

# PT00109 ISM Wireless Geiger-Muller Radiation Detector

The PT00109 is a wireless sensor, which integrates an ISM radio and a Geiger-Muller detector. It has been designed for surveying petroleum, natural gas, and LPG production facilities for Naturally Occurring Radioactive Materials (NORM). The instrument is sensitive to gamma radiation with energy levels from 50keV to 2.2MeV with an effective dose rate measurement range between 0.01-200  $\mu\text{Sv/h}$ . The PT00109 is designed to operate within harsh industrial environments as well as hazardous areas ATEX ZONE-0.

It can be permanently attached to field infrastructure and operated from an internal battery without the need for costly cabling and conduit runs, thus eliminating most of the permit and labour costs for layout planning and installation. The typical mode of operation is that the PT00109 automatically performs a few readings of effective dose radiation per day and after each reading transmits the measurement data to a remote PLC/RTU by ISM radio.

## Features:

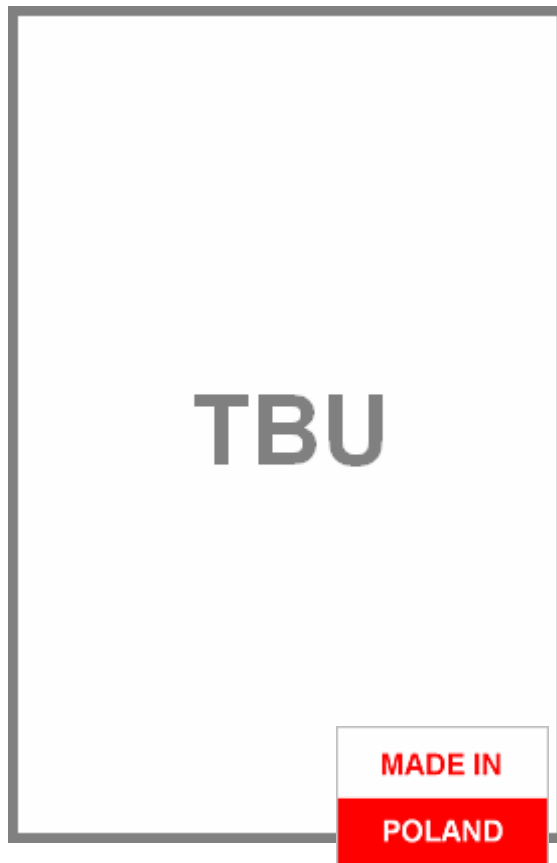
- o Device to be permanently attached to field infrastructure
- o ISM wireless interface for remote reading of radiation
- o Design for 3 years maintenance free operation
- o Energy-compensated Geiger-Muller tubes, effective capacity of detecting chamber 12.90 mm<sup>3</sup>
- o Sensitive to gamma radiation with an energy level from 50keV to 2.2MeV
- o Range of gamma radiation effective dose rate 0.01-200  $\mu\text{Sv/h}$
- o Operating temperature range -40°C to 85°C
- o Uses bi-directional a ISM radio operating in the license free 869MHz RF band
- o Operating range:
  - o 1km radio link range in open space
  - o 100m unidirectional radio link range in an industrial environment
  - o Up to 4km radio link range with a directional antenna
- o Powered from internal battery
- o Construction of device enclosures under EN 60079-18 (encapsulation 'ma' ), ingress protection IP68
- o IrDA port for configuration download
- o Remote self-diagnostic function
- o Expandable point-to-multipoint network

## Designed to meet EC Declaration of Conformity requirements:

- o EN 300 220 EMC and radio spectrum matters
- o EN 61000-6-2 Immunity standard for industrial environments
- o EN 61000-6-4 Emission standard for industrial environments
- o EN 60079-0 Electrical apparatus for explosive gas atmospheres. General requirements
- o EN 60079-18 Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus

## Applications:

- o Survey of petroleum, natural gas, and LPG production facilities to measure radiation levels from NORM



## BLOCK DIAGRAM of PT00109 ISM Wireless Geiger-Muller Detector

