

RFM series Field Termination and Intrinsic Safety Barrier Modules



Key features

- Field termination and intrinsic safety barrier modules for use with PSM APT1000 intelligent hydrostatic level transmitters
- Flexible and modular system simplifies and reduces the cost of power, signal and data wiring loops
- Lightweight aluminium (below deck mounting) or painted steel construction (above deck mounting)
- A single RFM-ISR safety barrier provides protection for all connected transmitters

Simplify the installation and connection of APT1000 intelligent transmitters

The RFM series is used with PSM APT1000 intelligent hydrostatic level transmitters to provide both simple multi-drop network connections and full compliance with Intrinsic Safety standards where required.

RFM modules are offered with various configurations from simple termination boxes to fully approval barrier systems for use in hazardous area applications.

Housings are either offered in lightweight IP67 aluminium for below deck mounting, or a rugged IP67 steel enclosure suitable for harsh environments or open deck mounting.

Cable entry is via 6 x M20 glands and the housing is vented to atmosphere via a waterproof sintered vent plug providing an atmospheric reference for the connected APT1000 transmitters.

RFM-4

The RFM4 provides convenient termination for up to 4 APT1000 transmitters. It includes connections for input power and digital signal cabling, and “pass-through” connections to feed the power and signal cable to the next RFM.

Digital multi-drop communication allows multiple RFM units to be linked using a single 4 core 2 twisted pair cable, meaning a significant reduction in overall system cabling when compared to 4-20mA based systems which require a discrete signal cable back to the display system.

RFM4 and their connected APT1000 transmitters are certified for installation in Hazardous Areas.

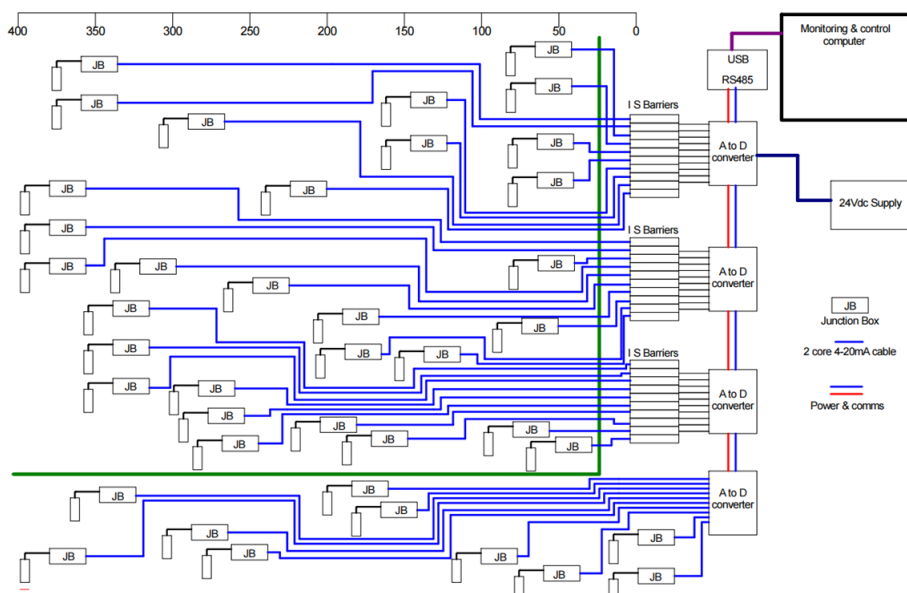
An integral detection circuit monitors the electrical performance of each connected APT1000 transmitter. In the case of a fault such as a short circuit caused by damage to the cable, the RFM4 will isolate the faulty unit meaning the rest of the network is unaffected.

RFM-12Vdc Network Power Supply & RFM-ISR I.S. Safety Barrier

RFM-ISR provides intrinsically safe power and data transmission for a network of APT1000 transmitters located in the Hazardous Area. For Safe Area networks the RFM-12Vdc is used to provide a regulated 12V DC network supply.

