GW-ETH-0x Datalogger

User's Guide

For
GW-ETH-01 FW v1.03 or higher
or
GW-ETH-02 FW v1.06 or higher

Smarter wireless. Simply.

Description

Datalogger is a mode of the GW-ETH-01 or GW-ETH-02 gateway operation designed for data acquisition and sending via Ethernet. Refer to the GW-ETH-01 and GW-ETH-02 User's guides for more information.

Datalogger is intended for the following devices:

- **GW-ETH-01** FW v1.02 or higher with GW-ETH Tool v1.01 or higher
- **GW-ETH-02** FW v1.06 or higher with GW-ETH Tool v1.05 or higher

It is not possible to communicate externally with the TR module inside the GW in the Datalogger mode. GW communication with the IQRF network depends on the application in internal TR module. All data sent via SPI from the TR module to the GW are stored in circular buffer in the GW. Every packet is equipped with numeric code and time stamp. Data can be freely read from this buffer via the HTTPS interface or user data can be sent via HTTPS to the TR module. Refer to the Datalogger User's guide for more information.

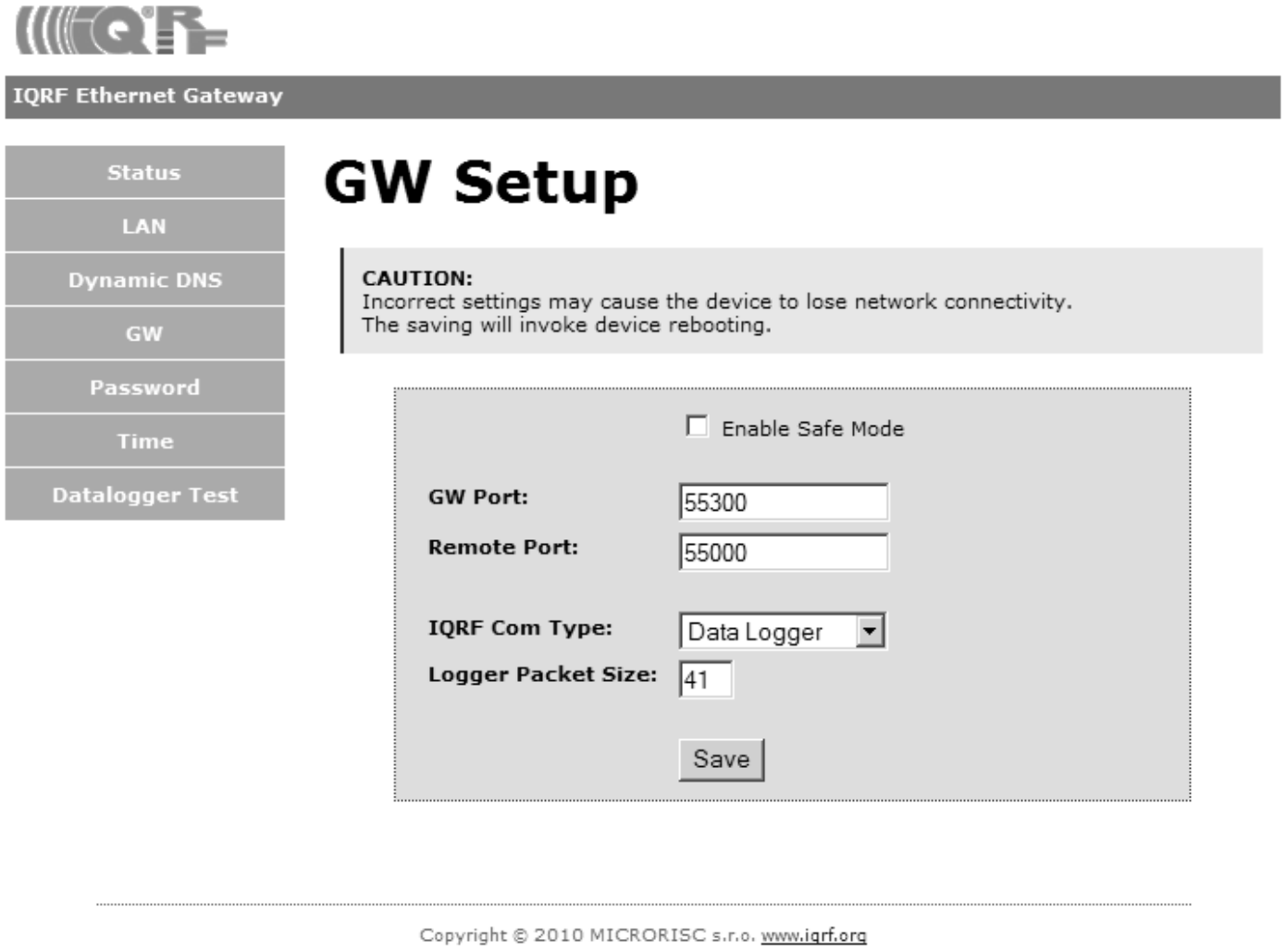
Buffer parameters:

