# ABB SRIO X3.28 communication protocol

## Supported device types and versions

The protocol implements ANSI X3.28 communication. The communication was verified against SPIO 500M communication unit of ABB's SPACOM protectin and control system.
The 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

Dialóg 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 Master station (LOM Process) is a number in the range 0 to 255. | - | 0 |
| Retry Count | Number of request retries in case of a communication failure. | - | 3 |
| Wait First Timeout | First waiting on response after sending the request. | ms | 100 ms. |
| Wait Timeout | Delay between reading the response until its completing. | ms | 100 ms. |
| Max Wait Retry | Retry count of response reading until its completing. | - | 50 |
| Scan-only Mode | Activate a permanent passive mode (Scan only) without sending requests and only processing received messages. | YES/NO | NO |
| Full Debug | Full communication monitoring. It enables to show the I/O tag values and other debug information. | YES/NO | NO |
| DI Data Address | Start address of block of DI data (digital inputs). Blok's length is 500 words, data are 16-bit binary. The parameter is used only for communication logs and analysis. | - | 0 |
| DO Data Address | Start address of block of DO data (digital outputs). Blok's length is 250 words, data are 16-bit binary. The parameter is used only for communication logs and analysis. | - | 500 |
| EV Data Address | Start address of block of EV data. Blok's length is 250 words, data are 16-bit binary with timestamps. The parameter is used only for communication logs and analysis. | - | 750 |
| AI Data Address | Start address of block of AI data (analog inputs). Blok's length is 500 words, data are 32-bit binary. The parameter is used only for communication logs and analysis. | - | 1000 |
| AO Data Address | Start address of block of AO data (analog outputs). Blok's length is 500 words, data are 32-bit binary. The parameter is used only for communication logs and analysis. | - | 1500 |
| Time Address | Start address of Time Write data where time is written during time synchronization. Data's length is 9 words, data is BCD encoded. | - | 2300 |
| Event Data Address | Start address of Event Data. The data is 4 words in length, the data is 32-bit binary (containing 10 bit SPACOM Unit Number, 7 bit Channel Number and 5 bit Event Number which can be specified in the I/O tag configuration) with a time stamp. | - | 2400 |
| Request Data Length | The size of block of data specified in the BLOCK_READ data request sent by the KOM process (2-244 bytes). | bytes | 100 |
| Read Data Period | Period (10-1440 minutes) in which the KOM process performs readout of all data (integrity readout). | min | 15 |
| Diagnostic Request Timeout | Period (10-60 sekúnd) in which the KOM process sends a diagnostic request (DIAG_LOOP) to verify line functionality. | s | 5 |

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, there a corresponding 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-bitová adresa SPA Channel (0-127) within the SPACOM system.
- **EventNr 0->1** (Di tags only): optional 6-bit number of Event (0-63), that will cause transition to value True.
- **EventNr 1->0** (Di tags only): optional 6-bit number of Event (0-63), that will cause transition to value False.

**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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ⓘ **Related pages:**

Communication protocols