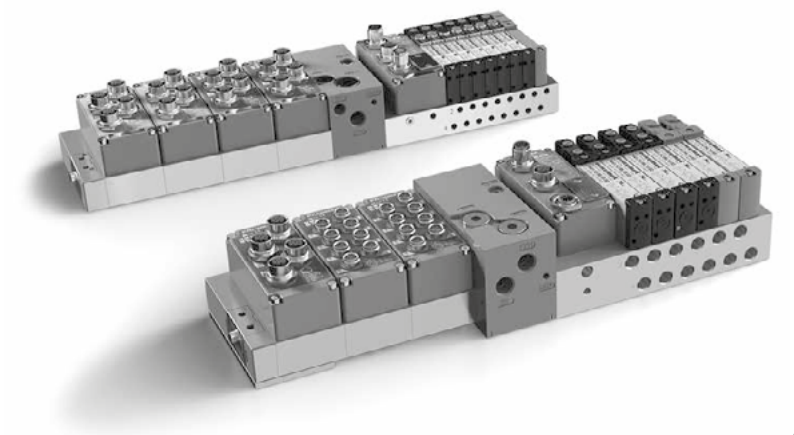


PX3-P

- **3100 EVO**
- **3400 EVO**

Instruction, operation and maintenance manual

ELECTRONICS

ENGLISH

TABLE OF CONTENTS

1. ABOUT THIS DOCUMENT

- All available documents on the product can be found at www.pneumaxspa.com
- This document refers to the interfaces and accessory modules that can be combined with the 3000 EVO series listed in the 'General Overview' chapter.
- This document has been drafted and checked to the best of the ability of PNEUMAX S.p.A. (hereinafter also referred to as 'Manufacturer')
- PNEUMAX S.p.A. is not responsible for its use and reserves the right to make changes to the product and the information provided below without prior notice.
- No part of this document may be copied, edited, reproduced, translated into any language or transmitted by any data communication system without the consent of PNEUMAX S.p.A.
- CANopen® , PROFIBUS DP , EtherNet/IP, PROFINET IO RT, IO-Link ,EtherCAT® , CC-Link IE Field Basic are registered trademarks of the owner in the individual country.

2. SAFETY WARNINGS

- The Manufacturer shall not be held liable for any consequences that may arise from failure to comply with the instructions in this manual.
- So as not to jeopardise the proper operation of the device and cause hazards to persons and property, thus invalidating the warranty and conformity of the device with the essential requirements of the relevant directives, any form of tampering or intervention not authorised by PNEUMAX S.p.A. through this manual or any other official document is strictly prohibited.
- The product is not intended for use in environments with a potentially explosive atmosphere.
- Do not use the product in places where static electricity poses a problem
- Protect the product from moisture, UV radiation, corrosion, vibration and shock.
- Pay attention to external factors such as the proximity of live cables, magnetic fields, magnetically exposed conductive metal parts very close to the device that can affect and disturb the system.
- Do not exceed the current capabilities of each individual interface or accessory module.
- To ensure IP65 protection, all unused connectors must be closed with the appropriate caps.
- Applying supply voltages beyond the technical specifications may cause irreparable and irreversible damage to the system.
- Only use power supplies that guarantee a safe electrical disconnection of the operating voltage according to IEC/EN 60204-1.
- Comply with the requirements for PELV circuits according to IEC / EN 60204-1
- The device must be installed and put into service by qualified personnel in accordance with the operating instructions
- Before working on the product, switch off the electrical and pneumatic power supplies, taking care to empty the pneumatic circuit, and ensure that it is not switched back on by third parties during operations.
- Strictly meet the conditions of use set out in the dedicated section

3000 EVO

3. CONDITIONS OF USE

Product compatibility is the responsibility of the person who designs the equipment or chooses its specifications.
All products covered by this manual are intended for use in an industrial environment.
The product warranty is only valid if it is used under the conditions specified in this manual.
For plugs and connectors, it is recommended to use the codes and tightening torques in Annexes I, II.

4. NORMATIVE REFERENCES

- EMC : 2014/30/EU
- RoHS : 2011/65/EU

Overall dimensions and technical information are given for information only and may be changed without notice

5. GENERAL OVERVIEW

The modular electronic system for the EVO 3000 Series has been designed to offer compact and flexible acquisition and control electronics for pneumatic and electrical components; it can be interfaced with the most common communication protocols and configured with both digital and analogue I/O modules.

SERIES 3100 EVO

SERIES 3400 EVO

3000 EVO

Interfaces

DESCRIPTION	CODES	PAGE
Multipole Module	3140.00.xx	6
CANopen interface	5530.64.xxCO	12
Profibus DP interface	5330.64.xxPB	26
PROFINET IO RT interface	5730.128.48PN	35
EtherCAT interface	5730.128.48EC	48
CC-Link® IE Field Basic interface	5730.128.48CL	57
EtherNet/IP interface	5730.128.48EI	68
IO-Link interface	5830.64.xxIK	81

List of available accessory modules

DESCRIPTION	CODES	PAGE
Digital output module kit	K5130.xx.xxx	105
16 digital outputs module kit Terminal block	K5130.16.SL	115
Digital input module kit	K5230.xx.xx	119
16 digital inputs module kit Terminal block	K5230.16.SL	129
8IN\8OUT module kit Terminal block	K5330.16.SL	133
Analogue output module kit	K5130.xx.0x	137
Analogue input module kit	K5230.xx.0x	146
Pt100 input module kit	K5230.xP.0x	154
Supplementary power supply module kit	K5030.M12	164

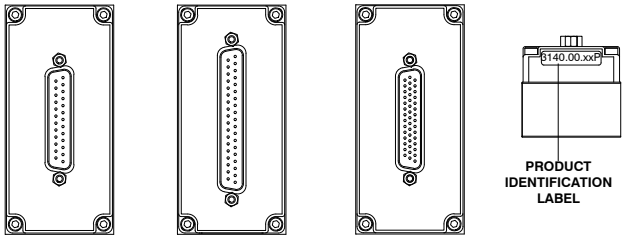
NOTE : Accessory modules can be connected in any order and configuration

Overall dimensions and technical information are given for information only and may be changed without notice

5.1 Multipolar interfaces

Multi-pole interfaces allow direct control of the 3000 EVO series solenoid valves (via the signals S1, S2,...), different types are available with 25, 37, 44-pole SUB-D connectors.

5.1.1 Product identification



Code	Poles	Electrical Connection
3140.00.25P	25	PNP / NPN
3140.00.37P	37	PNP / NPN
3140.00.44P	44	PNP / NPN

5.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

COMPATIBILITY

	3100 EVO	3400 EVO
3140.00.25P	●	●
3140.00.37P	●	●
3140.00.44P	●	●

3000 EVO
Multipolar interfaces

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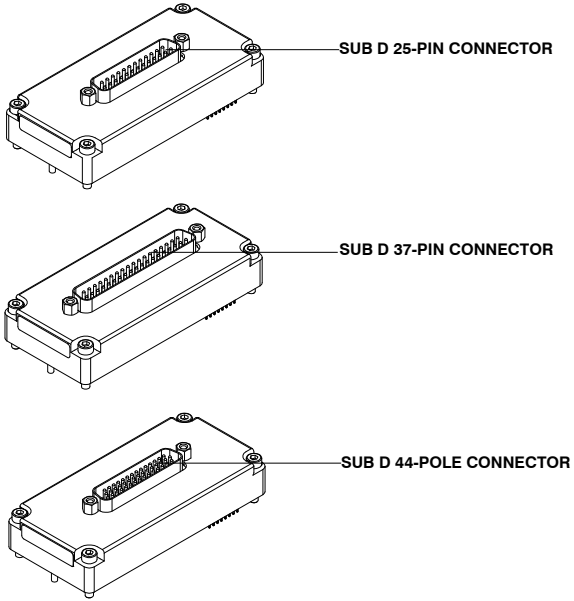
For your convenience, the power consumption of Pneumax S.p.A. solenoid valves is shown below:

	3100 EVO	3400 EVO
3140.00.25P	36mA	36mA
3140.00.37P	36mA	36mA
3140.00.44P	36mA	36mA

5.1.3 Product Overview



Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
Multipolar interfaces

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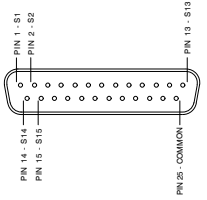
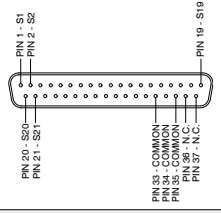
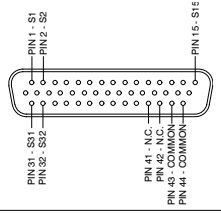
- **Signal Connections**

The pre-assembled cables to be used are shown in the annex 'Cable and connector counterparts'.
Always observe the tightening torques given in the table under 'Tightening torques'.

Multi-pole module diagram 25P	Connector	Signals
	Pin 1 ...24	S1 ... S24
	Pin 25	COMMON
Multi-pole module diagram 37P	**Connector**	**SUB-D 37-pole Male**
	Pin 1…32	S1...S32
	Pin 33…35	COMMON
	Pin 36, 37	N.C.
Multi-pole module diagram 44P	**Connector**	**SUB-D 44-pole Male**
	Pin 1…42	S1...S42
	Pin 41,42	N.C.
	Pin 43, 44	COMMON

5.1.4 Technical Data

Mechanical Technical Data

	25	37	44
Dimensions	90X42X15.5mm		
Weight	47.4 g	51.3 g	49.1 g
Body material	Filled technopolymer		
Operating temperature	-5°C to 50°C		
Storage temperature	-5°C to 50°C		
Degree of protection	IP65 (when assembled)		

Electrical Technical Data

Description		Value
Control voltage		+24V DC ±10%
Maximum altitude		2000 m a.s.l.
Max. number of signals handled	25 poles	24
	37 poles	32
	44 poles	40

Overall dimensions and technical information are given for information only and may be changed without notice

5.2 Communication interfaces

Current imitations

All communication interfaces (except IO-link interfaces see dedicated section) have two electrically separated positive supply pins:

- Pin 1: +24V DC for supplying logic circuits and loads on analogue and digital inputs, hereinafter abbreviated as +24V DC logics and inputs.
- Pin 4: +24V DC for powering solenoid valves and loads on analogue and digital outputs, hereafter abbreviated +24V DC OUTPUTS

Stand-alone and integrated configurations must both comply with the current limits of the communication interface.

The following formula is used to calculate the maximum current on the +24V DC OUTPUTS :

$$I_{24V\ DC\ out} = \sum_{i=1}^{n} I_{out,i} + m\, i_{EV}$$

Where:

- n=is the number of installed modules
- $I_{out,i}$=is the maximum total current drawn on *+24V DC OUTPUTS* by the *i-th* module (see individual module specifications)
- m=is the number of installed electro-pilots
- i_{EV}=is the average current drawn by each electro-pilot

For your convenience, the power consumption of Pneumax S.p.A. solenoid valves is shown below.

Series	i_{EV}
Series 3000 EVO	36mA

3000 EVO
Communication interfaces

ENGLISH

For each communication interface, the maximum current that can be delivered by the +24V DC OUTPUTS power supply is 4A. In addition, the sum of the currents on +24V DC OUTPUTS and +24V DC INPUTS must not exceed 4A.

$$I_{24V\ DC\ out} + I_{24V\ DC\ in} < 4A$$

Where:

$I_{24V\ DC\ in} = \Sigma_{i=1}^{n} I_{in,i}$

n = number of modules installed

$I_{in,i}$ = maximum total current drawn by the i-th module on +24V DC INPUTS (see individual module specifications)

Caution
If the total current exceeds 4A, modules exceeding the limit must be supplied with the K5030.M12 supplementary power supply module (see Supplementary Power Supply Module) .

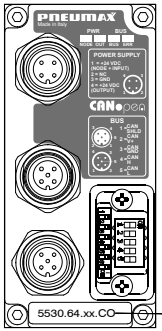
LED symbol interpretations

LED SYMBOL	MEANING
	LED ON
	FLASHING LED
	LED OFF

5.2.1 CANopen Interface

The CANopen interface handles 64 bits on input data and 64 bits on output data, of which 32 or 48 bits (depending on the version) are allocated to the valve seats only (hereafter abbreviated as 'EV').

5.2.1.1 Product identification



COMPATIBILITY

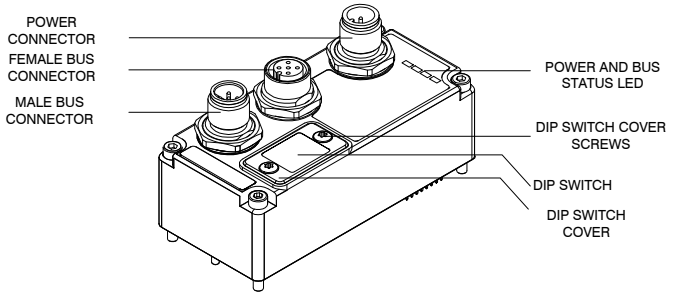
	3100 EVO	3400 EVO
5530.64.32CO	●	●
5530.64.48CO	●	●

5.2.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.
- When setting the DIP-switches, electrostatic discharges, even if not perceived, can damage the product: ensure that the body is electrostatically discharged before opening the protection and setting the DIP-switches.

5.2.1.3 Product Overview



Byte distribution

The CANopen® node handles up to 64 bits of inputs and outputs.

Both versions provide a fixed configuration of the number of inputs and outputs (8 bytes), regardless of how many are actually used.

Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data. Each of the two nodes accepts from the CANopen® master 2 PDOs consisting of 8 bytes, one relating to input status (TPDO1) and the other relating to outputs (RPDO1).

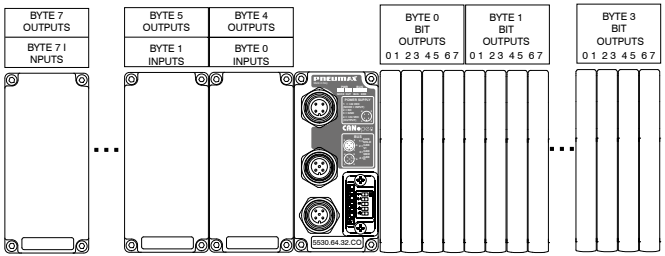
The accessory modules, located to the left of the node, can be connected in any order and configuration.

E.g.

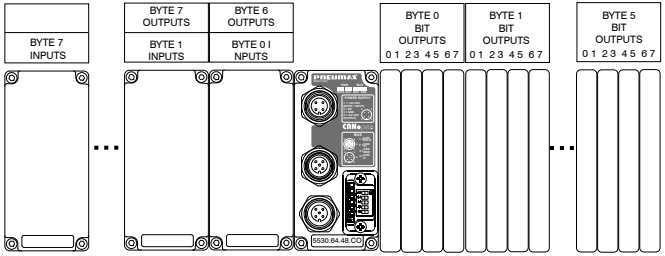
5530.64.32CO — 4 Bytes (from byte 0 to byte 3) always allocated to the valve positions even if not used the first byte available for output accessory modules will be byte 4 while for input accessory modules it will be byte 0 up to a total of 8 bytes allocated

5530.64.48CO — 6 Byte (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for output accessory modules will be byte 6 while for input accessory modules it will be byte 0 up to a total of 8 bytes allocated

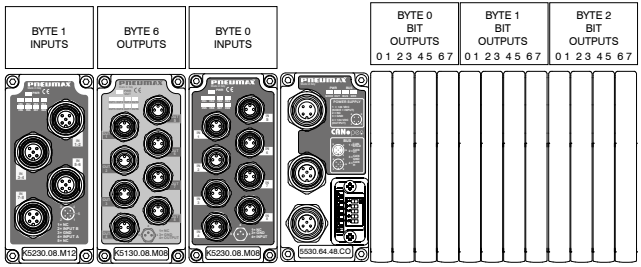
Input and output data distribution with CANopen interface 5530.64.32CO



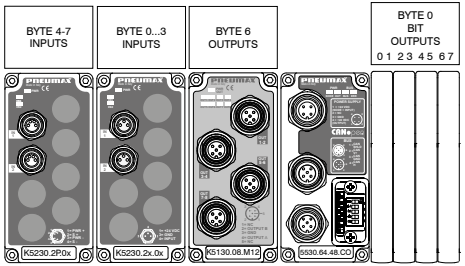
Input and output data distribution with CANopen interface 5530.64.48CO



Example of input and output data distribution with CANopen interface 5530.64.48CO



Example of input and output data distribution with CANopen interface 5530.64.48CO



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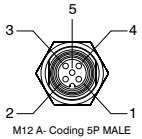
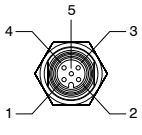
- **Signal Connections**

CANopen bus connectors are in parallel set-up
The pinout conforms to CiA 106 specifications (V.1.1.0 : 11 July 2023)

M12 A- Coding 5P FEMALE



M12 A- Coding 5P MALE



PIN	SIGNAL	DESCRIPTION
1	CAN_SHLD	Optional CAN Shield
2	CAN_V+	Optional CAN external positive supply (Dedicated for supply of transceiver and Optocouplers, if galvanic isolation of the bus node applies)
3	CAN_GND	0V DC
4	CAN-H	CAN_H bus line (dominant high)
5	CAN_L	CAN_L bus line (dominant low)

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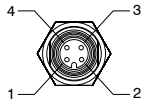
CANopen Interface

- **Electrical Connection**

M12 A- Coding 4P MALE



PIN	SIGNAL
1	+24V DC (LOGICS AND INPUTS)
2	NC
3	0V DC
4	+24V DC (OUTPUTS)
Thread	F.E.

5.2.1.4 Installation and Commissioning

- Cable connection

The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

- **CANopen cable specifications**
The cables to be used for the bus connection are 120Ω impedance cables specifically for CANopen buses.

- **Access to configuration DIP switches**
To access the DIP switches, the plate must be removed by unscrewing the fixing screws with a PH1 head screwdriver. To refix the plate, the screws must be tightened to the torque indicated in the table under 'Tightening torques'.

- **Baud rate and cable length**
There are several factors that contribute to signal loss: many are related to the quality of the cables themselves; however, one factor that cannot be eliminated is the delay in signal propagation between the ends of the line and between the line and the individual nodes on the branches. The following table gives an indication of the maximum line length in relation to the baud rate:

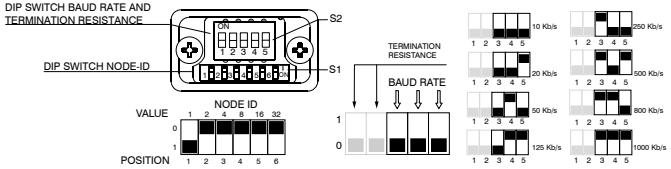
Bus length (m)	Signal speed (kbps)
30	1000
50	800
100	500
250	250
500	125
1000	50
2500	20
5000	10

As the number of nodes pertaining to the line or the length of the line increases, the quality of the cable must also increase and, if necessary, a repeater must be inserted to ensure sufficient signal quality.
Please refer to the control system manuals and technical literature for further details.

Line Drifts
The CANopen communication interface has two network connectors in parallel, allowing the use of 'T' adapters to be avoided. In the event that you are forced to create a branch with a 'T' adapter attached to a section of cable, please note that branches are included in the calculation of the maximum total length of the line and that they significantly degrade the signal, so they should be kept as short as possible. For further information, refer to CiA Recommendation 303-1 (V. 2.0.1: 27 February 2023) and command system documentation.

Line terminations
The bus must be terminated at both ends to reduce signal reflections.
The 120Ω termination is enabled on the device by activating both DIP switches at positions 1 and 2 of DIP switch 'S2'.

- DIP switches S1 and S2 can be set:
  - S1: address
  - S2: baud rate and termination.



Caution
The DIP switches must be moved by completing the movement to the end stop.

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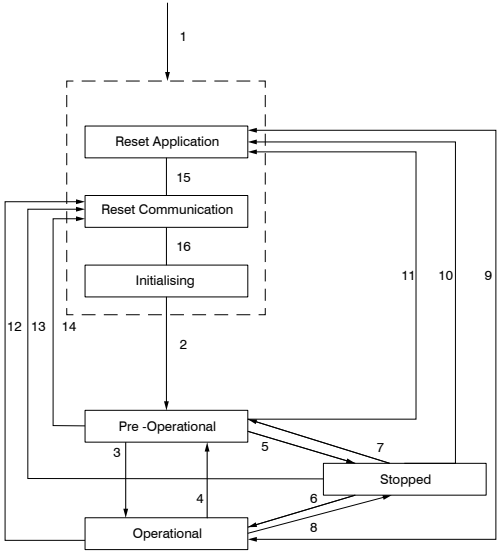
Overall dimensions and technical information are given for information only and may be changed without notice



1	The initialisation status is automatically entered at power-on
2	Initialisation complete - enters pre-operational automatically
3,6	Start_remote_Node indication
4,7	Enter_PREOPERATIONAL_State indication
5,8	Stop_remote_Node indication
9,10,11	Reset_Node indication
12,13,14	Reset_communication indication

List of Transmitted Emergency Error Codes :

0x8110 = CAN overrun (objects lost)
0x8120 = CAN in error passive mode
0x8130 = Life guard error or heartbeat error
0x8140 = Recovered from bus off

3000 EVO
CANopen Interface

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OBJECT SUMMARY TABLE

Below is the meaning of the abbreviations used:
RO = read only
RW = read/write
RWW = read/write for SDO
CONST = read only access, but the value is always the same, it's constant

Index (hex)	Subin-dex (hex)	Register Name	Type	Access	Value	Description
1000	00	Device Type	4	RO	03 01 91	9101 device profile, model with digital inputs and outputs
1001	00	ErrorRegister	1	RO	00	No error
1003		PreDefinedErrorField				
	00	NumbeROfErrors	1	RW	00	Number of errors
	01	StandardErrorField	4	RO	00 00 00 00	
	02	StandardErrorField	4	RO	00 00 00 00	
	03	StandardErrorField	4	RO	00 00 00 00	
	04	StandardErrorField	4	RO	00 00 00 00	
	05	StandardErrorField	4	RO	00 00 00 00	
	06	StandardErrorField	4	RO	00 00 00 00	
	07	StandardErrorField	4	RO	00 00 00 00	
	08	StandardErrorField	4	RO	00 00 00 00	
	09	StandardErrorField	4	RO	00 00 00 00	
	0A	StandardErrorField	4	RO	00 00 00 00	
1005	00	COB-ID-SYNC	4	RW	0x00000080	Default SYNC Message COB-ID 80h
1008	00	ManufacturerDeviceName	STRING	const	3KCO	Product identification
1009	00	ManufacturerHardware-Version	STRING	const	1.00	Hardware version in use
100A	00	ManufacturerSoftware-Version	STRING	const	1.00	Firmware version in use