- Buffer size GW-ETH-01: 7 kB, GW-ETH-02: 32 kB
- Packet size
  - Serviceable data GW-ETH-01: 1 to 41 B, GW-ETH-02: 1 to 64 B (fixed but user selectable)
  - Overhead 8 B

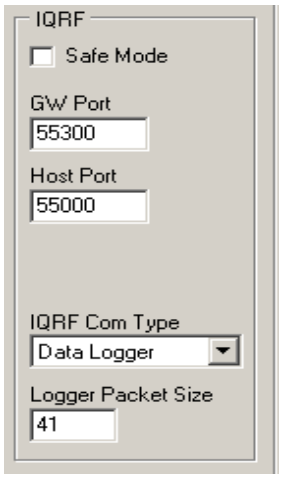
Datalogger mode activation

The Datalogger mode can be activated in two ways:

1. Via the web server:



2. Via the GW-ETH Tool:



Operation

To communicate with the datalogger, login to internal web server is required (like for GW configuration). Login as well as communication need the HTTPS connection. Data can be read from the internal web page *logger.htm* with corresponding parameter. For working with the datalogger several commands are available to be sent via the HTTPS protocol. Communication with the datalogger can be tested from a web browser or using the *Datalogger Test* page located at the GW internal web server. Source codes for all functions in the PHP language can be downloaded from the GW product web page.

Commands

<ip_address> IP address of requested GW. Host Name can be used in case of LAN.

<packet_index> Index of packet requested (0000 – FFFE). FFFF is intended to detect the index of last packet stored (see the *Answer format - MESSAGE*). Lower and upper cases are allowed.

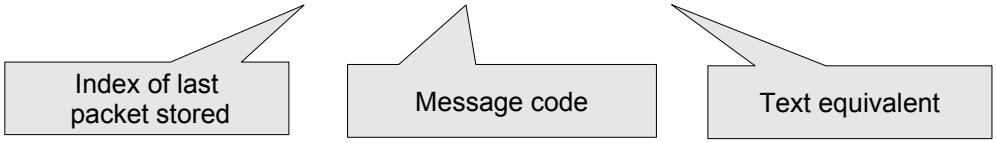
Get last index https://<ip_address>/protect/logger.htm?record=<packet_index>

Detect the last packet stored. The <packet_index> value must be FFFF. (Packets are indexed from 0x0000 to 0xFFFE, no packet with index FFFF exists which is used for last packet detection.)

Example:

Command: `https://10.0.0.3/protect/logger.htm?record=ffff`

Answer: `#0191#FF0000000002#record not found#`



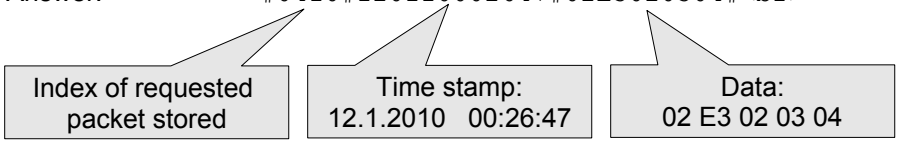
Get record index https://<ip_address>/protect/logger.htm?record=<packet_index>

Get the packet with specified index stored in the datalogger.

