

# ABB SRIO X3.28 communication protocol

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## Supported device types and versions

The protocol implements ANSI X3.28 communication. The communication was verified against the SPIO 500M communication unit of ABB's SPACOM protection and control system.  
The **D2000 KOM** process periodically reads all configured I/O tags (see the [Read Data Timeout](#) parameter). The communication unit spontaneously sends events (Events) that can also cause the I/O tag of DI type to be set to 0 or 1 (see the [I/O tag configuration](#)).

## Communication line configuration

- Communication line category: [Serial](#), [SerialOverUDP Device Redundant](#).

## Station configuration

- Communication protocol: **ABB SRIO X3.28**.
- Station address: a number in the range of 0 - 255.

## Station parameters

Dialog [Communication station - Protocol parameters](#) tab.  
The parameters influence some optional protocol parameters. The following protocol line parameters can be used:

Table 1

Parameter	Description	Unit	Default value
Host Station Address	The address of the master station ( <b>D2000 KOM</b> process) is a number in the range 0 to 255.	-	0
Retry Count	The number of request retries in case of a communication failure.	-	3
Wait First Timeout	First waiting for a response after sending the request.	ms	100 ms.
Wait Timeout	The delay between individual readings of the response until its completing.	ms	100 ms.
Max Wait Retry	Retry count of response reading until its completing.	-	50
Scan-only Mode	Activation of a permanent passive mode (Scan only) without sending requests and only processing received messages.	YES/NO	NO
Full Debug	Full communication monitoring. It activates logging of the I/O tag values and other debug information.	YES/NO	NO
DI Data Address	The start address of the block of DI data (digital inputs). Blok's length is 500 words, data are 16-bit binary numbers. The parameter is used only for communication logs and analysis.	-	0
DO Data Address	The start address of the block of DO data (digital outputs). Blok's length is 250 words, data are 16-bit binary numbers. The parameter is used only for communication logs and analysis.	-	500
EV Data Address	The start address of the block of EV data. Blok's length is 250 words, data are 16-bit binary numbers with timestamps. The parameter is used only for communication logs and analysis.	-	750
AI Data Address	The start address of the block of AI data (analog inputs). Blok's length is 500 words, data are 32-bit binary numbers. The parameter is used only for communication logs and analysis.	-	1000
AO Data Address	The start address of the block of AO data (analog outputs). Blok's length is 500 words, data are 32-bit binary numbers. The parameter is used only for communication logs and analysis.	-	1500
Time Address	The start address of <i>Time Write</i> data where time is written during time synchronization. Data's length is 9 words, data is BCD encoded.	-	2300
Event Data Address	The start address of <i>Event data</i> . The data is 4 words in length, the data are 32-bit binary numbers (containing 10-bit SPACOM Unit Number, 7-bit Channel Number, and 5-bit Event Number which can be specified in the <a href="#">I/O tag configuration</a> ) with a time stamp.	-	2400

Request Data Length	The size of the block of data specified in the BLOCK_READ data request sent by the KOM process (2-244 bytes).	bytes	100
Read Data Period	A period (10-1440 minutes) in which the <a href="#">D2000 KOM</a> process performs readout of all data (integrity readout).	min	15
Diagnostic Request Timeout	A period (10-60 seconds) in which the <a href="#">D2000 KOM</a> process sends a diagnostic request (DIAG_LOOP) to verify line functionality.	s	5

A string containing the protocol parameters is defined as follows:

Keyword=value;Keyword=value; . . .

Example :

WT=100;MWR=20;

If a keyword with a valid value is not found in the initialization string, a default value will be used (see the table above).

## I/O tag configuration

Possible value type: **Ai, Di**.

I/O tag address items:

- **Word Address**: 16-bit data address in device memory (0-65535) used during readout of all data (see [Read Data Timeout](#)).
- **SPACOM Unit** (Di tags only): optional 10-bit address of SPA Unit (0-1023) within the SPACOM system.
- **Channel** (Di tags only): optional 7-bit address of SPA Channel (0-127) within the SPACOM system.
- **EventNr 0->1** (Di tags only): optional 6-bit number of Event (0-63), which will cause a transition to True value.
- **EventNr 1->0** (Di tags only): optional 6-bit number of Event (0-63), which will cause a transition to False value.

**Note:** Optional address items SPACOM Unit, Channel, EventNr 0->1, EventNr 1->0 are used when the Di I/O tag's value is to be set after the arrival of [Event Data](#).

## Changes and modifications

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## Document revisions

Ver. 1.0 - June 29th, 2017 - Document creation.



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