

USER MANUAL v0.2

RLP4 RF Type Level Monitor



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SAFETY

Electrical

RLP4 is often used in association with an XLP1 Power Supply. XLP1 is always powered from AC mains voltages, and its relay is often required to switch mains voltages. To minimise the risk of injury or damage to equipment, wiring should be carried out only by competent, qualified personnel. Do not open case unless the proper isolations have been performed.

RLP4 itself operates from low voltage DC power, and is designed to switch only low voltages, so it poses no inherent danger. However RLP4's inputs and outputs are opto-isolated, and may be connected to circuits at elevated voltages, so the same precautions should be observed for RLP4.

Process

These products may be connected to plant which operates at high temperatures or pressures, or with harmful materials. Before any installation or maintenance work is carried out, please ensure that the proper isolations have been performed.



INTRODUCTION

This manual contains information relevant to the installation, commissioning and operation of the RLP4 Motorised Level Sensor. The RLP4 and this manual are subject to continuous development, and it is acknowledged that the manual may contain errors and/or omissions. For the most up-to-date information, including applications information, the user should always refer to the supplier, or to the latest issue of CONNECT software, whose HELP system will also include this manual.

General Description

The RLP4 is a RF type Point Level Monitor. An oscillator energises the probe at such a frequency and impedance that the amplitude will drop significantly when it contacts another material. The condition is detected, and after a short time delay the output responds by switching. The only user adjustment (a NORMAL-FAILSAFE switch) sets the sense of the output.



SPECIFICATIONS

Certifications

Certifications EN55011:1992, EN5082-2:1995, IEC801-4, IEC1000-4-3, IEC1000-4-2, IEC100-4-4.



This symbol indicates compliance with the EMC directive and the Low Voltage directive (LVD).



This symbol indicates compliance with Australian / New Zealand C-tick EMC standards for emission.

Operational Limits

Ambient Temperature -20C to 60C (for electronics).

Vibration 1G (10m/s²) RMS max continuous, any direction, any frequency (with short or separately supported wire rope probe).

Environment IP66/NEMA4, non-corrosive.
Aluminium alloy body, stainless steel inserted parts.

Vessel Gas Pressure 100kPa (15 PSI) max.

Vessel Product /Gas Temperature -20C to 60C, 80C or 200C max for standard probes; higher temp to order.

Standard Conditions

Humidity 0 to 80% non-condensing.

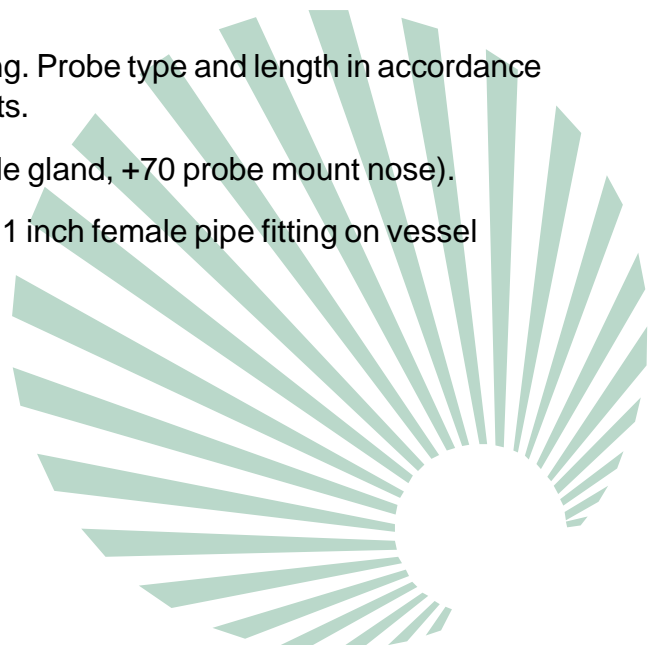
Magnetic Field 60A/m max at 50Hz (= 50Ampere-Turns in a 1m X 1m square coil).

Mechanical

Probe Removable, M8 thread fitting. Probe type and length in accordance with installation requirements.

Dimensions 88 dia X 125 long (+18 cable gland, +70 probe mount nose).

Mounting 1 inch male BSPT requires 1 inch female pipe fitting on vessel (optional quick disconnect).