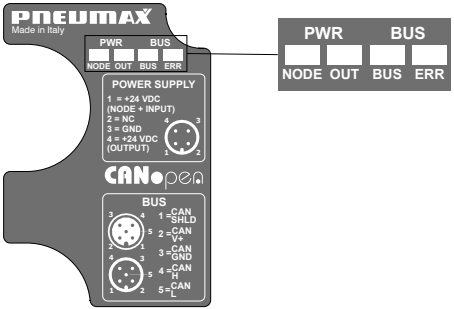
Index (hex)	Subin-dex (hex)	Register Name	Type	Access	Value	Description
100C	00	GuardTime	2	RW	00 00	Guard-Time x Life Time Factor = Node Guarding Time
100D	00	LifeTimeFactor	1	RW	00	Guard-Time x Life Time Factor = Node Guarding Time
1014	00	COB-ID Emergency Message	4	RO	$NODEID +0x80	COB-ID messages EMCY
1017	00	PROducer Heartbeat Time	2	RW	00 00	Heartbeat time (ms)
1018		Identity Object				General product information
	00	Number Of Entries	1	RO	01	Number of records
	01	Vendor Id	4	RO	0x00017A	Vendor ID
1200		SDO Parameter Server				SDO Parameters
	00	Number Of Entries	1	RO	02	Number of Records
	01	COB-ID_Client->Server(rx)	4	RO	$NODEID +0x600	COB-ID+ Node address
	02	COB-ID_Server->Client(tx)	4	RO	$NO-DEID+0x580	COB-ID+ Node address
Digital Outputs						
181… 1FF	*	PDO 01 Transmission	*	*		
1400		Receive PDOParameter				RPDO Parameters
	00	LargestSub-indexSupported	1	RO	02	Number of records
	01	COB-ID Used By PDO	4	RW	$NO-DEID+0x200	COB-ID outputs
	02	TransmissionType	1	RW	FF	Acyclic by default
1600		Receive PDO Mapping				
	00	Number Of Mapped Appli-cation Objects In PDO	1	RW	08	Number of records
	01	RPDO1thApplicationObject	4	RW	62 00 01 08	Index of outputs 1...8
	02	RPDO2ndApplicationObject	4	RW	62 00 02 08	Index of outputs 9...16

Index (hex)	Subin-dex (hex)	Register Name	Type	Access	Value	Description
1600	03	RPDO3rdApplicationObject	4	RW	62 00 03 08	Index of outputs 17...24
	04	RPDO4thApplicationObject	4	RW	62 00 04 08	Index of outputs 25...32
	05	RPDO5thApplicationObject	4	RW	62 00 05 08	Index of outputs 33…40
	06	RPDO6thApplicationObject	4	RW	62 00 06 08	Index of outputs 41...48
	07	RPDO7thApplicationObject	4	RW	62 00 07 08	Index of outputs 49...56
	08	RPDO8thApplicationObject	4	RW	62 00 08 08	Index of outputs 57...64
6200		WriteState8OutputLines				
	00	Number_Blocks_8_Out-puts_State	1	RO	08	Number of groups with 8 outputs
	01	Write_8_Outputs_1H_8H	1	RWW		Status of outputs 1...8
	02	Write_8_Outputs_9H_10H	1	RWW		Status of outputs 9...16
	03	Write_8_Outputs_11H_18H	1	RWW		Status of outputs 17...24
	04	Write_8_Outputs_19H_20H	1	RWW		Status of outputs 25...32
	05	Write_8_Outputs_21H_28H	1	RWW		Status of outputs 33...40
	06	Write_8_Outputs_29H_30H	1	RWW		Status of outputs 41...48
	07	Write_8_Outputs_31H_38H	1	RWW		Status of outputs 49...56
	08	Write_8_Outputs_39H_40H	1	RWW		Status of outputs 57...64
Digital Inputs						
201… 27F...	*	PDO 01 Reception	*	*		
1800		TransmitPDOParameter				TPDO Parameters
	0	LargestSub-indexSupported	1	RO	02	Number of records
	1	COB-IDUsedByPDO	4	RW	$NODEID +0x180	COB-ID inputs
	2	TransmissionType	4	RW	FF	Acyclic by default

3000 EVO
CANopen Interface

Index (hex)	Subin-dex (hex)	Register Name	Type	Access	Value	Description
1A00		TransmitPDOMapping				
	0	NumberOfMappedApplica-tionObjectsInTPDO	1	RW	08	Number of records
	1	TPDO1thApplicationObject	4	RW	60 00 01 08	Index of inputs from 1…8
	2	TPDO2ndApplicationObject	4	RW	60 00 02 08	Index of inputs from 9…16
	3	TPDO3rdApplicationObject	4	RW	60 00 03 08	Index of inputs from 17…24
	4	TPDO4thApplicationObject	4	RW	60 00 04 08	Index of inputs from 25…32
	5	TPDO5thApplicationObject	4	RW	60 00 05 08	Index of inputs from 33…40
	6	TPDO6thApplicationObject	4	RW	60 00 06 08	Index of inputs from 41…48
	7	TPDO7thApplicationObject	4	RW	60 00 07 08	Index of inputs from 49…56
	8	TPDO8thApplicationObject	4	RW	60 00 08 08	Index of inputs from 57…64
6000		ReadState8InputsLines				
	0	Number_Blocks_8_In-puts_State	1	RO	08	Number of 8-input groups
	1	Read_8_Inputs_1H_8H	1	RO		Status of inputs 1...8
	2	Read_8_Inputs_9h_10H	1	RO		Status of inputs 9…16
	3	Read_8_Inputs_11h_18H	1	RO		Status of inputs 17...24
	4	Read_8_Inputs_19h_20H	1	RO		Status of inputs 25…32
	5	Read_8_Inputs_21h_28H	1	RO		Status of inputs 33...40
	6	Read_8_Inputs_29h_30H	1	RO		Status of inputs 41…48
	7	Read_8_Inputs_31h_38H	1	RO		Status of inputs 49...56
	8	Read_8_Inputs_39h_40H	1	RO		Status of inputs 57…64

LED STATUS INDICATORS



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

ENGLISH

Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
CANopen Interface

BUS COMMUNICATION STATUS LED

BUS	STATUS	COLOUR	MEANING
	OFF	GREEN	INIT status or device OFF
	BLINKING		PREOPERATIONAL status
	SINGLE FLASH		STOPPED status
	ON		OPERATIONAL Status

ERR	STATUS	COLOUR	MEANING
	FLICKERING	RED	Node address= 0
	SINGLE FLASH		Can communication error
	DOUBLE FLASH		GUARD TIME error

LED STATUS		DESCRIPTION
LED ON		The LED must be constantly on
LED OFF		The LED must be constantly off
LED FLICKERING		This indicates the switching on and off of the isophase with a frequency of about 10 Hz: on for about 50 ms and off for about 50 ms.
LED BLINKING		This indicates the switching on and off of the isophase with a frequency of approx. 2.5 Hz: on for approx. 200 ms followed by off for approx. 200 ms
LED SINGLE FLASH		This indicates a short flash (approx. 200 ms) followed by a long switch-off phase (approx. 1000 ms).
LED DOUBLE FLASH		The LED shows a sequence of two short flashes (200 ms each), separated by a short 'Off' phase (200 ms). The sequence ends with a long 'Off' phase (1,000 ms).

5.2.1.5 Technical Data

Mechanical Technical Data

Description	5530.64.xxCO
Dimensions	90x42x28 mm
Weight	143.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description		5530.64.xxCO
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	40mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Available bus speeds	10 - 20 - 50 - 125 - 250 - 500 - 800 - 1000 Kbit/s
	Possible addresses	1 to 63
	Addressing data space	8 byte inputs / 8 byte outputs
	Configuration support	EDS files

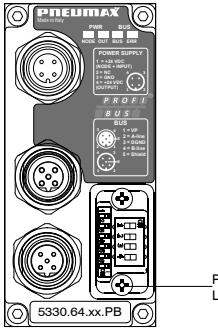
ENGLISH

Overall dimensions and technical information are given for information only and may be changed without notice

5.2.2 PROFIBUS DP inteface

The PROFIBUS interface handles 64 bits on the input data and 64 bits on the output data, of which 32 or 48 bits (depending on version) are allocated to the valve seats only (hereafter abbreviated as 'EV').

5.2.2.1 Product identification



PRODUCT IDENTIFICATION LABEL

COMPATIBILITY

	3100 EVO	3400 EVO
5330.64.32PB	●	●
5330.64.48PB	●	●

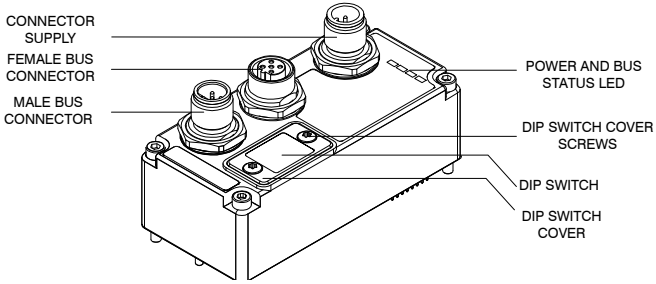
5.2.2.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.
- When setting the DIP-switches, electrostatic discharges, even if not perceived, can damage the product: ensure that the body is electrostatically discharged before opening the protection and setting the DIP-switches.

3000 EVO
PROFIBUS DP inteface

5.2.2.3 Product Overview



Byte Distribution

The PROFIBUS DP node handles up to 64 bits of inputs and outputs.
Both versions provide a fixed configuration of the number of inputs and outputs (8 bytes), regardless of how many are actually used.
The accessory modules, located to the left of the node, can be connected in any order and configuration.
E.g.

5330.64.32PB	4 Bytes (from byte 0 to byte 3) always allocated to the valve positions even if not used the first byte available for output accessory modules will be byte 4 while for input accessory modules it will be byte 0 up to a total of 8 bytes allocated
5330.64.48PB	6 Bytes (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for output accessory modules will be byte 6 while for input accessory modules it will be byte 0 up to a total of 8 bytes allocated

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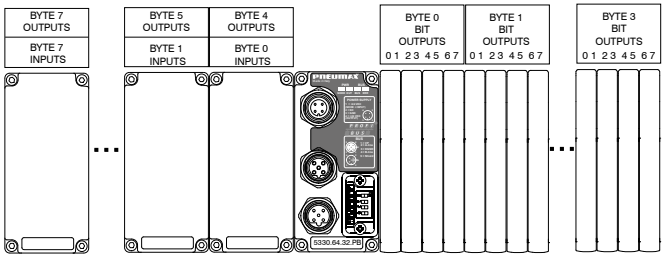
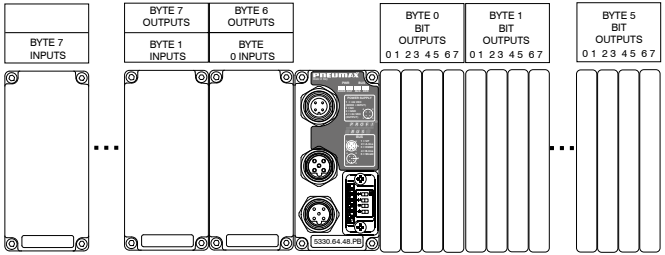
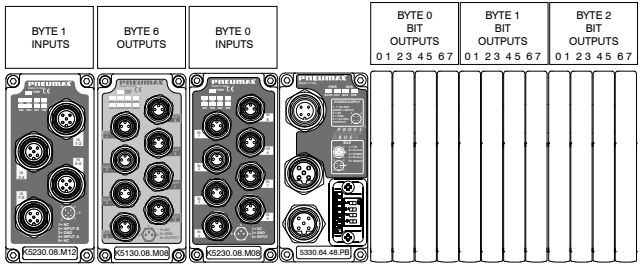
Input and output data distribution with PROFIBUS DP interface 5330.64.32PB



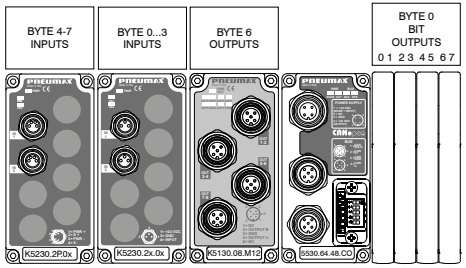
Input and output data distribution with PROFIBUS DP interface 5330.64.48PB



Example of input and output data distribution with PROFIBUS interface DT 5330.64.48PB



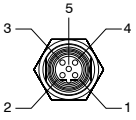
Example of input and output data distribution with PROFIBUS DP interface 5330.64.48PB



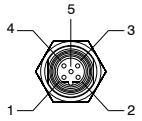
- **Signal Connections**

PROFIBUS bus connectors are in parallel set-up

M12 B-Coding 5P FEMALE



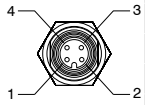
M12 B-Coding 5P MALE



PIN	SIGNAL	DESCRIPTION
1	VP	Additional power supply (P5V)
2	A-line	Receive/Transmit data -N, A-line
3	DGND	Data Ground (reference potential to VP)
4	B-line	Receive/Transmit data -P, B-line
5	SHIELD	Shield or PE

- **Electrical Connection**

M12 A-Coding 4P MALE



PIN	SIGNAL
1	+24V DC (LOGICS AND INPUTS)
2	NC
3	0V DC
4	+24V DC (OUTPUTS)
THREADING	F.E.

3000 EVO
PROFIBUS DP inteface

5.2.2.4 Installation and Commissioning

- Cable connection

  The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under 'Tightening torques'.

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

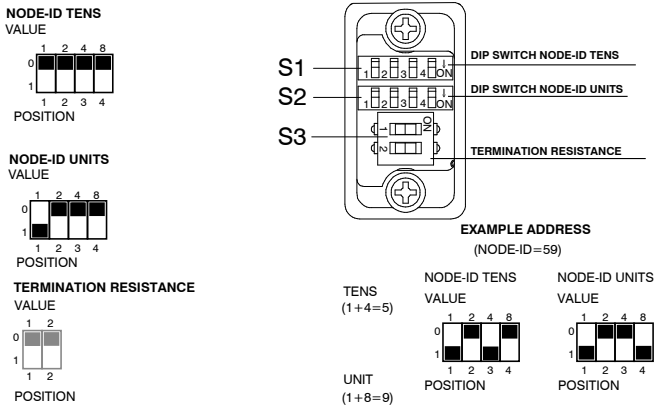
- **PROFIBUS cable specifications**
  The cables to be used for the bus connection are 150Ω±15Ω impedance cables specific to PROFIBUS bus.

- **Access to configuration DIP switches**
  To access the DIP switches, the plate must be removed by unscrewing the fixing screws with a PH1 head screwdriver. To refix the plate, the screws must be tightened to the torque indicated in the table under 'Tightening torques'.

As the number of nodes pertaining to the line or the length of the line increases, the quality of the cable must also increase and, if necessary, a repeater must be inserted to ensure sufficient signal quality.
Please refer to the control system manuals and technical literature for further details.

Line terminations

The bus must be terminated at both ends to reduce signal reflections.
The 220Ω termination is enabled on the device by activating both DIP switches at positions 1 and 2 of DIP switch 'S2'.



Caution
The DIP switches must be moved by completing the movement to the end stop.

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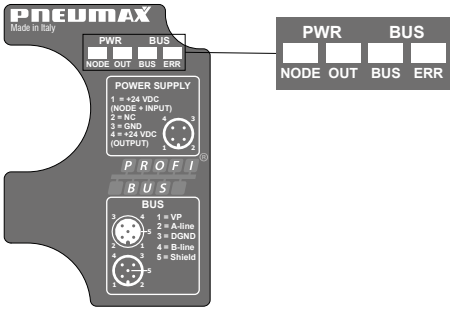
Overall dimensions and technical information are given for information only and may be changed without notice

CONFIGURATION FILES

Vendor_Name	"Pneumax"
Model_Name	"PROFIBUS"
Revision	"Version 1"
Ident_Number	0x04E9
Protocol_Ident	0
Station_Type	0
FMS_supp	0
Hardware_Release	"1.00"
Software_Release	"1.00"
Bitmap_Device	"PNSER3K"
Module	"64 OUT" 0x27.0x00
Module	"64 OUT + 8 IN " 0x27.0x10
Module	"64 OUT + 16 IN " 0x27.0x11
Module	"64 OUT + 24 IN " 0x27.0x12
Module	"64 OUT + 32 IN " 0x27.0x13
Module	"64 OUT + 40 IN " 0x27.0x14
Module	"64 OUT + 48 IN " 0x27.0x15
Module	"64 OUT + 56 IN " 0x27.0x16
Module	"64 OUT + 64 IN " 0x27.0x17

LED STATUS INDICATORS



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

BUS COMMUNICATION STATUS LED

BUS	STATUS	COLOUR	MEANING
	OFF	GREEN	
	ON		OPERATIONAL DATA EXCHANGE status
ERR	**STATUS**	**COLOUR**	**MEANING**
	OFF	RED	Communication in progress
	ON		No communication in progress

ENGLISH

5.2.2.5 Technical Data

Mechanical Technical Data

Description	5330.64.xxPB
Dimensions	90x42x28 mm
Weight	143.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

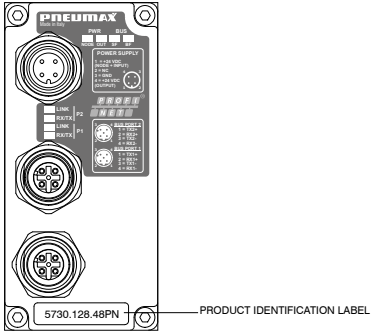
Electrical Technical Data

Description		5330.64.xxPB
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	70mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Available bus speeds	9.6 - 19.2 - 93.75 - 187.5 - 500 - 1500 - 3000 - 6000 - 12000 Kbit/s
	Possible addresses	1 to 99
	Addressing data space	8 byte inputs / 8 byte outputs
	Configuration Files	GSDML

5.2.3 PROFINET IO RT INTERFACE

The PROFINET IO RT interface handles 128 bits on the input data and 128 bits on the output data, of which 48 bits are allocated to the valve seats only (hereafter abbreviated 'EV').

5.2.3.1 Product Identification



COMPATIBILITY

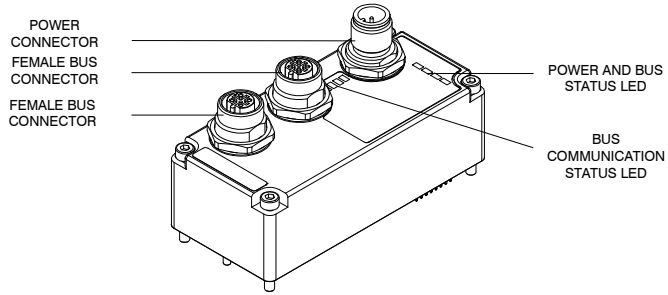
	3100 EVO	3400 EVO
5730.128.48PN	●	●

5.2.3.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.

5.2.3.3 Product Overview



Byte Distribution

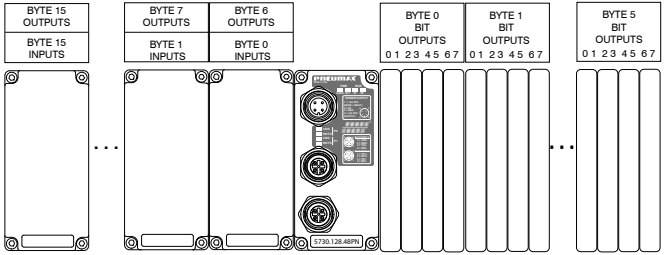
The PROFINET IO RT node handles up to 128 bits of inputs and outputs with a fixed configuration of the number of inputs and outputs (16 bytes), regardless of how many are actually used.

Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data.

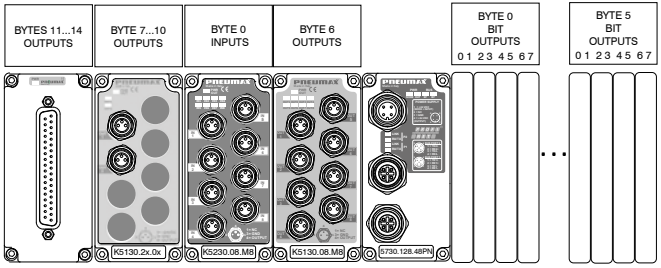
E.g.

5730.128.48PN — 6 Bytes (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for the output accessory modules will be byte 6 up to a grand total of 10 bytes while for the input accessory modules the first byte will be byte 0 up to a grand total of 16 bytes allocated.

Input and output data distribution with PROFINET IO RT interface 5730.128.48PN



Example of input and output data distribution with PROFINET IO RTinterface 5730.128.48PN



Configuration

Independing on the number of connected input modules, the following configuration must be declared:

SLOT 1: 16 Bytes Out
SLOT 2: 16 Bytes In

Factory setting

Device Name: “Serie3000pns”
Ip Address: 0.0.0.0
From the dedicated Web Page, it is possible to view and modify certain node parameters. For more information see 'Web Page' paragraph.

3000 EVO
Profinet IO RT interface

- **Signal Connections**

The PROFINET IO RT interface is equipped with two M12 D-type, 4-pin female ports for connection to the network

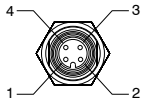
M12 D-coding 4P FEMALE

PIN	SIGNAL	DESCRIPTION
1	TX+	Ethernet Transmit High
2	RX +	Ethernet Receive High
3	TX -	Ethernet Transmit Low
4	RX -	Ethernet Receive Low
THREADING	SHIELD	

The two doors are equipped with automatic crossover recognition feature.
The cables to be used must be CAT 5 or higher; industrial Ethernet fieldbus cables with shielded connectors are recommended.

