TECHNICAL SPECIFICATION

**DIRIS DIGIWARE M**

RS485, Modbus and wireless communication gateway via Ethernet with embedded web server and integrated Cyber-security measures

**Purpose of the specification**

This specification describes a communication gateway that centralises data sent by measurement devices and meters that communicate wirelessly or via RS485, thereafter making it available over an Ethernet or Modbus TCP network. The device also has an embedded WEBVIEW server for monitoring the electrical parameters and analysing energy consumption

The technical benchmark reference is SOCOMEC DIRIS DIGIWARE M or a similar solution that has been approved by us.

1. **General characteristics**

The modular DIRIS DIGIWARE M communication gateway will act as an interface and data-logger of measurement devices (PMD\* measurement devices, meters, etc.) equipped with an RS485 communication bus using the Modbus RTU protocol.

It is based on a Plug & Play system with modules that can be interconnected (without tools), and that provides automatic addressing and detection of measurement and metering devices, recording and automatic logging of measurements and consumption, and the automatic sending of e-mails for alarms and automatic time synchronisation.

The data collected will be transmitted via the Ethernet network.

On the Ethernet network, the gateways will use the Modbus TCP protocol to enable the exchange and storage of the data from the measurement devices.

A web server embedded in this gateway allows the real-time display of measurement data, alarms, logged data and energy consumption at the designated measuring points

The DIRIS Digiware M-50/M-70 gateway integrated Cyber-security measures. That mean they act as the unique point of access to measurement data, for the entire measurement system.

*\*PMD: Performance Measuring and Monitoring Device in accordance with IEC 61557-12.*

1. **Functions and performance**

* **DIRIS Digiware M-50 gateway: RS485/Ethernet – Multi-protocol version**

The gateway shall have the following characteristics

* A 24 VDC power supply
* An internal battery to ensure that the date and time of the complete measurement system is not reset after an outage.
* DIN rail mounting
* RS485 port for Modbus RTU communication and Ethernet port for Modbus TCP, BACnet IP, SNMPv1, v2, v3, Traps
* SNTP time-synchronisation
* Email notifications in the event of an alarm (SMTP)
* Embedded webserver WEB-CONFIG for configuration of communication settings of the system
* Integrated Cyber-security measures
* **DIRIS Digiware M-70 gateway: RS485/Ethernet – Multi-protocol version with web-visualisation WEBVIEW-M**

The gateway shall have the following characteristics

* A 24 VDC power supply
* An internal battery to ensure that the date and time of the complete measurement system is not reset after an outage.
* DIN rail mounting
* RS485 port for Modbus RTU communication and Ethernet port for Modbus TCP, BACnet IP, SNMPv1, v2, v3, Traps
* SNTP time-synchronisation
* Email notifications in the event of an alarm (SMTP)
* Embedded web software to remotely display data from an internet browser
* Integrated Cyber-security measures

The gateways shall be compatible with secure versions of communication protocols by using TLS/SSL digital certificates. The digital certificate has 2 goals: it encrypts the data transferred and it verifies the identity of the remote server.

* HTTPS for the web navigation. This encrypts all the scripts exchanged between the gateway and the web browser to prevent a hacker from analyzing it and working his way to understand the code.
* FTPS (csv export) and SMTPS (email) for the transfer of data to a remote server

The device shall ensures that data exchanged is not accessible to unauthorized users and that the system and its data has not suffered unauthorized modification.

The device shall guarantees that data are available to users when they need them. The most common attack that impacts availability is denial-of-service in which the attacker interrupts access to information.

WEB-CONFIG is embedded to the M-50 gateway and shall:

* Be reachable from any web browser
* Allow the configuration of communication settings
* integrate cyber-security measures (TLS/SSL certificates, firewall, peripheral/service restriction)
* Allow to automatically export data via FTP(S)

WEBVIEW-M is embedded to the M-70 gateway display and shall:

* Be reachable by multiple users from any web browser without any licence fees
* Allow the configuration of communication settings
* Integrate cyber-security measures (TLS/SSL certificates, firewall, peripheral/service restriction)
* Allow to automatically export data via FTP(S)
* Display real-time and logged measurement data
* Display on-going alarms and keep a log of finished alarms

Allow a manual export of measurement data over a specific time period