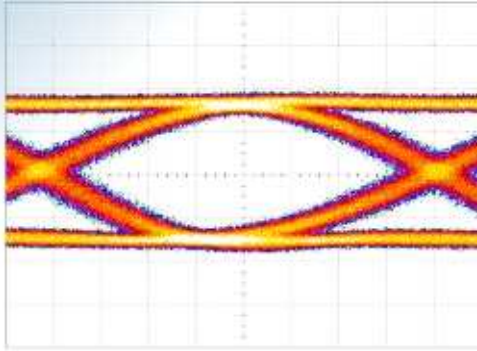




SHF Communication Technologies AG,
Wilhelm-von-Siemens-Str. 23 D • 12277 Berlin • Germany
Phone ++49 30 / 77 20 51 69 • Fax ++49 30 / 77 02 98 48
E-Mail: automation@shf.de • Web: <http://www.shf.de>



Data Sheet EC-BIN32





Revision History

Revision	Changes	Date	Author
1	-	May 25 th in 2010	Schammer
2	Specification of technical data (threshold, input filter delay) Correction of typing errors	July 12 th in 2010	Schammer
3	Exchange/Addition of photos, Removing of state "Preliminary"	Jan 20 th 2011	Schammer



Data Sheet EC-BIN32

Contents

1. Application Range.....	4
2. Connectable Signals	4
3. Hardware Description	4
3.1. Binary Input Circuit	4
3.2. EtherCAT®-Connection	4
3.3. Power Supply	4
4. Programming and Memory Mapping of the EtherCAT®-Slave Controller	4
4.1. Programming of SyncManagers.....	4
4.2. Data Fields.....	5
5. Connector Pin Assignment.....	6
6. Technical Data.....	8
7. Ordering Information	9



1. Application Range

The EC-BIN32 module was developed for the acquisition 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. Connectable Signals

The module is designed for 24V signals. The threshold is about 10V. Other input voltages are possible on request.

The connection of the peripheral signals is accomplished by pluggable spring cage connectors. There is one ground connection for two binary inputs.

3. Hardware Description

The module is made of three functional hardware blocks.

3.1. Binary Input Circuit

The binary inputs are accomplished as constant current drain with a current of about 2mA. They are galvanic isolated from the EtherCAT®-interface. Furthermore all 16 pairs are galvanic isolated among themselves.

The inputs are equipped with input filters for noise suppression. It has a delay of about 4ms. Other filters are possible on request.

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.

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

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



binary inputs. There for one SyncManagers (SM) of the ET1100 is used. The SM operates in 3 buffer mode ensuring data consistency. The inputs are latched at start of frame.

SM	address	value	Explanation
SM0	0x800	0x1000	Start address of binary inputs
	0x802	0x0004	Length in Byte
	0x804	0x0010	Read, 3buffer, ECAT IRQ
	0x806	0x0001	Enable (set after 0x800..804 are programmed)

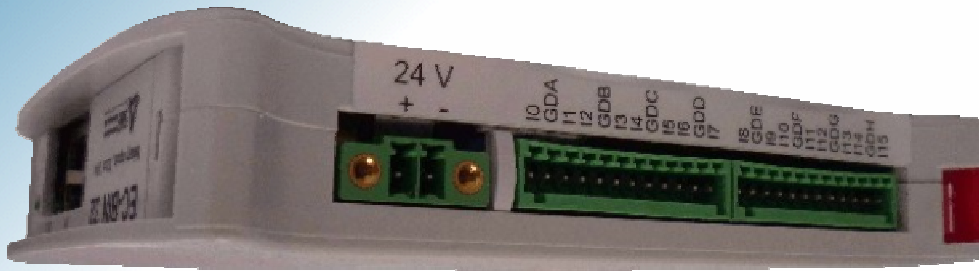
4.2. Data Fields

Input data:

Address	content
0x1000	Binary inputs 0 till 15
0x1002	Binary inputs 16 till 31



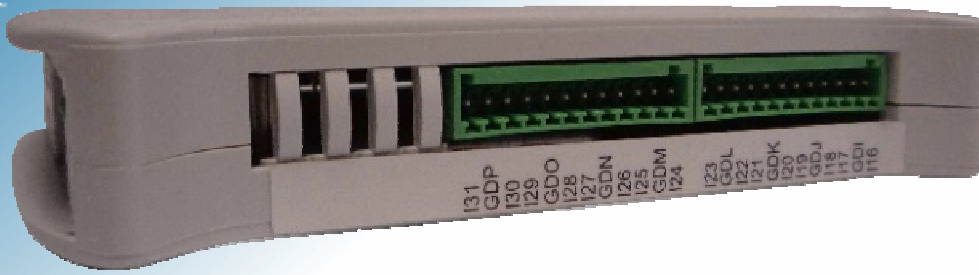
5. Connector Pin Assignment



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

I0	Binary input 0
GDA	Ground for I0 and 1
I1	Binary input 1
I2	Binary input 2
GDB	Ground for I2 and 3
I3	Binary input 3
I4	Binary input 4
GDC	Ground for I4 and 5
I5	Binary input 5
I6	Binary input 6
GDD	Ground for I6 and 7
I7	Binary input 7

I8	Binary input 8
GDE	Ground for I8 and 9
I9	Binary input 9
I10	Binary input 10
GDF	Ground for I10 and 11
I11	Binary input 11
I12	Binary input 12
GDG	Ground for I12 and 13
I13	Binary input 13
I14	Binary input 14
GDH	Ground for I14 and 15
I15	Binary input 15



I16	Binary input 16
GDI	Ground for I16 and 17
I17	Binary input 17
I18	Binary input 18
GDJ	Ground for I18 and 19
I19	Binary input 19
I20	Binary input 20
GDK	Ground for I20 and 21
I21	Binary input 21
I22	Binary input 22
GDL	Ground for I22 and 23
I23	Binary input 23

I24	Binary input 24
GDM	Ground for I24 and 25
I25	Binary input 25
I26	Binary input 26
GDN	Ground for I26 and 27
I27	Binary input 27
I28	Binary input 28
GDO	Ground for I28 and 29
I29	Binary input 29
I30	Binary input 30
GDP	Ground for I30 and 31
I31	Binary input 31



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 Inputs:

Number of channels: 32
Type: constant current drain
Input current: ca. 2mA
Input voltage: 24V (other on request)
Threshold: 10V \pm 2V
Delay of the input filter: 4ms \pm 50%
Galvanic isolation: yes
Isolation voltage: 1000Vrms (analog inputs - digital electronic)
1500Vrms (digital electronic - Ethernet)
250Vrms (binary input pairs among themselves)

Power Supply:

Input voltage: 24V \pm 30%
Power consumption: <2W

Housing:

Dimensions: 120 x 101 x 22,5 mm
Material: Blend PC/ABS self-extinguishing
Color: grey
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-BIN32: **100 43 14**

All necessary connectors are included.