Telegyr 809 Server communication protocol

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Supported device types and versions

This protocol implements the server-side of Telegyr TG809 standard. There is supported a configuration in both line and system redundant configurations.

Communication line configuration

- Communication line category:
  - Serial
  - Serial Line Redundant
  - Serial System&Line Redundant
  - SerialOverUDP Device Redundant
  - SerialOverUDP Line Redundant
  - SerialOverUDP System&Line Redundant
  - RFC2217 Client
  - TCP/IP-TCP
    Note: As TG809 Server is a server protocol, the KOM process works in a TCP server mode, i.e. it listens on an IP address and port specified in the configuration of TCP/IP-TCP communication line.
    It is possible to use a symbolic address *ALL* or * - in this case, the KOM process listens on a chosen TCP port in all network interfaces which are available.

Communication station configuration

- Communication protocol: **Telegyr 809 Server**
- Address of station: integral number from the interval 0-1023. In the protocol, the address of the station is used as a station's number (Stationsnummer).

Station protocol parameters

Configuration dialog window - tab "**Protocol parameters**".
They influence some optional parameters of the protocol.

Table 1

Parameter	Meaning	Unit	Default value
Communication Line	A number from range 0-255 defining the "Communication number" parameter in the protocol telegrams.	-	0
Line Alive Timeout	Timeout for detection of failure of the master side of communication. After elapsing the timeout since receiving the last sign, the communication line is considered to be nonfunctional. If all lines did not work (relates to the redundant lines), all stations switch to the status of communication error StCOMERR, and after elapsing another such interval, switch to StHARDERR status.	sec	7
Read Wait Timeout	The delay between reading data from the communication line.	ss.mss	00.050
MOXA Timeout	Timeout for detection of failure of one communication line on the redundant lines. After elapsing the timeout since receiving the last character, the communication is redirected to another communication line, i.e. reading/writing will be done via secondary /backup device.	mi:ss	00:10
Max Data Size	The maximum number of data bytes in a single packet. This parameter defines the approximate value (can be exceeded by a data size of one output I/O tag). The standard defines maximum data size equal to 255 bytes but decreasing the packet size practically solved a particular packet fragmentation problem in WAN communication.	-	210

System Redundancy: Manages A Status Address	HW address of output I/O tag with the status of system redundancy. The format of the HW address is **Rack.Chassis.Slot.Point** or **Rack-Chassis-Slot-Point**, for example, "0-2-15-1". This parameter is useful for Serial System&Line Redundant and SerialOverUDP System&Line Redundant lines, which enable the communication with two independent control systems (e.g. main dispatching SED in Žilina and backup dispatching SED in Bratislava). The parameter enables to ignore values that are received from the control system, which is inactive just now, providing that the application knows which one is active or inactive. It can know it e.g. based on the value of input I/O tag with a defined value. This feature (information about active control system) will work providing that output I/O tag of **Dout** type with the same HW address as defined in this parameter is on the station and the application must write *True* into it if "System A" is active, or *False* if "System B", configured on the system redundant line, is active.	-	
Is Substation	On every line, there should be only one station (called the main station) that has this parameter set to False. All other stations (called substations) should have this parameter set to True. This emulates the situation when there may be several substations behind the main station. Requests from the master which do not contain the station number, are related to the main station.	-	False
Scan-only Mode	In scan-only mode, data is being read and analyzed, but no data is sent. Combined with the parameter Full Debug this parameter enables the KOM process to be used as an analyzer of TG809 communication.	-	False
No Point No Answer	If the I/O tag with an address that is in the request from the TG809 server is not found, the KOM process will not send any response. This behavior is not according to the standard but it can be used, for example, to simulate unconfirmed commands.	-	False
Full Debug	Enables detailed listings about sending and receiving values.	-	False

I/O tag configuration

Possible I/O tags: **Ai**,**Ao**,**Di**,**Dout**,**QI**,**Ci**,**Co**

Address of I/O tags: either software or hardware address

- **software address** - a number from interval 0 - 32767
- **hardware address** - consists of the following components:
  - **Rack** - a number from interval 0 - 3
  - **Chassis** - a number from interval 0 - 5
  - **Slot** - a number from interval 0 - 15
  - **Point** - a number from interval 0 - 31

For I/O tags of **Ai** and **Ci** type, you must define the minimum and maximum range - **Min** and **Max**. The values will be calculated for this range (from range -32000 … 32000 supported by protocol).
For I/O tags of **Ao** and **Co**, you must define the minimum and maximum range - **Min** and **Max**. Same as for input I/O tags but in addition the values out of defined range will be sent as the values -32000 or 32000.

I/O tags of **Dout** type have supplementary options:

- "Four-criterion indication". If it is active, the VKM bit is set when sending the value. This bit indicates that the value is 4-state (Quadrat). This status allows, in addition to False (binary 01) and True (binary 10) to transmit also Invalid (binary 00 or 11).
- "Indication with time tag". If it is active, IAC 2 message (Indication with time tag) containing the time stamp (hour/min/sec/ms) will be used to send the value. If it is inactive, IAC 1 message (Indication without time tag) is used.

Literature

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Changes and modifications

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Document revisions

- Ver. 1.0 – July 16, 2015 – created document
- Ver. 1.1 – July 11, 2017 – Support of IAC 2 (message with a timestamp)

Related pages:

Communication protocols