TENDER SPECIFICATION

**DIRIS Digiware S**

Current measurement module with 3 integrated sensors for measuring and monitoring electrical installations

**Purpose of the specification**

This specification sheet describes a current measurement module with 3 integrated current sensors for the measurement of electrical circuits up to 63A.

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

1. **General characteristics**

The current measurement module shall be CE marked, UL listed and shall be PMD\* compliant according to IEC standard 61557-12.

The system altogether shall be a plug & play multi-circuit power monitoring system providing voltage, current, power, energy and power quality data and enabling a joint analysis of single-phase and multi-phase loads.

The complete measurement system comprises:

* One 24VDC Power supply for the whole measurement system
* One system interface centralizing the 24VDC power supply and communication inputs for the entire system and allowing the visualization of all the products connected downstream directly on the display, remotely on its webserver or via multiple communication protocols (Modbus, BACnet, SNMP v1, v2, v3)
* One dedicated voltage measurement module
* Multiple current measurement modules up to 63A. Each module shall be compatible to measure several circuit types (three-phase, single-phase). Its 3 independent current inputs can be used to monitor several circuits simultaneously. The system shall allow up to 32 current modules to be added, for the monitoring of up to 96 circuits
* Optional Input/Output modules
* RJ45 interconnection cables between modules enabling great flexibility and expandability of the system. This bus must distribute communication, power supply, and synchronize the voltage sampling with the current measurement of all current sensing modules, avoiding to repeat the voltage tap on all modules.

*\*PMD: Power Metering and Monitoring Device in accordance with IEC 61557-12.*

1. **Mounting**

The current sensing module shall be compatible independently of the brand of the modular protective device and the current inputs shall be spaced at 18 mm (3/4”) center intervals to align appropriately with the pitch of the modular protective device. This allows great compactness inside panels.

The same current sensing module shall be mountable either upstream or downstream of the protective device with a self-correction of current input and network line associations.

The device should be mounted on a DIN-rail or on a back-plate using a dedicated mounting accessory.

1. **Functionalities and performance**

The measurement system shall meet the following requirements:

* **Accuracy**
* **Class 0.5 for active energy (kWh) in accordance with IEC 61557-12** (accuracy shall be guaranteed from 0.2A)

The measurements shall be available with the following values:

* Instantaneous
* Max instantaneous (time-stamped)
* Min instantaneous (time-stamped)
* Averages
* Max average (time-stamped)
* Min average (time-stamped)
* System (average for three-phase system)
* **General measurements**
* Current, frequency and voltage parameters
* Active, reactive and apparent power, power factor, cos phi and tan phi
* Operation across 4 quadrants (import/export powers)
* Predictive power
* **Metering**
* Active (+/-), reactive (+/-, lagging and leading) and apparent energies, partial and total
* Load curves / Demand profiles
* Multi-tariff (8 tariffs maximum)
* **Power quality analysis**
* Harmonics analysis (up to 63rd) for voltage and current
* Unbalance for voltage and current, symmetrical components (direct, inverse and homopolar)
* Crest factor for voltage and current
* K-factor
* Events in accordance with EN 50160 (voltage sags/dips, swells and interruptions) based on a half-cycle sampling rate
* Current overloads based on a half-cycle sampling rate
* **Timestamped Alarms**
* 9 alarms on high or low thresholds of electrical parameters
* Alarm for the status change of a digital input
* Boolean combination alarm
* Predictive power smart alarm
* Voltage/current phase association alarm
* **Data-logging**
* Recording of average electrical values (configurable: U, F, I, P, Q, S, PF, THD, Crest factor, K-Factor) with a variable integration period
* Recording and time-stamping of min/max electrical values
* Recording of measurement alarms
* Recording of EN 50160 events and current overloads.
* Recording of Voltage/current phase association alarms
* **LEDs**

The module shall have at least 3 LEDs (i.e. one per current input) configurable in 2 modes:

* Voltage detection
* Energy pulse.
* **Advanced functionalities**
* Monitoring the status of the upstream protective devices (open/closed position, Trip status, trip and operation counters) without the use of auxiliary contacts. This functionality shall be compatible with all brands and types of protective devices.
* Software correction of wiring errors, even in off-load conditions by pressing a front button on the module