	N.A.
		3	O11	-	N.A.
		4	O12	-	N.A.
		5	O13	-	N.A.
		6	O14	5	Control of Green colour (G) of the AN1 safety handle
		7	O15	5	Control of button LED of the AN1 safety handle
	2	0	O16	5	Output signal of NO contact of the AN1 safety handle
		1	O17	5	Control of Blu colour (B) of the AN1 safety handle
		2	O18	5	Control of Red colour (R) of the AN1 safety handle
		3	O19	6	Control of LED 1 of the signalling device
		4	O20	6	Control of LED 4 of the signalling device
		5	O21	6	Output signal of auxiliary NO contact
		6	O22	6	Control of LED 2 of the signalling device
		7	O23	6	Control of LED 3 of the signalling device

2024 © Pizzato Elettrica S.r.l.

Module	Byte	Bit	Ref.	Device	Function
Safety Inputs	0	0	DI1	1	State of safety output (OS1) of safety interlock 1
		1	DI2	1	State of safety output (OS2) of safety interlock 1
		2	DI3	2	State of safety output (OS1) of safety interlock 2
		3	DI4	2	State of safety output (OS2) of safety interlock 2
		4	DI5	4	State of emergency stop button
		5	DI6	4	State of emergency stop button
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	QDI1	1	State of the qualifier of the safety input 1
		1	QDI2	1	State of the qualifier of the safety input 2
		2	QDI3	2	State of the qualifier of the safety input 3
		3	QDI4	2	State of the qualifier of the safety input 4
		4	QDI5	4	State of the qualifier of the safety input 5
		5	QDI6	4	State of the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	QDO1	1	State of the safe output qualifier 1
		1	QDO2	1	State of the safe output qualifier 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
Safety Outputs	0	0	DO1	1	Electromagnet release command of safety interlock 1
		1	DO2	1	Electromagnet release command of safety interlock 1
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	ERDI1	1	Reset bit for the qualifier of the safety input 1
		1	ERDI2	1	Reset bit for the qualifier of the safety input 2
		2	ERDI3	2	Reset bit for the qualifier of the safety input 3
		3	ERDI4	2	Reset bit for the qualifier of the safety input 4
		4	ERDI5	3/4	Reset bit for the qualifier of the safety input 5
		5	ERDI6	3/4	Reset bit for the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	ERDO1	1	Reset bit for the qualifier of the safety output 1
		1	ERDO2	2	Reset bit for the qualifier of the safety output 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.

2024 © Pizzato Elettrica S.r.l.

5.4 Communication data BP A1PL2003

Module	Byte	Bit	Ref.	Device	Function
Unsafe inputs	0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
		1	I1	-	State of output O4 (guard locked) of safety interlock 1
		2	I2	2	State of output O3 (guard closed) of safety interlock 2
		3	I3	-	State of output O4 (guard locked) of safety interlock 2
		4	I4	3	State of button 1 of safety interlock 1
		5	I5	3	State of button 2 of safety interlock 1
		6	I6	-	N.A.
		7	I7	-	N.A.
	1	0	I8	4	State of button 1 of safety interlock 2
		1	I9	4	State of button 2 of safety interlock 2
		2	I10	-	N.A.
		3	I11	-	N.A.
		4	I12	5	Status of button 1 of the AN1 safety handle
		5	I13	6	Status of button 1 of the AN2 safety handle
		6	N.A.	-	
		7	N.A.	-	
Unsafe outputs	0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
		1	O1	2	Programming actuator / reset of interlock 2 (Input I3)
		2	O2	-	N.A.
		3	O3	-	Control of button LED 1 of interlock 1
		4	O4	-	Control of button LED 2 of interlock 1
		5	O5	-	N.A.
		6	O6	-	N.A.
		7	O7	-	N.A.
	1	0	O8	-	N.A.
		1	O9	-	Control of button LED 1 of interlock 2
		2	O10	-	Control of button LED 2 of interlock 2
		3	O11	-	N.A.
		4	O12	-	N.A.
		5	O13	-	N.A.
		6	O14	5	Control of Green colour (G) of the AN1 safety handle
		7	O15	5	Control of button LED of the AN1 safety handle
	2	0	O16	5	Output signal of NO contact of the AN1 safety handle
		1	O17	5	Control of Blu colour (B) of the AN1 safety handle
		2	O18	5	Control of Red colour (R) of the AN1 safety handle
		3	O19	6	Control of Green colour (G) of the AN2 safety handle
		4	O20	6	Control of button LED of the AN2 safety handle
		5	O21	6	Output signal of NO contact of the AN2 safety handle
		6	O22	6	Control of Blu colour (B) of the AN2 safety handle
		7	O23	6	Control of Red colour (R) of the AN2 safety handle

2024 © Pizzato Elettrica S.r.l.

Module	Byte	Bit	Ref.	Device	Function
Safety Inputs	0	0	DI1	1	State of safety output (OS1) of safety interlock 1
		1	DI2	1	State of safety output (OS2) of safety interlock 1
		2	DI3	2	State of safety output (OS1) of safety interlock 2
		3	DI4	2	State of safety output (OS2) of safety interlock 2
		4	DI5	3&4	State of emergency stop button
		5	DI6	3&4	State of emergency stop button
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	QDI1	1	State of the qualifier of the safety input 1
		1	QDI2	1	State of the qualifier of the safety input 2
		2	QDI3	2	State of the qualifier of the safety input 3
		3	QDI4	2	State of the qualifier of the safety input 4
		4	QDI5	3&4	State of the qualifier of the safety input 5
		5	QDI6	3&4	State of the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	QDO1	1	State of the safe output qualifier 1
		1	QDO2	2	State of the safe output qualifier 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
Safety Outputs	0	0	DO1	1	Electromagnet release command of safety interlock 1
		1	DO2	2	Electromagnet release command of safety interlock 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	ERDI1	1	Reset bit for the qualifier of the safety input 1
		1	ERDI2	1	Reset bit for the qualifier of the safety input 2
		2	ERDI3	2	Reset bit for the qualifier of the safety input 3
		3	ERDI4	2	Reset bit for the qualifier of the safety input 4
		4	ERDI5	3&4	Reset bit for the qualifier of the safety input 5
		5	ERDI6	3&4	Reset bit for the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	ERDO1	1	Reset bit for the qualifier of the safety output 1
		1	ERDO2	2	Reset bit for the qualifier of the safety output 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.

2024 © Pizzato Elettrica S.r.l.

