

# CBI-11/12, SBI-11/12

- CBI-11/12 for CANopen interface
- SBI-11/12 for RS-485 interface, miscellaneous protocols
- 16 galvanic isolated input circuits
- DC and AC input signals allowed
- 2 isolated sections
- Removable screw terminal boxes
- Indication input LEDs, digital input filters
- Input circuits according to EN 61131-2 type 1
- Easy DIN rail assembly

## General information

CBI-11/12 is a CANopen interface peripheral unit with 16 galvanic isolated inputs.

SBI-11/12 is a serial RS485 interface peripheral unit with 16 galvanic isolated inputs. Default firmware supports Profibus/EpsNet, Modbus and Profibus DP (under development) communication protocols.

There are universal bipolar inputs in CBI/SBI-11. These can be individually wired with common plus or minus. Electronic divider develops a half of supply voltage as a virtual common wire for all inputs. Thus an input signal can be switched to plus or minus pole of supply and sensors with npn or pnp outputs are applicable even within the same input section.

There are universal bipolar inputs in CBI/SBI-12 too. But these have one common wire for the whole input section. Thus a common plus or minus should be selected for section depending on sensor type (npn or pnp) connected. Input circuits are designed according to an EN 61131-2 directive (type 1 input). Two-wire or three wire sensors can be wired to. Unit configuration (input signal filter setting) enables AC input voltages too.

There are bus connectors and bus address switches on the front panel. InCo bridge connectors (see ) or 10-wire flat cables utilize bus interconnection including communication signals and supply voltage. LEDs indicate input states.

The unit is encapsulated in a compact DIN rail box. It has removable input screw terminal boxes.

## INPUT SIGNAL CONNECTION

Reference potential for CBI/SBI-11 bipolar inputs is derived from external 24V supply by electronic divider. Thus positive and negative potential related inputs are allowed. Pnp or npn open collector output type sensors can be used individually observing the right polarity.

CBI/SBI-12 bipolar input circuits have one common wire for the whole section. Common plus or minus potentials are selected as needed. Increased 8mA input current allows two-wire 24V sensor use. Sensors can have 0,5mA max. load current.

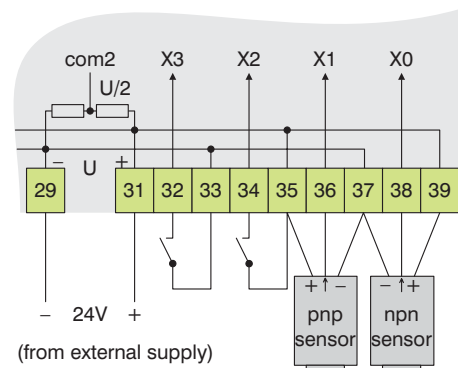
## ORDER INFORMATION

Type	Order nr.	Version
CBI-11	EI5831.21	universal inputs 24 V=, CANopen interface
CBI-12	EI5832.11	bipolar inputs 12 V=, 12 V~, CANopen interface
CBI-12	EI5832.21	bipolar inputs 24 V=, 24 V~, CANopen interface
SBI-11	EI5531.21	universal inputs 24 V=, RS-485 interface, EpsNet, Modbus protocols
SBI-12	EI5532.11	bipolar inputs 12 V=, 12 V~, RS-485 interface, EpsNet, Modbus protocols
SBI-12	EI5532.21	bipolar inputs 24 V=, 24 V~, RS-485 interface, EpsNet, Modbus protocols

Accessories: InCo-xx, ICM-11 – bridge connectors  
 SMI-11/13 – galvanic RS-485 isolation / RS-232 to RS-485 converter  
 Unit type labels

