

# Industrial communication solutions for Windows

## XABBSRIO Driver Manual

*ABB SRIO 500/1000M X3.28 Protocol Driver*

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## XABBSRIO technical specifications

### General information

XABBSRIO allows you to use the ANSI X3.28 protocol (derived from the Full-duplex DF1 protocol) to communicate with the ABB SRIO 500M/1000M Data Communication and Reporting Unit. Exception reports or unsolicited messages are not supported so they must be disabled. The ABB SRIO device must behave as a slave unit. Suggested communication parameters are 9600,E,8,1. If you cannot communicate or if you are using RS-485 to connect to the device, you should set the RTS signal during the communication. This can be done by setting the RTSEnable argument when calling the read and write methods. If you still cannot communicate, check that your RS-485 cables are not inverted.

### Command list

#### Diagnostic Loop Test

**Description of this command:**

This command checks the integrity of the transmission over the communication link. The value of PointValue is incremented with each successful communication.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

1

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

2

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC
- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

#### Read Diagnostic Status Bytes

**Description of this command:**

This command reads a block of 10 bytes with status information from SRIO 1000M. Refer to tables 1.1, 1.2 and 1.3 in page 29 of the SRIO manual to interpret those bytes.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

10

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

3

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC
- 1 = CRC

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**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read 16-Bit AI Data

**Description of this command:**

Reads one or more 32-bit analog inputs (AI) from an SRIO unit.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

1-64

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

0

**Meaning of the DriverP3 parameter:**

Address of the first AI to be read (1000-1499)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read 32-Bit AI Data

**Description of this command:**

Reads one or more 32-bit analog inputs (AI) from an SRIO unit.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

1-32

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

1

**Meaning of the DriverP3 parameter:**

Address of the first AI to be read (1000-1499)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read DI Data

**Description of this command:**

Reads one or more blocks of 16 digital inputs (DI) from an SRIO unit.

**Methods used to run this command:**

Digital Input

**Number of points accepted by this command:**

1-1024

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

0

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**Meaning of the DriverP3 parameter:**

Address of the first block of 16 DI to be read (0-499)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC
- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read 16-bit AO Data

**Description of this command:**

Reads one or more 32-bit analog outputs (AO) from an SRIO unit.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

1-64

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

0

**Meaning of the DriverP3 parameter:**

Address of the first AO to be read (1500-1999)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC
- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read 32-bit AO Data

**Description of this command:**

Reads one or more 32-bit analog outputs (AO) from an SRIO unit.

**Methods used to run this command:**

Analog Input

**Number of points accepted by this command:**

1-32

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

1

**Meaning of the DriverP3 parameter:**

Address of the first AO to be read (1500-1999)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC
- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Read DO Data

**Description of this command:**

Reads one or more blocks of 16 digital outputs (DO) from an SRIO unit.

**Methods used to run this command:**

Digital Input

**Number of points accepted by this command:**

1-1024

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**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

3

**Meaning of the DriverP3 parameter:**

Address of the first block of 16 DO to be read (500-999)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Write 16-Bit AO Data

**Description of this command:**

Writes one or more 32-bit binary variables (AO) to an SRIO unit.

**Methods used to run this command:**

Analog Output

**Number of points accepted by this command:**

1-32

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

0

**Meaning of the DriverP3 parameter:**

Address of the first AO to be written (1500-1999)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

## Write 32-Bit AO Data

**Description of this command:**

Writes one or more 32-bit binary variables (AO) to an SRIO unit.

**Methods used to run this command:**

Analog Output

**Number of points accepted by this command:**

1-32

**Meaning of the DriverP0 parameter:**

Address of the SRIO unit (0-255).

**Meaning of the DriverP1 parameter:**

Address of the PC in the network (0-255).

**Meaning of the DriverP2 parameter:**

1

**Meaning of the DriverP3 parameter:**

Address of the first AO to be written (1500-1999)

**Meaning of the DriverP4 parameter:**

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

**Meaning of the DriverP6 parameter:**

If not empty, forces the TNC counter value in the transmitted messages.

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## Write DO Data

### Description of this command:

Writes one or more blocks of 16 bits (DO) to an SRIO unit.

### Methods used to run this command:

Digital Output

### Number of points accepted by this command:

1-1024

### Meaning of the DriverP0 parameter:

Address of the SRIO unit (0-255).

### Meaning of the DriverP1 parameter:

Address of the PC in the network (0-255).