5.5 Communication data BP A1PL2004

Module	Byte	Bit	Ref.	Device	Function
Unsafe inputs	0	0	I0	3	State of button 1 of the BN1 control device unit
		1	I1	3	Status of button 2 of the control device unit BN1
		2	I2	4	Status of button 1 of the control device unit BN2
		3	I3	4	Status of button 2 of the control device unit BN2
		4	I4	3	Status of button 3 of the control device unit BN1
		5	I5	5	State of button 1 of the BN3 control device unit
		6	I6	5	State of button 2 of the BN3 control device unit
		7	I7	-	N.A.
	1	0	I8	4	Status of button 3 of the control device unit BN2
		1	I9	6	State of button 1 of the BN4 control device unit
		2	I10	6	State of button 2 of the BN4 control device unit
		3	I11	-	N.A.
		4	I12	5	State of button 3 of the BN3 control device unit
		5	I13	6	State of button 3 of the BN4 control device unit
		6	N.A.	-	
		7	N.A.	-	
Unsafe outputs	0	0	O0	-	N.A.
		1	O1	-	N.A.
		2	O2	3	Control of LED of button 1 of the control device unit BN1
		3	O3	3	Control of LED of button 2 of the control device unit BN1
		4	O4	3	Control of LED of button 3 of the control device unit BN1
		5	O5	-	N.A.
		6	O6	-	N.A.
		7	O7	-	N.A.
	1	0	O8	4	Control of LED of button 1 of the control device unit BN2
		1	O9	4	Control of LED of button 2 of the control device unit BN2
		2	O10	4	Control of LED of button 3 of the control device unit BN2
		3	O11	-	N.A.
		4	O12	-	N.A.
		5	O13	-	N.A.
		6	O14	5	Control of LED of button 1 of the control device unit BN3
		7	O15	5	Control of LED of button 2 of the control device unit BN3
	2	0	O16	5	Control of LED of button 3 of the control device unit BN3
		1	O17	-	N.A.
		2	O18	-	N.A.
		3	O19	6	Control of LED of button 1 of the control device unit BN4
		4	O20	6	Control of LED of button 2 of the control device unit BN4
		5	O21	6	Control of LED of button 3 of the control device unit BN4
		6	O22	-	N.A.
		7	O23	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	Byte	Bit	Ref.	Device	Function
Safety Inputs	0	0	DI1	1	State of safety output (OS1) of safety interlock 1
		1	DI2	1	State of safety output (OS2) of safety interlock 1
		2	DI3	2	State of safety output (OS1) of safety interlock 2
		3	DI4	2	State of safety output (OS2) of safety interlock 2
		4	DI5	3/4/5/6	State of emergency stop button
		5	DI6	3/4/5/6	State of emergency stop button
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	QDI1	1	State of the qualifier of the safety input 1
		1	QDI2	1	State of the qualifier of the safety input 2
		2	QDI3	2	State of the qualifier of the safety input 3
		3	QDI4	2	State of the qualifier of the safety input 4
		4	QDI5	3/4/5/6	State of the qualifier of the safety input 5
		5	QDI6	3/4/5/6	State of the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	QDO1	1	State of the safe output qualifier 1
		1	QDO2	2	State of the safe output qualifier 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
Safety Outputs	0	0	DO1	1	Electromagnet release command of safety interlock 1
		1	DO2	2	Electromagnet release command of safety interlock 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	1	0	ERDI1	1	Reset bit for the qualifier of the safety input 1
		1	ERDI2	1	Reset bit for the qualifier of the safety input 2
		2	ERDI3	2	Reset bit for the qualifier of the safety input 3
		3	ERDI4	2	Reset bit for the qualifier of the safety input 4
		4	ERDI5	3/4/5/6	Reset bit for the qualifier of the safety input 5
		5	ERDI6	3/4/5/6	Reset bit for the qualifier of the safety input 6
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.
	2	0	ERDO1	1	Reset bit for the qualifier of the safety output 1
		1	ERDO2	2	Reset bit for the qualifier of the safety output 2
		2	N.A.	-	N.A.
		3	N.A.	-	N.A.
		4	N.A.	-	N.A.
		5	N.A.	-	N.A.
		6	N.A.	-	N.A.
		7	N.A.	-	N.A.

2024 © Pizzato Elettrica S.r.l.

6 COMMUNICATION DATA – ARTICLES BP A1CL••••

6.1 Communication data BP A1CL2001

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Error Flags	0	PWR_GD	0		Supply voltage exceeds specified limits
			TEMP	1		Temperature exceeds specified limits
			PWR_CS	2		Power supply current of the connected devices exceeds the specified limits
			SIG_CS	3		Current of non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			N.A.	7		
	Warning Flags	1	PWR_GD	0		Supply voltage exceeds the specified range
			TEMP	1		Temperature exceeds the specified range
			PWR_CS	2		Device current exceeds the specified range
			SIG_CS	3		Current at non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			SAFETY_ MOD	7		Fault in safe channel
	Input Data 0	2	I0	0	1	State of output O3 (guard closed) of safety interlock 1
			I1	1	-	N.A.
			I2	2	2	State of output O3 (guard closed) of safety interlock 2
			I3	3	-	N.A.
			I4	4	3	State of button 1 of the BN1 control device unit
			I5	5	3	Status of button 2 of the control device unit BN1
			I6	6	-	N.A.
			I7	7	-	N.A.
	Input Data 1	3	I8	0	4	Status of button 1 of the control device unit BN2
			I9	1	4	Status of button 2 of the control device unit BN2
			I10	2	-	N.A.
			I11	3	-	N.A.
			I12	4	5	Status of button 1 of the AN1 safety handle
			I13	5	6	Status of button 1 of the AN2 safety handle
			N.A.	6	-	
			N.A.	7	-	

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Voltage	4		0		Supply voltage [mV]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		5		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Temperature	6		0		Device internal temperature [°C + 100]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		7		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Current	8		0		Current consumption of connected devices [mA]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		9		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Reserved	10		0		Reserved
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		11		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
Unsafe Outputs (O)	Output Data 0	0	O0	0	1	Programming actuator / reset of interlock 1 (Input I3)
			O1	1	2	Programming actuator / reset of interlock 2 (Input I3)
			O2	2	-	N.A.
			O3	3	-	N.A.
			O4	4	-	N.A.
			O5	5	-	N.A.
			O6	6	-	N.A.
			O7	7	-	N.A.
	Output Data 1	1	O8	0	-	N.A.
			O9	1	-	N.A.
			O10	2	-	N.A.
			O11	3	-	N.A.
			O12	4	-	N.A.
			O13	5	-	N.A.
			O14	6	5	Control of Green colour (G) of the AN1 safety handle
			O15	7	5	Control of button LED of the AN1 safety handle
	Output Data 2	2	O16	0	5	Output signal of NO contact of the AN1 safety handle
			O17	1	5	Control of Blu colour (B) of the AN1 safety handle
			O18	2	5	Control of Red colour (R) of the AN1 safety handle
			O19	3	6	Control of Green colour (G) of the AN2 safety handle
			O20	4	6	Control of button LED of the AN2 safety handle
			O21	5	6	Output signal of NO contact of the AN2 safety handle
			O22	6	6	Control of Blu colour (B) of the AN2 safety handle
			O23	7	6	Control of Red colour (R) of the AN2 safety handle

