

# Fisher-Rosemount RS3 SCI

## Fisher-Rosemount RS3 SCI communication protocol

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### Supported device types and versions

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The protocol supports data transmission from/to the SCI (Supervisory Computer Interface) interface of the Fisher-Rosemount RS3 control system.

### Communication line configuration

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- communication line category: [Serial](#), [SerialOverUDP](#) [Device Redundant](#).
- Transmission parameters either 19200 or 38400 Baud (see the tab. nr. 1), 8 data bits, 1 stop bit, no parity.

For the correct communication of a Rosemount RS3 SCI device, these SCI parameters must be set:

**Table 1**

| Parameter                          | Value               |
|------------------------------------|---------------------|
| Comm Port Baud Rate                | 9.2 kbs or 38.4 kbs |
| Checksum                           | Yes                 |
| Data Bits and Parity               | 8N                  |
| XON/XOFF Control                   | Off                 |
| EIA Option                         | None                |
| Reply Header String in Hex format  | 00 00 00 00         |
| Reply Trailer String in Hex format | 00 00 00 00         |
| Mode                               | Async Length LSB    |
| Data Format                        | IEEE                |
| TX Gap                             | 100 ms              |

### Communication station configuration

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- Communication protocol: **Fisher-Rosemount RS3 SCI**.
- Address parameters require to specify the **First index** and **Update Interval** parameters.
  - **First index**: A value within the interval 0..1499, address of the first I/O tag in the SCI table (Table Entry Location Number).
  - **Update interval**: Time period for the acquisition of new I/O tag values. Possible settings: cont. (continuously), 5 sec., 10 sec., 15 sec., 30 sec., 1 min., 2 min., 5 min., 15 min. and 60 min.

SCI allows configuring acquisition of 1500 system values into its table (Table entry) with different parameters (Scaling, Update interval). Table entries are allocated to individual I/O tags starting with the **First index** value. The station represents a logical set of tags with the same **Update Interval** parameter. Update Interval is a time period with which the SCI acquires new values from the Rosemount S3 system.

**Note:** As the SCI configuration allows to define the parameter Update Interval up to 300 seconds (5 min.), this setting is used for station polling periods of 15 and 60 minutes.

### Station protocol parameters

The following station protocol parameters can be defined:

**Table 2**

| Keyword | Full name          | Meaning                                                                                                                                                                                                                                            | Unit    | Default value |
|---------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|
| RC      | Retry Count        | Request repetition count in case of a communication error.                                                                                                                                                                                         | -       | 2             |
| RT      | Retry Timeout      | The delay between request repetitions in case of a communication error.                                                                                                                                                                            | ms      | 200           |
| WFT     | Wait First Timeout | The delay after transmitting the request and before reading the response.                                                                                                                                                                          | ms      | 60            |
| WT      | Wait Timeout       | Delay between response readings until its finalization.                                                                                                                                                                                            | ms      | 200           |
| MWR     | Max Wait Retry     | Repetition count of response readings until its finalization.                                                                                                                                                                                      | -       | 15            |
| DEBUG   | Debug Mode         | If the value of the parameter is YES, the tables on the side of the SCI device are not configured during communication (deletion from tables + initialization of individual points).<br>The parameter is used <b>only for debugging purposes</b> . | YES /NO | NO            |
| SW      | Send Weak          | If the value is YES - if a new I/O tag value with an error attribute is acquired, the error number will be sent to the I/O tag value and the value is marked by the WEAK attribute. It is used for <b>debugging purposes only</b> .                | YES /NO | NO            |

A string containing the protocol parameters is being defined as follows:

Keyword=value;Keyword=value; . . .

Example:

SW=YES;WFT=300;

If a keyword with an invalid value in the initialization string is used, the corresponding default value according to the table 2 will be used.

## I/O tag configuration

Possible I/O tag types: **Ai, Ao, Di, Dout**

Communication supports value acquisition of I/O tags of the following types:

- Analog values - I/O tag type AI, AO, used display scaling type "1"
- Discrete (binary) values - I/O tag type DI, DO, used internal scaling type "0".

Further, it allows to write new values of I/O tags of the following types:

- Analog values - I/O tag type AO, used display scaling type "1"
- Discrete (binary) values - I/O tag type DO, used internal scaling type "0".

**Note:**

- **Display scaling** - acquired values are equal with the RS3 system displaying
- **Internal scaling** - discrete values are represented by : 0.0 - logical 0; 1.0 - logical 1

## I/O tag address parameters

- **Block Variable** - is the name of the Rosemount System 3 block variable. It is specified in string format, e.g. "=1E-75" (without quotes) for I/O tags of AI type and e.g. "=1F-25/b" for I/O tags of DI type.

## Literature

- Rosemount System 3, PeerWay Interfaces Manual, Software Version 18, Release 1, October 1993

## Changes and modifications

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## Document revisions

- Ver. 1.0 – March 5th, 2001



**Related pages:**

[Communication protocols](#)