3.3 EX484

3.3.1 General Information

The EX484 module is a Powerlink bus controller module. It is equipped with an internal hub with four RJ45 connectors.

3.3.2 Order Data

Model No.	Short Description	Image
7EX484.50-1	2003 ETHERNET Powerlink bus controller, 4 ETHERNET Powerlink interfaces, 24 VDC, electrically isolated. Order TB704 terminal block separately.	
0TB704.9	Accessory terminal block, 4 pin, screw clamp, 1.5 mm²	
0TB704.91	Accessory terminal block, 4 pin, cage clamp, 2.5 mm²	

Table 11: EX484 order data

3.3.3 Technical Data

Product ID	EX484
General Information	
C-UL-US Listed	In preparation
Module Type	B&R 2003 Controller
Module Slot	1
Number of Modules that can be Used	See Section 3.3.8 "Number of Modules that can be Used", on page 29
Peripherals	
Diagnosis LEDs	Yes
I/O Bus Interface	9 pin DSUB socket
Station Number Dial	For setting the Powerlink station number

Table 12: EX484 technical data

Product ID	EX484
Power Supply	
Design	Switching power supply with reverse polarity diode
Input Voltage Minimum Nominal Maximum	 18 VDC 24 VDC 30 VDC
Power Consumption	Max. 20 W
Output Power for I/O Modules and Screw-in Modules	10.4 W
ETHERNET Powerlink Interface	
Standard (Compliance)	ANSI/IEEE 802.3
Data Rate	100 Mbps
Signal	100 Base-T
Port Design	Internal 4x hub 4 x shielded RJ45 port
Line Length Between Two Stations (Segment Length)	Max. 100 m
Mechanical Characteristics	
Dimensions	B&R 2003 single width

Table 12: EX484 technical data (cont.)

3.3.4 Status Display

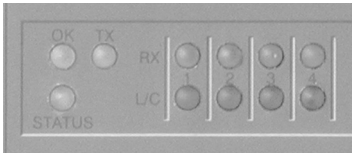
Image	LED	Color	Description
	Status	Red/Green	See Section "Status LED", on page 24.
	OK	Orange	The OK LED is controlled by the supply and is lit if the supply voltage is over +18 VDC.
	TX	Orange	The Powerlink station is sending data.
	RX	Orange	The RX LED is always lit when Powerlink activity is present on the bus.
	L/C	Red/Green	Green: Link Red: Collision

Table 13: EX484 status display

Status LED

Boot Phase

The red LED is lit during the booting procedure. After selecting the boot block, the LED indicates which block is being booted from:

Red LED	Boot Block
Blinking Slowly Twice	A
Blinking Slowly Three Times	B

Table 14: EX484 boot block indicator

The red LED goes out and the green LED is switched on after the initialization routines are carried out with no errors.

Operation

During operation, the status LED indicate the following states:

Status LED		
Green	Red	Status which is found in the Powerlink station
On	Off	The Powerlink station is running with no errors.
Off	On	A fatal system error has occurred. The error type can be read using the PLC log book. It concerns an irreparable problem. The system cannot properly carry out its tasks. This status can only be changed by resetting the module.
Blinking Alternately		Powerlink Manager failed
Off	blinking	System Failure. The red LED blinks an error code (see Section "System Failure Error Codes", on page 17).

Table 15: EX484 status LED

System Failure Error Codes

The error is displayed via the red status LED using four switch-on phases. The switch-on phases are either 150 ms or 600 ms long. Error code outputs are repeated cyclically every 2 seconds.

Legend: •.....150 ms

–.....600 ms

Pause .....2 s delay

Description of Error	Error code displayed by red status LED									
Stack Overflow	•	•	•	•	Pause	•	•	•	•	Pause
RAM Error	•	•	•	–	Pause	•	•	•	–	Pause
Undefined Address: Access to a Non-Existent Address.	•	•	–	•	Pause	•	•	–	•	Pause
Instruction Fetch Memory Abort: Invalid Memory Access During Instruction Fetch (e. g. UINT access of an uneven address).	•	•	–	–	Pause	•	•	–	–	Pause
Data Access Memory Abort: Invalid Memory Access During Data Access (e. g. UINT access of an uneven address).	•	–	•	•	Pause	•	–	•	•	Pause
Error when Programming the FPGA.	•	–	–	•	Pause	•	–	–	•	Pause
Invalid station number (e. g. $00 for Controller Stations, and $FE, $FF)	•	–	–	–	Pause	•	–	–	–	Pause

