

**EtherCAT**®

# **SLAVE I/O MODULE**

*Communication with open field networks*

**BO - ID · OD · MD · OR · OC Series**

# BO-□D

## EtherCAT® SLAVE I/O MODULE

- Easily visible LED indicators to do diagnosis.
- Space-saving, Wire-saving and Time-saving.
- Apply to different types of PLC/CNC controllers.
- Communication with open field networks.



### BO-□D Series Technical Data

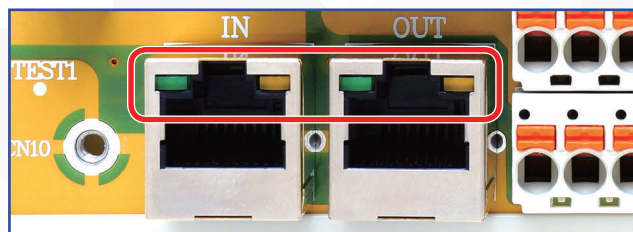
Series Name	BO-□D Series	Distributed Clock	1ms
Serial Interface	Fast Ethernet, Full-Duplex	Transmission Speed	100Mbps
Cable Type	CAT5 UTP / STP Ethernet Cable	Power Consumption	3W typical
Surge Protection	10KV	Response Time	On to Off, about 50μs
I/O Isolation Voltage	2.5 KVrms		Off to On, about 8μs
Power Input Voltage	+24V DC ± 10%	Working Temperature	0 ~ 60° C

### EtherCAT Indicators



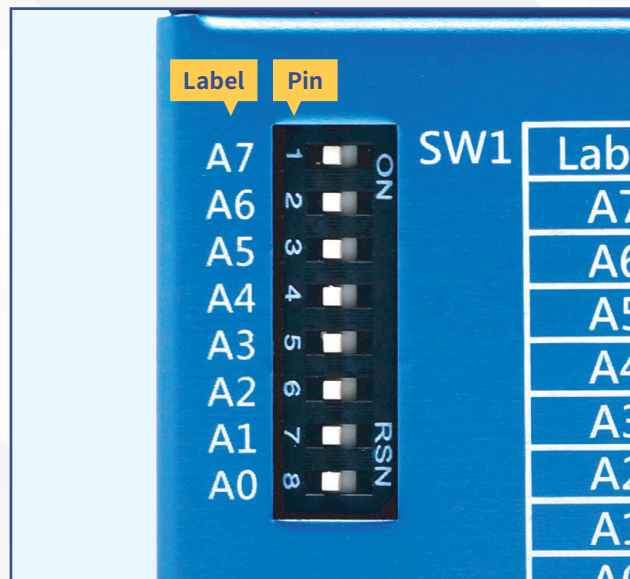
P0	Yellow Light	DC +24V In Normal Level
P1	Yellow Light	DC +5V Supply for Internal
R	Green Light	In Normal Communication
E	Red Light	Error Communication

### RJ45 Indicators



Link / Activity Indicator	
Light Color	Yellow Light
Blinking	There is activity on this port
Off	No link is established
Speed Indicator	
Light Color	Green Light
Green On	Operating as a 100 / 1000-Mbps connection
Off	Operating as a 10-Mbps connection

### DIP Switch for Address Setting



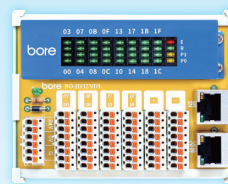
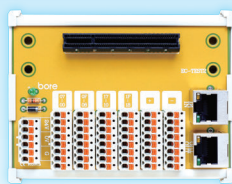
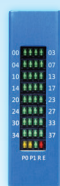
※ Node Number =  $128 \cdot A7 + 64 \cdot A6 + 32 \cdot A5 + 16 \cdot A4 + 8 \cdot A3 + 4 \cdot A2 + 2 \cdot A1 + 1 \cdot A0$

※ Default values are all off.