- **Electrical Connection**

M12 A- Coding 4P MALE



PIN	SIGNAL	MAX CURRENT
1	+24V DC (LOGIC AND INPUTS)	4 A
2	N.C.	-
3	0V DC	4 A
4	+24V DC (OUTPUTS)	4 A
THREADING	F.E.	-

5.2.3.4 Installation and Commissioning

- Cable connection

The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

CONFIGURATION FILES

Overview	
Vendor	Pneumax S.p.A.
Vendor ID	0x04E9
Main family	I/O
Product family	PNS
Device ID	0x3000
Information	PROFINET IO-Device

Device Access Point ID=DIM 31: PNX Serie 3000 PNS	
Module Ident Number	0x00003011
PNIO Version	V2.34
Information	Serie 3000 Profinet IO
Vendor Name	Pneumax S.p.A.
Order Number	5730.128.xxPN
Hardware Version	1
Software Version	V1.0.0
Certification Info	
Conformance Class	C
Application Class	
Netload Class	II
Maximum Input Length	1440 Bytes
Maximum Output Length	1440 Bytes
Application Length Includes IOxS	No
Physical Slots	0..32
Minimum Device Interval	0.25 ms
Based on	Pneumax
DNS Compliant Name	serie3000pns
Fixed in Slots	0
Instance Field of the Object UUID	1
Supports Multiple Write	Yes

Overall dimensions and technical information are given for information only and may be changed without notice

Requires IOPS/IOCS	Yes
IP Address Assignment Methods	DCP
Remote Application Timeout	300 s
Maximum Supported Record Size	4068 Bytes
Power on to Communication Ready	500 ms
Parameterization Speedup Supported	No
Name of Station not Transferable	Yes
Shared Device Supported	Yes
Shared Input Supported	No
Device Access Supported	Yes
Number of DeviceAccess AR	1
Auto Configuration Supported	No
CiR Supported	No
PrmBeginPrmEndSequenceSupported	No
LLDP_NoD_Supported	Yes
Reset to Factory Modes	2
IO Supervisor Supported	No
Check Device ID Allowed	Yes
PROFIenergyASE Supported	No
Adapts RealIdentification	No
Names for Subslots	
Subslot Number	Subslot Label
32768 (0x8000)	X1
32770 (0x8002)	X1 P2
32769 (0x8001)	X1 P1
Submodule ID=DIM 31: PNX Serie 3000 PNS	
Submodule Ident Number	0x00003010
Information	Serie 3000 Profinet IO
Category	Device Access Point Modules
Writeable I&M Records	1 2 3
I&M 5 Supported	No

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Interface ID=DIM 31 Interfacesubmodule: PN-IO	
Submodule Ident Number	0x00003011
Subslot Number	32768 (0x8000)
Supports Realtime Class	Class1
Supports Realtime Classes	RT_CLASS_1;RT_CLASS_3
Supports Isochronous Mode	No
Supported Protocols	SNMP;LLDP
Supports Network Component Diagnosis	No
DCP_Hello Supported	Yes
PTP Boundary Supported	Yes
DCP Boundary Supported	Yes
Multicast Boundary Supported	No
I&M 5 Supported	No
Uses Static ARP Cache Entries	No
Parameterization Disallowed	No
Delay Measurement Supported	Yes
Maximum Frame Start Time	1600 ns
Minimum NRT Gap	960 ns
PDEV Combined Object Supported	No
Startup Mode for RT_CLASS_3	Advanced;Legacy
Forwarding Mode	Relative
Maximum Bridge Delay	5500 ns
Max DFP Frames	0
Align DFP Subframes	No
Maximum Number of IR-Frame Data	256
Maximum Range IR Frame ID	1024
MaxRedPeriodLength	3875 μs
Minimum frame send offset	5000 ns
Minimum RTC3 Gap	1120 ns
Minimum Yellow Time	9600 ns
Yellow Safety Margin	160 ns

Interface ID=DIM 31 Interfacesubmodule: PN-IO	
DFP Outbound Truncation Supported	No
DFP Redundant Path Layout Supported	No
Maximum Retention Time	20000 ns
Supported Sync Role	SyncSlave
T_PLL_MAX	1000 ns
Supported Synchronisation Protocols	PTCP
Peer To Peer Jitter	1000 ns
Startup Mode for RT_CLASS_1 and RT_CLASS_2	Advanced;Legacy
Number of Additional Input CRs	0
Number of Additional Output CRs	0
Number of Additional Multicast Provider CRs	0
Number of Multicast Consumer CRs	0
Pull Module Alarm Supported	No
Number of Application Relationships	2
Supported Sendclock Factors (Base 31.25 µs)	32 64 128
Supported Reduction Ratios	1 2 4 8 16 32 64 128 256 512
Supported RT Class 3 Sendclock Factors (Base 31.25 µs)	8 16 32 64 128
Supported RT Class 3 Reduction Ratios	1 2 4 8 16
Maximum RT Class 3 Red. Ratio in Isochrone Mode	1
Supported Role	Client
Maximum MRP Instances	1
MRPD Supported	No
MRT Supported	No
Additional Protocols Supported	No
Additional Forwarding Rules Supported	No
Port ID=DIM 31 Portsubmodule 1: Port 1	
Submodule Ident Number	0x00003012
Subslot Number	32769 (0x8001)
MaxPortTxDelay	116 ns
MaxPortRxDelay	220 ns
Port ID=DIM 31 Portsubmodule 1: Port 1	
Port Deactivation Supported	Yes
Link State Diagnosis Capability	Up+Down
Is Default Ringport	Yes
Parameterization Disallowed	No
I&M 5 Supported	No
CheckMAUType Supported	Yes
CheckMAUTypeDifference Supported	Yes

MAUTypeList			ExtensionSupported: *No*
Value	MAUType	Extension	AdjustSupported
16	100BaseTXFD	*none*	Yes

Port ID=DIM 31 Portsubmodule 2: Port 2	
Submodule Ident Number	0x00003013
Subslot Number	32770 (0x8002)
MaxPortTxDelay	116 ns
MaxPortRxDelay	220 ns
Port Deactivation Supported	Yes
Link State Diagnosis Capability	Up+Down
Is Default Ringport	Yes
Parameterization Disallowed	No
I&M 5 Supported	No
CheckMAUType Supported	Yes
CheckMAUTypeDifference Supported	Yes

MAUTypeList			ExtensionSupported: *No*
Value	MAUType	Extension	AdjustSupported
16	100BaseTXFD	*none*	Yes

3000 EVO
Profinet IO RT interface

Overall dimensions and technical information are given for information only and may be changed without notice

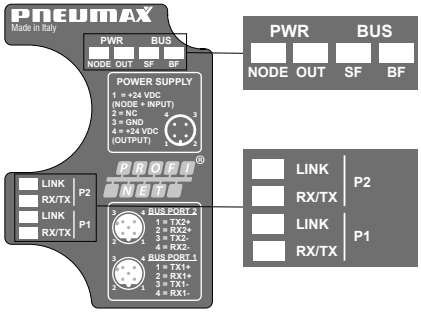
3000 EVO
Profinet IO RT interface

Useable Modules					
Module ID	Name	Informa-tion	Allowed in Slots	Used in Slots	Fixed in Slots
16byteinput	16 Bytes Input	16 Bytes Input Module			1
16byteoutput	16 Bytes Output	16 Bytes Output Module			2

Module ID=16byteinput: 16 Bytes Input			
Module Ident Number	0x00000001		
Information	16 Bytes Input Module		
Category	Input Modules		
Submodule ID=16byteinput: 16 Bytes Input			
Submodule Ident Number	0x00000001		
Information	16 Bytes Input Submodule		
I&M 5 Supported	No		
Cyclic Input Data			
Name	Data Type	Display as Bits	Subordinate
Inputs	OctetString	No	No

Module ID=16byteoutput: 16 Bytes Output			
Module Ident Number	0x00000002		
Information	16 Bytes Output Module		
Category	Output Modules		
Submodule ID=16byteoutput: 16 Bytes Output			
Submodule Ident Number	0x00000001		
Information	16 Byte Output Submodule		
I&M 5 Supported	No		
Cyclic Output Data			
Name	**Data Type**	**Display as Bits**	**Subordinate**
Outputs	OctetString	No	No

LED STATUS INDICATORS



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

BUS COMMUNICATION STATUS LED

SF	STATUS	COLOUR	MEANING
	OFF	RED	No error
	FLASHING (1HZ, 3s)		DCP signalling service is transmitted via bus
	ON		Watchdog timeout, system error
BF			**MEANING**
	OFF	RED	No error
	FLASHING (2 Hz)		No data exchange
	ON		No configuration, low transmission speed, non-existent connection

Overall dimensions and technical information are given for information only and may be changed without notice

NETWORK COMMUNICATION STATUS LED

LINK	STATUS	COLOUR	MEANING
	OFF	GREEN	The device is not connected to the PROFINET IO RT network
	ON		The device is connected to the PROFINET IO RT network
RX/TX	**STATUS**	**COLOUR**	**MEANING**
	OFF	YELLOW	Device does not send/receive PROFINET IO RT messages
	FLICKERING		The device sends/receives messages PROFINET IO RT

LED STATUS		DESCRIPTION
LED FLASHING (1 Hz, 3 s)		The LED switches on and off for 3 seconds at a frequency of 1 Hz : ON for 500ms and OFF for 500ms.
LED FLASHING (2 Hz)		The LED switches on and off with a frequency of 2 Hz : ON for 250ms and OFF for 250ms.
LED FLICKERING		The LED switches on and off at an approximate frequency of 10 Hz to indicate high network activity : ON for approximately 50 ms, and OFF for approximately 50 ms. The LED switches on and off at irregular intervals to indicate low network activity.

3000 EVO
Profinet IO RT interface

ENGLISH

5.2.3.5 Technical Data

Mechanical Technical Data

Description	5730.128.48PN
Dimensions	90x42x28 mm
Weight	137.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description		5730.128.48PN
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	65mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Transmission speed	100Mbit/s
	Maximum distance between 2 nodes	100m
	Addressing data space	16 byte inputs / 16 byte outputs
	Configuration support	GSDML files

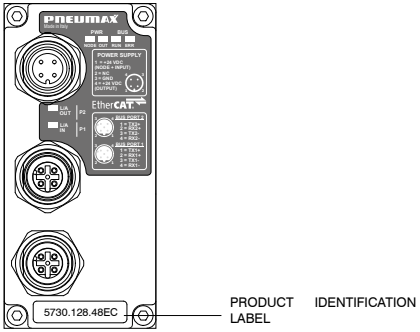
Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
EtherCAT®interface

5.2.4 EtherCAT®interface

The EtherCAT® node handles 128 bits on the input data and 128 bits on the output data, of which 48 bits are allocated to the valve seats only (hereafter abbreviated as 'EV').

5.2.4.1 Product identification



COMPATIBILITY

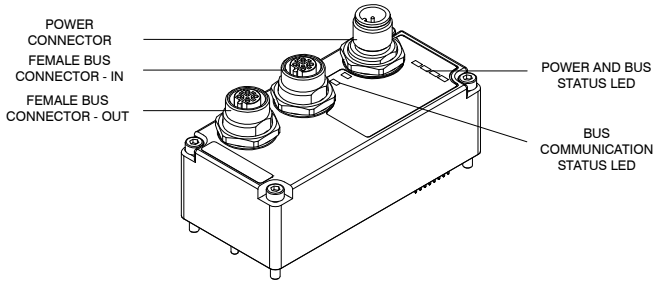
	3100 EVO	3400 EVO
5730.128.48EC	●	●

5.2.4.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.

5.2.4.3 Product Overview



Byte Distribution

The EtherCAT® node handles up to 128 bits of inputs and outputs with a fixed configuration of the number of inputs and outputs (16 bytes), regardless of how many are actually used.
Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data.

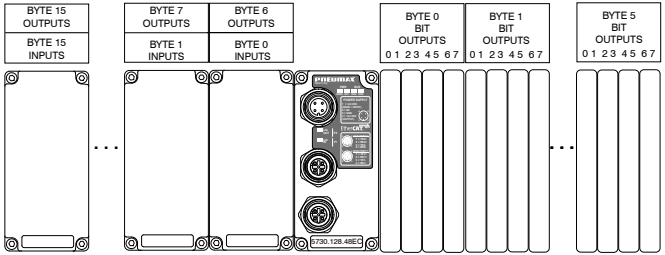
E.g.

5730.128.48EC — 6 Bytes (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for the output accessory modules will be byte 6 up to a grand total of 10 bytes while for the input accessory modules the first byte will be byte 0 up to a grand total of 16 bytes allocated.

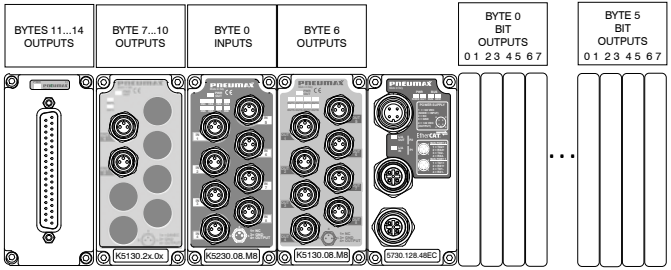
ENGLISH

Overall dimensions and technical information are given for information only and may be changed without notice

Input and output data distribution with EtherCAT® interface 5730.128.48EC



Example of input and output data distribution with EtherCAT® interface 5730.128.48EC



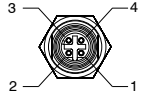
Configuration

Regardless of the number of connected input modules, the following configuration must be declared: 16 Bytes Out + 16 Bytes In

• Signal Connections

The EtherCAT® interface is equipped with two M12 type D, female 4-pin ports for connection to the network

M12 D-Coding 4P FEMALE

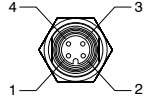


PIN	SIGNAL	DESCRIPTION
1	TX+	EtherCAT Transmit High
2	RX +	EtherCAT Receive High
3	TX -	EtherCAT Transmit Low
4	RX -	EtherCAT Receive Low
THREADING	SHIELD	

The two doors are equipped with automatic crossover recognition feature.
The cables to be used must be CAT 5 or higher; industrial Ethernet fieldbus cables with shielded connectors are recommended.

• Electrical Connection

M12 A- Coding 4P MALE



PIN	SIGNAL	MAX CURRENT
1	+24V DC (LOGIC AND INPUTS)	4 A
2	N.C.	-
3	0V DC	4 A
4	+24V DC (OUTPUTS)	4 A
THREADING	F.E.	

5.2.4.4 Installation and Commissioning

The device has an integrated switch, so it can also be used in networks with lines or for ring topology.

- Cable connection
  The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
EtherCAT®interface

CONFIGURATION FILES

Index (hex)	Subindex (hex)	Register Name	Type	Access
1000	00	Device Type	4	RO
1008	00	Manufacturer Device Name	STRING	RO
1009	00	Manufacturer Hardware Version	STRING	RO
100A	00	Manufacturer Software Version	STRING	RO
1018	00	Identity Object		
PT1018	01	Vendor ID	4	RO
	02	Product Code	4	RO
	03	Revision Number	4	RO
	04	Serial Number	4	RO
10F8	00	Timestamp Object	8	RO
1600	00	1. RXPDO		
2000	01	Out Byte 1	1	RW
	02	Out Byte 2	1	RW
	03	Out Byte 3	1	RW
	04	Out Byte 4	1	RW
	05	Out Byte 5	1	RW
	06	Out Byte 6	1	RW
	07	Out Byte 7	1	RW
	08	Out Byte 8	1	RW
	09	Out Byte 9	1	RW
	0A	Out Byte 10	1	RW
	0B	Out Byte 11	1	RW
	0C	Out Byte 12	1	RW
	0D	Out Byte 13	1	RW
	0E	Out Byte 14	1	RW
	0F	Out Byte 15	1	RW
	10	Out Byte 16	1	RW

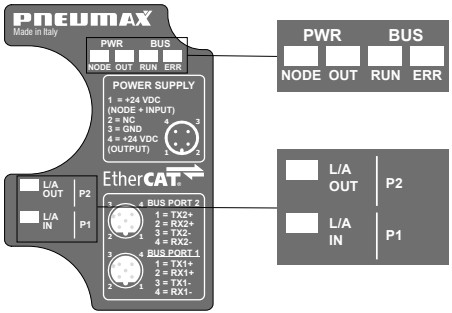
Index (hex)	Subindex (hex)	Register Name	Type	Access
1A00	00	1. TXPDO		
3000	01	In Byte 1	1	RW
	02	In Byte 2	1	RW
	03	In Byte 3	1	RW
	04	In Byte 4	1	RW
	05	In Byte 5	1	RW
	06	In Byte 6	1	RW
	07	In Byte 7	1	RW
	08	In Byte 8	1	RW
	09	In Byte 9	1	RW
	0A	In Byte 10	1	RW
	0B	In Byte 11	1	RW
	0C	In Byte 12	1	RW
	0D	In Byte 13	1	RW
	0E	In Byte 14	1	RW
	0F	In Byte 15	1	RW
	10	In Byte 16	1	RW

Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
EtherCAT®interface

ENGLISH

LED STATUS INDICATORS



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

BUS COMMUNICATION STATUS LED

RUN	STATUS	COLOUR	MEANING
	OFF	GREEN	INIT status or device OFF
	BLINKING		PRE-OPERATIONAL status
	SINGLE FLASH		SAFE-OPERATIONAL status
	ON		OPERATIONAL Status

ERR	STATUS	COLOUR	MEANING
	OFF	RED	No error
	BLINKING (2.5 Hz)		Invalid configuration
	SINGLE FLASH		Local error
	DOUBLE FLASH		Watchdog timeout

NETWORK COMMUNICATION STATUS LED

L/A OUT	STATUS	COLOUR	MEANING
	OFF	GREEN	The device does not send EtherCAT messages
	ON		Device is connected but does not send EtherCAT messages
	FLICKERING		The device sends EtherCAT messages
L/A IN			**MEANING**
	OFF	GREEN	The device does not receive EtherCAT messages
	ON		Device is connected but does not receive EtherCAT messages
	FLICKERING		The device receives EtherCAT messages

LED STATUS		DESCRIPTION
LED BLINKING		The LED switches on and off with a frequency of 2.5 Hz : ON for 200ms and OFF for 200ms.
LED SINGLE FLASH		The LED lights up for 200ms and goes out for 1s
LED DOUBLE FLASH		The LED lights up twice for 200ms interspersed with a short switch-off of 200ms, the sequence ends with a long switch-off of 1s
LED FLICKERING		The LED switches on and off at an approximate frequency of 10 Hz to indicate high network activity : ON for about 50ms, and OFF for about 50ms. The LED switches on and off at irregular intervals to indicate low network activity.

Overall dimensions and technical information are given for information only and may be changed without notice

5.2.4.5 Technical Data

Mechanical Technical Data

Description	5730.128.48EC
Dimensions	90x42x28 mm
Weight	137.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

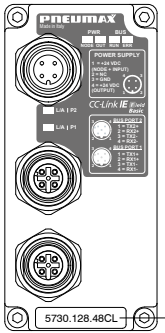
Electrical Technical Data

Description		5730.128.48EC
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	65mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Transmission speed	100Mbit/s
	Maximum distance between 2 nodes	100m
	Addressing data space	16 byte inputs / 16 byte outputs
	Configuration support	XML files

5.2.5 Interface CC-LINK IE Field Basic

The CC-Link IE Field Basic node handles 128 bits on the input data and 128 bits on the output data, of which 48 bits are allocated to the valve seats only (hereafter abbreviated as 'EV').

5.2.5.1 Product identification



PRODUCT IDENTIFICATION LABEL

COMPATIBILITY

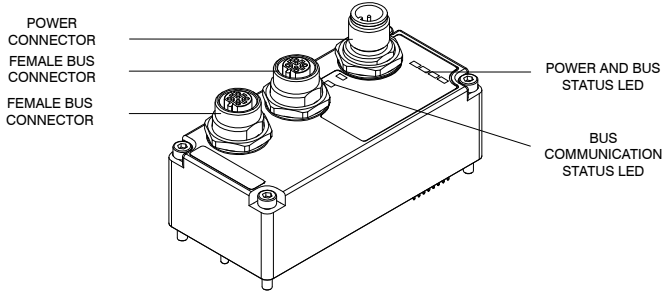
	3100 EVO	3400 EVO
5730.128.48CL	●	●

5.2.5.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.

5.2.5.3 Product Overview



Byte Distribution

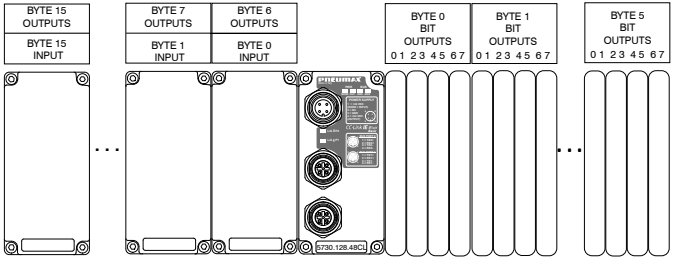
The CC-Link IE Field Basic node handles up to 128 bits of inputs and outputs with a fixed configuration of the number of inputs and outputs (16 bytes), regardless of how many are actually used.

Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data.

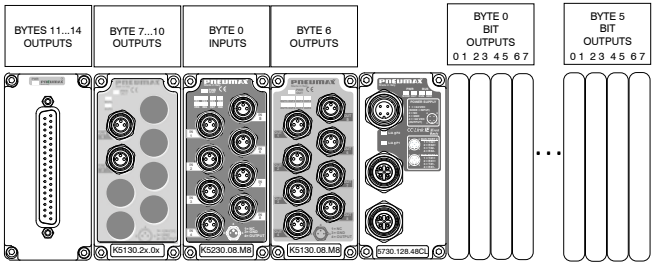
E.g.

5730.128.48CL — 6 Bytes (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for the output accessory modules will be byte 6 up to a grand total of 10 bytes while for the input accessory modules the first byte will be byte 0 up to a grand total of 16 bytes allocated.

Input and output data distribution with CC-Link IE Field Basic interface 5730.128.48CL



Example of input and output data distribution with CC-Link IE Field Basic interface 5730.128.48CL



Configuration

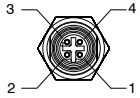
The device handles 16 Bytes Out + 16 Bytes In.
During configuration, select 1 Occupied Station.
As a factory setting, the address of each IP node 192.168.10.4
From the dedicated Web Page, it is possible to view and modify certain node parameters. For more information see 'Web Page' paragraph.

ENGLISH

- **Signal Connections**

The CC-Link IE Field Basic interface is equipped with two M12 D-type, 4-pin female ports for network connection

M12 D-Coding 4P FEMALE

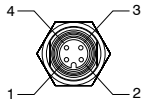


PIN	SIGNAL	DESCRIPTION
1	TX+	Ethernet Transmit High
2	RX +	Ethernet Receive High
3	TX -	Ethernet Transmit Low
4	RX -	Ethernet Receive Low
THREADING	SHIELD	

The two doors are equipped with automatic crossover recognition feature.
The cables to be used must be CAT 5 or higher; industrial Ethernet fieldbus cables with shielded connectors are recommended.

- **Electrical Connection**

M12 A- Coding 4P MALE



PIN	SIGNAL	MAX CURRENT
1	+24V DC (LOGIC AND INPUTS)	4 A
2	N.C.	-
3	0V DC	4 A
4	+24V DC (OUTPUTS)	4 A
THREADING	F.E.	

ENGLISH

5.2.5.4 Installation and Commissioning

The device has an integrated switch, so it can also be used in networks with lines or for ring topology.

