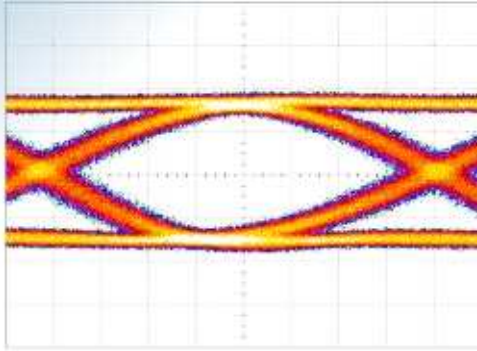




SHF Communication Technologies AG,
Wilhelm-von-Siemens-Str. 23 D • 12277 Berlin • Germany
Phone ++49 30 / 77 20 51 69 • Fax ++49 30 / 77 02 98 48
E-Mail: automation@shf.de • Web: <http://www.shf.de>



Data Sheet EC-BOUT32





Revision History

Revision	Changes	Date	Author
1	-	May 28 th in 2010	Schammer
2	Exchange/Addition of photos, Removing of state "Preliminary"	Jan 20 th 2011	Schammer



Data Sheet EC-BOUT32

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1. Application Range

The EC-BOUT32 module was developed for the generation of binary signals. The binary values are transmitted by the EtherCAT®¹ fieldbus. The module is designed for DIN rail assembly.

The module has 32 binary inputs.

2. Supported Output Voltages

The module is designed for 12 and 24V output signals. The maximum load current is 0.5A per channel.

The connection of the peripheral signals is accomplished by pluggable spring cage connectors.

3. Hardware Description

The module is made of three functional hardware blocks.

3.1. Binary Output Circuit

The output drivers are shorted circuit and over temperature protected. If an error occurs the output drivers switch off automatically. They are galvanic isolated from the EtherCAT®-interface.

The 32 channels are separated into 4 groups with 8 outputs each. The groups are powered separately. The power supplies are reverse polarity protected. The 4 groups are galvanic isolated among themselves.

3.2. EtherCAT®-Connection

The module has two Ethernet interfaces each with one yellow and one green LED. The yellow LED signalizes an Ethernet connection with 100MB, the green data transfer.

One interface serves as an input, the other as output to the next EtherCAT® slave or is unconnected if the module is the last inside the chain. Both interfaces support auto crossover (MDI/MDIX).

Furthermore there is a green LED at the front side displaying the EtherCAT® state with different blink sequences.

3.3. Power Supply

The module is powered by 24V±30%. All supply voltages necessary for the different functional blocks are generated internally. The power needed is about 2W. The power supply is galvanic isolated from the other parts of the module.

¹ EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany



4. Programming and Memory Mapping of the EtherCAT®-Slave Controller

4.1. Programming of SyncManagers

The integrated circuit ET1100 of Beckhoff Automation GmbH is used as the EtherCAT® – slave controller. It is responsible for the data exchange between application layer and the binary outputs. There for one SyncManagers (SM) of the ET1100 is used. The SM operates in 3 buffer mode ensuring data consistency. The outputs are latched at EOF.

SM	address	value	Explanation
SM0	0x800	0x1000	Start address of binary outputs
	0x802	0x0004	Length in Byte
	0x804	0x0004	write, 3buffer
	0x806	0x0001	Enable (set after 0x800..804 are programmed)

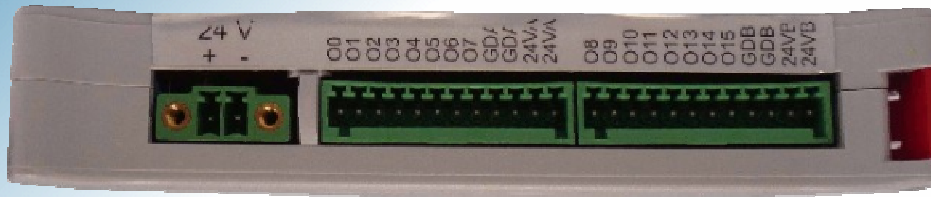
4.2. Data Fields

Input data:

Address	content
0x0F00	Binary outputs 0 till 15
0x0F02	Binary outputs 16 till 31



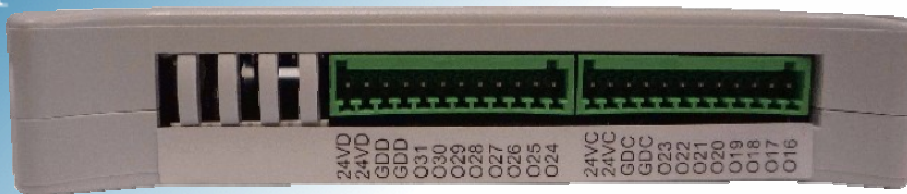
5. Connector Pin Assignment



24V+	Power supply +
24V-	Power supply ground

O0	Binary output 0
O1	Binary output 1
O2	Binary output 2
O3	Binary output 3
O4	Binary output 4
O5	Binary output 5
O6	Binary output 6
O7	Binary output 7
GND0	Ground 0
GND0	Ground 0
24V0	Power supply 0
24V0	Power supply 0

O8	Binary output 8
O9	Binary output 9
O10	Binary output 10
O11	Binary output 11
O12	Binary output 12
O13	Binary output 13
O14	Binary output 14
O15	Binary output 15
GND1	Ground 1
GND1	Ground 1
24V1	Power supply 1
24V1	Power supply 1



O16	Binary output 16
O17	Binary output 17
O18	Binary output 18
O19	Binary output 19
O20	Binary output 20
O21	Binary output 21
O22	Binary output 22
O23	Binary output 23
GND2	Ground 2
GND2	Ground 2
24V2	Power supply 2
24V2	Power supply 2

O24	Binary output 24
O25	Binary output 25
O26	Binary output 26
O27	Binary output 27
O28	Binary output 28
O29	Binary output 29
O30	Binary output 30
O31	Binary output 31
GND3	Ground 3
GND3	Ground 3
24V3	Power supply 3
24V3	Power supply 3



6. Technical Data

EtherCAT®-connection:

2 x RJ45 with LED yellow and green
Every connection with MDI/MDIX (auto crossover)
1 x state-LED, green

Binary Outputs:

Number of channels: 32 (4 groups with 8 channels each)
Output voltage: 10.5 till 24V+30%
Output current: 0.5A per channel
Shorted circuit protection: yes
Over temperature protection: yes
Reverse polarity protection: yes
Galvanic isolation: yes
Isolation voltage: 1000Vrms (Binary outputs – Digital electronic)
1500Vrms (Digital electronic - Ethernet)
500Vrms (between output groups)

Power Supply:

Input voltage: 24V +-30%
Power consumption: <2W

Housing:

Dimensions: 120 x 101 x 22.5 mm
Material: Blend PC/ABS self-extinguishing
Color: grey (other on request)
Assembly: DIN rail
Weight: 135 g incl. connectors

Connector for Power Supply:

Type: Phoenix FK-MC 1,5/2-STF-3,5
Type of connection: screw connection
Color: green
No. of positions: 2
Conductor cross-section: 0.14 - 1.5mm²
Stripped insulation length: 7 mm

Connectors for Peripheral Signals:

Type: Phoenix FK-MC 0,5/12-ST-2,5
Type of connection: spring-cage
Color: green
No. of positions: 12
Conductor cross-section: 0.14 - 0.5mm²
Stripped insulation length: 8 mm

Ambient Conditions

Humidity: 5% until 95% without condensation
Operating temperature: 0°C to + 55° C
Storage temperature: -40°C to +85° C



Electromagnetic Compatibility

Emissions:	EN61000-6-2:2001
Immunity:	EN61000-6-4:2001

7. Ordering Information

EC-AIN8: **100 43 16**

All necessary connectors are included.