webdyn
Flexitron group

WebdynEasy W M-Bus
Application Note

MQTT

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1 MQTT

1.1 Introduction

This implementation note describes how to configure and set up the WebdynEasy WM-Bus product to operate in **MQTT** mode.

In this specific operating mode, the product's usual approach—which involves a monitoring window and periodic file transfers—is no longer applicable.

Here's how it works:

The radio is constantly listening, and every received frame is immediately sent to the MQTT broker. This operating principle requires that the modem remain powered on at all times.

Continuous radio reception and a constant connection to the server result in very high energy consumption. It is therefore strongly recommended to use an external power supply rather than the battery in this scenario.

This operating mode can be used, for example, in meter readings of the **walk-by** type.

1.2 How It Works

When the magnet action is set to **continuous** (code 3) and an MQTT server is configured, the product can start up in MQTT mode. In this mode, received WM-Bus frames are directly posted to the MQTT broker. The frames are published to the broker in BSON format. It is always possible and useful to keep the FTP connection settings enabled, as this access allows for configuration and firmware updates—which cannot be performed via MQTT.

When switching to **Run** mode, WebdynEasy will first check for the presence of configuration or command files in the INBOX directory on the FTP server. The concentrator will periodically check the INBOX directory on the FTP server based on the FTP scheduler configuration.

When using this MQTT mode, there are two scenarios to consider:

1.2.1 Case 1: With an external power supply and a monitoring period of less than 14 minutes

When WebdynEasy switches to **RUN** mode, it starts up directly in MQTT continuous mode. Simply passing the magnet over the device signals MQTT mode by emitting a long beep. If the magnet is passed over a second time within 10 seconds, MQTT continuous mode stops, and this is indicated by 3 short beeps.

If, during MQTT operation:

- The external power supply is turned off
- Communication with the MQTT broker has been lost (10 attempts are allowed)
- or the magnet is passed over the area twice in less than 10 seconds

In this case, radio monitoring will be suspended in favor of the product’s standard operation (listening windows + FTP connection) until the next monitoring task is triggered, as controlled by the “monitoring period” parameter. The value of this parameter must be between 1 and 14 minutes.

At that point, if the fault has been resolved, the hub will resume MQTT continuous mode.

If `monitoringPeriod` is greater than 14 minutes, then we are in the scenario without an external power source.

1.2.2 Case 2: Without an external power supply, or with an external power supply and a monitoring period longer than 14 minutes

When the product is in **Run** or **Storage** mode, passing a magnet over it twice activates or deactivates continuous mode, depending on the initial state.

MQTT continuous mode can only be triggered manually. The first pass of the magnet indicates the hub's status, and the second pass of the magnet will activate MQTT mode. MQTT mode remains active until the magnet is passed over twice in succession.

1.3 Configuration

To enable continuous mode **MQTT**, you must modify the `/local/magnet` parameter and set its value to `3`. In the PC configuration software, this mode is called **continuous**

All of the hub's MQTT/MQTTS variables are located in the `remote/mqtt` object:

Name + tree structure	Description	Type	Default Values
/remote/mqtt/addr	IP address: Port or name of the remote MQTT server. By default, if “remotemqtt/mode” = 0, the port number used is 1883; otherwise, it is 8883.	Text (100 characters max)	null
/remote/mqtt/mode	Selecting the Security Level for the MQTT Protocol	0: MQTT, 1: MQTT+TLS, 2: MQTT+TLS with certificate	0
/remote/mqtt/user	Username for accessing the MQTT server	Text (64 characters max)	null
/remote/mqtt/pass	Password to access the MQTT server	Text (64 characters max)	null
/remotemqtt/topic	Topic name for the data sent	Text (64 characters max)	null
/remote/mqtt/qos	Guaranteed service level for message delivery (Quality of Service).	0: At most once, 1: at least once, 2: exactly once	0
/remote/mqtt/retain	Enabling message retention.	Boolean	false
/remote/mqtt/tls/cacert	Root Certificate of the Certification Authority	Text (128 characters max)	null
/remote/mqtt/tls/clientcert	Certificate signed by the local client	Text (128 characters max)	null
/remote/mqtt/tls/clientkey	Local client's private key	Text (128 characters max)	null
/remote/mqtt/tls/sni	Enable the SNI extension for TLS communication	Boolean	false
/remote/mqtt/tls/cipherSuite	List of cipher suites that can be used by the FTPS/HTTPS client. 0xFFFF allows all cipher suites supported by the modem.	Text (128 characters max)	0xC02B, 0xC02F
remote/mqtt/oneFramePerPost	For each WmBus frame received, an MQTT message is published.	Boolean	false
/remote/mqtt/keepAlivePeriod	"Keep-alive" period in seconds	Integer (max 3600)	120

Example JSON file (to be converted to BSON format for sending to the hub):

```
{
  "monitoringPeriod": 2,
  "local": {
    "magnet": 3
  },
  "remote": {
```

```
    "mqtt": {
      "addr": "mqtt.webdyn.com:1884",
      "mode": 0,
      "topic": "webdyneasy/data",
      "user": "webdyn",
      "pass": "password",
      "qos": 0,
      "retain": false
    }
  },
  "crc": 0
}
```