- Cable connection

The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

CONFIGURATION FILES

LABEL	LABEL 2	CATEGORY	NAME	DATA TYPE	DATE
FileSection		File Section			
CreateDate	CreateDate	COMMON	File creation date	STRING(10)	2024/02/26
CreateTime	CreateTime	COMMON	File creation time	STRING(8)	12:19:00
ModDate	ModDate	COMMON	Last update date	STRING(10)	2024/02/26
ModTime	ModTime	COMMON	Last update time	STRING(8)	12:19:00
Language	Language	COMMON	Supported language	STRING(12)	en
FileVersion	FileVersion	COMMON	File version	STRING(32)	1.0
CCLinkFamilyProfileVersion	CCLinkFamilyProfileVersion	COMMON	CSP+ specification version	STRING(32)	2.2
Device Section					
VendorName	VendorName	COMMON	Vendor name	STRING_U(64)	Pneumax Spa

LABEL	LABEL 2	CATEGORY	NAME	DATA TYPE	DATE
VendorCode	VendorCode	COMMON	Vendor code	WORD	0x3622
DeviceModel	Device-Model	COMMON	Device model	STRING(48)	3000 CLS Series
ProductID	ProductID	COMMON	Product ID	STRING(256)	0x00000BB8
DeviceTypeID	DeviceTy-peID	COMMON	Device type ID	WORD	0x0001
DeviceTypeDetail	DeviceType-Detail	COMMON	Device type detail	STRING_U(256)	Digital I/O
Version	Version	COMMON	Device version	WORD	0x0001
VersionDisplayFlg	VersionDis-playFlg	COMMON	Device version display flag	BOOL	0
VersionPolicyType	VersionPoli-cyType	COMMON	Device version policy type	UINT16	0
DisplayVersionValue	DisplayVer-sionValue	COMMON	Device version displayed	STRING(32)	1
ReferenceURL	Referen-ceURL	COMMON	Reference URL	STRING_U(1024)	https:// pneumaxspa. com/
IconFileName	IconFile-Name	COMMON	Icon file name	STRING(52)	serie_3000. ico
CommIfSection					
VendorName	Vendor-Name	COMMON	Vendor name	STRING_U(64)	Pneumax Spa
VendorCode	VendorCode	COMMON	Vendor code	WORD	0x3622
CommIFTypeID	CommIFTy-peID	COMMON	Communica-tion Interface Type ID	STRING(32)	Ethernet
Version	Version	COMMON	Version	WORD	0x0001
ReadVersionType	ReadVer-sionType	COMMON	Read device version type	STRING(128)	MachineV-ersion
SupportIPAddress-Size	SupportI-PAddress-Size	COMMON_ Ethernet	Support IP Address Size	UINT16()	4
TimeOutValue	TimeOut-Value	COMMON_ Ethernet	TimeOutValue	UINT16	1500

3000 EVO
Interface CC-LINK IE Field Basic

LABEL	LABEL 2	CATEGORY	NAME	DATA TYPE	DATE
SupportFlg_Search-Node	Support-Flg_Search-Node	COMMON_ Ethernet	Support Flag SearchNode	BOOL	1
SupportFlg_SetIPAd-dress	Support-Flg_SetI-PAddress	COMMON_ Ethernet	Support Flag SetIPAddress	BOOL	1
SupportFlg_Com-pareDeviceInfo	SupportFlg_ Compare-DeviceInfo	COMMON_ Ethernet	Support Flag CompareDevi-ceInfo	BOOL	1
SupportFlg_Get-Param	SupportFlg_ GetParam	COMMON_ Ethernet	Support Flag GetParam	BOOL	1
SupportFlg_SetParam	SupportFlg_ SetParam	COMMON_ Ethernet	Support Flag SetParam	BOOL	1
SupportFlg_StartSet-Param	Support-Flg_Start-SetParam	COMMON_ Ethernet	Support Flag StartSetParam	BOOL	1
SupportFlg_EndSet-Param	Support-Flg_EndSet-Param	COMMON_ Ethernet	Support Flag EndSetParam	BOOL	1
SupportFlg_Cancel-SetParam	Support-Flg_Cancel-SetParam	COMMON_ Ethernet	Support Flag CancelSet-Param	BOOL	1
SupportFlg_Read-Status	SupportFlg_ ReadStatus	COMMON_ Ethernet	Support Flag ReadStatus	BOOL	1
SupportFlg_Get-CommSetting	Support-Flg_Get-CommSetting	COMMON_ Ethernet	Support Flag GetCommSet-ting	BOOL	1
SupportFlg_Read-Status2	Support-Flg_Read-Status2	COMMON_ Ethernet	Support Flag ReadStatus2	BOOL	1
DevModel	ModelName	COMMON_ Ethernet	ModelName (TypeName)	STRING(48)	Series 3000
NumOccupiedSta-tions	NumOccu-piedStation	COMMON_ Ethernet	Number of oc-cupied station	UINT16	1
CCIEFBasicProto-colVersion	CCIEFBa-sicProto-colVersion	COMMON_ Ethernet	CCIE FBasic Protocol Version	UINT16	2
EthernetCommFunc-tion	Ethernet-Communi-cationFunc-tion	COMMON_ Ethernet	Ethernet Com-munication Function	DWORD	0x00000002

3000 EVO
Interface CC-LINK IE Field Basic

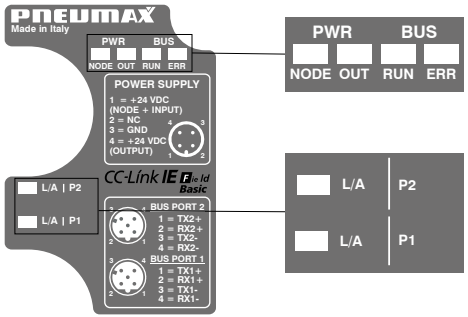
CommIfInput - CommIfOutput

LABEL	CATEGORY	DATA TYPE	ACCESS	ASSIGN	REF
RX0...RX3F	REMOTE INPUT	BOOL	RF	RX0... RX3F	BlockSection. BlockOutput.RX0... BlockSection.Block-Output.RX3F
RWr0...RWr1F	REMOTE REGISTER	WORD	RF	RWr0... RWr1F	BlockSection. BlockOutput.RWr0... BlockSection.Block-Output.RWr1F
RY0...RY3F	REMOTE OUTPUT	BOOL	RF	RY0... RY3F	BlockSection. BlockInput.RY0... BlockSection.Block-Input.RY3F
RWw0...RWw1F	REMOTE REGISTER	WORD	RF	RWw0... RWw1F	BlockSection. BlockInput.RWw0... BlockSection.Block-Input.RWw1F

LABEL	LABEL 2	CATEGORY	NAME	DATA TYPE	DATE
BlockSection					
VendorName	Vendor-Name	COMMON	Vendor name	STRING_U(64)	Pneumax Spa
VendorCode	VendorCode	COMMON	Vendor code	WORD	0x3622
Version	Version	COMMON	Device version	STRING(32)	1.0.0.0
BlockInput					
RY0...RY3F		REMOTE_ OUTPUT	RY0...RY3F	BOOL	
RWw0...RWw1F		REMOTE_ REGISTER	RWw0...RWw1F	WORD	
RX0...RX3F		REMOTE INPUT	RX0...RX3F	BOOL	
RWr0...RWr1F		REMOTE REGISTER	RWw0...RWw1F	WORD	

LED STATUS INDICATORS

The CC-Link IE Field Basic network node has four LEDs indicating the status of the communication ports as shown below:



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

Overall dimensions and technical information are given for information only and may be changed without notice

BUS COMMUNICATION STATUS LED

RUN	STATUS	COLOUR	MEANING
	OFF	GREEN	Device disconnected
	BLINKING		Operational device and cycle transmission interrupted
	FLICKERING		Device not configured
	ON		Operating device and cyclic transmission in progress

ERR	STATUS	COLOUR	MEANING
	OFF	RED	Device disconnected
	TRIPLE FLASH		Watchdog DPM expired
	ON		Communication error

NETWORK COMMUNICATION STATUS LED

L/A	STATUS	COLOUR	MEANING
	OFF	GREEN	Device does not send/receive CC-Link IE Field Basic messages
	ON		Device is connected but does not send/receive CC-Link IE Field Basic messages
	FLICKERING		Device sends/receives CC-Link IE Field Basic messages

LED STATUS		DESCRIPTION
TRIPLE FLASH LED		The LED shows a sequence of three short flashes (200 ms each), separated by a short 'Off' phase (200 ms). The sequence ends with a long 'Off' phase (1,000 ms).
LED BLINKING (2.5 Hz)		The LED switches on and off with a frequency of 2.5 Hz: “On” for 200 ms, followed by “Off” for 200 ms.
LED FLICKERING (10 Hz)		The LED switches on and off with a frequency of 10 Hz: “On” for 50 ms, followed by “Off” for 50 ms.
LED FLICKERING		The LEDs switch on and off at an approximate frequency of 10 Hz to indicate high network activity: ON for about 50ms, and OFF for about 50ms. The LED switches on and off at irregular intervals to indicate low network activity.

3000 EVO
Interface CC-LINK IE Field Basic

5.2.5.5 Technical Data

Mechanical Technical Data

Description	5730.128.48CL
Dimensions	90x42x28 mm
Weight	137.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description		5730.128.48CL
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	65mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Transmission speed	100Mbit/s
	Maximum distance between 2 nodes	100m
	Addressing data space	16 byte inputs / 16 byte outputs
	Configuration support	CSPP files

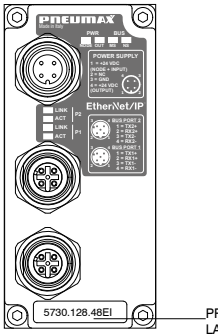
Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
EtherNet/IP Interface

5.2.6 EtherNet/IP Interface

The EtherNet/IP node handles 128 bits on the input data and 128 bits on the output data, of which 48 bits are allocated to the valve seats only (hereafter abbreviated as 'EV') .

5.2.6.1 Product Identification



PRODUCT IDENTIFICATION LABEL

COMPATIBILITY

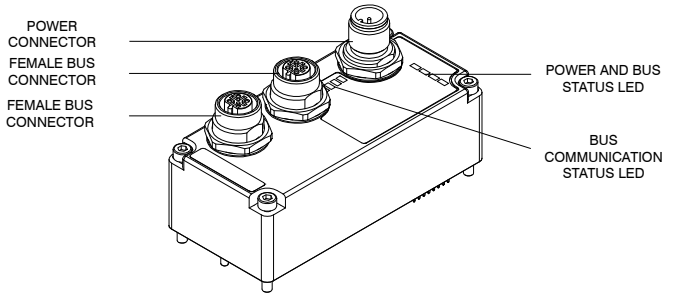
	3100 EVO	3400 EVO
5730.128.48EI	●	●

5.2.6.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.

5.2.6.3 Product Overview



Byte Distribution

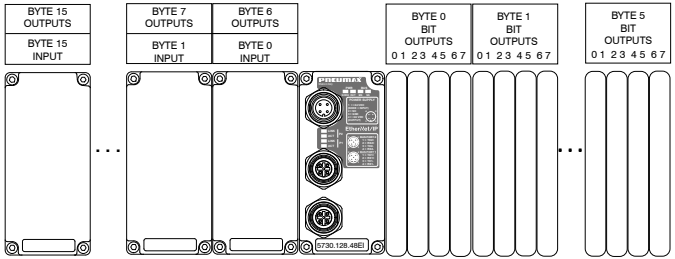
The EtherNet/IP node handles up to 128 bits of inputs and outputs with a fixed configuration of the number of inputs and outputs (16 bytes), regardless of how many are actually used.
Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data.

E.g.

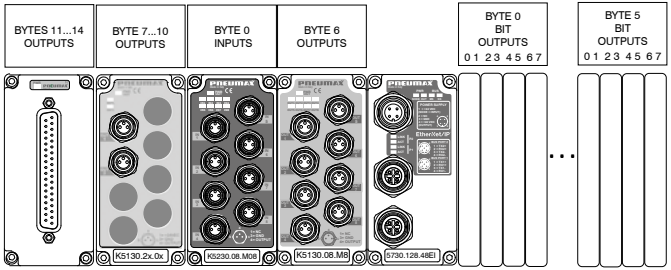
5730.128.48EI	6 Bytes (from byte 0 to byte 5) always allocated to the valve positions even if not used the first byte available for the output accessory modules will be byte 6 up to a grand total of 10 bytes while for the input accessory modules the first byte will be byte 0 up to a grand total of 16 bytes allocated.

Overall dimensions and technical information are given for information only and may be changed without notice

Input and output data distribution with EtherNet/IP interface 5730.128.48EI



Example of input and output data distribution with EtherNet/IP interface 5730.128.48EI



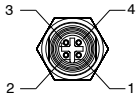
Configuration
Regardless of the number of connected input modules, the following configuration must be declared: 16 Bytes Out + 16 Bytes In
As a factory setting, the address of each node is 192.168.10.4

From the dedicated Web Page, it is possible to view and modify certain node parameters. For more information see 'Web Page' paragraph.

• Signal Connections

The EtherNet/IP interface is equipped with two M12 D-type, 4-pin female ports for connection to the network

M12 D-Coding 4P FEMALE

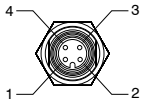


PIN	SIGNAL	DESCRIPTION
1	TX+	Ethernet Transmit High
2	RX +	Ethernet Receive High
3	TX -	Ethernet Transmit Low
4	RX -	Ethernet Receive Low
THREADING	SHIELD	

The two doors are equipped with automatic crossover recognition feature.
The cables to be used must be CAT 5 or higher; industrial Ethernet fieldbus cables with shielded connectors are recommended.

• Electrical Connection

M12 A- Coding 4P MALE



PIN	SIGNAL	MAX CURRENT
1	+24V DC (LOGIC AND INPUTS)	4 A
2	N.C.	-
3	0V DC	4 A
4	+24V DC (OUTPUTS)	4 A
THREADING	F.E.	

5.2.6.4 Installation and Commissioning

The device has an integrated switch, so it can also be used in networks with lines or for ring topology

- Cable connection

  The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques".

CONFIGURATION FILES

File	Value	
DescText =	"EDS-File for EtherNet/IP Serie 3000 Pneumatic Valves Manifold"	
CreateDate	12-05-2019	
CreateTime	10:00:00	
ModDate	05-07-2024	
ModTime	10:00:00	
Revision	1.1	
HomeURL	www.pneumaxspa.com	
Device		
VendCode	1751	
VendName	"PNEUMAX SpA"	
ProdType	12	
ProdTypeStr	"Communications Adapter"	
ProdCode	3000	
MajRev	1	

File	Value	
MinRev	1	
ProdName	"PNX_PX_EIS";	
Icon	"Pneumax Serie3000 EIS.ico"	
Device Classification		
Class1	EtherNetIP	
Params		
Param1	0, ,, 0x0010, 0xC7, 2, "Produced Data", "", "", 0,255,0, ,,,, ,,,, 0;	
Param2	0, ,, 0x0000, 0xC7, 2, "Consumed Data", "", "", 0,255,0, ,,,, ,,, 0;	
Assembly		
Object_Name	Assembly Object	
Object_Class_Code	0x04	

File	Value	
Assem100	Consuming Assembly (O2T)	16, 0x0000
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2,
		16,Param2;
Assem101	Producing Assembly (T20)	16, 0x0000
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1,
		16,Param1
Connection Manager		
Object_Name	Connection Manager Object	
Object_Class_Code	0x06	

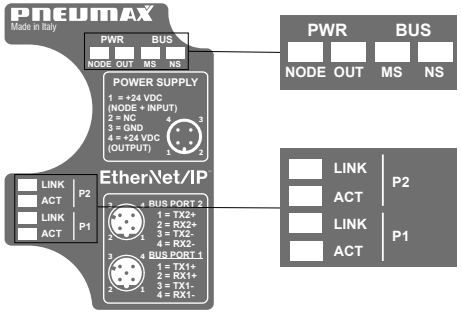
File	Value	
Connection1		
	Trigger and Transport	0x04010002,
	Point Multicast	0x44640405
	Assem100	OT RPI Size format
	Assem101	TO rpi size format
		config 1
		config 2
	Exclusive Owner	connection name help string
	path	20 04 24 01 2C 64 2C 65
Connection2	Trigger and Transport	0x04010002,
	Point Multicast	0x44640405
	0	OT RPI Size format
	Assem101	TO rpi size format
		config 1
		config 2
	Listen Only	connection name help string
	path	20 04 24 01 2C C0 2C 65
Capacity		
ConnOverhead	Connection Overhead	004
MaxIOConnections	Maximum number of Class 1 Connections	3
MaxMsgConnections	Maximum number of Class 3 Connections	6
TSpec1	packets per sec @ 10 bytes	TxRx, 10, 2000
TSpec2	packets per sec @ 504 byte	TxRx, 504, 1500
TCP/IP Interface Class]		
Revision = 4;		
Object_Name = "	TCP/IP Interface Object";	
Object_Class_Code		0xF5
MaxInst		1

File	Value	
Number_Of_Static_Instances		1
Max_Number_Of_Dynamic_Instances		0
Ethernet Link Class		
Revision		4
Object_Name	"Ethernet Link Object"	
Object_Class_Code		0xF6;
MaxInst		2
Number_Of_Static_Instances		2
Max_Number_Of_Dynamic_Instances		0
InterfaceLabel1	Port0	
InterfaceLabel2	Port1	
QoS Class		
Revision		1
Object_Name	QoS Object	
Object_Class_Code		0x48;
MaxInst		1
Number_Of_Static_Instances		1
Max_Number_Of_Dynamic_Instances		0

ENGLISH

LED STATUS INDICATORS

The EtherNet/IP network node has four LEDs indicating the status of the communication ports as shown below:



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

BUS COMMUNICATION STATUS LED

MS	STATUS	COLOUR	MEANING
	OFF	GREEN	The device is switched off
	FLASHING (1 Hz)		Standby : device is not configured
	ON		The device is switched on

MS	STATUS	COLOUR	MEANING
	FLASHING FAST	GREEN / RED	The device performs a self-test after switching on. The following sequence is displayed during the self-test: • NS LED off • MS LED turns green for approx. 250ms, turns red for approx. 250ms and turns green again (maintains this state until completion of the power-up test) • NS LED turns green for approx. 250ms, turns red for approx. 250ms and then extinguishes (maintains this state until completion of power-up test)
	FLASHING	GREEN / RED / OFF	Blinking sequence: the blinking sequence is used to visually identify the device. The scanner can initiate the flashing sequence in identity object 1 of the device. The MS LED and NS LED perform the flashing sequence simultaneously.
	FLASHING (1Hz)	RED	Reversible serious error: the device detected a reversible serious error. For example, an incorrect or inconsistent configuration may be considered a serious reversible error.
	ON		Serious irreversible error

NS	STATUS	COLOUR	MEANING
	OFF	GREEN	The device is switched off or has no IP address
	ON		The device is connected: at least one CIP connection has been established (any transport class) and the connection with Exclusive Owner is not interrupted
	FLASHING (1 Hz)		No connection: the IP address is configured, but no CIP connection has been established and the Exclusive Owner connection is not broken.
	FLASHING	RED / GREEN / OFF	Flashing sequence: The sequence visually identifies the device to the address. The scanner can start the flashing sequence in the device's Identity 1 object. The MS LED and NS LED perform the flashing sequence simultaneously.
	FLASHING FAST	RED / GREEN / OFF	Self-test: The device performs a self-test after switching on. Please refer to the description of the MS LED in the self-test state.

NS	STATUS	COLOUR	MEANING
	FLASHING (1 Hz)	RED	Connection Timeout: an IP address is configured and the Exclusive Owner connection is interrupted. The NS LED only returns to steady green when all interrupted Exclusive Owner connections are re-established.
	ON		Duplicate IP: the device has detected that its IP address is already in use.

NETWORK COMMUNICATION STATUS LED

LINK	STATUS	COLOUR	MEANING
	OFF	GREEN	The device is not connected to the Ethernet network
	ON		The device is connected to the Ethernet network
ACT	**STATUS**		**MEANING**
	OFF	YELLOW	The device does not receive/send Ethernet messages
	FLICKERING		The device receives/sends Ethernet messages

LED STATUS		DESCRIPTION
LED FLASHING		The LED switches on and off with a frequency of 1 Hz : ON for 500ms and OFF for 500ms.
LED FLASHING FAST		he MS LED or the NS LED lights up green for 250 ms, then red for 250 ms, then green (until the test is completed).
LED FLASHING		The MS LED and NS LED turn red for 500 ms, then green for 500 ms, then off for 500 ms. This sequence is repeated at least 6 times.
LED FLICKERING		The LED switches on and off with a frequency of approximately 10 Hz to indicate high Ethernet activity: "On' for about 50 ms, followed by "Off' for 50 ms. The LED turns on and off at irregular intervals to indicate low Ethernet activity.

5.2.6.5 Technical Data

Mechanical Technical Data

Description	5730.128.48EI
Dimensions	90x42x28 mm
Weight	137.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

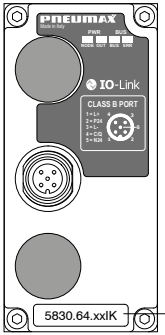
Electrical Technical Data

Description		5730.128.48EI
Power supply	Supply voltage	+24V DC ±10%
	Node power consumption only (on +24V DC logic and inputs)	65mA
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Transmission speed	100Mbit/s
	Maximum distance between 2 nodes	100m
	Addressing data space	16 byte inputs / 16 byte outputs
	Configuration support	EDS files

5.2.7 IO-Link interface

The IO-Link interface handles 64 bits on the input data and 64 bits on the output data, of which 32 or 48 bits (depending on version) are allocated to the valve seats only (hereafter abbreviated as 'EV').

5.2.7.1 Product Identification



COMPATIBILITY

	3100 EVO	3400 EVO
5830.64.32IK	●	●
5830.64.48IK	●	●

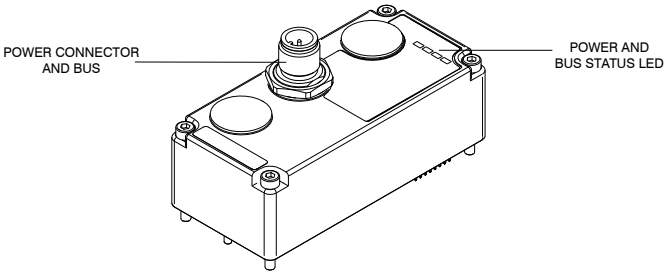
5.2.7.2 Specific Safety Warnings

All safety warnings given in the 'Safety Warnings' section apply.
In addition:

- Accidental or improper operation of the product can cause failure or malfunctioning of the entire system.

5.2.7.3 Product Overview

The IO-Link 32/48EV interface is a class B IO-Link device: the power supply (L+/L-) powers the interface, while the power supply (P24/N24) powers the accessory modules (both input and output) and any solenoid valves. The two power supplies are galvanically isolated from each other.



Byte Distribution

The IO-Link node handles up to 64 bits of inputs and outputs.

Both versions provide a fixed configuration of the number of inputs and outputs (8 bytes), regardless of how many are actually used.

Consequently, only those associated with inputs and outputs physically connected to the node should be considered as useful data.

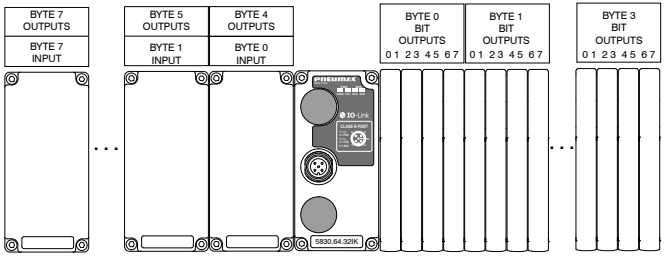
The accessory modules, located to the left of the node, can be connected in any order and configuration.

E.g.

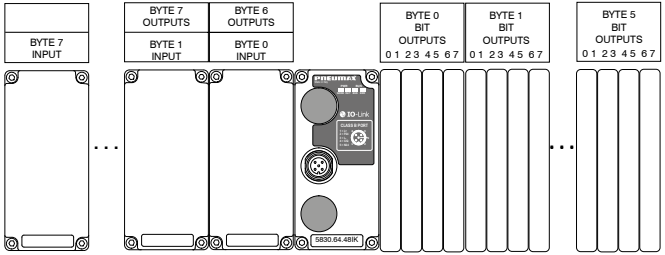
5830.64.32IK — 4 Byte (from byte 0 to byte 3) always allocated to valve positions even if not used the first byte available for output modules will be byte 4 while for inputs it will be byte 0 up to a total of 8 bytes allocated

5830.64.48IK — 6 Byte (from byte 0 to byte 5) always allocated to valve positions even if not used the first byte available for output modules will be byte 6 while for inputs it will be byte 0 up to a total of 8 bytes allocated

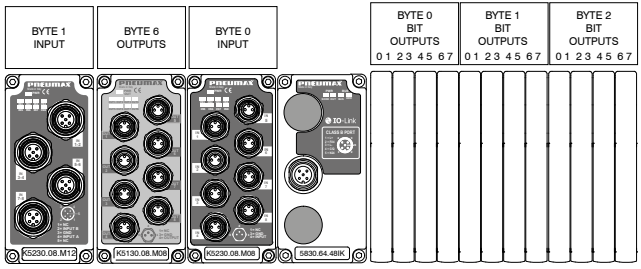
Input and output data distribution with IO-Link interface 5830.64.32IK



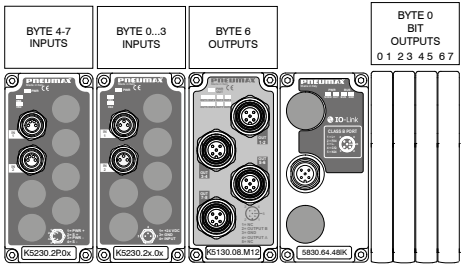
Input and output data distribution with IO-Link interface 5830.64.48IK



Example of input and output data distribution with IO-Link interface 5830.64.48IK



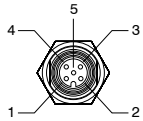
Example of input and output data distribution with IO-Link interface 5830.64.48IK



- **Signal Connections - Electrical Connection**

The IO-Link interface is equipped with an M12 type A 5-pin Class B male port for network connection and power supply

M12 A- Coding 5P MALE



PIN	SIGNAL
1	L+
2	P24 (+ 24V DC)
3	L-
4	C/Q
5	N24 (0V DC)
THREADING	F.E.

5.2.7.4 Installation and Commissioning

Current limitations
The stand-alone configuration and the integrated configuration must both comply with the current limits of the interface.
The following formula is used to calculate the maximum current on the P24/N24 supply

$$I_{24V\ DC\ P24/N24} = \sum_{i=1}^{n} I_{acc,i} + m\, i_{EV} < 4A$$

Where:

n = is the number of installed accessory modules;
$I_{acc,i}$ = is the maximum total current absorbed by each i-th accessory, given by the sum of the absorptions on +24V DC outputs and +24V DC logic and inputs
m = is the number of installed electro-pilots
i_{EV} = is the average current drawn by each electro-pilot

For your convenience, the power consumption of Pneumax S.p.A. solenoid valves is shown below.