Example:

Command: `https://10.0.0.3/protect/logger.htm?record=0410`

Answer: `#0410#120110002647#02E3020304#<br>`



Get records https://<ip_address>/protect/logger.htm?dump

Read the complete datalogger buffer.

Example:

Command: `https://10.0.0.3/protect/logger.htm?dump`

Answer:
```
#0000#120110003514#0031020304#<br>
#0001#120110003516#0032020304#<br>
#0002#120110003518#0033020304#<br>
#0000#000000000000#0000000000#<br>
...
```

Get records from index https://<ip_address>/protect/logger.htm?dump_index=<packet_index>

Read all packet starting from specified index to the last packed stored.

Example:

Command: `https://10.0.0.3/protect/logger.htm?dump_index=000A`

Answer:
```
#000A#120110003537#0031020304#<br>
#000B#120110003539#0032020304#<br>
#000C#120110003541#0033020304#<br>
```

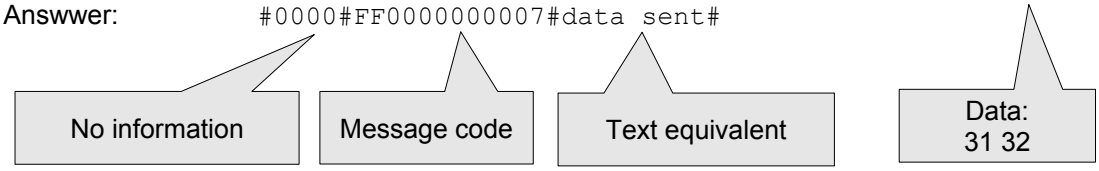
Send data to TR module https://<ip_address>/protect/logger.htm?send_data=<data>

Send data to TR module in the GW. Data processing in the TR module depends on the application in it.

Example:

Command: `https://10.0.0.3/protect/logger.htm?send_data=3132`

Answwer: `#0000#FF0000000007#data sent#`



Answer – OK #<packet_index>#<timestamp>#<data>#

<packet_index> Index of the packet stored, the same as in the <packet_index> command.

<timestamp> Stamp of the time the packet was stored (see the example above). If the packet starts with the FF value a MESSAGE is concerned.

<data> Actual data in text representation of hexa values (see examples above). Data size (1 – 4 B) is specified by the *Logger Packet Size* in GW configuration.

Answer – MESSAGE #<last_packet_index>#<message_code>#<message_string>#

<last_packet_index> Index of the last packet stored (0000 – FFFE).

<message_code> Numeric code of the message (FF0000000001 – FFFFFFFFFFFF).

<message_string> Text representation of the message.

Message codes*:*

FF0000000001	„invalid command“ – (e.g. index out of range)
FF0000000002	„record not found“ – requested packet index not found
FF0000000003	„buffer is empty“ – no packet stored in the buffer
FF0000000004	„GW is not in data logger mode“
FF0000000005	„SPI write error“ – writing to the TR module failed
FF0000000006	„no data to send“ – missing data for the TR module
FF0000000007	„data sent“ – data sent to the TR module

PHP functions

Datalogger PHP functions are available to download from www.iqrf.org/193. Application is demonstrated in included PHP demo. This demo allows to set up a bidirectional communication with GW-ETH-01 or GW-ETH-02 running in datalogger mode. The functions for accessing GW-ETH-01 or GW-ETH-02 and its TR module over HTTPS protocol are available in libs/libiqrf.php and released under the free GPL license.

Demo functionality (`index.php`):

- Get an index of the last stored packet
- Get a packet with specified index
- Read the complete buffer
- Incremental reading of the buffer
- Send data (HEX) to the TR module
- Send data (String) to the TR module

Document history

- 130702 Updated for GW-ETH-02.
- 110304 Updated for TR-52B. PHP functions available.
- 100113 First release.

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