HTR02-6AWS

Radio-Frequency Transceiver for Wireless Passive SAW Sensors
Dedicated to Switchgear Monitoring

*This transceiver is dedicated to switchgear monitoring. It's optimized for interrogation inside metallic cavities like the switchgear cabinet and tuned to be **compliant with IEC 62271** enabling a **license-free use in switchgear cabinets worldwide**.*

*It features various options for **additional measurement inputs, partial discharge detection, I/O options** and various **communication interfaces**. This customizable set of options creates a comprehensive yet simple and easy to use platform, autonomous or connected to a network.*

Key features

- Remote interrogation of **multiple wireless passive SAW sensors (up to 12 sensors in 1 cubicle with 2 pairs of antennas, or 6 sensors in 3 adjacent cubicles, with 1 pair of antennas in each cubicle)**
- Patented algorithms & interrogation methods for robust & reliable operation in RF-challenging environments like metallic cavities
- Advanced configuration features (automatic initialization process, error self-diagnosis, RF-link quality indicator)
- Multi-system operation optimized with specific algorithms
- Compact, DIN rail mounting
- OEM version available
- **Connectivity**
  - **Modbus-RTU** communication protocol (over RS485 through RJ45) for measurement display (GUI SENSeOR-UI or SCADA, DCS etc.) & transceiver configuration
  - Ethernet proprietary protocol for measurement display on GUI SENSeOR-UI
- Analog input for one additional sensor
- Analog output
- **Alarm** output (relay)
- **Data storage** on µSD card

Optional features

- **Online partial discharge detection function** (UHF method)
- **Multiple analog outputs and inputs** for analog sensors like current, voltage, humidity, water level, vibrations

  In next releases or upon request:
- **Additional gateways** for other connectivity requirements (**ZigBee, LoRa, 4G, IEC 61850 etc.**)
- **BTLE** (Bluetooth Low Energy) for measurement display on external Android device
- Ethernet MQTT TLS 1.2 – Cloud connectivity

Specifications – HTR02-6AWS	* = options
Main Functions	Data acquisition, processing & export of SAW sensors measurements Partial Discharge detection* (Option PDD) Data storage on µSD card or PC (through GUI) (1) Analog sensors inputs processing
Supply voltage	24 VDC (2)
Consumption	100 mA (3)
Frequency band	[430 MHz – 450 MHz]
Digital communication	Modbus-RTU over RS485 through RJ45 (4) Ethernet proprietary protocol for connection to PC with GUI SENSeOR-UI *Other connectivity options on request* *BTLE (display on Android tablet) on request*
Analog output	1x 4-20 mA and 1x 0-10 V 18x 4-20 mA* (Option EXT_AN_I/O) and 18x 0-10 V* (Option EXT_AN_I/O)
Analog input	1x 4-20 mA 18x 4-20 mA* (Option EXT_AN_I/O)
Alarm out	24 V-200 mA (relay)
Trig-In	CMOS - TTL
Daisy chaining	RJ45 (secondary – for Modbus/RS485)
50 ohms RF output (antenna connection)	6 SMB connectors for antennas for SAW sensors and PDD *1 SMB connector for antenna for RF options (further releases)*
Operating temperature range	-20°C, 70°C (5)
Storage temperature range	-40°C, 70°C
Dimensions	Standard version: 113.6x99x67.5 mm Version with option EXT_AN_I/O: 113.66x99x90 mm
Fixation	DIN rail
Ingress Protection	IP20 with enclosure Available in IP0 for OEM
Certification (6) (Conducted immunity, RF emissions, ESD)	IEC 62271-1:2007 A1:2011 (auxiliary equipment/monitoring) IEC 61000-4 (-2, -4, -17, -18, -29) CISPR11

(1) A 4 Go µSD card with adapter is delivered with the transceiver (more than 2 years of data storage in a typical configuration). SENSeOR-UI GUI for Windows 7 (or higher) is delivered.

(2) AC/DC power converter not included – optional – Power cables of 0.75 mm² or 18 AWG should be used. Other supply voltages on request

(3) Typical value at 25°C, max load without options and relay off

(4) A specific, optional, RS485/USB converter is required for configuration and display on GUI on PC. Only one converter is needed for several systems on the same network (Option RS485_CONV). A 120 Ohms load is required by RS485 standard for network termination (Option RS485_TERM).

(5) For indoor use only: place the transceiver inside the switchgear cabinet.

(6) This device is certified for worldwide license-free use in switchgears.