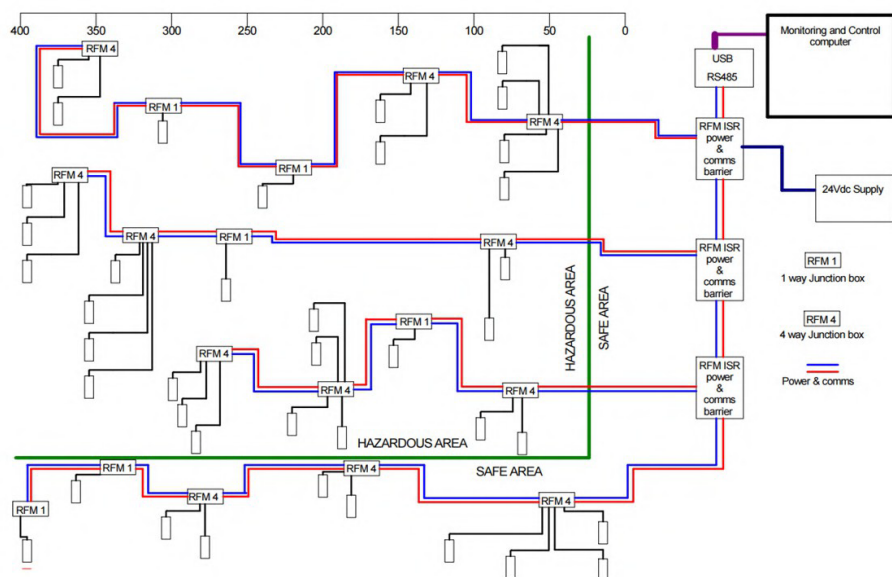
Any power input between 15 to 35V DC can be used and a single RFM-ISR will protect the full network of APT1000 transmitters connected via RFM4 modules.

Comparison of a multi-tank installation using Analogue vs. Modbus digital communications



Conventional Analogue System

- Individual 4-20mA signals each require a separate cable and safety barrier
- Signals require conversion from analogue to digital meaning additional hardware and reduced resolution