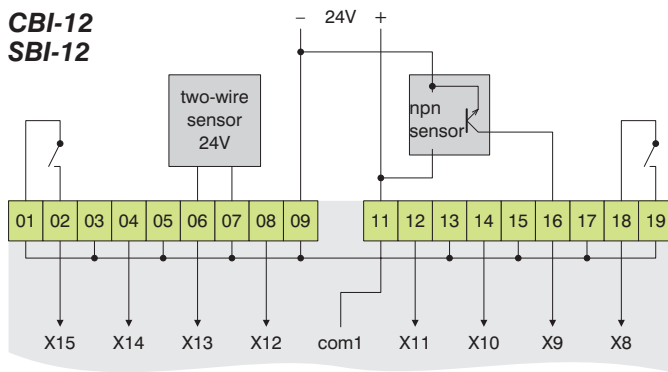


CBI-11  
SBI-11



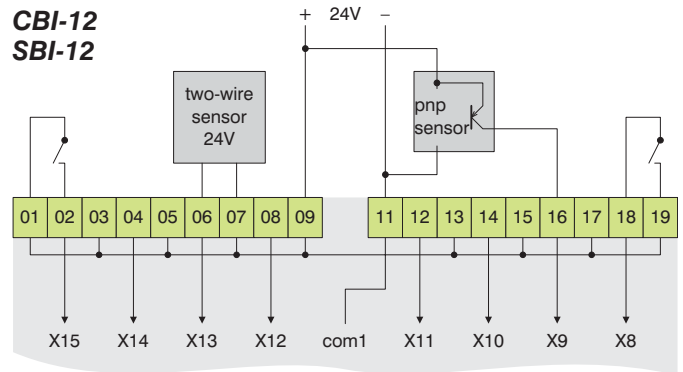
# CANopen/serial module 16 logic inputs

## CBI-12 SBI-12



Common minus potential CBI/SBI-12 input wiring

## CBI-12 SBI-12



Common plus potential CBI/SBI-12 input wiring

## SPECIFICATIONS

### CBI-11/12

Communication protocol CAN 2.0A / CANopen  
Transfer rate typ. 500 kb/s

### SBI-11/12

Communication protocol Profibus/EpsNet, Modbus  
Transfer rate 300 ÷ 115200 Bd

Total input count 16  
Section input count 8  
Input isolation 2500 V AC / 1 min  
Supply voltage/power 10 ÷ 30 V / 1,5 W  
Module outline w × h × d 106 × 90 × 73 mm  
Operation temperature range -10 °C ÷ 50 °C  
Input signal filter digital, 1 ÷ 255 ms

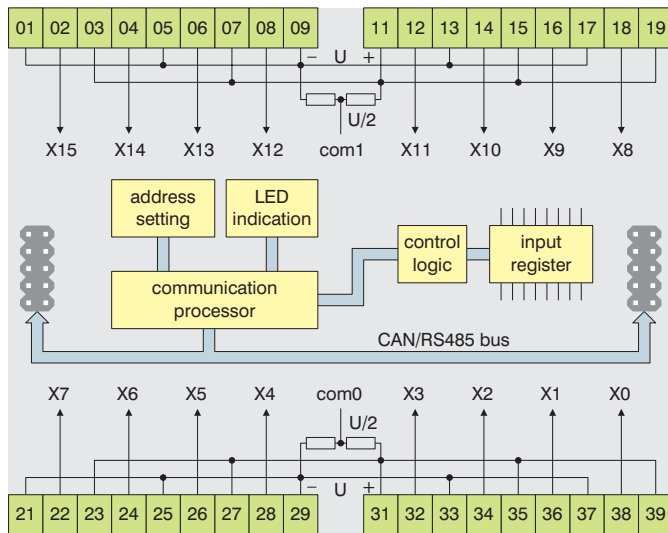
### CBI-12/SBI-12

	EI5x32.11	EI5x32.21
Inputs according to EN 61131-2	type 1	type 1
Input voltages	log. 0 max	2,4 V=
	log. 1 min	5,6 V=
	log. 1 typ	12 V=
	log. 1 max	15 V=
Input voltage		30 V=
	max. (1 s)	26 V=
Input current		40 V=
	log. 1, typ	10 mA
Max. input current		8 mA
	log. 0	0,5 mA