Electrical

Power supply	18-32VDC at 100mA max (also see XLP1).
Recommended Cable	Belden 9538 Up to 100m (Heavier cable for longer than 100m) Connections to PLC EXT+V (5): connect to the PLC's +24VDC I/O supply rail (18-48V). AUX (4): Opto-isolated test input from PLC or manual switch. Provided EXT+V is connected as above, switch AUX to the PLC 0V I/O supply rail to force and verify an Alarm condition. HBT (2): Heartbeat diagnostic output to PLC, pulses regularly to indicate correct internal operation (2.5s on, 2.5s off). ALARM (3): Alarm output to PLC, activates with relay driver output. Both HBT and ALARM signals are opto-isolated, open-emitter transistor outputs with 3300 ohm series resistors, and source current from EXT+V. All these connections may be taken directly from MPL4, or indirectly from a connected XLP1 Power Supply.
Connection To Relay	Controls the Alarm Relay in the XLP1 power supply. May not be used for any other purpose
NORMAL - FAILSAFE Switch	Selects the mode of operation of the ALARM function. In NORMAL, the ALARM and relay outputs are active when the probe is stalled. In the FAILSAFE mode, the ALARM and relay outputs are active while the probe is NOT stalled. Thus in the FAILSAFE mode an Alarm will also be generated on wiring fault or power failure. FAILSAFE mode can alternatively be used to generate an alarm on LOW product level.



FEATURES

Easy Monitor Mounting

Monitors mount via a single 1 inch BSP threaded pipe welded to the vessel. An optional grubscrewed "Quick Disconnect" adapter which allows the monitor to be withdrawn quickly without disconnecting the wiring, to speed up commissioning and periodic inspections.

Replacable Probe

Probes mount onto monitors via a standard M8 thread, and so can be replaced easily if damaged, or to adjust the sensing distance or sensitivity. Standard probes are uncoated stainless steel with length selected to suit the application. Many variants are available in material and shape to suit different applications.

Made For Hostile Environments

Robust machined cylindrical Aluminium alloy housing with encapsulated electronic circuitry for long life.

PLC Connections

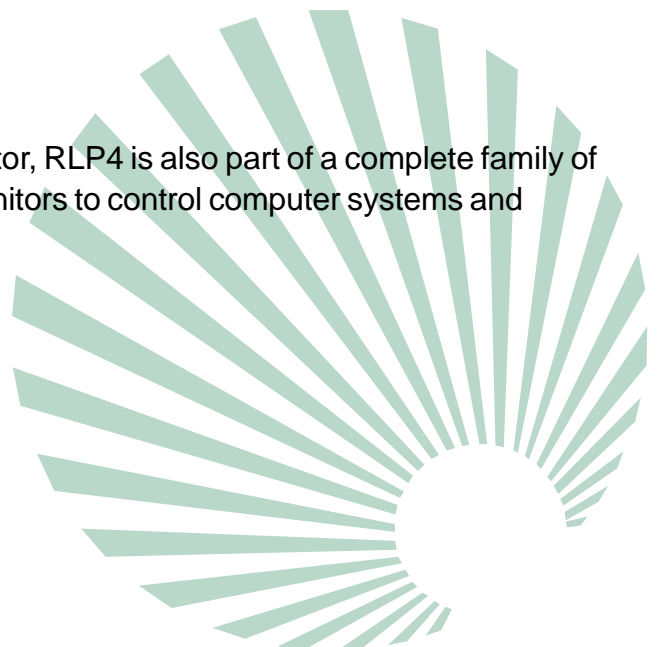
PLC connections are provided for the main alarm output, a diagnostic output and a diagnostic input. A second main output is also provided to drive the electro-mechanical relay in the optional XLP1 Power Supply.

Long Life Design

Design service life exceeds 10 years. Our earliest MLP3 Motorised Level Monitors have been in continuous operation since 1991.

Complete Family

Although designed as a general purpose level monitor, RLP4 is also part of a complete family of products for the clean air industry from emission monitors to control computer systems and turnkey projects.



WIRING AND SETUP

Wiring must only be undertaken by a qualified and licensed practitioner, and must be performed in full accordance with all local regulations. After all connections are made, ensure that all electrical glands are tight to maintain IP ratings. Please refer to the following diagram.

Wiring Diagram