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Inputs (SI)	Safety Input Data 0	0	DI1	0	1	State of safety output (OS1) of safety interlock 1
			DI2	1	1	State of safety output (OS2) of safety interlock 1
			DI3	2	2	State of safety output (OS1) of safety interlock 2
			DI4	3	2	State of safety output (OS2) of safety interlock 2
			DI5	4	3/4	State of emergency stop button
			DI6	5	3/4	State of emergency stop button
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 1	1	QDI1	0	1	State of the qualifier of the safety input 1
			QDI2	1	1	State of the qualifier of the safety input 2
			QDI3	2	2	State of the qualifier of the safety input 3
			QDI4	3	2	State of the qualifier of the safety input 4
			QDI5	4	3/4	State of the qualifier of the safety input 5
			QDI6	5	3/4	State of the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 2	2	QDO1	0	1	State of the safe output qualifier 1
			QDO2	1	2	State of the safe output qualifier 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
Safety Outputs (SO)	Safety Output Data 0	0	DO1	0	1	Electromagnet release command of safety interlock 1
			DO2	1	2	Electromagnet release command of safety interlock 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 1	1	ERDI1	0	1	Reset bit for the qualifier of the safety input 1
			ERDI2	1	1	Reset bit for the qualifier of the safety input 2
			ERDI3	2	2	Reset bit for the qualifier of the safety input 3
			ERDI4	3	2	Reset bit for the qualifier of the safety input 4
			ERDI5	4	3/4	Reset bit for the qualifier of the safety input 5
			ERDI6	5	3/4	Reset bit for the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 2	2	ERDO1	0	1	Reset bit for the qualifier of the safety output 1
			ERDO2	1	2	Reset bit for the qualifier of the safety output 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

6.2 Communication data BP A1CL2002

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Error Flags	0	PWR_GD	0		Supply voltage exceeds specified limits
			TEMP	1		Temperature exceeds specified limits
			PWR_CS	2		Power supply current of the connected devices exceeds the specified limits
			SIG_CS	3		Current of non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			N.A.	7		
	Warning Flags	1	PWR_GD	0		Supply voltage exceeds the specified range
			TEMP	1		Temperature exceeds the specified range
			PWR_CS	2		Device current exceeds the specified range
			SIG_CS	3		Current at non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			SAFETY_ MOD	7		Fault in safe channel
	Input Data 0	2	I0	0	1	State of output O3 (guard closed) of safety interlock 1
			I1	1	-	N.A.
			I2	2	2	State of output O3 (guard closed) of safety interlock 2
			I3	3	-	N.A.
			I4	4	3	State of button 1 of the BN1 control device unit
			I5	5	3	Status of button 2 of the control device unit BN1
			I6	6	-	Status of button 3 of the control device unit BN1
			I7	7	-	Status of button 4 of the control device unit BN1
	Input Data 1	3	I8	0	-	N.A.
			I9	1	-	N.A.
			I10	2	-	N.A.
			I11	3	-	N.A.
			I12	4	5	Status of button 1 of the AN1 safety handle
			I13	5	6	Status of button 1 of the AN2 safety handle
			N.A.	6	-	
			N.A.	7	-	
Unsafe inputs (I)	Voltage	4		0		Supply voltage [mV]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		5		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Temperature	6		0		Device internal temperature [°C + 100]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		7		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Current	8		0		Current consumption of connected devices [mA]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		9		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Reserved	10		0		Reserved
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		11		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe Outputs (O)	Output Data 0	0	O0	0	1	Programming actuator / reset of interlock 1 (Input I3)
			O1	1	-	N.A.
			O2	2	3	Control of LED 1 of control device unit BN1
			O3	3	3	Control of LED 2 of control device unit BN1
			O4	4	3	Control of LED 3 of control device unit BN1
			O5	5	-	N.A.
			O6	6	-	N.A.
			O7	7	3	Control of LED 4 of control device unit BN1
	Output Data 1	1	O8	0	4	Control of emergency stop button luminous disc
			O9	1	-	N.A.
			O10	2	-	N.A.
			O11	3	-	N.A.
			O12	4	-	N.A.
			O13	5	-	N.A.
			O14	6	5	Control of Green colour (G) of the AN1 safety handle
			O15	7	5	Control of button LED of the AN1 safety handle
	Output Data 2	2	O16	0	5	Output signal of NO contact of the AN1 safety handle
			O17	1	5	Control of Blu colour (B) of the AN1 safety handle
			O18	2	5	Control of Red colour (R) of the AN1 safety handle
			O19	3	6	Control of LED 1 of the signalling device
			O20	4	6	Control of LED 4 of the signalling device
			O21	5	6	Output signal of auxiliary NO contact
			O22	6	6	Control of LED 2 of the signalling device
			O23	7	6	Control of LED 3 of the signalling device

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Inputs (SI)	Safety Input Data 0	0	DI1	0	1	State of safety output (OS1) of safety interlock 1
			DI2	1	1	State of safety output (OS2) of safety interlock 1
			DI3	2	2	State of safety output (OS1) of safety interlock 2
			DI4	3	2	State of safety output (OS2) of safety interlock 2
			DI5	4	4	State of emergency stop button
			DI6	5	4	State of emergency stop button
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 1	1	QDI1	0	1	State of the qualifier of the safety input 1
			QDI2	1	1	State of the qualifier of the safety input 2
			QDI3	2	2	State of the qualifier of the safety input 3
			QDI4	3	2	State of the qualifier of the safety input 4
			QDI5	4	4	State of the qualifier of the safety input 5
			QDI6	5	4	State of the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 2	2	QDO1	0	1	State of the safe output qualifier 1
			QDO2	1	1	State of the safe output qualifier 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Outputs (SO)	Safety Output Data 0	0	DO1	0	1	Electromagnet release command of safety interlock 1
			DO2	1	1	Electromagnet release command of safety interlock 1
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 1	1	ERDI1	0	1	Reset bit for the qualifier of the safety input 1
			ERDI2	1	1	Reset bit for the qualifier of the safety input 2
			ERDI3	2	2	Reset bit for the qualifier of the safety input 3
			ERDI4	3	2	Reset bit for the qualifier of the safety input 4
			ERDI5	4	3/4	Reset bit for the qualifier of the safety input 5
			ERDI6	5	3/4	Reset bit for the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 2	2	ERDO1	0	1	Reset bit for the qualifier of the safety output 1
			ERDO2	1	2	Reset bit for the qualifier of the safety output 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