Series	i_{EV}
Series 3000 EVO	36mA

The maximum current $I24V_{DC\ P24/N24}$ **must be less than 4A.**

Caution
If the total current exceeds 4A, it is necessary to supply the modules exceeding the limit with the K5030.M12 supplementary power supply module (see section "Supplementary Power Supply Module") .

3000 EVO
IO-Link interface

CONFIGURATION FILES

Description	Value
DocumentInfo	
copyright	Pneuma x(c)2019"
releaseDate	2019-12-13
version	V1.0.00
ProfileHeader	
ProfileIdentification	IO Device Profile
ProfileRevision	1.1
ProfileName	Device Profile for IO Devices
ProfileSource	IO-Link Consortium
ProfileClassID	Device
ISO15745Reference	
ISO15745Par	1
ISO15745Edition	1
ProfileTechnology	IODD
ProfileBody	
DeviceIdentity	
DeviceID	3000
VendorID	1257
VendorName	Pneumax S.p.A.
VendorText	T_VendorText
Vendor Url	T_VendorUrl
DeviceName	T_DeviceName
DeviceFamily	T_DeviceFamily
DeviceVariantCollection	
DeviceVariant	
productId	PNX_SERIE3000-001
deviceSymbol	PNX-SERIE3000-pic.png
deviceIcon	PNX-SERIE3000-icon.png
Name textId	TN_PN_SERIE3000-001
Description	TN_PN_SERIE3000-001

Register Name	Subin-dex	Type	Byte	Value	Description
DeviceFunction					
Features					
blockParameter				false	
dataStorage				false	
VariableCollection					
StdVariableRef					V_DirectParameters_1
StdVariableRef					V_DirectParameters_2
ProcessDataCollection					
ProcessData					V_PD
ProcessDataIn			8		V_PDin
Datatype		RecordT	8		
TI_V_PDin_R1_Name	1	UIntegerT	1	0-255	TI_V_PDin_R1_Descr
TI_V_PDin_R2_Name	2	UIntegerT	1	0-255	TI_V_PDin_R2_Descr
TI_V_PDin_R3_Name	3	UIntegerT	1	0-255	TI_V_PDin_R3_Descr
TI_V_PDin_R4_Name	4	UIntegerT	1	0-255	TI_V_PDin_R4_Descr
TI_V_PDin_R5_Name	5	UIntegerT	1	0-255	TI_V_PDin_R5_Descr
TI_V_PDin_R6_Name	6	UIntegerT	1	0-255	TI_V_PDin_R6_Descr
TI_V_PDin_R7_Name	7	UIntegerT	1	0-255	TI_V_PDin_R7_Descr
TI_V_PDin_R8_Name	8	UIntegerT	1	0-255	TI_V_PDin_R8_Descr
ProcessDataOutput					
TI_V_PDout_R1_Name	1	UIntegerT	1	0-255	TI_V_PDout_R1_Descr
TI_V_PDout_R2_Name	2	UIntegerT	1	0-255	TI_V_PDout_R2_Descr
TI_V_PDout_R3_Name	3	UIntegerT	1	0-255	TI_V_PDout_R3_Descr
TI_V_PDout_R4_Name	4	UIntegerT	1	0-255	TI_V_PDout_R4_Descr
TI_V_PDout_R5_Name	5	UIntegerT	1	0-255	TI_V_PDout_R5_Descr
TI_V_PDout_R6_Name	6	UIntegerT	1	0-255	TI_V_PDout_R6_Descr
TI_V_PDout_R7_Name	7	UIntegerT	1	0-255	TI_V_PDout_R7_Descr
TI_V_PDout_R8_Name	8	UIntegerT	1	0-255	TI_V_PDout_R8_Descr

Overall dimensions and technical information are given for information only
and may be changed without notice

Register Name	Subin-dex	Type	Byte	Value	Description
V_PDin					
	1	Dec			
	2	Dec			
	3	Dec			
	4	Dec			
	5	Dec			
	6	Dec			
	7	Dec			
	8	Dec			
V_PDout					
	1	Dec			
	2	Dec			
	3	Dec			
	4	Dec			
	5	Dec			
	6	Dec			
	7	Dec			
	8	Dec			
		Dec			

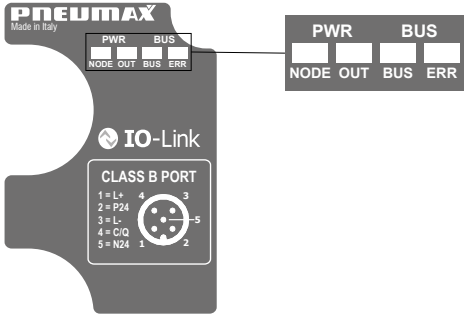
VariableID	Description	Index	Subindex
M_BaseParams			
TM_Base_param	Master Command,	0	1
V_DirectParame-ters_1	Master Cycle Time		2
	Min Cycle Time		3
	M-Seq Capability		4
	RevisionID		5
	ProcessDataIn conf. byte		6
	ProcessDataOut conf.byte		7
	VendorID#1(MSB)		8
	VendorID#2(LSB)		9

Name	Value
SERIE 3000 SLAVE MENU for 'unconfigured' (zero value)	
Menu	M_Observation
MenuRef	M_BaseParams
ObserverRoleMenuSet	M_BaseParams
MaintenanceRoleMenuSet	M_BaseParams
SpecialistRoleMenuSet	M_Observation
CommNetworkProfile	
xsi:type	IOLinkCommNetworkProfileT
iolinkRevision	V1.1
PhysicalLayer	
bitrate	COM2
minCycleTime	11200
sioSupported	true
mSequenceCapability	13
Connection	M5ConnectionT
ProductRef	PNX_SERIE3000-001
Wire1	
Wire2	
Wire3	NC
Wire4	
ExternalTextCollection	
PrimaryLanguage	en
T_VendorText	Pneumax S.p.A.
T_DeviceName	Serie 3000
T_VendorUrl	http://www.pneumaxspa.com
T_DeviceFamily	Serie 3000 Slave Devices
TM_Base_param	Dir_param page#1
Process data input text list	TN_V_SERIE3000_unused_2
TI_V_PDin	Process Data In
TI_V_PDin_R1_Name	input data #1
TI_V_PDin_R2_Name	input data #2
TI_V_PDin_R3_Name	input data #3

Name	Value
TI_V_PDin_R4_Name	input data #4
TI_V_PDin_R5_Name	input data #5
TI_V_PDin_R6_Name	input data #6
TI_V_PDin_R7_Name	input data #7
TI_V_PDin_R8_Name	input data #8
TI_V_PDout	Process Data Out
TI_V_PDout_R1_Name	output data #1
TI_V_PDout_R2_Name	output data #2
TI_V_PDout_R3_Name	output data #3
TI_V_PDout_R4_Name	output data #4
TI_V_PDout_R5_Name	output data #5
TI_V_PDout_R6_Name	output data #6
TI_V_PDout_R7_Name	output data #7
TI_V_PDout_R8_Name	output data #8

LED STATUS INDICATORS

The IO-Link module is equipped with 4 LEDs, indicating the status of the device power supply the status of IO-Link communication as shown below.



POWER STATUS LED

NODE	STATUS	COLOUR	MEANING
	OFF	GREEN	Absence of 24V DC logic and input power supply
	ON		Presence of 24V DC logic and input power supply
OUT			**MEANING**
	OFF	GREEN	No power supply 24V DC outputs
	ON		Live power supply 24V DC outputs

BUS COMMUNICATION STATUS LED

BUS	STATUS	COLOUR	MEANING
	OFF	GREEN	IO-Link communication not active
	FLASHING		IO-Link communication active

ERR	STATUS	COLOUR	MEANING
	OFF	RED	No IO-Link communication error
	FLASHING		IO-Link communication error

5.2.7.5 Technical Data

Mechanical Technical Data

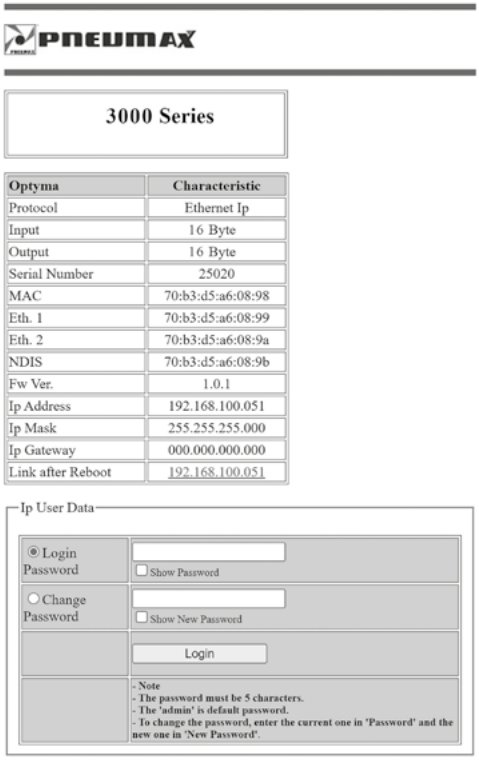
Description	5830.64.xxIK
Dimensions	90x42x28 mm
Weight	92.50g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description		5830.64.xxIK
Power supply	Supply voltage	+24V DC ±10%
	L+/L- absorption	25mA
	Polarity reverse protection	Yes (L+/L-, P24/N24)
	Maximum altitude	2000m a.s.l.
	Maximum current for EV output	100mA
	EV output protection	short circuit, reverse blow
Communication	Specifications	IO-Link Specification v1.1
	Transmission speed	38.4kBaud/s
	Maximum distance from master	20m
	Addressing data space	8 byte inputs / 8 byte outputs
	Configuration support	IODD files

5.3 WEB PAGE

By entering the IP address of the device (e.g. http://192.168.10.4) within the Browser, the dedicated Web Page can be accessed. Below is an example:



CAUTION
If a module with PROFINET IO RT protocol is being used, the device must be on the network to access the web page, so that it is assigned a valid IP address.

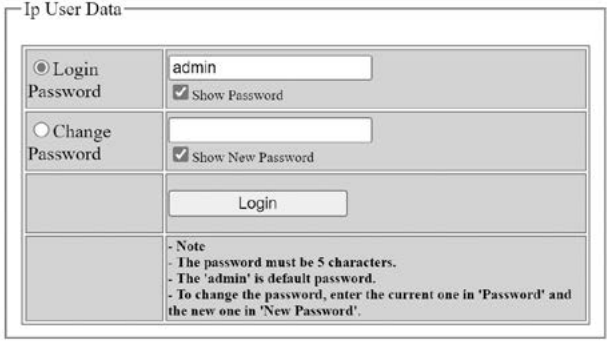
The page shows some descriptive parameters of the device:

PARAMETER	DESCRIPTION
Protocol	Communication protocol used by the device
Input	Number of input bytes managed by the device
Output	Number of output bytes managed by the device
Serial Number	Device serial number
MAC	MAC address associated with the device
Eth. 1	MAC address associated with Ethernet Port No. 1
Eth. 2	MAC address associated with Ethernet Port No. 2
NDIS	MAC address associated with the Ethernet interface
Fw Ver.	Firmware version installed on the device
IP Address	IP address associated with the device
IP Mask	IP mask address associated with the device
IP Gateway	IP Gateway address associated with the device
Link after Reboot	Web page link in case of IP address change after reboot

CAUTION
The 'Ip User Data' section is not visible as it is password protected. For access, Login.

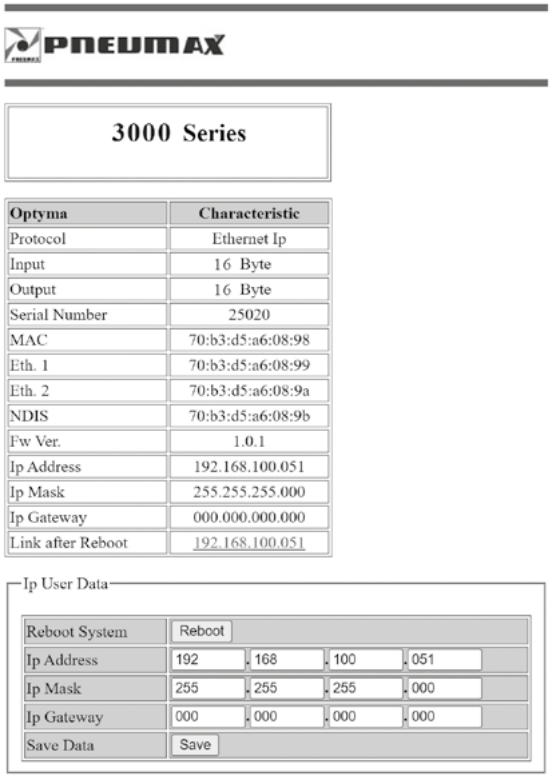
Login

To access the edit section 'Ip User Data' enter the password. By default, the password set is: 'admin'



To log in, select the 'Login Password' option, enter the password 'admin' in the corresponding field and click on the 'Login' button.
NOTE: The characters entered in the password field are normally obscured. To make them visible, tick the 'Show Password' flag.

Below is an example of a Web Page after logging in:



NOTE: Once logged in, the session remains active until the next reboot of the device or up to a maximum of 30 minutes if no activity is detected.

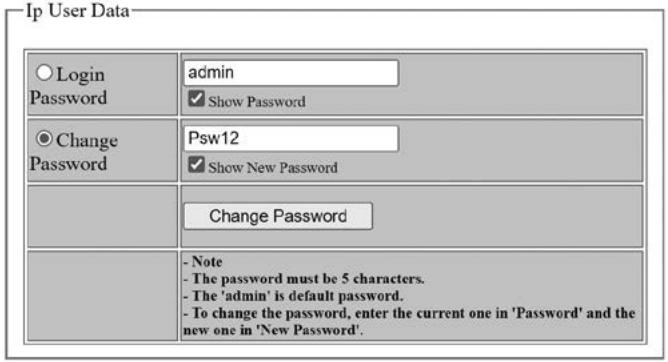
CHANGE PASSWORD

To change the password for accessing the 'Ip User Data' section, follow the steps below:

- Enter the currently set password ('admin' if it has never been changed) in the 'Login Password' field.
- Select the 'Change Password' option and enter the new password in the corresponding field.

CAUTION
The new password entered must have 5 characters.

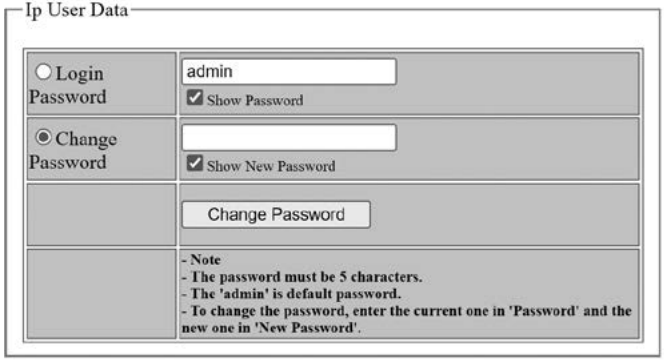
- Click the 'Change Password' button.



When the procedure is completed, the new password is saved and access is gained to the 'Ip User Data' section.

PASSWORD RECOVERY

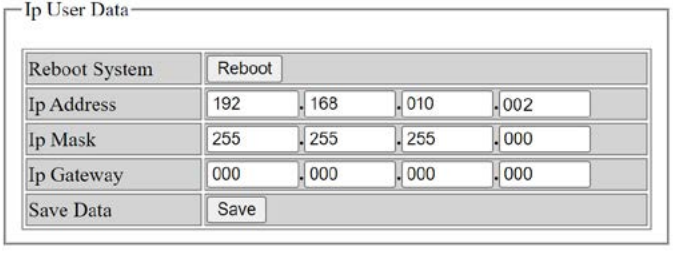
To recover passwords, follow the procedure explained in the section entitled "PROCEDURE FOR RECOVERY THROUGH SUPPLY".
Once the web page has been accessed, the default password 'admin' is temporarily reset. At this point, it is then possible to access the 'Ip User Data' section with this password or set a new password using the procedure explained in the previous section.



CAUTION
The password 'admin' is only temporarily valid in the recovery procedure. When the device is restarted, the valid password will revert to the one previously set.

WEB PAGE PARAMETERS

In the section called 'IP User Data', it is possible to change certain IP parameters of the device, namely IP Address, IP Mask and IP Gateway.

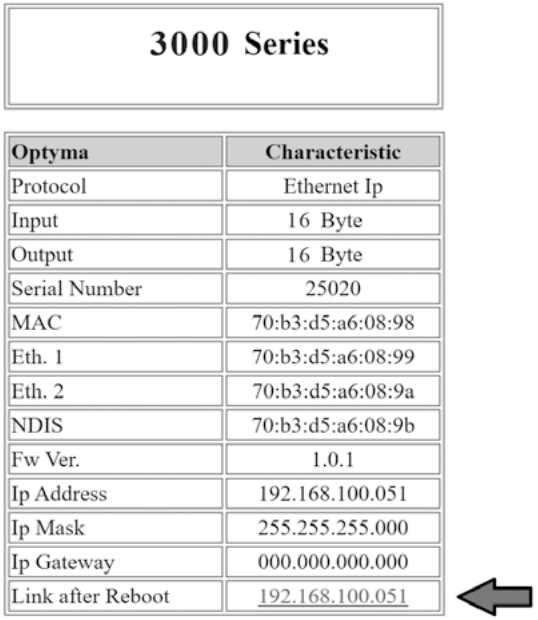


When the section is accessed, the corresponding fields are populated with the addresses currently associated with the device. To change them, you must overwrite these addresses and click the 'Save' button.

To apply the changes, reboot the device. The reboot can be done manually or directly on the web page by clicking the 'Reboot' button.

CAUTION

Once the IP address has been changed, the opened Web Page is no longer valid, as it refers to the previous IP address. In order to be able to access the web page again, the new IP address of the device must then be entered into the browser. If a manual reboot was performed, you can click the 'Link after Reboot' field on the web page to be automatically redirected to the new web page.



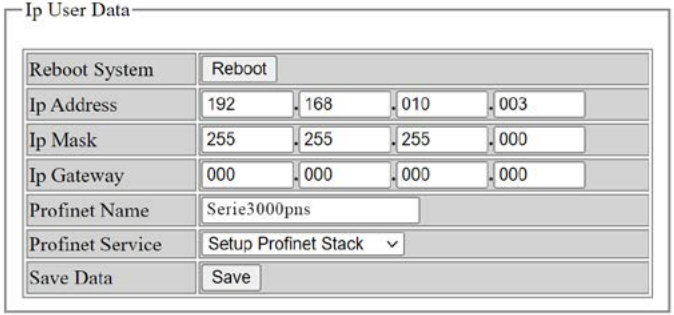
3000 Series

Optyma	Characteristic
Protocol	Ethernet Ip
Input	16 Byte
Output	16 Byte
Serial Number	25020
MAC	70:b3:d5:a6:08:98
Eth. 1	70:b3:d5:a6:08:99
Eth. 2	70:b3:d5:a6:08:9a
NDIS	70:b3:d5:a6:08:9b
Fw Ver.	1.0.1
Ip Address	192.168.100.051
Ip Mask	255.255.255.000
Ip Gateway	000.000.000.000
Link after Reboot	192.168.100.051

The following parameters can also be changed for the PROFINET IO RT protocol:

PARAMETER	DESCRIPTION
Profinet Name	Name of the device displayed in the system (1)
Profinet Service	Configuration mode at device start-up. It can be set in 2 modes: • Setup Profinet by Stack (2): PLC-managed mode, i.e. the IP address is assigned by the master PLC • Setup Profinet by User (3) User-managed mode, i.e. IP address assigned manually

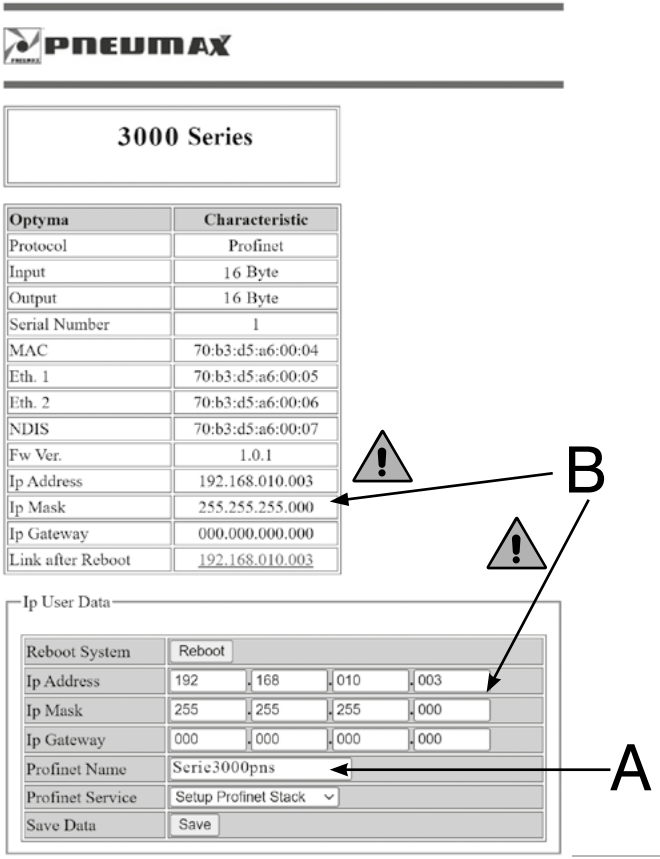
(1) The 'Profinet Name' field can be changed if the 'Setup by User' mode of the Profinet Service has been selected. The choice of name must comply with the PROFINET V2.3 specification. If an impermissible character is entered in the 'Profinet Name' field, it will be replaced by the character 'x'. The maximum permissible length for the name is 16 characters.



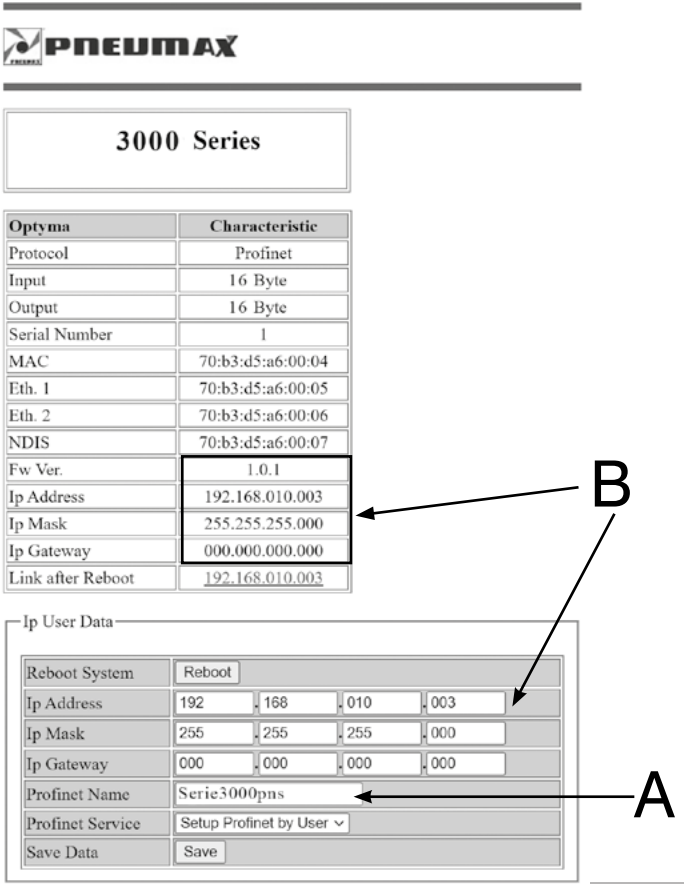
Ip User Data

Reboot System	Reboot
Ip Address	192 . 168 . 010 . 003
Ip Mask	255 . 255 . 255 . 000
Ip Gateway	000 . 000 . 000 . 000
Profinet Name	Serie3000pns
Profinet Service	Setup Profinet Stack
Save Data	Save

(2) When selecting the "Setup Profinet Stack" mode [A], all network parameters shown on the Web Page [B] do not correspond to the current configuration, as these are written via the development environment (e.g. Proneta or TIA Portal).



