

Fisher-Rosemount RS3 SCI

Fisher-Rosemount RS3 SCI communication protocol

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Supported device types and versions

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

Communication line configuration

- 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 a 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

- **Fisher-Rosemount RS3 SCI** communication protocol.
- Address parameters require to define the parameters **First index** and **Update Interval**.
 - **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 acquisition of new I/O tag values. Possible settings: cont. (continually), 5 sec., 10 sec., 15 sec., 30 sec., 1 min., 2 min., 5 min., 15 min. a 60 min.

SCI allows to configure acquisition of 1500 system values into its table (Table entry) with different parameters (Scaling, Update interval). Table entry are allocated to individual I/O tags from the value **First index**. The station represents a logic set of tags with the same **Update Interval** parameter. Update Interval is a time period, using of which 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.), the settings is used for periods 15 and 60 minutes.

Station protocol parameters

There can be defined the following station protocol parameters:

Table 2

Keyword	Full name	Meaning	Unit	Default value
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RC	Retry Count	Poll repetition count in case of a communication error.	-	2
RT	Retry Timeout	Delay between poll repetition in case of a communication error.	ms	200
WFT	Wait First Timeout	Delay after transmitting the poll before reading the response.	ms	60
WT	Wait Timeout	Delay between response readings till its finalization.	ms	200
MWR	Max Wait Retry	Repetition count of response readings till 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). Parameter is used only for debug purposes .	YES /NO	NO
SW	Send Weak	If the value is YES - if there is acquired a new I/O tag value with an error attribute, 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 debugging purposes only .	YES /NO	NO

String containing the protocol parameters is being defined as follows:

Keyword=value;Keyword=value; . . .

Example:

SW=YES;WFT=300;

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

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 - log. 0; 1.0 - log. 1

I/O tag address parameters

- **Block Variable** - is the name of the Rosemount System 3 block variable. It is being defined in form of e.g. =1E-75 for I/O tag 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



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