6.3 Communication data BP A1CL2003

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Error Flags	0	PWR_GD	0		Supply voltage exceeds specified limits
			TEMP	1		Temperature exceeds specified limits
			PWR_CS	2		Power supply current of the connected devices exceeds the specified limits
			SIG_CS	3		Current of non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			N.A.	7		
	Warning Flags	1	PWR_GD	0		Supply voltage exceeds the specified range
			TEMP	1		Temperature exceeds the specified range
			PWR_CS	2		Device current exceeds the specified range
			SIG_CS	3		Current at non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			SAFETY_MOD	7		Fault in safe channel
	Input Data 0	2	I0	0	1	State of output O3 (guard closed) of safety interlock 1
			I1	1	-	State of output O4 (guard locked) of safety interlock 1
			I2	2	2	State of output O3 (guard closed) of safety interlock 2
			I3	3	-	State of output O4 (guard locked) of safety interlock 2
			I4	4	3	State of button 1 of safety interlock 1
			I5	5	3	State of button 2 of safety interlock 1
			I6	6	-	N.A.
			I7	7	-	N.A.
	Input Data 1	3	I8	0	4	State of button 1 of safety interlock 2
			I9	1	4	State of button 2 of safety interlock 2
			I10	2	-	N.A.
			I11	3	-	N.A.
			I12	4	5	Status of button 1 of the AN1 safety handle
			I13	5	6	Status of button 1 of the AN2 safety handle
			N.A.	6	-	
			N.A.	7	-	
	Voltage	4		0		Supply voltage [mV]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		5		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Temperature	6		0		Device internal temperature [°C + 100]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		7		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Current	8		0		Current consumption of connected devices [mA]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		9		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Reserved	10		0		Reserved
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		11		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe Outputs (O)	Output Data 0	0	O0	0	1	Programming actuator / reset of interlock 1 (Input I3)
			O1	1	2	Programming actuator / reset of interlock 2 (Input I3)
			O2	2	-	N.A.
			O3	3	-	Control of button LED 1 of interlock 1
			O4	4	-	Control of button LED 2 of interlock 1
			O5	5	-	N.A.
			O6	6	-	N.A.
			O7	7	-	N.A.
	Output Data 1	1	O8	0	-	N.A.
			O9	1	-	Control of button LED 1 of interlock 2
			O10	2	-	Control of button LED 2 of interlock 2
			O11	3	-	N.A.
			O12	4	-	N.A.
			O13	5	-	N.A.
			O14	6	5	Control of Green colour (G) of the AN1 safety handle
			O15	7	5	Control of button LED of the AN1 safety handle
	Output Data 2	2	O16	0	5	Output signal of NO contact of the AN1 safety handle
			O17	1	5	Control of Blu colour (B) of the AN1 safety handle
			O18	2	5	Control of Red colour (R) of the AN1 safety handle
			O19	3	6	Control of Green colour (G) of the AN2 safety handle
			O20	4	6	Control of button LED of the AN2 safety handle
			O21	5	6	Output signal of NO contact of the AN2 safety handle
			O22	6	6	Control of Blu colour (B) of the AN2 safety handle
			O23	7	6	Control of Red colour (R) of the AN2 safety handle

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Inputs (SI)	Safety Input Data 0	0	DI1	0	1	State of safety output (OS1) of safety interlock 1
			DI2	1	1	State of safety output (OS2) of safety interlock 1
			DI3	2	2	State of safety output (OS1) of safety interlock 2
			DI4	3	2	State of safety output (OS2) of safety interlock 2
			DI5	4	3&4	State of emergency stop button
			DI6	5	3&4	State of emergency stop button
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 1	1	QDI1	0	1	State of the qualifier of the safety input 1
			QDI2	1	1	State of the qualifier of the safety input 2
			QDI3	2	2	State of the qualifier of the safety input 3
			QDI4	3	2	State of the qualifier of the safety input 4
			QDI5	4	3&4	State of the qualifier of the safety input 5
			QDI6	5	3&4	State of the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 2	2	QDO1	0	1	State of the qualifier of safety output 1
			QDO2	1	2	State of the qualifier of safety output 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Outputs (SO)	Safety Output Data 0	0	DO1	0	1	Electromagnet release command of safety interlock 1
			DO2	1	2	Electromagnet release command of safety interlock 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 1	1	ERDI1	0	1	Reset bit for the qualifier of the safety input 1
			ERDI2	1	1	Reset bit for the qualifier of the safety input 2
			ERDI3	2	2	Reset bit for the qualifier of the safety input 3
			ERDI4	3	2	Reset bit for the qualifier of the safety input 4
			ERDI5	4	3&4	Reset bit for the qualifier of the safety input 5
			ERDI6	5	3&4	Reset bit for the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 2	2	ERDO1	0	1	Reset bit for the qualifier of the safety output 1
			ERDO2	1	2	Reset bit for the qualifier of the safety output 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

6.4 Communication data BP A1CL2004

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Error Flags	0	PWR_GD	0		Supply voltage exceeds specified limits
			TEMP	1		Temperature exceeds specified limits
			PWR_CS	2		Power supply current of the connected devices exceeds the specified limits
			SIG_CS	3		Current of non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			N.A.	7		
	Warning Flags	1	PWR_GD	0		Supply voltage exceeds the specified range
			TEMP	1		Temperature exceeds the specified range
			PWR_CS	2		Device current exceeds the specified range
			SIG_CS	3		Current at non-safety outputs exceeds the specified range
			N.A.	4		
			N.A.	5		
			N.A.	6		
			SAFETY_ MOD	7		Fault in safe channel
	Input Data 0	2	I0	0	3	State of button 1 of the BN1 control device unit
			I1	1	3	Status of button 2 of the control device unit BN1
			I2	2	4	Status of button 1 of the control device unit BN2
			I3	3	4	Status of button 2 of the control device unit BN2
			I4	4	3	Status of button 3 of the control device unit BN1
			I5	5	5	State of button 1 of the BN3 control device unit
			I6	6	5	State of button 2 of the BN3 control device unit
			I7	7	-	N.A.
	Input Data 1	3	I8	0	4	Status of button 3 of the control device unit BN2
			I9	1	6	State of button 1 of the BN4 control device unit
			I10	2	6	State of button 2 of the BN4 control device unit
			I11	3	-	N.A.
			I12	4	5	State of button 3 of the BN3 control device unit
			I13	5	6	State of button 3 of the BN4 control device unit
			N.A.	6	-	
			N.A.	7	-	
	Voltage	4		0		Supply voltage [mV]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		5		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe inputs (I)	Temperature	6		0		Device internal temperature [°C + 100]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		7		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Current	8		0		Current consumption of connected devices [mA]
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		9		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		
	Reserved	10		0		Reserved
				1		
				2		
				3		
				4		
				5		
				6		
				7		
		11		0		
				1		
				2		
				3		
				4		
				5		
				6		
				7		

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Unsafe Outputs (O)	Output Data 0	0	O0	0	-	N.A.
			O1	1	-	N.A.
			O2	2	3	Control of LED of button 1 of the control device unit BN1
			O3	3	3	Control of LED of button 2 of the control device unit BN1
			O4	4	3	Control of LED of button 3 of the control device unit BN1
			O5	5	-	N.A.
			O6	6	-	N.A.
			O7	7	-	N.A.
	Output Data 1	1	O8	0	4	Control of LED of button 1 of the control device unit BN2
			O9	1	4	Control of LED of button 2 of the control device unit BN2
			O10	2	4	Control of LED of button 3 of the control device unit BN2
			O11	3	-	N.A.
			O12	4	-	N.A.
			O13	5	-	N.A.
			O14	6	5	Control of LED of button 1 of the control device unit BN3
			O15	7	5	Control of LED of button 2 of the control device unit BN3
	Output Data 2	2	O16	0	5	Control of LED of button 3 of the control device unit BN3
			O17	1	-	N.A.
			O18	2	-	N.A.
			O19	3	6	Control of LED of button 1 of the control device unit BN4
			O20	4	6	Control of LED of button 2 of the control device unit BN4
			O21	5	6	Control of LED of button 3 of the control device unit BN4
			O22	6	-	N.A.
			O23	7	-	N.A.