(3) By selecting the "Setup by User" mode [A], all network settings [B] are managed via Web Page.



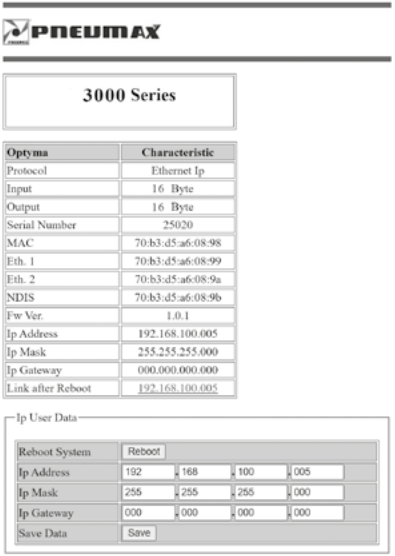
CAUTION
In this mode, it is necessary to check that the option 'IP address is set directly at the device' is selected in the device configuration in the development environment (e.g. TIA Portal).

RECOVERY PROCEDURE THROUGH POWER SUPPLY

In case you want to access the device's web page but do not know the IP address and/or password, perform the following retrieval procedure, which temporarily sets the IP address: 192.168.100.5 and the default password: 'admin'.

Perform the following steps to complete the procedure:

1. Power the device for about 4 seconds and switch it off by removing the power supply.
2. Perform the procedure in step 1. five times in a row.
3. Power the device for the sixth time and wait for about 4 seconds. Do not switch off the device.
4. Open the Browser and type the IP address in the URL field: http://192.168.100.5/
5. You can now access the Web Page and thus change your IP address and/or password.


PNEUMAX

3000 Series

Optyma	Characteristic
Protocol	Ethernet Ip
Input	16 Byte
Output	16 Byte
Serial Number	25020
MAC	70:b3:d5:a6:08:98
Eth. 1	70:b3:d5:a6:08:99
Eth. 2	70:b3:d5:a6:08:9a
NDIS	70:b3:d5:a6:08:9b
Fw Ver.	1.0.1
Ip Address	192.168.100.005
Ip Mask	255.255.255.000
Ip Gateway	000.000.000.000
Link after Reboot	192.168.100.005

Ip User Data

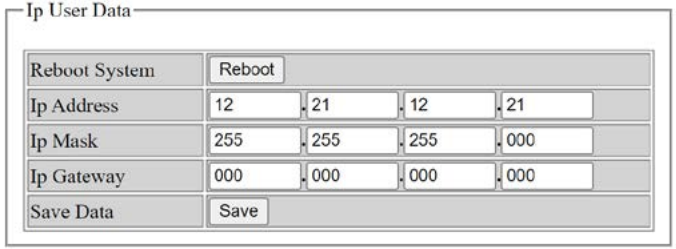
Reboot System	Reboot			
Ip Address	192	168	100	005
Ip Mask	255	255	255	000
Ip Gateway	000	000	000	000
Save Data	Save			

CAUTION
In the case of a restart without applying any changes, the device will load the previously set parameters.

CAUTION
In order to be able to access the Web Page with IP address 192.168.100.5, the network card of the PC you are using must be set up correctly, i.e. it must have an IP address belonging to the same subnet (e.g. 192.168.100.200).
It is therefore advisable to check the network card settings before performing the recovery procedure.

NETWORK SETTINGS RECOVERY PROCEDURE VIA WEB BROWSER

In case you want to restore all device settings to factory data, you can perform a recovery procedure via Web Page.
Once you have accessed the Web Page, in the 'IP User Data' section fill in the fields as shown in the image below and click on the 'Save' button:



To access the web page again, it will then be necessary to type in the factory IP address into the browser.

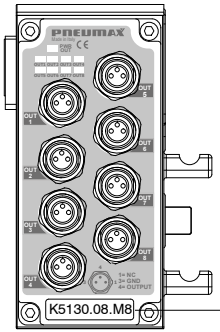
5.4 Accessory Modules

5.4.1 Digital Outputs

Digital Output Module Kit	Type	Page
K5130.08.M8	8 M8 Connectors 3 -Pole Female	105
K5130.08.M12	4 M12 Connectors 5-Pole Female	109
K5130.32.37P	SUB-D connector 37 Pole Female	112
K5130.16.SL	Terminal block connector	115

5.4.1.1 M8 digital 8-output Module Kit

5.4.1.1.1 Product identification



PRODUCT IDENTIFICATION LABEL

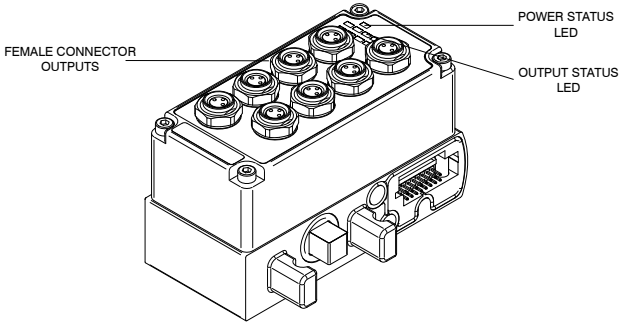
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.08.M8	●	●

5.4.1.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.1.1.3 Product overview

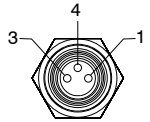


Bit Correspondence

Output	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8
# bit	0	1	2	3	4	5	6	7

- **Signal Connections**

M8 3P FEMALE



PIN	SIGNAL
1	N.C.
3	0V DC
4	OUTPUT
THREADING	SHIELD

5.4.1.1.4 Installation and Commissioning

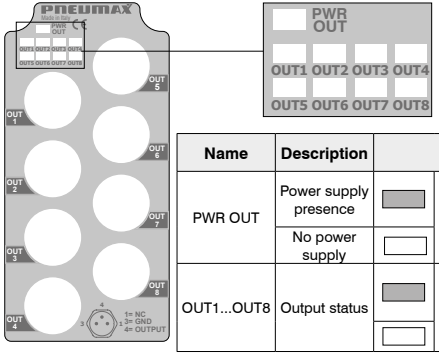
- Cable connection

The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under 'Tightening torques'.

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T08 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR OUT	Power supply presence		GREEN	Module correctly powered +24V DC OUTPUTS
	No power supply			Module not powered
OUT1...OUT8	Output status		ORANGE	Output activated, irrespective of user connection
				Output not activated

5.4.1.1.5 Technical Data

Mechanical Technical Data

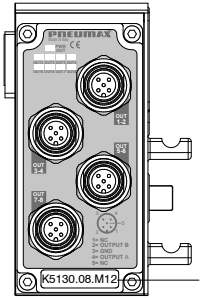
Description	K5130.08.M8
Dimensions	90x42x52mm
Weight	248g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5130.08.M8
Maximum deliverable current per output	100mA
Protection	Short circuit (electronics), triggered at 2.8A
Maximum altitude	2000m a.s.l.
Output logic	PNP
Permissible cable length	<30m
Space occupied on output data	1 byte
Absorption only module + 24V DC outputs	15mA

5.4.1.2 M12 digital 8-output Module Kit

5.4.1.2.1 Product identification



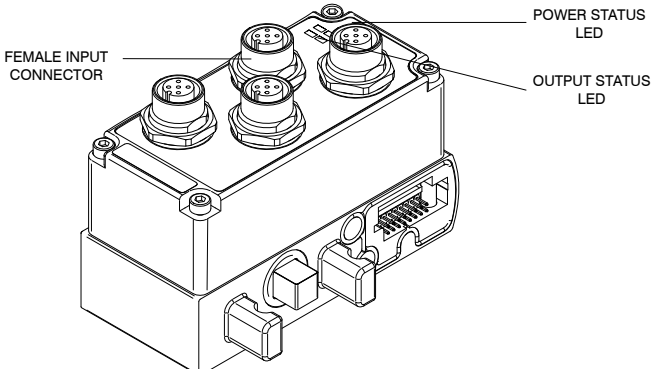
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.08.M12	●	●

5.4.1.2.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.1.2.3 Product overview

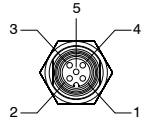


Bit Correspondence

Output	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8
# bit	0	1	2	3	4	5	6	7

- **Signal Connections**

M12 A- Coding 5P FEMALE



PIN	SIGNAL
1	N.C.
2	OUTPUT B
3	0V DC
4	OUTPUT A
5	N.C.
THREADING	SHIELD

5.4.1.2.4 Installation and Commissioning

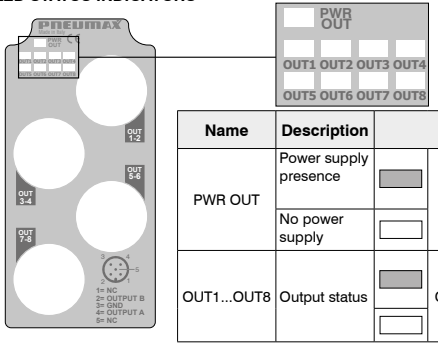
- Cable connection

The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR OUT	Power supply presence		GREEN	Module correctly powered +24V DC OUTPUTS
	No power supply			Module not powered
OUT1...OUT8	Output status		ORANGE	Output activated, irrespective of user connection
				Output not activated

ENGLISH

5.4.1.2.5 Technical Data

Mechanical Technical Data

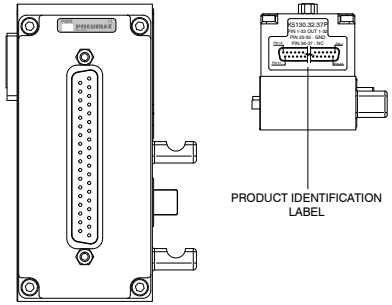
Description	K5130.08.M12
Dimensions	90x42x52 mm
Weight	258g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5130.08.M12
Maximum deliverable current per output	100mA
Protection	Short circuit (electronics), triggered at 2.8A
Maximum altitude	2000m a.s.l.
Output logic	PNP
Permissible cable length	<30m
Space occupied on output data	1 byte
Absorption only module + 24V DC outputs	15mA

5.4.1.3 digital outputs 32 module kit

5.4.1.3.1 Product identification



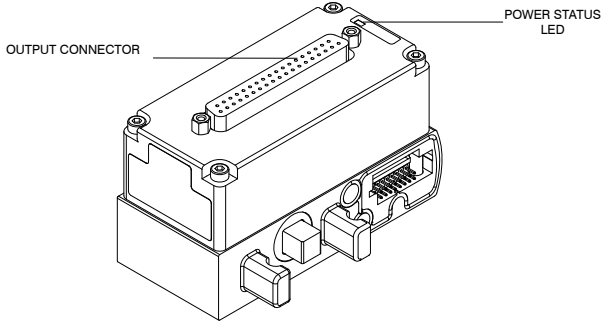
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.32.37P	●	●

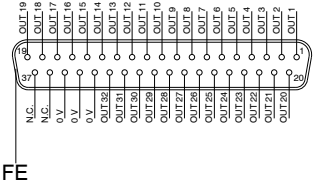
5.4.1.3.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.1.3.3 Product overview



- **Signal Connections**



PIN	SIGNAL
1...32	OUT
33...35	0V DC
36,37	N.C.

Bit Correspondence

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
bit	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit 15
byte	BYTE x								BYTE x + 1							

PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
bit	Bit 16	Bit 17	Bit 18	Bit 19	Bit 20	Bit 21	Bit 22	Bit 23	Bi 24	Bit 25	Bit 26	Bit 27	Bit 28	Bit 29	Bit 30	Bit 31
byte	BYTE x + 2								BYTE x + 3							

NOTE
The number 'x' of the output byte depends on the battery configuration.

5.4.1.3.4 Installation and Commissioning

- Cable connection

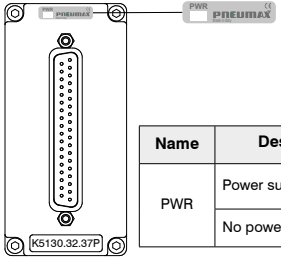
  The cable to be used is indicated in the annex 'Cable and Connector Counterparts'.
  However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under 'Tightening torques'.

In order to guarantee IP65 protection, the appropriate cable Code 2400.37.xx.xx with a tightening torque specified in the table under 'Tightening torques'.

ENGLISH

LED STATUS INDICATORS



Name	Description	Status	
PWR	Power supply presence		Module correctly powered
	No power supply		Module not powered

5.4.1.3.5 Technical Data

Mechanical Technical Data

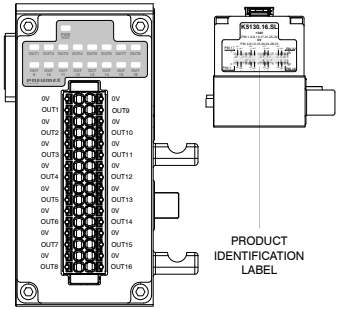
Description	K5130.32.37P
Dimensions	90x42x52 mm
Weight	200g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5130.32.37P
Maximum deliverable current	100 mA
Protection	Short circuit (electronics), triggered at 2.8A
Maximum altitude	2000m a.s.l.
Output logic	PNP
Permissible cable length	<30m
Space occupied on output data	4 byte
Absorption only module + 24V DC outputs	15mA

5.4.1.4 Digital outputs 16 terminal block

5.4.1.4.1 Product identification



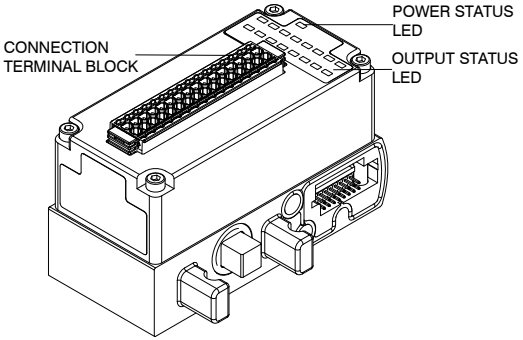
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.16.SL	●	●

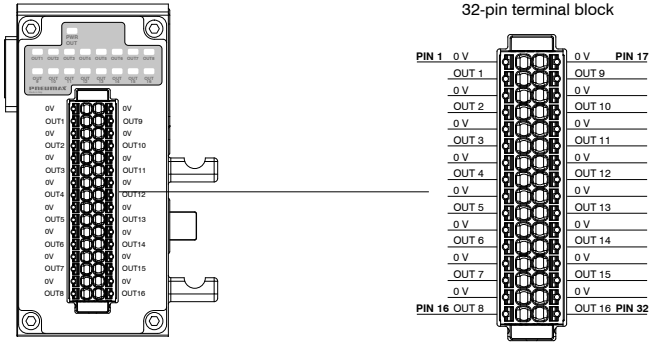
5.4.1.4.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.1.4.3 Product overview



- **Signal Connections**

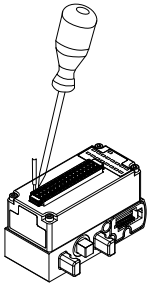


Bit Correspondence

PIN	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	OUT 9	OUT 10	OUT 11	OUT 12	OUT 13	OUT 14	OUT 15	OUT 16
bit	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit 15
byte	BYTE x								BYTE x + 1							

NOTE
The number 'x' of the output byte depends on the battery configuration.

5.4.1.4.4 Installation and Commissioning



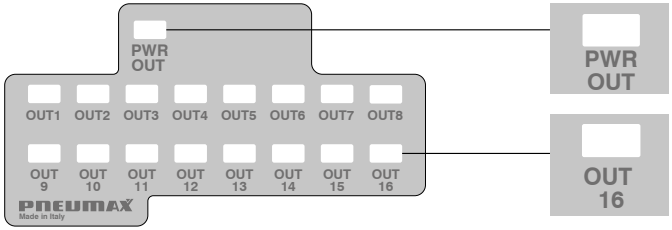
- Cable connection

Connection terminal specifications
- Conductor gauge 0.2mm² ... 1.5mm², AWG 24 ... 16

To make a secure contact, connect only one conductor per terminal.

To unlock the terminals, press down the release (orange part) with a screwdriver

LED STATUS INDICATORS



Name	Description	Status		
PWR OUT	Module power indicator		GREEN	Module correctly powered
			YELLOW	OPEN LOAD condition (No input connected)
			RED	Module in protection (absorbed current higher than maximum limit) (1)
				Module not powered
OUT1... OUT16	Output status indicators		GREEN	Output active
				Output not active

(1) The module automatically returns to normal operation when the current drops below the maximum limit

5.4.1.4.5 Technical Data

Mechanical Technical Data

Description	K5130.16.SL
Dimensions	90x42x52 mm
Weight	204g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP40

Electrical Technical Data

Description	K5130.16.SL
Maximum deliverable current per output	100 mA
Short-circuit/overload protection	yes (electronic), triggered at 1.6A
Maximum altitude	2000m a.s.l.
Output logic	PNP
Permissible cable length	<30m
Accepted conductor gauge	0.2...1.5mm, (24...16AWG)
Space occupied on output data	2 byte
Absorption only module + 24V DC outputs	25mA

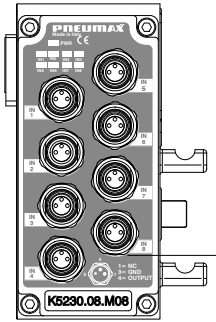
5.4.2 Digital inputs

Digital Input Module Kit	Type	Page
K5230.08.M8	8 M8 Connectors 3 -Pole Female	119
K5230.08.M12	4 M12 Connectors 5-Pole Female	123
K5230.32.37P	SUB-D connector 37 Pole Female	126
K5230.16.SL	Terminal block connector	129
K5330.16.SL	Terminal block connector	133

5.4.2.1 M8 digital input 8 module kit

Both 2-wire inputs (switches, magnetic limit switches, pressure switches, etc.) and 3-wire inputs (proximity, photocells, electronic magnetic limit switches, etc.) can be connected to each connector.

5.4.2.1.1 Product identification



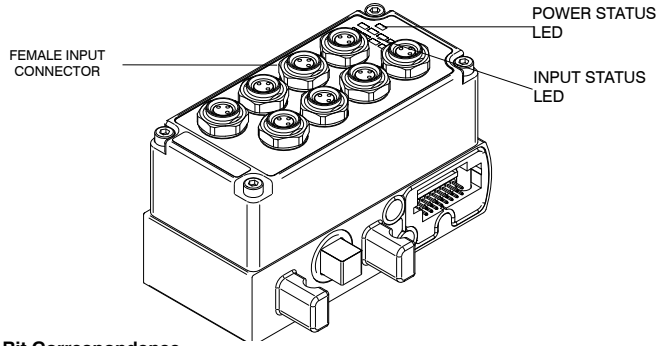
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.08.M8	●	●

5.4.2.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.2.1.3 Product overview

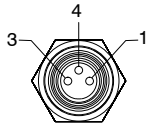


Bit Correspondence

Input	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8
# bit	0	1	2	3	4	5	6	7

- **Signal Connections**

M8 3P FEMALE CONNECTOR



PIN	SIGNAL
1	+24V DC logic and inputs
3	0V DC
4	INPUT
THREADING	F.E.

5.4.2.1.4 Installation and Commissioning

- Cable connection

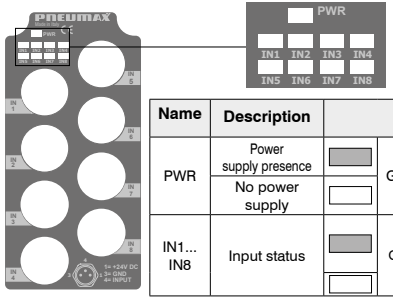
The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution

Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300.T08 must be installed with a tightening torque as indicated in the table at "Tightening torques".

LED STATUS INDICATORS



Name	Description	Status		
PWR	Power supply presence		GREEN	Module correctly powered +24V DC logic and inputs
	No power supply			Module not powered
IN1... IN8	Input status		GREEN	Input activated, regardless of user connection
				Input not activated

5.4.2.1.5 Technical Data

Mechanical Technical Data

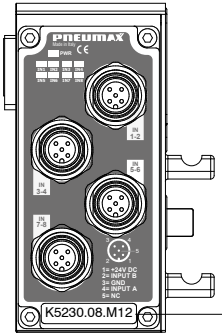
Description	K5230.08.M8
Dimensions	90x42x52 mm
Weight	248g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5230.08.M8
Maximum deliverable current per module	300mA
Protection	Overcurrent (self-resetting fuse) Reverse polarity
Maximum altitude	2000m a.s.l.
Input mode	PNP
Input impedance	3kΩ
Permissible cable length	<30m
Space occupied on input data	1 byte
Absorption module only + 24V DC logic and inputs	5mA

5.4.2.2 M12 digital input 8 module kit

5.4.2.2.1 Product identification



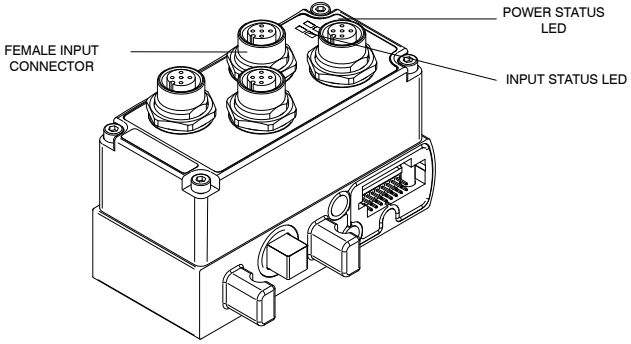
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.08.M12	●	●

5.4.2.2.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.2.2.3 Product overview

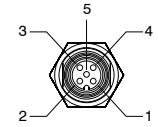


Bit Correspondence

Input	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8
# bit	0	1	2	3	4	5	6	7

- **Signal Connections**

M12 A- Coding 5P FEMALE



PIN	SIGNAL
1	+24V DC logic and inputs
2	INPUT B
3	0V DC
4	INPUT A
5	N.C.
THREADING	SHIELD

5.4.2.2.4 Installation and Commissioning

- Cable connection

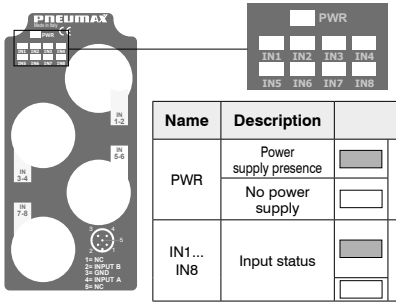
The cable connectors to be used are shown in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques"

ENGLISH

LED STATUS INDICATORS



Name	Description	Status		
PWR	Power supply presence		GREEN	Module correctly powered +24V DC logic and inputs
	No power supply			Module not powered
IN1... IN8	Input status		GREEN	Input activated, regardless of user connection
				Input not activated

5.4.2.2.5 Technical Data

Mechanical Technical Data

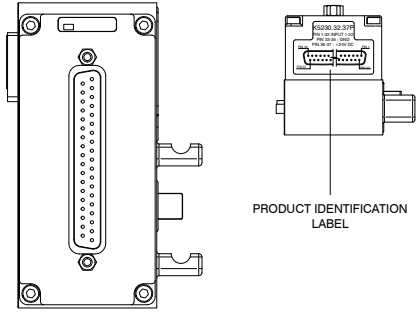
Description	K5230.08.M12
Dimensions	90x42x52 mm
Weight	259g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5230.08.M12
Maximum deliverable current per module	300mA
Protection	Overcurrent (self-resetting fuse) Reverse polarity
Maximum altitude	2000m a.s.l.
Input mode	PNP
Input impedance	3kΩ
Permissible cable length	<30m
Space occupied on input data	1 byte
Absorption only module + 24V DC outputs	5mA

5.4.2.3 Digital input 32 module kit

5.4.2.3.1 Product identification



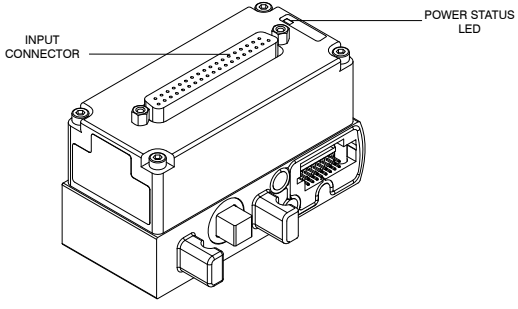
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.32.37P	●	●

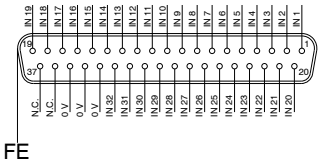
5.4.2.3.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.2.3.3 Product overview



- **Signal Connections**



PIN	SIGNAL
1...32	IN
33...35	0V DC
36,37	+24V DC

Bit Correspondence

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
bit	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit 15
byte	BYTE x								BYTE x + 1							

PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
bit	Bit 16	Bit 17	Bit 18	Bit 19	Bit 20	Bit 21	Bit 22	Bit 23	Bi 24	Bit 25	Bit 26	Bit 27	Bit 28	Bit 29	Bit 30	Bit 31
byte	BYTE x + 2								BYTE x + 3							

NOTE
The x number of the input byte depends on the battery configuration.

