

Wireless Inductive Proximity Sensor RF System

Model: MPRF-01 Battery Operated. 5 μ A Current



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System Description:

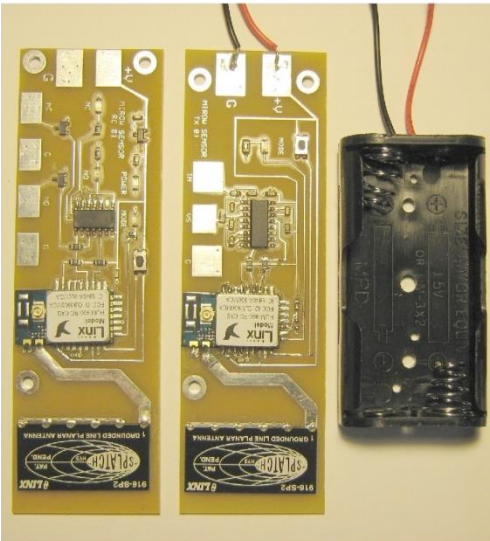
The **MPRF-01** is a simple ready to use wireless inductive proximity sensor RF System. No programming is required; just insert 2 (1.5V) AA batteries into the Transmitter module. The RF receiver module is connected to an external power source and load the same way as a conventional sensor.

The system consists of a Mercury micro power inductive proximity sensor (LPS) M18M3, RF transmitter module TX01, and a RF receiver module RC01. The system is always in active mode ready to sense target motion. The typical total combined inductive proximity sensor and RF transmitter module battery current with no target motion is 5 μ A, and 200 μ A at a target sense rate of 1/min. RF transmission is in the 900MHz frequency band.

Features:

- Battery powered proximity sensor & RF transmitter module
- Active mode battery current down to 5 μ A
- No programming is required
- Connects to external load same as a conventional proximity sensor
- FCC and Industry Canada modular certification
- The M18M3 inductive proximity sensor carries patent No. USA 9,140,579

A joint product with Mirow Sensors, Inc.
www.MirowSensors.com

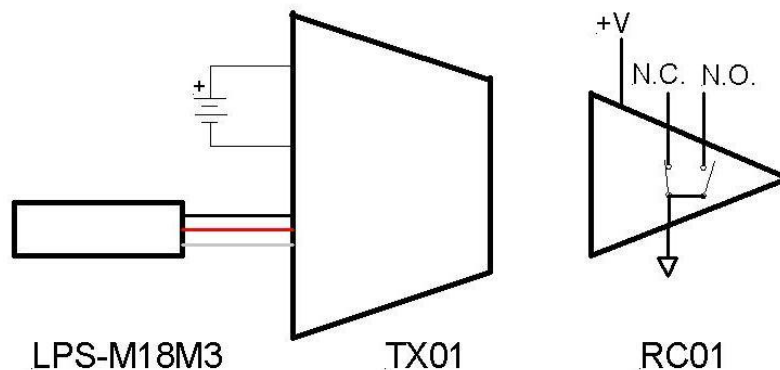


Receiver RC01 Transmitter TX01 Battery holder



M18M3 Inductive Proximity Sensor

Wiring Diagram:



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System RF Description:

- Communication band: 902 to 928MHz frequency band
- Range of radio communication: 22 m typ. ^{note 1}
- Transceiver: Linx Technologies Inc. HUM-900-RC-CAS
- Antenna: Linx Technologies Inc. ANT-916-SP
- Transmit time: 335 ms typical
- Target sensing rate: 0/sec min.; 1/sec max.
- Ambient temperature: -25°C min.; +55°C max.

note 1: Transmission range is affected by many factors such as interference, antenna, orientation, building walls, etc.

System Startup:

Reset system by first turning receiver RC01 on and then transmitter TX01.