Pin	Label	On	Off
1	A7	1	0
2	A6	1	0
3	A5	1	0
4	A4	1	0
5	A3	1	0
6	A2	1	0
7	A1	1	0
8	A0	1	0

# BO-ID 32ND1 32 Channel Digital Input Slave Module

32 IN



EtherCAT<sup>®</sup>  
EC-ID32

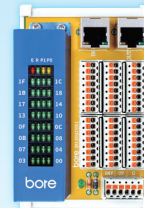
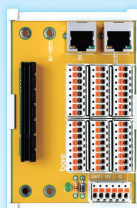
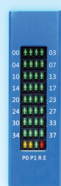
INTERFACE MODULE  
NJ-XV32ID1

EtherCAT SLAVE MODULE  
BO-ID32ND1

Terminal Block Type	WAGO 3.5mm PUSH-IN Type Terminal Block	Input Impedance	5.6KΩ / 0.5W
Input Type	NPN type	Input Current	± 5mA ( Max )

# BO-ID 32NK1 32-Channel Digital Input Slave Module

32 IN



EtherCAT<sup>®</sup>  
EC-ID32

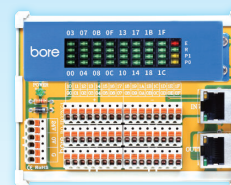
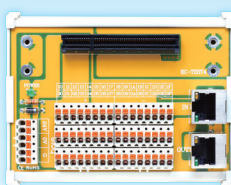
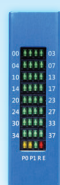
INTERFACE MODULE  
NJ-XV32IK1

EtherCAT SLAVE MODULE  
BO-ID32NK1

Terminal Block Type	WAGO 3.5mm Pluggable PCB Terminal Block & Male Header	Input Impedance	5.6KΩ / 0.5W
Input Type	NPN type	Input Current	± 5mA ( Max )

# BO-ID 32NG1 32-Channel Digital Input Slave Module

32 IN



EtherCAT<sup>®</sup>  
EC-ID32

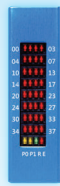
INTERFACE MODULE  
NJ-XV32IG1

EtherCAT SLAVE MODULE  
BO-ID32NG1

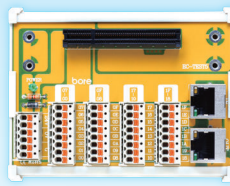
Terminal Block Type	WAGO 3.5mm PUSH-IN Type Terminal Block	Input Impedance	5.6KΩ / 0.5W
Input Type	NPN type	Input Current	± 5mA ( Max )

# BO-OD 32NE 32-Channel Digital Output Slave Module

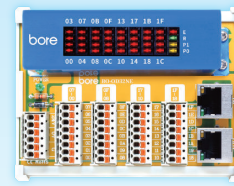
32 OUT



EtherCAT  
EC-OD32



INTERFACE MODULE  
NJ-XV32IE



EtherCAT SLAVE MODULE  
BO-OD32NE

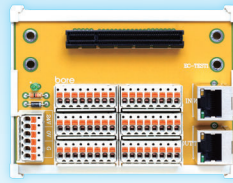
<b>Terminal Block Type</b>	WAGO 3.5mm Pluggable PCB Terminal Block & Male Header	<b>Switch Capacity</b>	Each output Ch. is 100mA at 24VDC
<b>Output Type</b>	NPN type	<b>Overcurrent Protection</b>	1A (Max) for each port ( 8-Ch.)

# BO-MD 32NH1 16-Channel Digital Input and 16-Channel Digital Output Slave Module

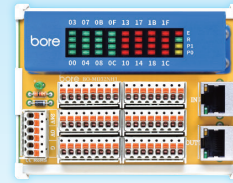
16 IN / 16 OUT



EtherCAT  
EC-MD32



INTERFACE MODULE  
NJ-XV32IH1



EtherCAT SLAVE MODULE  
BO-MD32NH1

<b>Terminal Block Type</b>	WAGO 3.5mm Pluggable PCB Terminal Block & Male Header		
<b>Input Type</b>	NPN type	<b>Output Type</b>	NPN type
<b>Input Impedance</b>	5.6KΩ/0.5W	<b>Switch Capacity</b>	Each output Ch. is 100mA at 24VDC
<b>Input Current</b>	±5mA ( Max )	<b>Overcurrent Protection</b>	1A (Max) for each port ( 8-Ch.)