5.4.2.3.4 Installation and Commissioning

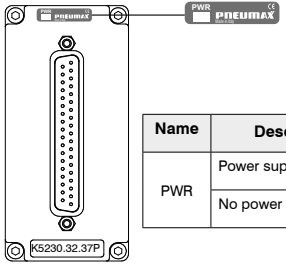
- Cable connection

  The cable to be used is indicated in the annex 'Cable and Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
Always observe the tightening torques given in the table under 'Tightening torques'.

In order to guarantee IP65 protection, the appropriate cable Code 2400.37.xx.xx with a tightening torque specified in the table under 'Tightening torques'.

LED STATUS INDICATORS



Name	Description	Status	
PWR	Power supply presence		Module correctly powered
	No power supply		Module not powered

5.4.2.3.5 Technical Data

Mechanical Technical Data

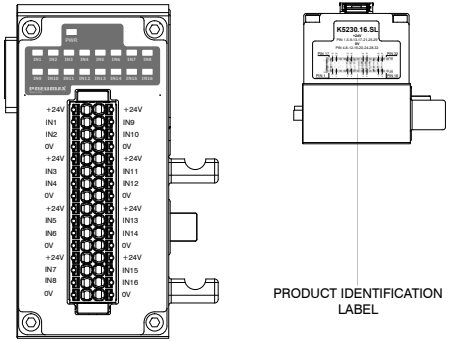
Description	K5230.32.37P
Dimensions	90x42x52 mm
Weight	203g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5230.32.37P
Maximum deliverable current per module	300mA
Protection	Overcurrent (self-resetting fuse) Reverse polarity
Maximum altitude	2000m a.s.l.
Input mode	PNP
Input impedance	3kΩ
Permissible cable length	<30m
Space occupied on input data	4 byte
Absorption module only + 24V DC logic and inputs	10mA

5.4.2.4 Digital inputs 16 terminal block

5.4.2.4.1 Product identification



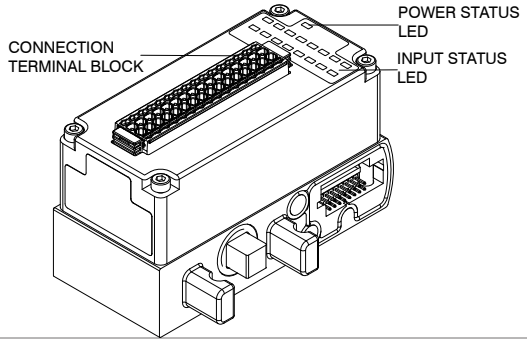
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.16.SL	●	●

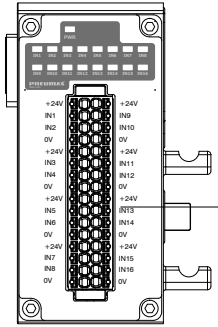
5.4.2.4.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

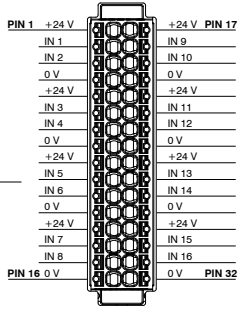
5.4.2.4.3 Product overview



- **Signal Connections**



32-pin terminal block

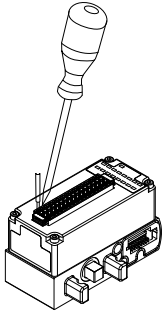


Bit Correspondence

PIN	IN 1	IN 2	IN 3	IN 4	IN 5	IN 6	IN 7	IN 8	IN 9	IN 10	IN 11	IN 12	IN 13	IN 14	IN 15	IN 16
bit	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit 15
byte	BYTE x								BYTE x + 1							

NOTE
The 'x' number of the input byte depends on the battery configuration.

5.4.2.4.4 Commissioning and installation

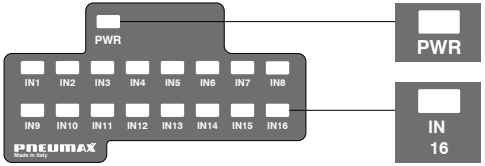


Connecting cables
Connection terminal specifications
- Conductor gauge 0.2mm² ... 1.5mm²
- Conductor gauge AWG 24 ... 16

To make a secure contact, connect only one conductor per terminal.

To unlock the terminals, press down the release (orange part) with a screwdriver

LED STATUS INDICATORS



Name	Description	Status		
PWR	Module power indicator		GREEN	Module correctly powered
			YELLOW	OPEN LOAD condition (No input connected)
			RED	Module in protection (absorbed current higher than maximum limit) (1)
				Module not powered
IN1...IN16	Input status indicators		GREEN	Active input
				Input not active

(1) The module automatically returns to normal operation when the current drops below the maximum limit

5.4.2.4.5 Technical Data

Mechanical Technical Data

Description	K5230.16.SL
Dimensions	90x42x52 mm
Weight	204g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP40

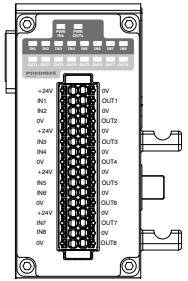
Electrical Technical Data

Description	K5230.16.SL
Maximum deliverable current per input module	750mA
Short-circuit/overload protection	yes (electronic), with 800mA trigger
Maximum altitude	2000m a.s.l.
Input mode	PNP
Input impedance	3kΩ
Cable length	<30m
Space occupied on input data	2 Byte
Absorption module only + 24V DC logic and inputs	25mA
Active input single absorption	8mA (1)

1 : Each terminal board input, when active, increases consumption by 8mA.
Hence the maximum load per supply pin varies as follows:
- o for a single input it is 750mA
- o for 8 inputs it is: 750mA-(8x8mA)=686mA
- o for 16 inputs it is: 750mA-(16x8mA)=622mA

5.4.2.5 Terminal block 8 digital inputs/ 8 digital outputs

5.4.2.5.3 Product identification



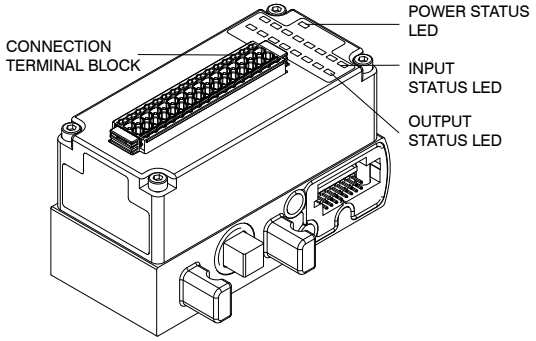
COMPATIBILITY

	3100 EVO	3400 EVO
K5330.16.SL	●	●

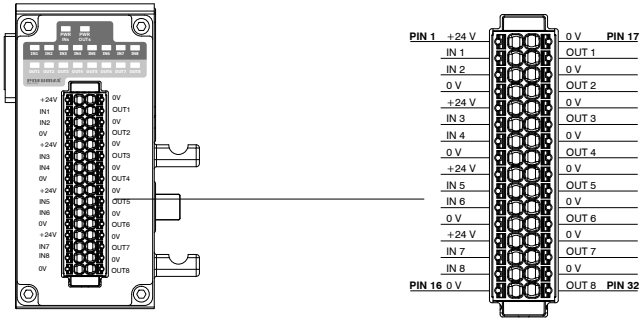
5.4.2.5.1 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.2.5.2 Product Overview



- **Signal Connections**

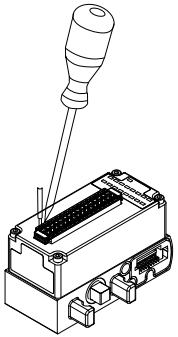


Bit Correspondence

PIN	IN 1	IN 2	IN 3	IN 4	IN 5	IN 6	IN 7	IN 8	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8
bit	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Bit 9	Bit 10	Bit 11	Bit 12	Bit 13	Bit 14	Bit 15
byte	BYTE x								BYTE x + 1							

NOTE
The number 'x' of the output byte depends on the battery configuration.

5.4.2.5.4 Commissioning and installation

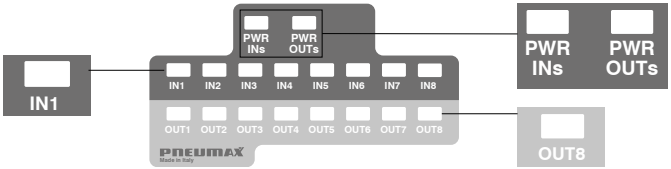


Connecting cables
Connection terminal specifications
- Conductor gauge 0.2mm² ... 1.5mm²
- Conductor gauge AWG 24 ... 16

To make a secure contact, connect only one conductor per terminal.

To unlock the terminals, press down the release (orange part) with a screwdriver

LED STATUS INDICATORS



Name	Description	Status		
PWR INs	Module power indicator (INPUTS)		GREEN	Module correctly powered
			YELLOW	OPEN LOAD condition (No input connected)
			RED	Module in protection (absorbed current higher than maximum limit) (1)
				Module not powered
PWR OUTs	Module power indicator (OUTPUTS)		GREEN	Module correctly powered
			RED	Module in protection (absorbed current higher than maximum limit) (1)
				Module not powered
IN1...IN8	Input status indicators		GREEN	Active input
				Input not active
OUT1... OUT8	Input status indicators		GREEN	Output active
				Output not active

(1) The module automatically returns to normal operation when the current drops below the maximum limit

ENGLISH

5.4.2.5.5 Technical Data

Mechanical Technical Data

Description	K5330.16.SL
Dimensions	90x42x52 mm
Weight	204g
Body material	Filled Technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP40

Electrical Technical Data

Description	K5330.16.SL
Cable length	>30m
Maximum altitude	2000m a.s.l.
Input/Output logics	PNP
INPUTS	
Number of inputs	8
Active input single absorption	8mA (1)
Maximum deliverable current for input modules	750mA
Short-circuit/overload protection	yes (electronic), with 800mA trigger
Input impedance	3kΩ
Space occupied on input data	1 Byte
Absorption module only + 24V DC logic and inputs	15mA
OUTPUTS	
Number of outputs	8
Module deliverable current (Outputs)	800mA
Maximum deliverable current per output	100mA
Short-circuit/overload protection	yes (electronic), with 850mA trigger
Space occupied on input data	1 Byte
Absorption module only + 24V DC outputs	20mA

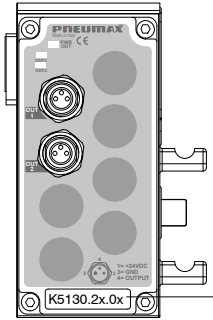
1 : Each terminal board input, when active, increases consumption by 8mA. Hence the maximum load per supply pin varies as follows:
- o for a single input it is 750mA
- o for 8 inputs it is: 750mA-(8x8mA)=686mA

5.4.3 Analogue Outputs

Analogue Output Module Kit	Type	Page
K5130.2T.00	2 channels, voltage 0-10V	137
K5130.2T.01	2 channels, voltage 0-5V	137
K5130.2C.00	2 channels, current 4-20mA	137
K5130.2C.01	2 channels, current 0-20mA	137
K5130.4T.00	4 channels, voltage 0-10V	142
K5130.4T.01	4 channels, voltage 0-5V	142
K5130.4C.00	4 channels, current 4-20mA	142
K5130.4C.01	4 channels, current 0-20mA	142

5.4.3.1 2-channelanalogue output module kit

5.4.3.1.1 Product identification



Analogue Output Module Kit	Type
K5130.2T.00	2 channels, voltage 0-10V
K5130.2T.01	2 channels, voltage 0-5V
K5130.2C.00	2 channels, current 4-20mA
K5130.2C.01	2 channels, current 0-20mA

The code varies according to the type chosen

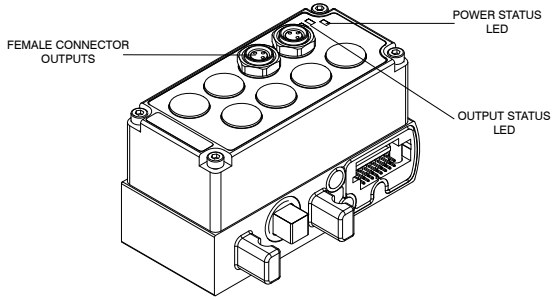
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.2x.0x	●	●

5.4.3.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.3.1.3 Product Overview



Bit correspondence per channel

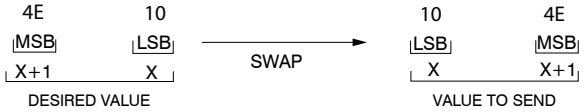
The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	OUT Bit 11	OUT Bit 10	OUT Bit 9	OUT Bit 8	OUT Bit 7	OUT Bit 6	OUT Bit 5	OUT Bit 4
	byte x + 3				byte x + 2			

LSB bit byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	OUT Bit 3	OUT Bit 2	OUT Bit 1	OUT Bit 0	0	0	0	0
	byte x + 1				byte x			

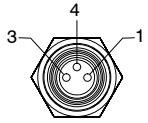
Value processing example

Note : Values are expressed in hexadecimal



- **Signal Connections**

M8 3P FEMALE CONNECTOR



PIN	SIGNAL
1	+24V DC (OUTPUTS)
3	0V DC
4	OUTPUT
THREADING	F.E.

5.4.3.1.4 Installation and Commissioning

The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

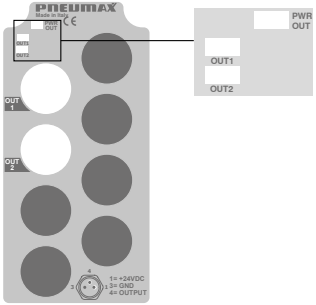
Caution
For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques"

ENGLISH

LED STATUS INDICATORS



Name	Description	Status		
PWR OUT	Presence of +24V DC OUTPUTS power supply		GREEN	Module correctly powered +24V DC OUTPUTS
				Module not powered
OUT1...OUT2	Output status		GREEN	Output active
			RED	Overload output (for voltage versions only, K5130.*T.0*)
				Output NOT active (0V/4mA/ 0mA)

Note: when the output enters the overload state, once the cause of the overload is removed, the LED turns green again.

ENGLISH

5.4.3.1.5 Technical Data

Mechanical Technical Data

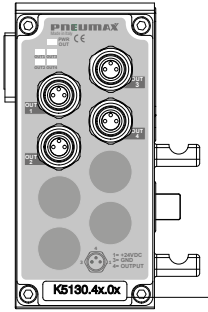
Description	K5130.2x.0x
Dimensions	90x42x52 mm
Weight	206g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5130.2T.xx	K5130.2C.xx
Maximum deliverable current per module (pin 1)	1A	
Protection (pin 1)	Overcurrent (self-resetting fuse)	
Protection (pin 4)	Overcurrent (electronic), 20mA trigger	N.A.
Maximum altitude	2000m a.s.l.	
Digital conversion resolution	12bit	
Accuracy	0.3% F.S.	
Space occupied on output data	4 byte	
Absorption module only + 24V DC logic and inputs	15mA	
Absorption module only + 24V DC outputs	35mA	
Permissible cable length	<30m	

5.4.3.2 4-channel analogue output module kit

5.4.3.2.1 Product identification



Analogue Output Module Kit	Type
K5130.4T.00	4 channels, voltage 0-10V
K5130.4T.01	4 channels, voltage 0-5V
K5130.4C.00	4 channels, current 4-20mA
K5130.4C.01	4 channels, current 0-20mA

The code varies according to the type chosen

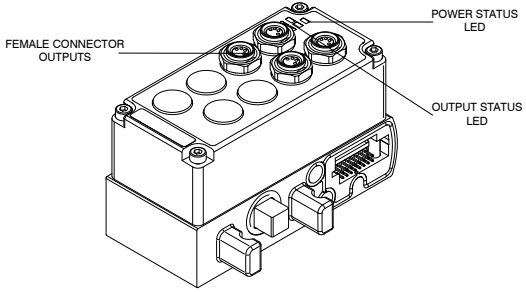
COMPATIBILITY

	3100 EVO	3400 EVO
K5130.4x.0x	●	●

5.4.3.2.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.3.2.3 Product overview



Bit correspondence per channel

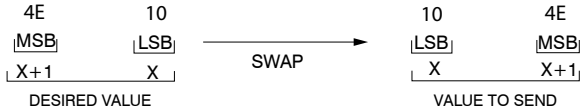
The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	OUT Bit 11	OUT Bit 10	OUT Bit 9	OUT Bit 8	OUT Bit 7	OUT Bit 6	OUT Bit 5	OUT Bit 4
	byte x + 3				byte x + 2			

LSB bit byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	OUT Bit 3	OUT Bit 2	OUT Bit 1	OUT Bit 0	0	0	0	0
	byte x + 1				byte x			

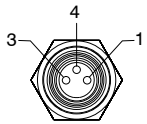
Value processing example

Note : Values are expressed in hexadecimal



- **Signal Connections**

M8 3P FEMALE CONNECTOR



PIN	SIGNAL
1	+24V DC (OUTPUTS)
3	0V DC
4	OUTPUT
THREADING	F.E.

5.4.3.2.4 Installation and Commissioning

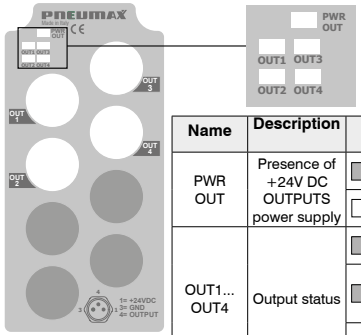
The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR OUT	Presence of +24V DC OUTPUTS power supply		GREEN	Module correctly powered +24V DC OUTPUTS
				Module not powered
OUT1... OUT4	Output status		GREEN	Output active
			RED	Overload output (for voltage versions only, K5130.xT.0x)
				Output NOT active (0V/4mA/ 0mA)

Note: when the output enters the overload state, once the cause of the overload is removed, the LED turns green again.

5.4.3.2.5 Technical Data

Mechanical Technical Data

Description	K5130.4x.xx
Dimensions	90x42x52 mm
Weight	220g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5130.4T.xx	K5130.4C.xx
Maximum deliverable current per module (pin 1)	2A	
Protection (pin 1)	Overcurrent (self-resetting fuse)	
Protection (pin 4)	Overcurrent (electronic), 20mA trigger	N.A.
Maximum altitude	2000m a.s.l.	
Digital conversion resolution	12bit	
Accuracy	0.3% F.S.	
Space occupied on output data	8 byte	
Absorption module only + 24V DC logic and inputs	15mA	
Absorption module only + 24V DC outputs	70mA	
Permissible cable length	<30m	

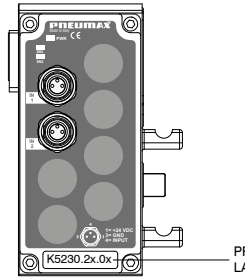
Overall dimensions and technical information are given for information only and may be changed without notice

5.4.4 Analogue Inputs

Analogue Input Module Kit	Type	Page
K5230.2T.00	2 channels, voltage 0-10V	146
K5230.2T.01	2 channels, voltage 0-5V	146
K5230.2C.00	2 channels, current 4-20mA	146
K5230.2C.01	2 channels, current 0-20mA	146
K5230.4T.00	4 channels, voltage 0-10V	150
K5230.4T.01	4 channels, voltage 0-5V	150
K5230.4C.00	4 channels, current 4-20mA	150
K5230.4C.01	4 channels, current 0-20mA	150

5.4.4.1 2-channel analogue input module kit

5.4.4.1.1 Product identification



PRODUCT IDENTIFICATION LABEL

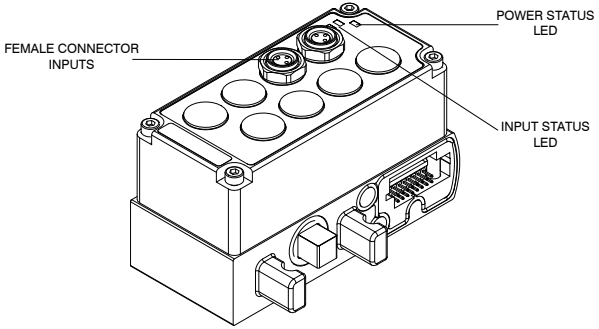
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.2x.0x	●	●

5.4.4.1.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.4.1.3 Product Overview



Bit correspondence per channel

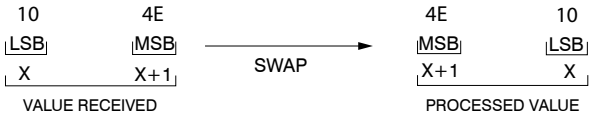
The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	IN Bit 11	IN Bit 10	IN Bit 9	IN Bit 8	IN Bit 7	IN Bit 6	IN Bit 5	IN Bit 4
	byte x + 3				byte x + 2			

LSB bit byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	IN Bit 3	IN Bit 2	IN Bit 1	IN Bit 0	0	0	0	0
	byte x + 1				byte x			

Value processing example

Note : Values are expressed in hexadecimal



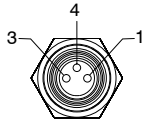
ENGLISH

Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
2-channel analogue input module kit

- **Signal Connections**

M8 3P FEMALE CONNECTOR



PIN	SIGNAL
1	+24V DC (LOGICS AND INPUTS)
3	0V DC
4	OUTPUT
THREADING	F.E.

5.4.4.1.4 Installation and Commissioning

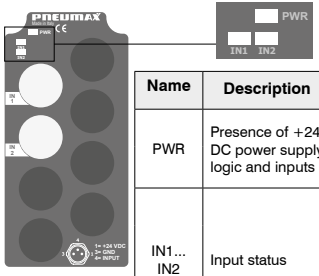
The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T08 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR	Presence of +24V DC power supply, logic and inputs		GREEN	Module correctly powered +24V DC logic and inputs
				Module not powered
IN1... IN2	Input status		GREEN	Input ACTIVE
			RED	Overload input (voltage or current above maximum limit)
				Input NOT active (0V/4mA/ 0mA)

Note: when the input enters the overload state, once the cause of the overload is removed, the LED turns green again.