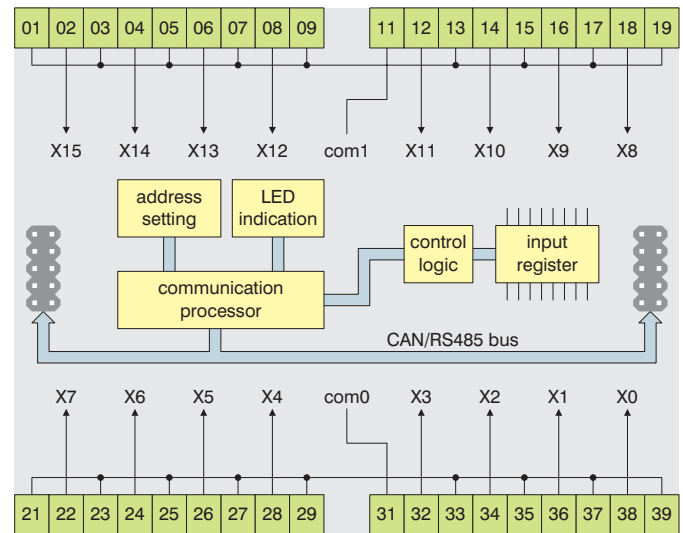
### CBI-11/SBI-11

	EI5x31.21
Supply voltage for inputs $U_{in}$	24 V, -15 % +20 %
Max. switch voltage loss	6 V for $U_{in} = 24 V$
	2 V for $U_{in} = 20 V$
Short circuit current	8 mA for $U_{in} = 24 V$

## BLOCK DIAGRAM AND SCREW TERMINAL POSITION



CBI/SBI-11 block diagram



CBI/SBI-12 block diagram

# CBO-11/12, SBO-11/12

- CBO-11/12 for CANopen interface
- SBO-11/12 for RS-485 interface, miscellaneous protocols
- 12 relays with 250 VAC / 8 A switches
- Removable screw terminal boxes
- CBO/SBO-11 has fast fuse for every section
- CBO/SBO-12 has separate screw terminals for all switch terminals.
- Output indication LEDs
- Easy DIN rail assembly

## GENERAL INFORMATION

CBO-11/12 is a CANopen interface peripheral unit with 12 galvanic isolated outputs.

SBO-11/12 is a RS485 serial interface peripheral unit with 12 galvanic isolated outputs. Default firmware supports Profibus/EpsNet, Modbus and Profibus DP (under development) communication protocols.

There are relays used as switch elements. 250VAC relay switches utilize direct power-line load driving. For CBO/SBO-11 these switches are divided into 4 sections. Single phase loads, e.g. contactors, solenoid valves, servo-drives can be driven. Every section contains safety fuse. CBO/SBO-12 has separate screw terminals for all switch terminals. Switches utilize single phase power line load driving, e.g. contactors, solenoid valves, servo-drives etc. Output circuits are designed for reliable relay switch-off when communication with controller breaks.

There are bus connectors and bus address switches on the front panel. InCo bridge connectors (see ) or 10-wire flat cables utilize bus interconnection including communication signals and supply voltage. LEDs indicate output states.

The unit is encapsulated in a compact DIN rail box. It has removable input screw terminal boxes.



## SPECIFICATIONS

### CBO-11/12

Communication protocol	CAN 2.0A / CANopen
Transfer rate	typ. 500 kb/s

### SBO-11/12

Communication protocol	Profibus/EpsNet, Modbus
Transfer rate	300 ÷ 115200 Bd

Total output count	12, relay contact
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Relay contact parameters	250 V AC / 8 A 24 V DC / 8 A
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Switch-on contact resistivity	max. 30 mΩ
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Max. screw terminal current allowed	4 A
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Max voltage switched	250 V AC, 24 V DC=
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Max. power switched	1000 VA / 100 W
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Switch-on / off time	8 ms / 6 ms
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Contact lifetime	
– mechanical	5 × 10 <sup>6</sup> operations
– electrical (for 4 A current)	2 × 10 <sup>5</sup> operations