# BO-□D

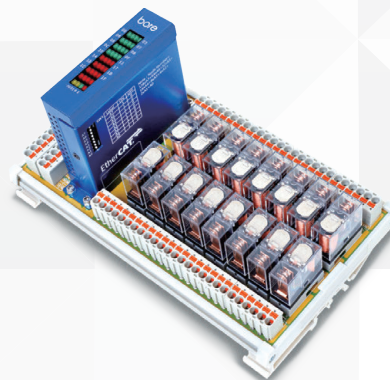
EtherCAT®  
SLAVE I/O MODULE

## PRODUCT LIST

EtherCAT I/O Unit		bore Module		bore EtherCAT Slave I/O Module	Dimension (mm)					IN / OUT	
EC-ID32	+	NJ-XV32ID1	=	BO-ID32ND1	L	110	W	86	H	102.3	32IN
EC-ID32	+	NJ-XV32IK1	=	BO-ID32NK1	L	75.5	W	121	H	102.8	32IN
EC-ID32	+	NJ-XV32IG1	=	BO-ID32NG1	L	110	W	86	H	102.3	32IN
EC-OD32	+	NJ-XV32IE	=	BO-OD32NE	L	110	W	86	H	102.3	32OUT
EC-MD32	+	NJ-XV32IH1	=	BO-MD32NH1	L	110	W	86	H	102.3	16IN / 16OUT

# BO-OR

## EtherCAT<sup>®</sup> SLAVE I/O RELAY MODULE



### BO-OR Series Technical Data

Series Name	BO-OR Series	Distributed Clock	1ms
Serial Interface	Fast Ethernet, Full-Duplex	Transmission Speed	100Mbps
Cable Type	CAT5 UTP / STP Ethernet Cable	Power Consumption	3W typical
Surge Protection	10KV	Response Time	On to Off, about 50μs
I/O Isolation Voltage	2.5 KVrms		Off to On, about 8μs
Power Input Voltage	+24V DC ± 10%	Working Temperature	0 ~ 60° C

### BO-OR Series Relay Data

Relay Model No.	OMRON G2R-1-E-DC24	Resistive Load	AC - 250V : 16A / DC - 30V : 16A
Contact Form	1c ( SPDT )	Inductive Load	AC - 250V : 8A / DC - 30V : 8A
Pole	1 pole	Contact Max. Voltage	AC - 380V / DC - 125V
Coil Rated Voltage	DC - 24V	Contact Max. Current	16A
Dielectric Strength (Between Coil and Contacts)	AC - 5,000V, 50/60 Hz for 1 min		
Dielectric Strength (Between Contacts of The Same Polarity)	AC - 1,000V, 50/60 Hz for 1 min		
Electrical Endurance	min. 100,000 operation ( Specified Load ) ( at operation frequency of 1,800 operations/hr )		
Machanical Endurance	AC min. 100,000 operation ( at operation frequency of 1,800 operations/hr )		
	DC min. 200,000 operation ( at operation frequency of 1,800 operations/hr )		

※ [ EtherCAT Indicators ] 、 [ DIP Switch for Address Setting ] 、 [ RJ45 Indicators ] are same as BO-□D Series.

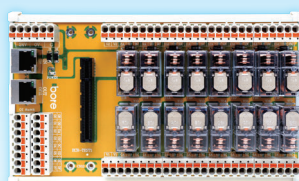
## BO-OR 16MNA-N-O1

16-Channel Digital Input and 16-Channel  
Relay Output Slave Module

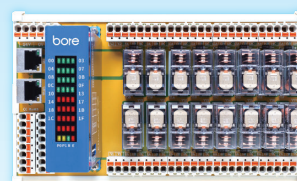
16 IN / 16 OUT



EtherCAT<sup>®</sup>  
EC-MD32



RELAY MODULE  
G2R-OR16VINA-N



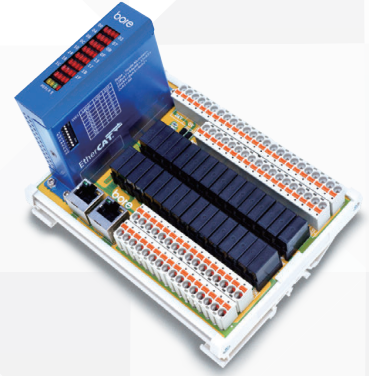
EtherCAT RELAY SLAVE MODULE  
BO-OR16MNA-N-O1