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Inputs (SI)	Safety Input Data 0	0	DI1	0	1	State of safety output (OS1) of safety interlock 1
			DI2	1	1	State of safety output (OS2) of safety interlock 1
			DI3	2	2	State of safety output (OS1) of safety interlock 2
			DI4	3	2	State of safety output (OS2) of safety interlock 2
			DI5	4	3/4/5/6	State of emergency stop button
			DI6	5	3/4/5/6	State of emergency stop button
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 1	1	QDI1	0	1	State of the qualifier of the safety input 1
			QDI2	1	1	State of the qualifier of the safety input 2
			QDI3	2	2	State of the qualifier of the safety input 3
			QDI4	3	2	State of the qualifier of the safety input 4
			QDI5	4	3/4/5/6	State of the qualifier of the safety input 5
			QDI6	5	3/4/5/6	State of the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Input Data 2	2	QDO1	0	1	State of the safe output qualifier 1
			QDO2	1	2	State of the safe output qualifier 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	Name	Byte	Ref.	Bit	Device	Function
Safety Outputs (SO)	Safety Output Data 0	0	DO1	0	1	Electromagnet release command of safety interlock 1
			DO2	1	2	Electromagnet release command of safety interlock 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 1	1	ERDI1	0	1	Reset bit for the qualifier of the safety input 1
			ERDI2	1	1	Reset bit for the qualifier of the safety input 2
			ERDI3	2	2	Reset bit for the qualifier of the safety input 3
			ERDI4	3	2	Reset bit for the qualifier of the safety input 4
			ERDI5	4	3/4/5/6	Reset bit for the qualifier of the safety input 5
			ERDI6	5	3/4/5/6	Reset bit for the qualifier of the safety input 6
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.
	Safety Output Data 2	2	ERDO1	0	1	Reset bit for the qualifier of the safety output 1
			ERDO2	1	2	Reset bit for the qualifier of the safety output 2
			N.A.	2	-	N.A.
			N.A.	3	-	N.A.
			N.A.	4	-	N.A.
			N.A.	5	-	N.A.
			N.A.	6	-	N.A.
			N.A.	7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

7 COMMUNICATION DATA – ARTICLES BP A1EL••••

EtherCAT® Safety over EtherCAT®

7.1 Communication data BP A1EL2001

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Input Data	Error Flags	0	PWR_GD	-	Supply voltage exceeds specified limits
			1	TEMP	-	Temperature exceeds specified limits
			2	PWR_CS	-	Power supply current of the connected devices exceeds the specified limits
			3	SIG_CS	-	Current of non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	N.A.	-	
		Warning Flags	0	PWR_GD	-	Supply voltage exceeds the specified range
			1	TEMP	-	Temperature exceeds the specified range
			2	PWR_CS	-	Device current exceeds the specified range
			3	SIG_CS	-	Current at non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	SAFETY_ MOD	-	Fault in safe channel
		Unsafe Inputs 0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
			1	I1	-	N.A.
			2	I2	2	State of output O3 (guard closed) of safety interlock 2
			3	I3	-	N.A.
			4	I4	3	State of button 1 of the BN1 control device unit
			5	I5	3	Status of button 2 of the control device unit BN1
			6	I6	-	N.A.
			7	I7	-	N.A.
		Unsafe Inputs 1	8	I8	4	Status of button 1 of the control device unit BN2
			9	I9	4	Status of button 2 of the control device unit BN2
			10	I10	-	N.A.
			11	I11	-	N.A.
			12	I12	5	Status of button 1 of the AN1 safety handle
			13	I13	6	Status of button 1 of the AN2 safety handle
			14	N.A.	-	
			15	N.A.	-	
		Voltage	-	-	-	Supply voltage [mV]
		Temperature	-	-	-	Device internal temperature [°C + 100]
		Current	-	-	-	Current consumption of connected devices [mA]
		Reserved	-	-	-	Reserved
Unsafe module	Unsafe Outputs Data	Unsafe Outputs 0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
			1	O1	2	Programming actuator / reset of interlock 2 (Input I3)
			2	O2	-	N.A.
			3	O3	-	N.A.
			4	O4	-	N.A.
			5	O5	-	N.A.
			6	O6	-	N.A.
			7	O7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Outputs Data	Unsafe Outputs 1	8	O8	-	N.A.
			9	O9	-	N.A.
			10	O10	-	N.A.
			11	O11	-	N.A.
			12	O12	-	N.A.
			13	O13	-	N.A.
			14	O14	5	Control of Green colour (G) of the AN1 safety handle
			15	O15	5	Control of button LED of the AN1 safety handle
		Unsafe Outputs 2	16	O16	5	Output signal of NO contact of the AN1 safety handle
			17	O17	5	Control of Blu colour (B) of the AN1 safety handle
			18	O18	5	Control of Red colour (R) of the AN1 safety handle
			19	O19	6	Control of Green colour (G) of the AN2 safety handle
			20	O20	6	Control of button LED of the AN2 safety handle
			21	O21	6	Output signal of NO contact of the AN2 safety handle
			22	O22	6	Control of Blu colour (B) of the AN2 safety handle
			23	O23	6	Control of Red colour (R) of the AN2 safety handle

Module	PDO	Type	Data name	Ref.	Device	Function
Safety Module	Safety Inputs	FSoE	FSoE Slave Command			Reserved
			InputChannel1	DI1	1	State of safety output (OS1) of safety interlock 1
			InputChannel2	DI2	1	State of safety output (OS2) of safety interlock 1
			InputChannel3	DI3	2	State of safety output (OS1) of safety interlock 2
			InputChannel4	DI4	2	State of safety output (OS2) of safety interlock 2
			InputChannel5	DI5	3/4	State of emergency stop button
			InputChannel6	DI6	3/4	State of emergency stop button
			Qualifier InputChannel1	QDI1	1	State of the qualifier of the safety input 1
			Qualifier InputChannel2	QDI2	1	State of the qualifier of the safety input 2
			Qualifier InputChannel3	QDI3	2	State of the qualifier of the safety input 3
			Qualifier InputChannel4	QDI4	2	State of the qualifier of the safety input 4
			Qualifier InputChannel5	QDI5	3/4	State of the qualifier of the safety input 5
			Qualifier InputChannel6	QDI6	3/4	State of the qualifier of the safety input 6
			FSoE Slave CRC_0			Reserved
			Qualifier OutputChannel1	QDO1	1	State of the safe output qualifier 1
			Qualifier OutputChannel2	QDO2	2	State of the safe output qualifier 2
			FSoE Slave CRC_1			Reserved
			FSoE Slave Connection ID			Reserved
	Safety Outputs	FSoE	FSoE Master Command			Reserved
			OutputChannel1	DO1	1	Electromagnet release command of safety interlock 1
			OutputChannel2	DO2	2	Electromagnet release command of safety interlock 2
			ErrorReset InputChannel1	ERDI1	1	Reset bit for the qualifier of the safety input 1
			ErrorReset InputChannel2	ERDI2	1	Reset bit for the qualifier of the safety input 2
			ErrorReset InputChannel3	ERDI3	2	Reset bit for the qualifier of the safety input 3
			ErrorReset InputChannel4	ERDI4	2	Reset bit for the qualifier of the safety input 4
			ErrorReset InputChannel5	ERDI5	3/4	Reset bit for the qualifier of the safety input 5
			ErrorReset InputChannel6	ERDI6	3/4	Reset bit for the qualifier of the safety input 6
			FSoE Master CRC0			Reserved
			ErrorReset OutputChannel1	ERDO1	1	Reset bit for the qualifier of the safety output 1
			ErrorReset OutputChannel2	ERDO2	2	Reset bit for the qualifier of the safety output 2
			FSoE Master CRC1			Reserved
			FSoE Master Connection ID			Reserved

2024 © Pizzato Elettrica S.r.l.