Table 16: EX484 system failure error codes

3.3.5 Power Supply

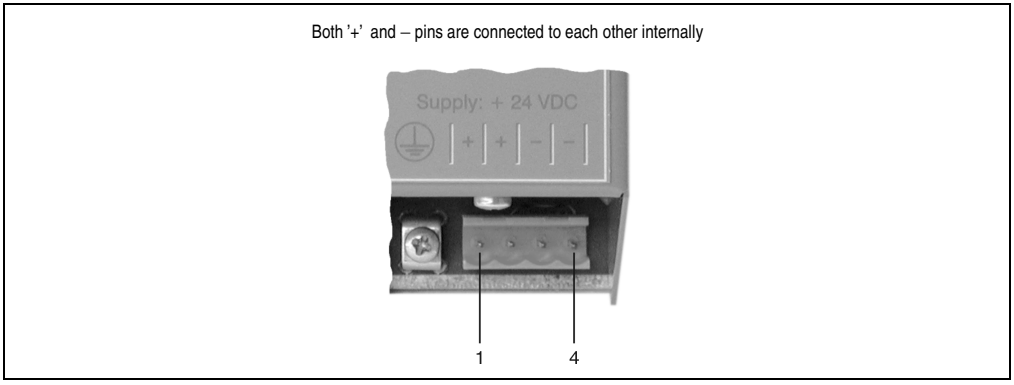


Figure 4: EX484 power supply

Terminal	Assignment
1	+24 VDC
2	+24 VDC
3	GND
4	GND

Table 17: EX484 terminal assignment 24 VDC supply

3.3.6 ETHERNET Powerlink Station Number

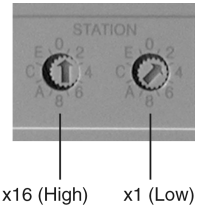


Figure 5: EX484 station number dial

The station number for the Powerlink station is set using both number switches. Station numbers are permitted between $01 and $FD.

Switch Position	Description
$00	Reserved for manager station, switch position is not permitted.
$01 - $FD	Station Number for Powerlink Station.
$FE	Reserved, switch position is not permitted.
$FF	Reserved, switch position is not permitted.

Table 18: EX484 station number

3.3.7 RJ45 Ports

The four RJ45 ports are located on the bottom of the module.

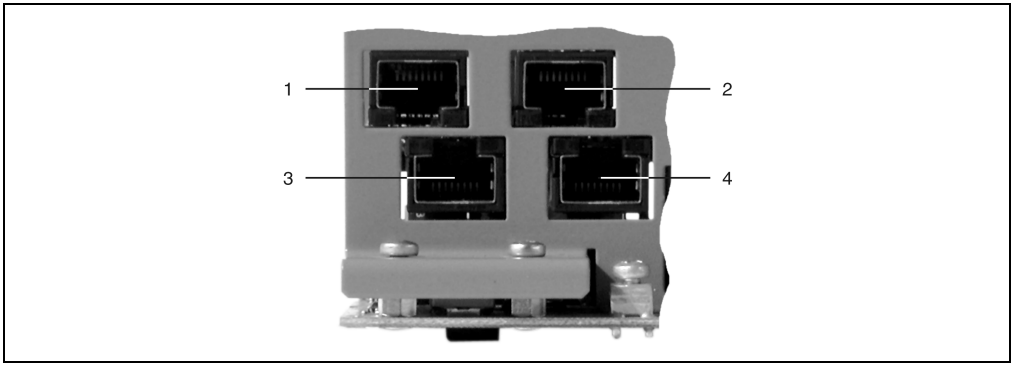


Figure 6: EX484 RJ45 Port

Pin	Assignment
1	RXD
2	RXD\
3	TXD
4	Termination
5	Termination
6	TXD\
7	Termination
8	Termination

Table 19: EX484 pin assignments for RJ45 port

RXD ... Receive Data TXD ... Transmit Data

3.3.8 Number of Modules that can be Used

Controllers	Maximum Number of Logical Module Slots[1)]	Maximum Number of Analog Module Slots [1)]	Possible Module Addresses for Analog Modules[2)]
EX484	16	8	1 - 8

Table 20: EX484 number of modules that can be used

1) Warning: Please take note of the power output table.

2) All analog modules and modules with logical analog sections must be operated directly next to the controller, that means they must be inserted to the left of the first digital module. Module slot 1 is occupied by the controller. The first slot to the right of a controller has module address 1 and the module addresses are numbered in increasing order to the right.

Note:

The type (digital/analog) and number of modules determines the possible cycle times for the nodes.

The module slot does not correspond to the module address, it only refers to the actual space required on the module rack. A module can also occupy several module addresses (see technical data for the module).