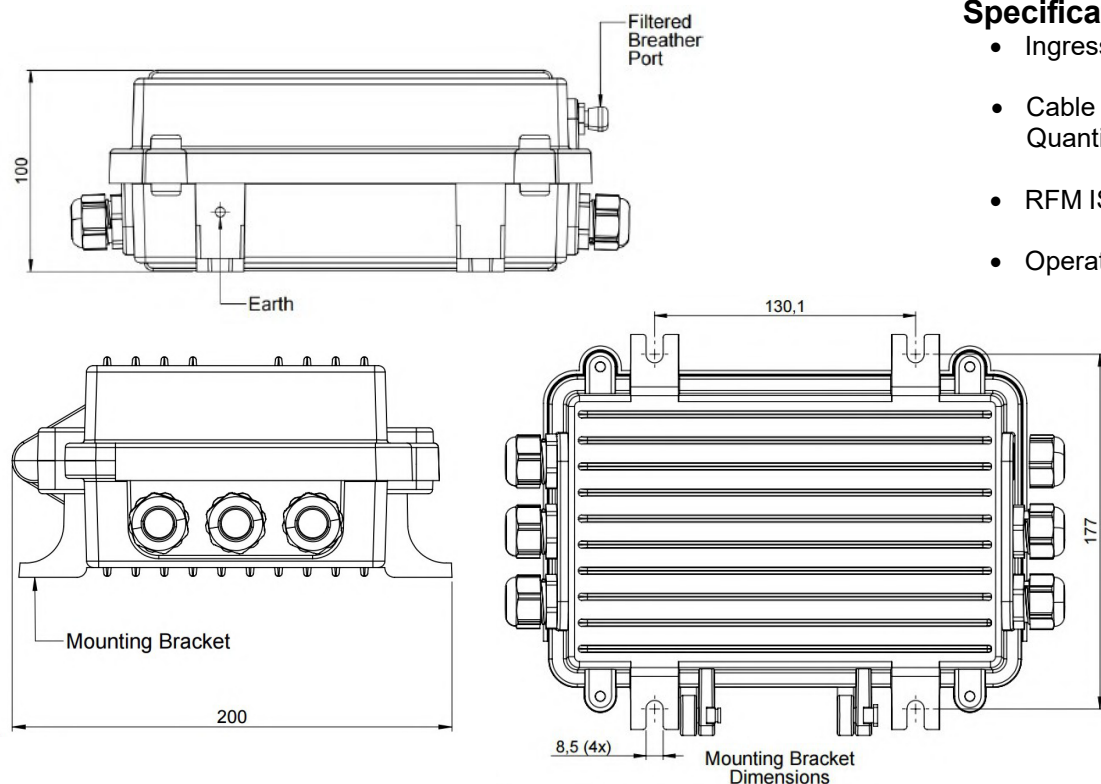
Scanjet PSM Digital System

- Direct Modbus output from sensor via a multi-drop 4-core cable to the display system reducing cabling requirements.
- No requirement for conversion to digital signal. Sensor communicates direct with the display system reducing hardware and costs.
- A single safety barrier protects power and communication lines for all sensors on each network.

A full system of APT1000 digital level transmitters and RFM4 & RFM-ISR modules with a Scanjet PSM VPM central display system provides the following benefits:

- Simple installation - a single cable replaces multiple power and analogue signal loops
- Reduced costs - reduces the quantity of copper conductors and junction boxes
- Ease of commissioning - transmitter setup and diagnostics accessible at any network point
- Reduced weight - removal of copper cable loops improves ship's operating efficiency

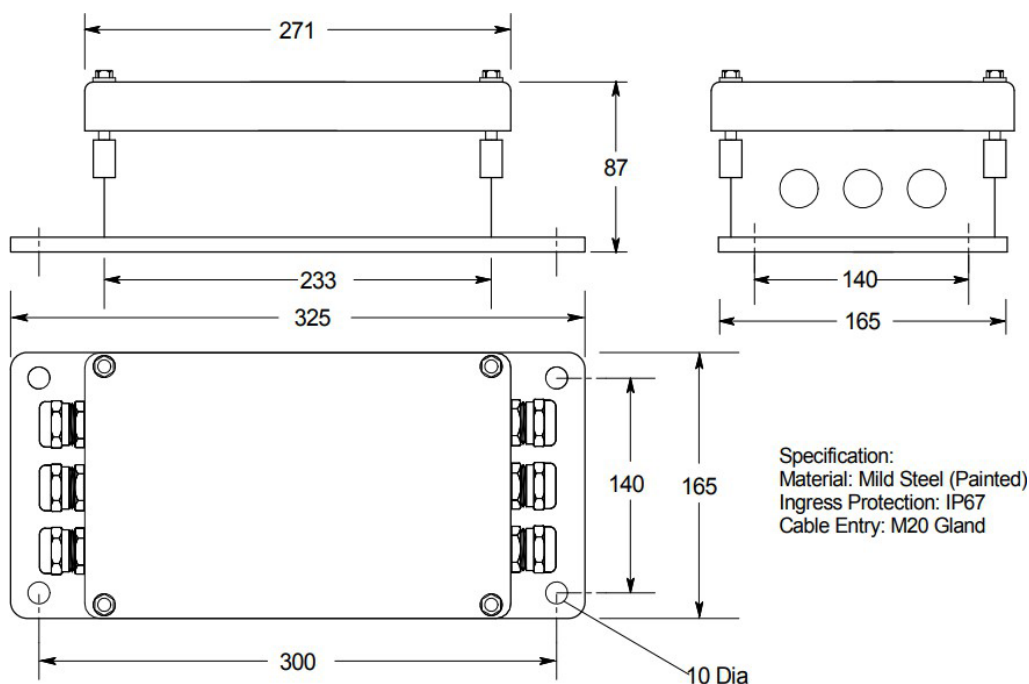
GA drawing (epoxy coated cast aluminium enclosure)