7.2 Communication data BP A1EL2002

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Input Data	Error Flags	0	PWR_GD	-	Supply voltage exceeds specified limits
			1	TEMP	-	Temperature exceeds specified limits
			2	PWR_CS	-	Power supply current of the connected devices exceeds the specified limits
			3	SIG_CS	-	Current of non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	N.A.	-	
		Warning Flags	0	PWR_GD	-	Supply voltage exceeds the specified range
			1	TEMP	-	Temperature exceeds the specified range
			2	PWR_CS	-	Device current exceeds the specified range
			3	SIG_CS	-	Current at non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	SAFETY_ MOD	-	Fault in safe channel
		Unsafe Inputs 0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
			1	I1	-	N.A.
			2	I2	2	State of output O3 (guard closed) of safety interlock 2
			3	I3	-	N.A.
			4	I4	3	State of button 1 of the BN1 control device unit
			5	I5	3	Status of button 2 of the control device unit BN1
			6	I6	-	Status of button 3 of the control device unit BN1
			7	I7	-	Status of button 4 of the control device unit BN1
		Unsafe Inputs 1	8	I8	-	N.A.
			9	I9	-	N.A.
			10	I10	-	N.A.
			11	I11	-	N.A.
			12	I12	5	Status of button 1 of the AN1 safety handle
			13	I13	6	Status of button 1 of the AN2 safety handle
			14	N.A.	-	
			15	N.A.	-	
		Voltage	-	-	-	Supply voltage [mV]
		Temperature	-	-	-	Device internal temperature [°C + 100]
		Current	-	-	-	Current consumption of connected devices [mA]
		Reserved	-	-	-	Reserved
	Unsafe Outputs Data	Unsafe Outputs 0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
			1	O1	-	N.A.
			2	O2	3	Control of LED 1 of control device unit BN1
			3	O3	3	Control of LED 2 of control device unit BN1
			4	O4	3	Control of LED 3 of control device unit BN1
			5	O5	-	N.A.
			6	O6	-	N.A.
			7	O7	3	Control of LED 4 of control device unit BN1

2024 © Pizzato Elettrica S.r.l.

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Outputs Data	Unsafe Outputs 1	8	O8	4	Control of emergency stop button luminous disc
			9	O9	-	N.A.
			10	O10	-	N.A.
			11	O11	-	N.A.
			12	O12	-	N.A.
			13	O13	-	N.A.
			14	O14	5	Control of Green colour (G) of the AN1 safety handle
			15	O15	5	Control of button LED of the AN1 safety handle
		Unsafe Outputs 2	16	O16	5	Output signal of NO contact of the AN1 safety handle
			17	O17	5	Control of Blu colour (B) of the AN1 safety handle
			18	O18	5	Control of Red colour (R) of the AN1 safety handle
			19	O19	6	Control of LED 1 of the signalling device
			20	O20	6	Control of LED 4 of the signalling device
			21	O21	6	Output signal of auxiliary NO contact
			22	O22	6	Control of LED 2 of the signalling device
			23	O23	6	Control of LED 3 of the signalling device

Module	PDO	Type	Data name	Ref.	Device	Function
Safety Module	Safety Inputs	FSoE	FSoE Slave Command			Reserved
			InputChannel1	DI1	1	State of safety output (OS1) of safety interlock 1
			InputChannel2	DI2	1	State of safety output (OS2) of safety interlock 1
			InputChannel3	DI3	2	State of safety output (OS1) of safety interlock 2
			InputChannel4	DI4	2	State of safety output (OS2) of safety interlock 2
			InputChannel5	DI5	3/4	State of emergency stop button
			InputChannel6	DI6	3/4	State of emergency stop button
			Qualifier InputChannel1	QDI1	1	State of the qualifier of the safety input 1
			Qualifier InputChannel2	QDI2	1	State of the qualifier of the safety input 2
			Qualifier InputChannel3	QDI3	2	State of the qualifier of the safety input 3
			Qualifier InputChannel4	QDI4	2	State of the qualifier of the safety input 4
			Qualifier InputChannel5	QDI5	3/4	State of the qualifier of the safety input 5
			Qualifier InputChannel6	QDI6	3/4	State of the qualifier of the safety input 6
			FSoE Slave CRC_0			Reserved
			Qualifier OutputChannel1	QDO1	1	State of the safe output qualifier 1
			Qualifier OutputChannel2	QDO2	2	State of the safe output qualifier 2
			FSoE Slave CRC_1			Reserved
			FSoE Slave Connection ID			Reserved
	Safety Outputs	FSoE	FSoE Master Command			Reserved
			OutputChannel1	DO1	1	Electromagnet release command of safety interlock 1
			OutputChannel2	DO2	1	Electromagnet release command of safety interlock 1
			ErrorReset InputChannel1	ERDI1	1	Reset bit for the qualifier of the safety input 1
			ErrorReset InputChannel2	ERDI2	1	Reset bit for the qualifier of the safety input 2
			ErrorReset InputChannel3	ERDI3	2	Reset bit for the qualifier of the safety input 3
			ErrorReset InputChannel4	ERDI4	2	Reset bit for the qualifier of the safety input 4
			ErrorReset InputChannel5	ERDI5	3/4	Reset bit for the qualifier of the safety input 5
			ErrorReset InputChannel6	ERDI6	3/4	Reset bit for the qualifier of the safety input 6
			FSoE Master CRC0			Reserved
			ErrorReset OutputChannel1	ERDO1	1	Reset bit for the qualifier of the safety output 1
			ErrorReset OutputChannel2	ERDO2	1	Reset bit for the qualifier of the safety output 2
			FSoE Master CRC1			Reserved
			FSoE Master Connection ID			Reserved

2024 © Pizzato Elettrica S.r.l.