Terminal Block Type	WAGO 5.0 mm PUSH-IN Type Terminal Block		
Input Type	NPN type	Output Type	NPN type
Input Impedance	5.6KΩ / 0.5W	Switch Capacity	Each output Ch. is 100mA at 24VDC
Input Current	±5mA ( Max )	Overcurrent Protection	1A ( Max ) for each port ( 8-Ch. )

# BO-OC

EtherCAT®

## SLAVE I/O RELAY MODULE



### BO-OC Series Technical Data

Series Name	BO-OC Series	Distributed Clock	1ms
Serial Interface	Fast Ethernet, Full-Duplex	Transmission Speed	100Mbps
Cable Type	CAT5 UTP / STP Ethernet Cable	Power Consumption	3W typical
Surge Protection	10KV	Response Time	On to Off, about 50μs
I/O Isolation Voltage	2.5 KVrms		Off to On, about 8μs
Power Input Voltage	+24V DC ± 10%	Working Temperature	0 ~ 60° C

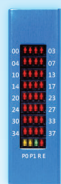
### BO-OC Series Relay Data

Relay Model No.	OMRON G6D-1A-ASI-DC24	Coil Rated Current	8.3 mA
Contact Form	1a ( SPST-NO )	Ratings Contact Rated Load	AC - 250V, 5A / DC - 30V, 5A
Pole	1 pole	Contact Max. Voltage	AC - 250V / DC - 30V
Coil Rated Voltage	DC - 24V	Contact Max. Current	5A
Dielectric Strength (Between Coil and Contacts)	AC - 3,000V, 50/60 Hz for 1 min		
Dielectric Strength (Between Contacts of The Same Polarity)	AC - 750V, 50/60 Hz for 1 min		
Electrical Endurance	min. 70,000 operation ( Resistive Load AC - 250V : 5A / DC - 30V : 5A ) ( at operation frequency of 1,800 operations/hr )		
	min. 300,000 operation ( Resistive Load AC - 250V : 2A / DC - 30V : 2A ) ( at operation frequency of 1,800 operations/hr )		
Machanical Endurance	20,000,000 operations min. ( at 18,000 operations/hr )		

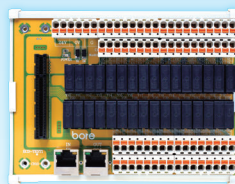
※ [ EtherCAT Indicators ] 、 [ DIP Switch for Address Setting ] 、 [ RJ45 Indicators ] are same as BO-□D Series.

## BO-OC 32DN-02 32-Channel Relay Output Slave Module

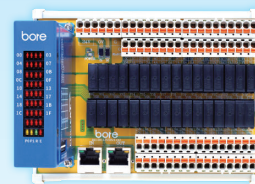
32 OUT



EtherCAT®  
EC-OD32



RELAY MODULE  
G6D-OC32VIN



EtherCAT RELAY SLAVE MODULE  
BO-OC32DN-02

Terminal Block Type	WAGO 5.0 mm PUSH-IN Type Terminal Block	Switch Capacity	Each output Ch. is 100mA at 24VDC
Output Type	NPN type	Overcurrent Protection	1A ( Max ) for each port ( 8-Ch. )

PRODUCT LIST	EtherCAT I/O Unit	bore Module	bore EtherCAT Slave I/O Module	Dimension (mm)				IN / OUT				
	EC-MD32	+	G2R-OR16VINA-N	=	BO-OR16MNA-N-01	L	110	W	121	H	102.8	16IN / 16OUT
	EC-OD32	+	G6D-OC32VIN	=	BO-OC32DN-02	L	153	W	121	H	102.8	32OUT