Isolation	4000 V AC / 1 min
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Supply voltage / current	10 ÷ 30 V / max 4 W
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Module outline w × h × d	106 × 90 × 73 mm
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Operation temperature range	–10 °C ÷ 50 °C
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## ORDER INFORMATION

Typ	Order nr.	Version
CBO-11	EI5821.00	standard, CANopen interface
CBO-12	EI5822.00	standard, CANopen interface
SBO-11	EI5521.00	standard, RS-485 interface, EpsNet, Modbus protocols
SBO-12	EI5522.00	standard, RS-485 interface, EpsNet, Modbus protocols

Accessories: InCo-xx, ICM-11 – bridge connectors  
 SMI-11/13 – galvanic RS-485 isolation / RS-232 to RS-485 converter  
 Unit type labels



# CBIO-11/12, SBIO-11/12

- **CBIO-11/12 for CANopen interface**
- **SBIO-11/12 for RS-485 serial interface, miscellaneous protocols**
- **8 galvanic isolated 12 / 24 V inputs**
- **DC and AC input signals allowed**
- **Digital input filters**
- **8 relays with 250 V AC / 8 A switches**
- **Removable screw terminal boxes**
- **CBIO/SBIO-11 has fast fuse for every section**
- **CBIO/SBIO-12 has separate screw terminals for all switch terminals**
- **Input and output indication LEDs**
- **Easy DIN rail assembly**

## GENERAL INFORMATION

CBIO-11/12 is an input/output peripheral unit for CANopen interface.

SBIO-11/12 is an input/output peripheral unit for RS485 serial interface. Default firmware supports Profibus/EpsNet, Modbus and Profibus DP (under development) communication protocols.

The unit contains 8 logic inputs and 8 relay outputs. These galvanic isolated inputs accept 12V bipolar input voltage range or 24V range related to one common wire. Common plus or minus wiring is possible depending on sensor type (npn or pnp) used. Microcontroller unit features digital input signal filtering. Unit configuration (input signal filter setting) enables AC input voltage too.

There are relays used as switch elements. 250VAC relay switches utilize direct power-line load driving. Output circuits are designed for reliable relay switch-off when communication with controller breaks.

CBIO-SBIO-11 switches are divided into 3 sections. Single phase loads, e.g. contactors, solenoid valves, servo-drives can be driven. There is a safety fuse in every section.

CBIO/SBIO-12 has separate screw terminals for all switch terminals. Switches utilize single phase power line load driving, e.g. contactors, solenoid valves, servo-drives etc.

There are bus connectors and bus address switches on the front panel. InCo bridge connectors (see ) or 10-wire flat cables



utilize bus interconnection including communication signals and supply voltage. LEDs indicate input and output states.

The unit is encapsulated in a compact DIN rail box. It has removable input screw terminal boxes.

## ORDER INFORMATION

Typ	Order nr.	Version
CBIO-11	EI5851.10	bipolar inputs 12 V =/~, CANopen interface
	EI5851.20	bipolar inputs 24 V =/~, CANopen interface
CBIO-12	EI5852.10	bipolar inputs 12 V =/~, CANopen interface
	EI5852.20	bipolar inputs 24 V =/~, CANopen interface
SBIO-11	EI5551.10	bipolar inputs 12 V =/~, RS-485 interface, EpsNet, Modbus protocols
	EI5551.20	bipolar inputs 24 V =/~, RS-485 interface, EpsNet, Modbus protocols
SBIO-12	EI5552.10	bipolar inputs 12 V =/~, RS-485 interface, EpsNet, Modbus protocols
	EI5552.20	bipolar inputs 24 V =/~, RS-485 interface, EpsNet, Modbus protocols

Accessories: InCo-xx, ICM-11 – bridge connectors  
SMI-11/13 – galvanic RS-485 isolation / RS-232 to RS-485 converter  
Unit type labels