7.3 Communication data BP A1EL2003

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Input Data	Error Flags	0	PWR_GD	-	Supply voltage exceeds specified limits
			1	TEMP	-	Temperature exceeds specified limits
			2	PWR_CS	-	Power supply current of the connected devices exceeds the specified limits
			3	SIG_CS	-	Current of non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	N.A.	-	
		Warning Flags	0	PWR_GD	-	Supply voltage exceeds the specified range
			1	TEMP	-	Temperature exceeds the specified range
			2	PWR_CS	-	Device current exceeds the specified range
			3	SIG_CS	-	Current at non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	SAFETY_ MOD	-	Fault in safe channel
		Unsafe Inputs 0	0	I0	1	State of output O3 (guard closed) of safety interlock 1
			1	I1	-	N.A.
			2	I2	2	State of output O3 (guard closed) of safety interlock 2
			3	I3	-	N.A.
			4	I4	3	State of button 1 of the BN1 control device unit
			5	I5	3	Status of button 2 of the control device unit BN1
			6	I6	-	Status of button 3 of the control device unit BN1
			7	I7	-	Status of button 4 of the control device unit BN1
		Unsafe Inputs 1	8	I8	4	Status of button 1 of the control device unit BN2
			9	I9	4	Status of button 2 of the control device unit BN2
			10	I10	-	Status of button 3 of the control device unit BN2
			11	I11	-	Status of button 4 of the control device unit BN2
			12	I12	5	Status of button 1 of the AN1 safety handle
			13	I13	6	Status of button 1 of the AN2 safety handle
			14	N.A.	-	
			15	N.A.	-	
		Voltage	-	-	-	Supply voltage [mV]
		Temperature	-	-	-	Device internal temperature [°C + 100]
		Current	-	-	-	Current consumption of connected devices [mA]
		Reserved	-	-	-	Reserved
	Unsafe Outputs Data	Unsafe Outputs 0	0	O0	1	Programming actuator / reset of interlock 1 (Input I3)
			1	O1	2	Programming actuator / reset of interlock 2 (Input I3)
			2	O2	-	Control of LED 1 of control device unit BN1
			3	O3	-	Control of LED 2 of control device unit BN1
			4	O4	-	Control of LED 3 of control device unit BN1
			5	O5	-	N.A.
			6	O6	-	N.A.
			7	O7	-	Control of LED 4 of control device unit BN1

2024 © Pizzato Elettrica S.r.l.

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Outputs Data	Unsafe Outputs 1	8	O8	-	Control of LED 1 of control device unit BN2
			9	O9	-	Control of LED 2 of control device unit BN2
			10	O10	-	Control of LED 3 of control device unit BN2
			11	O11	-	N.A.
			12	O12	-	N.A.
			13	O13	-	Control of LED 4 of control device unit BN2
			14	O14	5	Control of Green colour (G) of the AN1 safety handle
			15	O15	5	Control of button LED of the AN1 safety handle
		Unsafe Outputs 2	16	O16	5	Output signal of NO contact of the AN1 safety handle
			17	O17	5	Control of Blu colour (B) of the AN1 safety handle
			18	O18	5	Control of Red colour (R) of the AN1 safety handle
			19	O19	6	Control of LED 1 of the signalling device
			20	O20	6	Control of LED 4 of the signalling device
			21	O21	6	Output signal of auxiliary NO contact
			22	O22	6	Control of LED 2 of the signalling device
			23	O23	6	Control of LED 3 of the signalling device

Module	PDO	Type	Data name	Ref.	Device	Function
Safety Module	Safety Inputs	FSoE	FSoE Slave Command			Reserved
			InputChannel1	DI1	1	State of safety output (OS1) of safety interlock 1
			InputChannel2	DI2	1	State of safety output (OS2) of safety interlock 1
			InputChannel3	DI3	2	State of safety output (OS1) of safety interlock 2
			InputChannel4	DI4	2	State of safety output (OS2) of safety interlock 2
			InputChannel5	DI5	3/4	State of emergency stop button
			InputChannel6	DI6	3/4	State of emergency stop button
			Qualifier InputChannel1	QDI1	1	State of the qualifier of the safety input 1
			Qualifier InputChannel2	QDI2	1	State of the qualifier of the safety input 2
			Qualifier InputChannel3	QDI3	2	State of the qualifier of the safety input 3
			Qualifier InputChannel4	QDI4	2	State of the qualifier of the safety input 4
			Qualifier InputChannel5	QDI5	3/4	State of the qualifier of the safety input 5
			Qualifier InputChannel6	QDI6	3/4	State of the qualifier of the safety input 6
			FSoE Slave CRC_0			Reserved
			Qualifier OutputChannel1	QDO1	1	State of the safe output qualifier 1
			Qualifier OutputChannel2	QDO2	2	State of the safe output qualifier 2
			FSoE Slave CRC_1			Reserved
			FSoE Slave Connection ID			Reserved
	Safety Outputs	FSoE	FSoE Master Command			Reserved
			OutputChannel1	DO1	1	Electromagnet release command of safety interlock 1
			OutputChannel2	DO2	2	Electromagnet release command of safety interlock 2
			ErrorReset InputChannel1	ERDI1	1	Reset bit for the qualifier of the safety input 1
			ErrorReset InputChannel2	ERDI2	1	Reset bit for the qualifier of the safety input 2
			ErrorReset InputChannel3	ERDI3	2	Reset bit for the qualifier of the safety input 3
			ErrorReset InputChannel4	ERDI4	2	Reset bit for the qualifier of the safety input 4
			ErrorReset InputChannel5	ERDI5	3/4	Reset bit for the qualifier of the safety input 5
			ErrorReset InputChannel6	ERDI6	3/4	Reset bit for the qualifier of the safety input 6
			FSoE Master CRC0			Reserved
			ErrorReset OutputChannel1	ERDO1	1	Reset bit for the qualifier of the safety output 1
			ErrorReset OutputChannel2	ERDO2	2	Reset bit for the qualifier of the safety output 2
			FSoE Master CRC1			Reserved
			FSoE Master Connection ID			Reserved

2024 © Pizzato Elettrica S.r.l.

7.4 Communication data BP A1EL2004

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Input Data	Error Flags	0	PWR_GD	-	Supply voltage exceeds specified limits
			1	TEMP	-	Temperature exceeds specified limits
			2	PWR_CS	-	Power supply current of the connected devices exceeds the specified limits
			3	SIG_CS	-	Current of non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	N.A.	-	
		Warning Flags	0	PWR_GD	-	Supply voltage exceeds the specified range
			1	TEMP	-	Temperature exceeds the specified range
			2	PWR_CS	-	Device current exceeds the specified range
			3	SIG_CS	-	Current at non-safety outputs exceeds the specified range
			4	N.A.	-	
			5	N.A.	-	
			6	N.A.	-	
			7	SAFETY_ MOD	-	Fault in safe channel
		Unsafe Inputs 0	0	I0	3	State of button 1 of the BN1 control device unit
			1	I1	3	Status of button 2 of the control device unit BN1
			2	I2	4	Status of button 1 of the control device unit BN2
			3	I3	4	Status of button 2 of the control device unit BN2
			4	I4	3	Status of button 3 of the control device unit BN1
			5	I5	5	State of button 1 of the BN3 control device unit
			6	I6	5	State of button 2 of the BN3 control device unit
			7	I7	-	N.A.
		Unsafe Inputs 1	8	I8	4	Status of button 3 of the control device unit BN2
			9	I9	6	State of button 1 of the BN4 control device unit
			10	I10	6	State of button 2 of the BN4 control device unit
			11	I11	-	N.A.
			12	I12	5	State of button 3 of the BN3 control device unit
			13	I13	6	State of button 3 of the BN4 control device unit
			14	N.A.	-	
			15	N.A.	-	
		Voltage	-	-	-	Supply voltage [mV]
		Temperature	-	-	-	Device internal temperature [°C + 100]
		Current	-	-	-	Current consumption of connected devices [mA]
		Reserved	-	-	-	Reserved
	Unsafe Outputs Data	Unsafe Outputs 0	0	O0	-	N.A.
			1	O1	-	N.A.
			2	O2	3	Control of LED of button 1 of the control device unit BN1
			3	O3	3	Control of LED of button 2 of the control device unit BN1
			4	O4	3	Control of LED of button 3 of the control device unit BN1
			5	O5	-	N.A.
			6	O6	-	N.A.
			7	O7	-	N.A.