5.4.4.1.5 Technical Data

Mechanical Technical Data

Description	K5230.2x.xx
Dimensions	90x42x52 mm
Weight	206g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

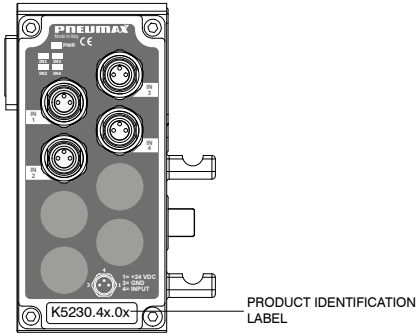
Electrical Technical Data

Description	K5230.2T.xx	K5230.2C.xx
Maximum deliverable current per module (pin 1)	300mA	
Protection (pin 1)	Overcurrent (self-resetting fuse)	
Maximum altitude	2000m a.s.l.	
Digital conversion resolution	12bit	
Accuracy	0.3% F.S.	
Space occupied on output data	4 byte	
Absorption module only + 24V DC logic and inputs	15mA	
Permissible cable length	<30m	

Overall dimensions and technical information are given for information only and may be changed without notice

5.4.4.2 4-channel analogue input module kit

5.4.4.2.1 Product identification



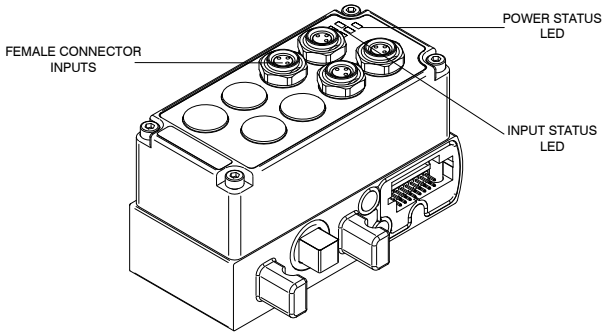
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.4x.0x	●	●

5.4.4.2.2 Specific safety warnings

All safety warnings given in the 'Safety Warnings' section apply.

5.4.4.2.3 Product Overview



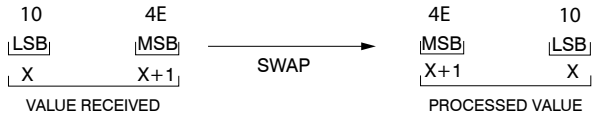
Bit correspondence per channel

The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	IN Bit 11	IN Bit 10	IN Bit 9	IN Bit 8	IN Bit 7	IN Bit 6	IN Bit 5	IN Bit 4
	byte x + 3				byte x + 2			
LSB bit byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	IN Bit 3	IN Bit 2	IN Bit 1	IN Bit 0	0	0	0	0
	byte x + 1				byte x			

Value processing example

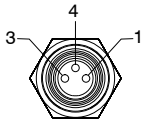
Note : Values are expressed in hexadecimal



3000 EVO
4-channel analogue input module kit

- **Signal Connections**

M8 3P FEMALE CONNECTOR



PIN	SIGNAL
1	+24V DC (INPUTS)
3	0V DC
4	OUTPUT
THREADING	F.E.

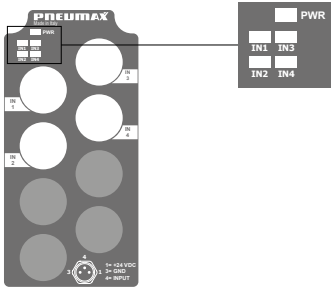
5.4.4.2.4 Installation and Commissioning

The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T08 must be installed with a tightening torque as indicated in the table at "Tightening torques"



LED STATUS INDICATORS

Name	Description	Status		
PWR	Presence of +24V DC power supply, logic and inputs	■	GREEN	Module correctly powered +24V DC logic and inputs
		□		Module not powered
IN1...IN4	Input status	■	GREEN	Input ACTIVE
		■	RED	Overload input (voltage or current above maximum limit)
		□		Input NOT active (0V/4mA/ 0mA)

Note: when the input enters the overload state, once the cause of the overload is removed, the LED turns green again.

5.4.4.2.5 Technical Data

Mechanical Technical Data

Description	K5230.4x.xx
Dimensions	90x42x52 mm
Weight	220g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5230.4T.xx	K5230.4C.xx
Maximum deliverable current per module (pin 1)	750mA	
Protection (pin 1)	Overcurrent (self-resetting fuse)	
Maximum altitude	2000m a.s.l.	
Digital conversion resolution	12bit	
Accuracy	0.3% F.S.	
Space occupied on output data	8 byte	
Absorption module only + 24V DC logic and inputs	15mA	
Permissible cable length	<30m	

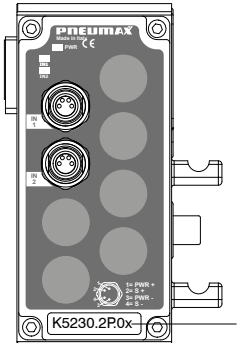
Overall dimensions and technical information are given for information only and may be changed without notice

5.4.5 Pt100 Input Modules

Analogue Output Module Kit	Type	Page
K5230.2P.00	2 channels, PT100 2-wire	154
K5230.2P.01	2 channels, PT100 3-wire	154
K5230.2P.02	2 channels, PT100 4-wire	154
K5230.4P.00	4 channels, PT100 2-wire	159
K5230.4P.01	4 channels, PT100 3-wire	159
K5230.4P.02	4 channels, PT100 4-wire	159

5.4.5.1 2-input Pt100 module kit

5.4.5.1.1 Product identification



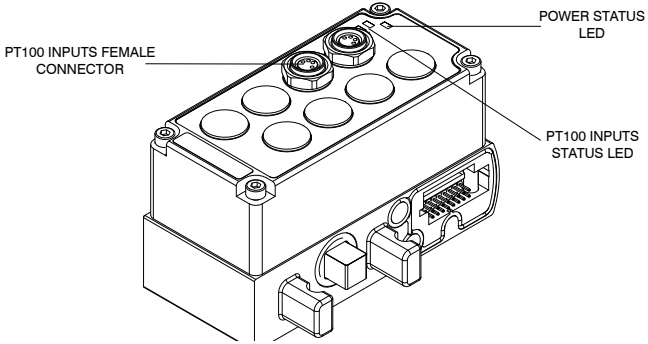
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.2P.0x	●	●

5.4.5.1.2 Specific safety warnings

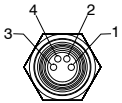
All safety warnings given in the 'Safety Warnings' section apply.

5.4.5.1.3 Product Overview



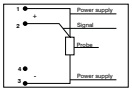
- **Signal Connections**

M8 4P Female Connector



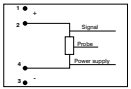
3-wire probe connection

PIN	DESCRIPTION
1	POWER SUPPLY +
2	SENSOR +
3	POWER SUPPLY -
4	N.C.
THREADING	FE



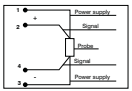
2-wire probe connection

PIN	DESCRIPTION
1	N.C.
2	SENSOR +
3	POWER SUPPLY -
4	N.C.
THREADING	FE



4-wire probe connection

PIN	DESCRIPTION
1	POWER SUPPLY +
2	SENSOR +
3	POWER SUPPLY -
4	SENSOR -
THREADING	FE



Bit correspondence per channel

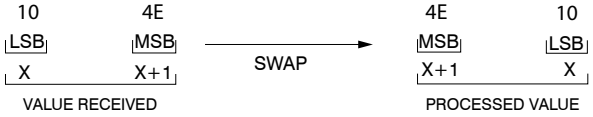
The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	IN Bit 11	IN Bit 10	IN Bit 9	IN Bit 8	IN Bit 7	IN Bit 6	IN Bit 5	IN Bit 4
	byte x + 3				byte x + 2			

LSB bit byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	IN Bit 3	IN Bit 2	IN Bit 1	IN Bit 0	0	0	0	0
	byte x + 1				byte x			

Value processing example

Note : Values are expressed in hexadecimal



Point-temperature conversion formula

$$Temperature\ [°C] = \left(\frac{Points}{4095} \times 400\right) - 100$$

ENGLISH

5.4.5.1.4 Installation and Commissioning

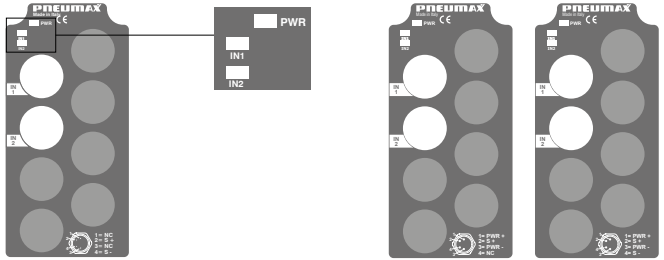
The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T08 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR	Presence of +24V DC power supply, logic and inputs		GREEN	Power supply presence
				Module not powered
IN1...IN2	PT100 input status		GREEN	Probe connected, valid reading
			RED	Out-of-range reading
			YELLOW	Probe not connected

5.4.5.1.5 Technical Data

Mechanical Technical Data

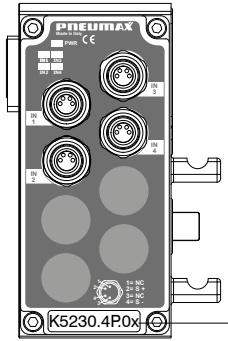
Description	K5230.2P.0x
Dimensions	90x42x52 mm
Weight	206g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description	K5230.2P.0x
Digital conversion resolution	12bit
Probe temperature range	-100°C to +300°C
Maximum altitude	2000m a.s.l.
Accuracy	±0,2°C
Space occupied on input data	4 byte
Module absorption with inserted probes +24V DC logic and inputs	25mA
Permissible cable length	<30m

5.4.5.2 4-input Pt100 module kit

5.4.5.2.1 Product identification



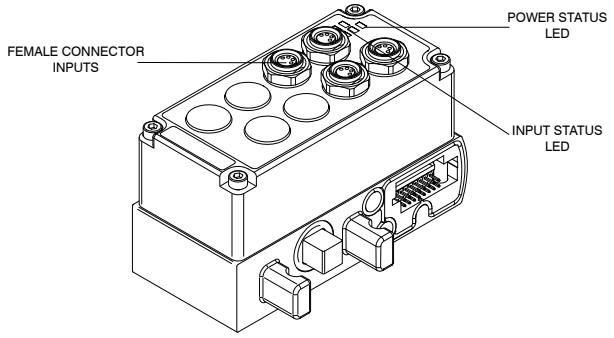
COMPATIBILITY

	3100 EVO	3400 EVO
K5230.4P.0x	●	●

5.4.5.2.2 Specific safety warnings

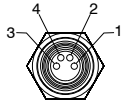
All safety warnings given in the 'Safety Warnings' section apply.

5.4.5.2.3 Product Overview



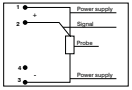
- **Signal Connections**

M8 4P Female connector



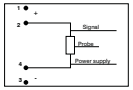
3-wire probe connection

PIN	DESCRIPTION
1	POWER SUPPLY +
2	SENSOR +
3	POWER SUPPLY -
4	N.C.
THREADING	FE



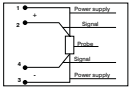
2-wire probe connection

PIN	DESCRIPTION
1	N.C.
2	SENSOR +
3	POWER SUPPLY -
4	N.C.
THREADING	FE



4-wire probe connection

PIN	DESCRIPTION
1	POWER SUPPLY +
2	SENSOR +
3	POWER SUPPLY -
4	SENSOR -
THREADING	FE



Bit correspondence per channel

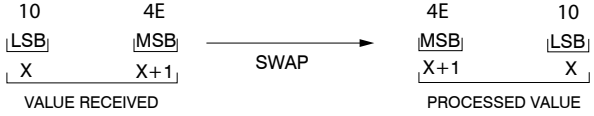
The number 'x' of the Byte that each channel is composed of depends on the battery configuration.
Thus, considering the 2 Bytes that each channel is composed of, the 4 least significant bits of the Least Significant Byte are always set to zero.

MSB bit	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
	IN Bit 11	IN Bit 10	IN Bit 9	IN Bit 8	IN Bit 7	IN Bit 6	IN Bit 5	IN Bit 4
byte	byte x + 3				byte x + 2			

LSB bit	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	IN Bit 3	IN Bit 2	IN Bit 1	IN Bit 0	0	0	0	0
byte	byte x + 1				byte x			

Value processing example

Note : Values are expressed in hexadecimal



Point-temperature conversion formula

$$Temperature\ [°C] = \left(\frac{Points}{4095} \times 400\right) - 100$$

5.4.5.2.4 Installation and Commissioning

The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

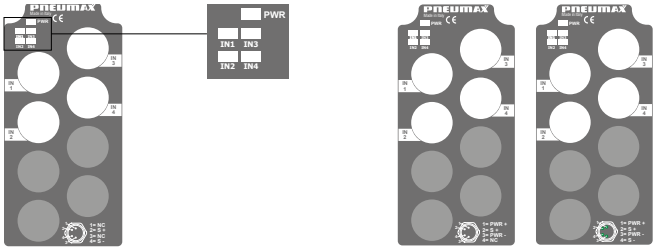
Caution

For critical environments, the use of shielded cables and connectors is recommended.

Always observe the tightening torques given in the table at "Tightening torques".

If a connector is not used, to ensure IP65 protection, the appropriate plug Code 5300. T12 must be installed with a tightening torque as indicated in the table at "Tightening torques"

LED STATUS INDICATORS



Name	Description	Status		
PWR	Presence of +24V DC power supply, logic and inputs		GREEN	Power supply presence
			GREEN	Module not powered
IN1...IN4	Input status		GREEN	Probe connected, valid reading
			RED	Out-of-range reading
			YELLOW	Probe not connected

ENGLISH

5.4.5.2.5 Technical Data

Mechanical Technical Data

Description	K5230.4P.0x
Dimensions	90x42x52 mm
Weight	220g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

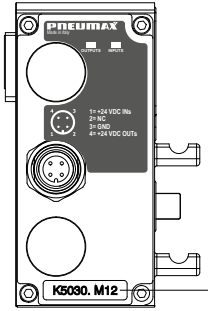
Electrical Technical Data

Description	K5230.4P.0x
Digital conversion resolution	12bit
Probe temperature range	-100°C to +300°C
Maximum altitude	2000m a.s.l.
Accuracy	±0,2°C
Space occupied on input data	8 byte
Module absorption with inserted probes +24V DC logic and inputs	35mA
Permissible cable length	<30m

3000 EVO
Additional power supply module

5.4.6 Additional power supply module

5.4.6.1 Product identification



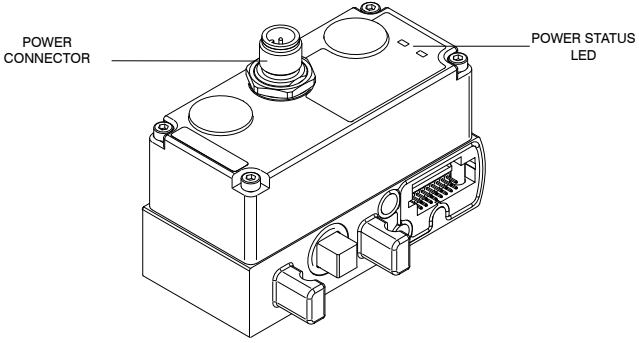
COMPATIBILITY

	3100 EVO	3400 EVO
K5030.M12	●	●

5.4.6.2 Specific safety warnings

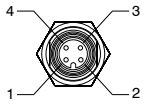
All safety warnings given in the 'Safety Warnings' section apply.

5.4.6.3 Product overview



- **Signal Connections**

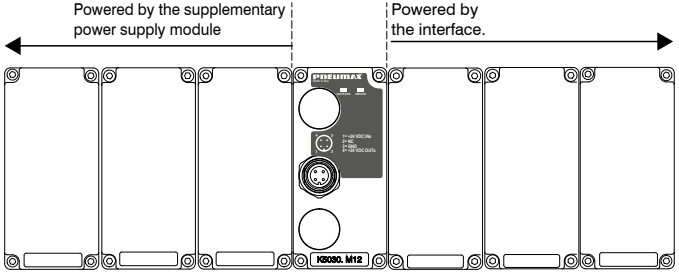
M12 A- Coding 4P MALE



PIN	DESCRIPTION	MAX CURRENT
1	+24V DC logic and inputs	4A
2	N.C.	-
3	0V DC	4A
4	+24V DC (OUTPUTS)	4A
THREADING	F.E.	

5.4.6.4 Installation and Commissioning

The module provides additional power supply to the modules downstream of it, resetting the current limits of the interface (see section 'current limits').



The cable connectors to be used are shown in the annex 'Connector Counterparts'. However, other connectors with equivalent specifications can be used.

Caution
The reference voltage (0V DC) must be the same as the main interface
Always observe the tightening torques given in the table under "Tightening torques".

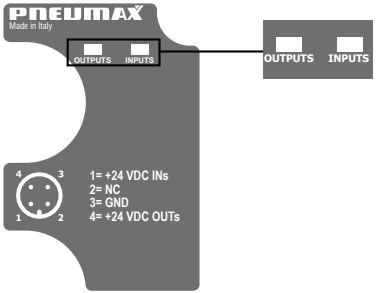
The additional power supply module does not supply EVs on the manifold.

ENGLISH

Overall dimensions and technical information are given for information only and may be changed without notice

3000 EVO
Additional power supply module

LED STATUS INDICATORS



Name	Description	Status		
INPUTS	Power supply +24V DC logic and module inputs placed 'downstream'.		GREEN	Power supply presence
				No power supply
OUTPUTS	Power supply +24V DC outputs of modules placed 'downstream'.		GREEN	Power supply presence
				No power supply

5.4.6.5 Technical Data

Mechanical Technical Data

Description	K5230.2P.0x
Dimensions	90x42x52 mm
Weight	206g
Body material	Filled technopolymer
Operating temperature	-5°C to 50°C
Storage temperature	-5°C to 50°C
Degree of protection	IP65 (when mounted)

Electrical Technical Data

Description		K5230.2P.0x
Power supply	Supply voltage	+24V DC ±10%
	Polarity reverse protection	yes
	Maximum altitude	2000m a.s.l.

Overall dimensions and technical information are given for information only and may be changed without notice

6. ANNEXES

6.1 Cable and connector counterparts

Connectors for POWER SUPPLY

Straight M12A 4P female connector

Coding: 5312A.F04.00
Power supply socket

Top view of the slave connector

PIN	DESCRIPTION
1	+ 24V DC (LOGIC AND INPUTS)
2	N.C.
3	0 V
4	+ 24V DC (OUTPUTS)

Connectors for NETWORK

Straight M12A 5P female connector

Coding: 5312A.F05.00
Socket for CANNopen® e IO-Link

Top view of the slave connector

PIN	DESCRIPTION
1	(CAN_SHIELD)
2	(CAN_V+)
3	CAN_GND
4	CAN_H
5	CAN_L

Straight connector M12A 5P male

Coding: 5312A.M05.00
CANopen® bus plug

Top view of the slave connector

PIN	DESCRIPTION
1	(CAN_SHIELD)
2	(CAN_V+)
3	CAN_GND
4	CAN_H
5	CAN_L

Straight M12D 4P male connector

Coding: 5312D.M04.00
Plug for EtherCAT® bus, PROFINET IO RT and EtherNet/IP

Top view of the slave connector

PIN	SIGNALE	DESCRIPTION
1	TX+	EtherNet Transmit High
2	RX+	EtherNet Receive High
3	TX-	EtherNet Transmit Low
4	RX-	EtherNet Receive Low

Trademarks : EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Connectors for NETWORK

Straight shielded connector M12D 4P male

Codifica: 5312D.SH.M04.00
Spina per bus EtherCAT®, PROFINET IO RT e EtherNet/IP, CC-Link IE FIELD BASIC

Top view of the slave connector

PIN	SIGNALE	DESCRIPTION
1	TX+	EtherNet Transmit High
2	RX+	EtherNet Receive High
3	TX-	EtherNet Transmit Low
4	RX-	EtherNet Receive Low

Trademarks : EtherCAT® is registered trademark and patented technology,licensed by Beckhoff Automation GmbH, Germany.

Straight M12B 5P female connector

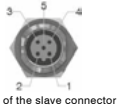
Coding: 5312 B.F05.00
PROFIBUS DP bus socket

Top view of the slave connector

PIN	DESCRIPTION
1	PowerSupply
2	A-Line
3	DGND
4	B-Line
5	SHIELD

Straight connector M12B 5P male

Coding: 5312B.M05.00
PROFIBUS DP bus socket



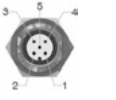
Top view of the slave connector

PIN	DESCRIPTION
1	PowerS
2	A-Line
3	DGND
4	B-Line
5	SHIELD

Connectors for INPUTS

Straight connector M12A 5P male

Coding: 5312A.M05.00
Plug for input modules



Top view of the slave connector

PIN	DESCRPTION
1	+24VDC
2	INPUT B
3	0V
4	INPUT A
5	N.C.

Straight M8 3P male connector

Coding: 5308A.M03.00
Plug for input modules

Top view of the slave connector

PIN	DESCRIZIONE
1	+24VDC
4	INPUT
3	0V

Dynamic cable laying with pre-wired end, 25 Poles, IP65

Coding: 2300.25. L.C

L	LUNGHEZZA CAVO
	03 = 3 metri
	05 = 5 metri
	10 = 10 metri

C	CONNETTORE
	10 = In linea
	90 = A 90°

Dynamic cable laying with pre-wired end, 37 Poles, IP65

Coding: 2300.37. L.C

L	LUNGHEZZA CAVO
	03 = 3 metri
	05 = 5 metri
	10 = 10 metri

C	CONNETTORE
	10 = In linea
	90 = A 90°

Dynamic cable laying with pre-wired end, 44 Poles, IP65

Coding: 2300.44. L.C

L	LUNGHEZZA CAVO
	03 = 3 metri
	05 = 5 metri
	10 = 10 metri

C	CONNETTORE
	10 = In linea
	90 = A 90°

Dynamic cable laying with pre-wired end, 25 Poles, IP65

Coding: 2400.25.L.25

L	LUNGHEZZA CAVO
	03 = 3 metri
	05 = 5 metri
	10 = 10 metri

Dynamic cable laying with pre-wired end, 37 Poles, IP65

Coding: 2400.37.L.37

L	LUNGHEZZA CAVO
	03 = 3 metri
	05 = 5 metri
	10 = 10 metri

Caps

M12 Cap

Coding: 5300.T12

M8 Cap

Coding: 5300.T08

6.2 Tightening torques

The connectors must all be tightened with the torque indicated in the table. Incorrect tightening does not guarantee electrical contact, IP65 sealing and may damage the product.

Connector type	Tightening torque
M8 connector	0.4 Nm
M12 connector	0.6 Nm
SUB-D connector - TCEIZ 3x16	0.6 Nm
Cap 5300 - T08	0.5 Nm
Cap 5300 - T12	0.7 Nm
CANopen door screws -VAPTRX 3x8	0.5 Nm

7. MAINTENANCE AND CLEANING

Do not connect or disconnect the device when powered! Do not open and/or disassemble live parts. Once the power has been switched off, wait a few minutes before opening or dismantling any parts of the unit.
Remove any dust deposits periodically using a damp cloth.
Do not use aggressive, alcohol-based products.
For maintenance work on internal components, please contact PNEUMAX SPA.

8. HANDLING AND STORAGE CONDITIONS

Handling:
Only transport the product in its original packaging.

Storage:
Store in original packaging to avoid damage from impact.
Observe the temperature conditions indicated in the 'Technical Data'.
Keep the product in stock for the shortest possible time.

9. DISMANTLING AND DISPOSAL

Dismantling the product:
Switch off the power source and compressed air
Disconnect the power cable
Disconnect the power cables

Disposal of the product :
This product must not be disposed of as municipal waste.
Check local regulations and guidelines for proper disposal
this product, in order to reduce the impact on human health and
on the environment.

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