Transmitter TX01 Specifications: $T_a=+25^{\circ}\text{C}$

- Power Supply voltage: 2.5V min.; 3.6V max. ^{note 2}
- Power Supply Current: 5 μ A typ. ^{note 3, 4}
- Operating Temperature: -25°C min.; +55°C max

note 2: Recommended battery for long life is Energizer brands, LLC type L91 (1.5V) lithium / iron disulfide. Alkaline battery is usable (1.5V)

note 3: Supply current is a function of the target transition rate. The sensor is always active as long as the supply voltage is applied. A RF signal is transmitted for 335ms when the metal target becomes sensed. When the distance increases to the metal target beyond sensing range, another RF signal is transmitted for 335ms. The supply current is 25 mA during the 335 ms transmitting time. The current for a target sensed at a 1 per minute rate the current level is 200 μ A DC typical. When the target is not changing position into or out of sensing range the current level is 5 μ A DC typical.

note 4: Combined current to both proximity sensor LPS-M18M3, and RF transmitter module TX01

Operation:

The proximity sensor LPS-M18M3, and RF transmitter module TX01 are always in active mode when powered. The mode LED turns on during RF signal transmission.

The push button switch is not used during normal operation. It is used only to pair the receiver and transmitter modules during production.

Receiver RC01 Specifications: $T_a=+25^{\circ}\text{C}$

- Power Supply voltage: 3 V min.; 24 V max.
- Power Supply Current: 27 mA typ.
- NPN type Outputs: Open: 24 V max.; 2 μ A max. Closed: 0.4 V max.; 250 mA max.
- Operating Temperature: -25°C min.; +55°C max.



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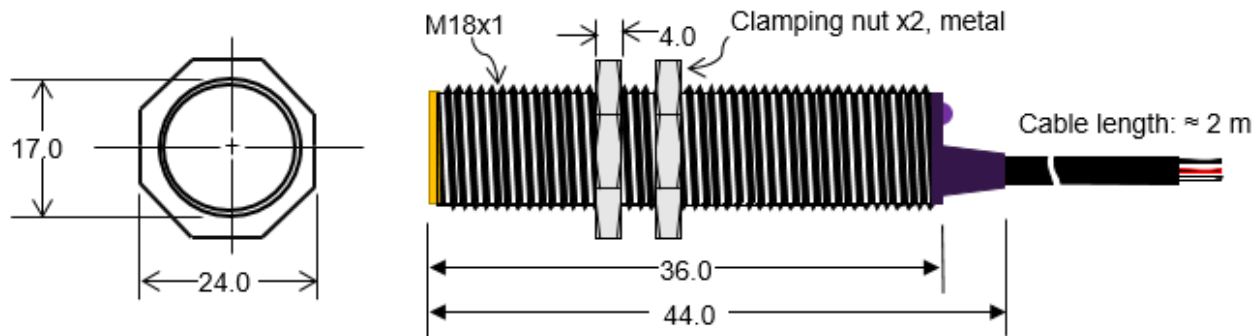
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Operation:

The RF receiver module RC01 has two NPN type outputs, one (N.O.) normally open and the other one is (N.C.) normally closed. When proximity sensor LPS-M18M3 senses a target the (N.O.) normally open output conducts load current while the (N.C.) normally closed no longer conducts load current. The output state is indicated by two LEDs. The yellow LED is on when the (N.O.) normally open output conducts load current. The red LED is on when the (N.C.) normally closed output conducts load current. The mode LED turns on during RF signal reception. The push button switch is not used during normal operation. It is used only to pair the receiver and transmitter modules during production.

Dimensions:

- Transmitter TX01 PCB size: L: 63mm, W: 46mm, H: 4.6mm
- Receiver RC01 PCB size: L: 63 mm, W: 46 mm, H: 4.6mm
- M18M3 size: M18 fully threaded metal cylinder with nuts. Shielded.



WARRANTY:

Mercury United Electronics, Inc. does not assume any liability arising out of the application or use of any product or circuit described herein. *Our products are not authorized for use as components in devices used for life support or other critical application where failure can cause death or bodily injury.* In the case of this product being defective in manufacture, labeling, packaging or shipping, it will be replaced with a satisfactory IC or the purchase price refunded. This is your exclusive remedy even though the defect or damage is caused by negligence or other fault.

FCC / IC NOTICES:

Linx Technologies Inc. statement

"This product contains FCC ID: OJM900MCA / IC: 5840A-900MCA. This device complies with Part 15 of the FCC rules and Industry Canada license-exempt RSS standards. Operation of this device is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. Any modifications could void the user's authority to operate the equipment."