2024 © Pizzato Elettrica S.r.l.

Module	S.Mod.	Name	Bit	Ref.	Device	Function
Unsafe module	Unsafe Outputs Data	Unsafe Outputs 1	8	O8	4	Control of LED of button 1 of the control device unit BN2
			9	O9	4	Control of LED of button 2 of the control device unit BN2
			10	O10	4	Control of LED of button 3 of the control device unit BN2
			11	O11	-	N.A.
			12	O12	-	N.A.
			13	O13	-	N.A.
			14	O14	5	Control of LED of button 1 of the control device unit BN3
			15	O15	5	Control of LED of button 2 of the control device unit BN3
		Unsafe Outputs 2	16	O16	5	Control of LED of button 3 of the control device unit BN3
			17	O17	-	N.A.
			18	O18	-	N.A.
			19	O19	6	Control of LED of button 1 of the control device unit BN4
			20	O20	6	Control of LED of button 2 of the control device unit BN4
			21	O21	6	Control of LED of button 3 of the control device unit BN4
			22	O22	-	N.A.
			23	O23	-	N.A.

Module	PDO	Type	Data name	Ref.	Device	Function
Safety Module	Safety Inputs	FSoE	FSoE Slave Command			Reserved
			InputChannel1	DI1	1	State of safety output (OS1) of safety interlock 1
			InputChannel2	DI2	1	State of safety output (OS2) of safety interlock 1
			InputChannel3	DI3	2	State of safety output (OS1) of safety interlock 2
			InputChannel4	DI4	2	State of safety output (OS2) of safety interlock 2
			InputChannel5	DI5	3/4/5/6	State of emergency stop button
			InputChannel6	DI6	3/4/5/6	State of emergency stop button
			Qualifier InputChannel1	QDI1	1	State of the qualifier of the safety input 1
			Qualifier InputChannel2	QDI2	1	State of the qualifier of the safety input 2
			Qualifier InputChannel3	QDI3	2	State of the qualifier of the safety input 3
			Qualifier InputChannel4	QDI4	2	State of the qualifier of the safety input 4
			Qualifier InputChannel5	QDI5	3/4/5/6	State of the qualifier of the safety input 5
			Qualifier InputChannel6	QDI6	3/4/5/6	State of the qualifier of the safety input 6
			FSoE Slave CRC_0			Reserved
			Qualifier OutputChannel1	QDO1	1	State of the safe output qualifier 1
			Qualifier OutputChannel2	QDO2	2	State of the safe output qualifier 2
			FSoE Slave CRC_1			Reserved
			FSoE Slave Connection ID			Reserved
	Safety Outputs	FSoE	FSoE Master Command			Reserved
			OutputChannel1	DO1	1	Electromagnet release command of safety interlock 1
			OutputChannel2	DO2	2	Electromagnet release command of safety interlock 2
			ErrorReset InputChannel1	ERDI1	1	Reset bit for the qualifier of the safety input 1
			ErrorReset InputChannel2	ERDI2	1	Reset bit for the qualifier of the safety input 2
			ErrorReset InputChannel3	ERDI3	2	Reset bit for the qualifier of the safety input 3
			ErrorReset InputChannel4	ERDI4	2	Reset bit for the qualifier of the safety input 4
			ErrorReset InputChannel5	ERDI5	3/4/5/6	Reset bit for the qualifier of the safety input 5
			ErrorReset InputChannel6	ERDI6	3/4/5/6	Reset bit for the qualifier of the safety input 6
			FSoE Master CRC0			Reserved
			ErrorReset OutputChannel1	ERDO1	1	Reset bit for the qualifier of the safety output 1
			ErrorReset OutputChannel2	ERDO2	2	Reset bit for the qualifier of the safety output 2
			FSoE Master CRC1			Reserved
			FSoE Master Connection ID			Reserved

2024 © Pizzato Elettrica S.r.l.

8 SUPPORT

8.1 Website

This product line is supported online via the www.pizzato.com website, where you can:

- Get the most up-to-date version of the instruction manual (this document)
- Get the most up-to-date version of the file that contains the list of BP series P-Connect gateways available for purchase
- Get any other support information added

8.2 Technical support

Complementary technical support is currently available to users who have registered on the website.

Technical support is provided:

- by telephone at +039-0424-470930 in Italian and English
- by email at tech@pizzato.com in Italian and English

The information requested must be relevant to the functionality of the BP series P-Connect gateway. Consultancy service based on the client's application is not available.

Pizzato Elettrica reserves the right, at its sole discretion, to change the terms and conditions of service at any time.

9 SPECIAL VERSIONS ON REQUEST

Special versions of the device are available on request.

The special versions may differ substantially from the indications in this instruction sheet.

The installer must ensure that he has received written information from the support service regarding installation and use of the specific version requested.

10 DISPOSAL



At the end of its service life, the product must be disposed of properly, according to the rules in force in the country in which the disposal takes place.

11 SUPPORT

The device can be used for safeguarding people's physical safety, therefore in case of any doubt concerning installation or operation methods, always contact our technical support service:

Pizzato Elettrica Srl

Via Torino, 1 – 36063 Marostica (VI) – ITALY

Telephone +39.0424.470.930

E-mail tech@pizzato.com

www.pizzato.com

Our support service provides assistance in Italian and English.

2024 © Pizzato Elettrica S.r.l.

12 EC DECLARATION OF CONFORMITY

I, the undersigned, as a representative of the following manufacturer:

Pizzato Elettrica Srl – Via Torino, 1 – 36063 Marostica (VI) – ITALY

Hereby declare that the product is in conformity with whatever prescribed by the 2006/42/EC Machine Directive. The complete version of the present conformity declaration is available on our website www.pizzato.com

Marco Pizzato

DISCLAIMER:

Subject to modifications without prior notice and errors excepted. The data given in this sheet are accurately checked and refer to typical mass production values. The device descriptions and its applications, the fields of application, the external control details, as well as information on installation and operation, are provided to the best of our knowledge. This does not in any way mean that the characteristics described may entail legal liabilities extending beyond the "General Terms of Sale", as stated in the Pizzato Elettrica general catalogue. Customers/users are not absolved from the obligation to read and understand our information and recommendations and pertinent technical standards, before using the products for their own purposes. Taking into account the great variety of applications and possible connections of the device, the examples and diagrams given in the present manual are to be considered as merely descriptive; the user is deemed responsible for checking that the specific application of the device complies with current standards. This document is a translation of the original instructions. In case of discrepancy between the present sheet and the original copy, the Italian version shall prevail. All rights to the contents of this publication are reserved in accordance with current legislation on the protection of intellectual property. The reproduction, publication, distribution and modification, total or partial, of all or part of the original material contained therein (including, but not limited to, texts, images, graphics), whether on paper or in electronic form, are expressly prohibited without written permission from Pizzato Elettrica Srl.

All rights reserved. © 2025 Copyright Pizzato Elettrica