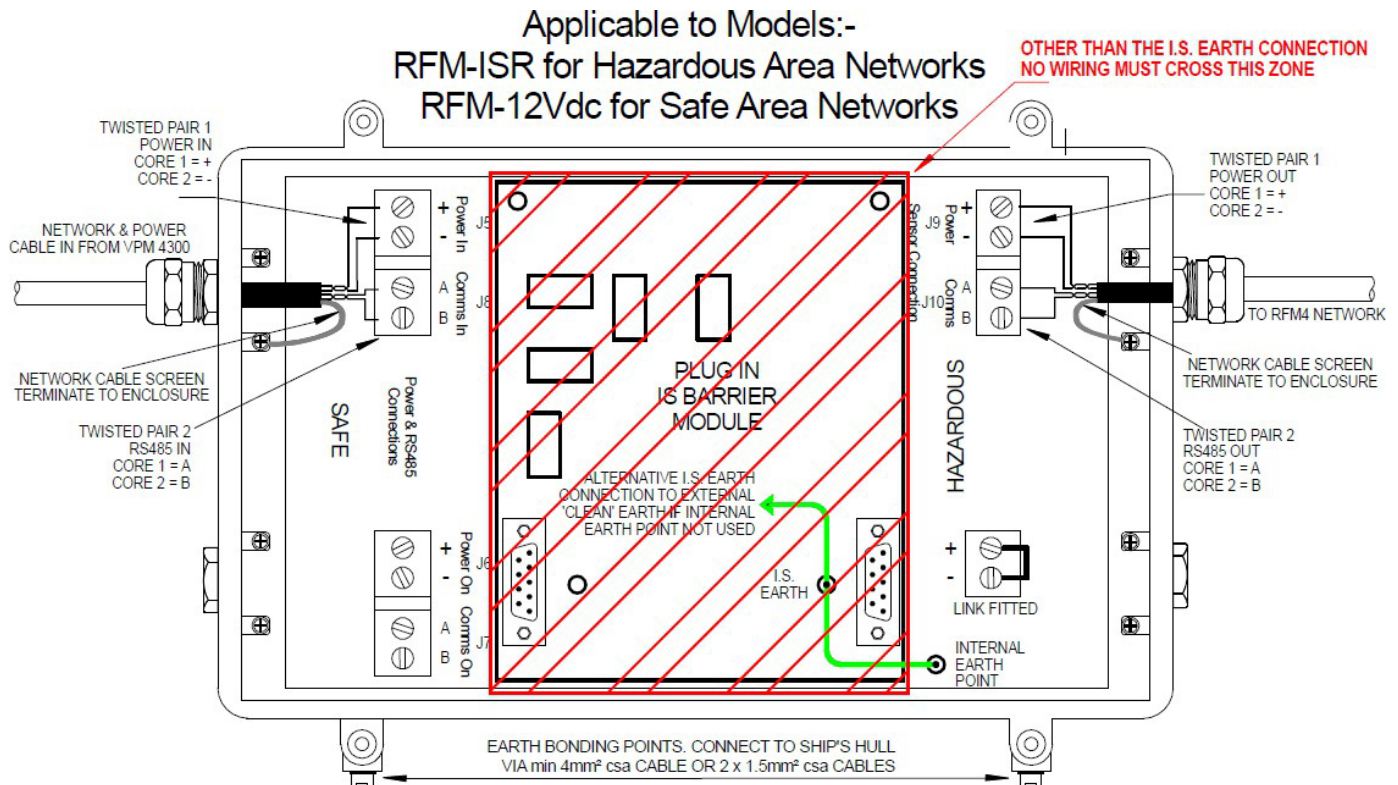
Specifications

- Ingress Protection: IP67
- Cable entry: M20 Gland
Quantity as required
- RFM ISR Supply: 15-35VDC
- Operating Temperature -10 / +50°C

GA drawing (epoxy painted steel enclosure)



RFM-ISR Connections



RFM4 Connections