### Meaning of the DriverP2 parameter:

1

### Meaning of the DriverP3 parameter:

Address of the first block of 16 DO to be written (500-999)

### Meaning of the DriverP4 parameter:

Indicates the type of validation to be used:

- 0 = BCC

- 1 = CRC

### Meaning of the DriverP6 parameter:

If not empty, forces the TNC counter value in the transmitted messages.

## Error messages

The following list shows the possible error messages that can be returned by the driver during a failed communication in the 'Status' property.

[1005] DRIVER (Internal): Invalid driver stage  
[1300] PROTOCOL (Timeout): No answer  
[2137] CONFIG (NumValues): Number of values must be multiple of 16  
[2148] CONFIG (NumValues): Only one value can be requested  
[2246] CONFIG (NumValues): Too many values requested (max=10)  
[2247] CONFIG (NumValues): Too many values requested (max=1000)  
[2258] CONFIG (NumValues): Too many values requested (max=32)  
[2265] CONFIG (NumValues): Too many values requested (max=64)  
[2270] CONFIG (NumValues): Too many values to write (max=122)  
[2273] CONFIG (NumValues): Too many values to write (max=32)  
[2275] CONFIG (NumValues): Too many values to write (max=61)  
[3014] CONFIG (P0): Invalid device address (0-255)  
[3564] CONFIG (P1): Invalid PC address (0-255)  
[4031] CONFIG (P2): Invalid command (0 or 1 only)  
[4034] CONFIG (P2): Invalid command (0 to 3)  
[5037] CONFIG (P4): Invalid validation mode (0=BCC/1=CRC)  
[8001] CONFIG (Remote): A file has an illegal value  
[8011] CONFIG (Remote): Access denied, improper privilege  
[8017] CONFIG (Remote): Adapter cannot communicate with module  
[8018] CONFIG (Remote): Address does not point to something usable  
[8022] CONFIG (Remote): Address reference exist to deleted area  
[8023] CONFIG (Remote): Addressing problem  
[8025] CONFIG (Remote): Another node is program owner  
[8027] CONFIG (Remote): Application layer timeout error  
[8038] CONFIG (Remote): Cannot complete request  
[8039] CONFIG (Remote): Cannot execute command  
[8052] CONFIG (Remote): Command cannot be executed  
[8055] CONFIG (Remote): Command execution failure for unknown reason  
[8067] CONFIG (Remote): Communication zone problem  
[8070] CONFIG (Remote): Condition already exist  
[8071] CONFIG (Remote): Condition cannot be generated  
[8080] CONFIG (Remote): Data conversion error  
[8090] CONFIG (Remote): Data or file is too large  
[8111] CONFIG (Remote): Duplicated label

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[8112] CONFIG (Remote): Duplicated node detected error  
[8113] CONFIG (Remote): Duplicated token holder detected error  
[8140] CONFIG (Remote): File is open (another node owns it)  
[8141] CONFIG (Remote): File is wrong size  
[8152] CONFIG (Remote): Function disallowed  
[8156] CONFIG (Remote): Hardware fault  
[8157] CONFIG (Remote): Histogram overflow  
[8158] CONFIG (Remote): Host could not complete function  
[8159] CONFIG (Remote): Host has a problem and will not communicate  
[8166] CONFIG (Remote): Illegal command or format (try with less values)  
[8169] CONFIG (Remote): Illegal data type  
[8197] CONFIG (Remote): Invalid parameter or data  
[8204] CONFIG (Remote): Less levels specified in address  
[8206] CONFIG (Remote): Link layer error  
[8208] CONFIG (Remote): Local port is disconnected  
[8215] CONFIG (Remote): Module response was not valid  
[8216] CONFIG (Remote): More levels specified in address  
[8218] CONFIG (Remote): No access  
[8240] CONFIG (Remote): Not used  
[8274] CONFIG (Remote): Processor is in program mode  
[8297] CONFIG (Remote): Remote node cannot buffer command  
[8298] CONFIG (Remote): Remote node host is missing or shut down  
[8299] CONFIG (Remote): Remote node problem  
[8315] CONFIG (Remote): Scanner not able to communicate with 1771 module  
[8326] CONFIG (Remote): Station is offline  
[8328] CONFIG (Remote): Symbol is of improper format  
[8329] CONFIG (Remote): Symbol not found  
[8338] CONFIG (Remote): Transaction size plus word address is too large  
[8347] CONFIG (Remote): Unknown error

## Supported devices

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This driver can communicate with these devices, but is not necessarily limited to this list:

ABB SRI0 500M/1000M Data Communication and Reporting Units

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