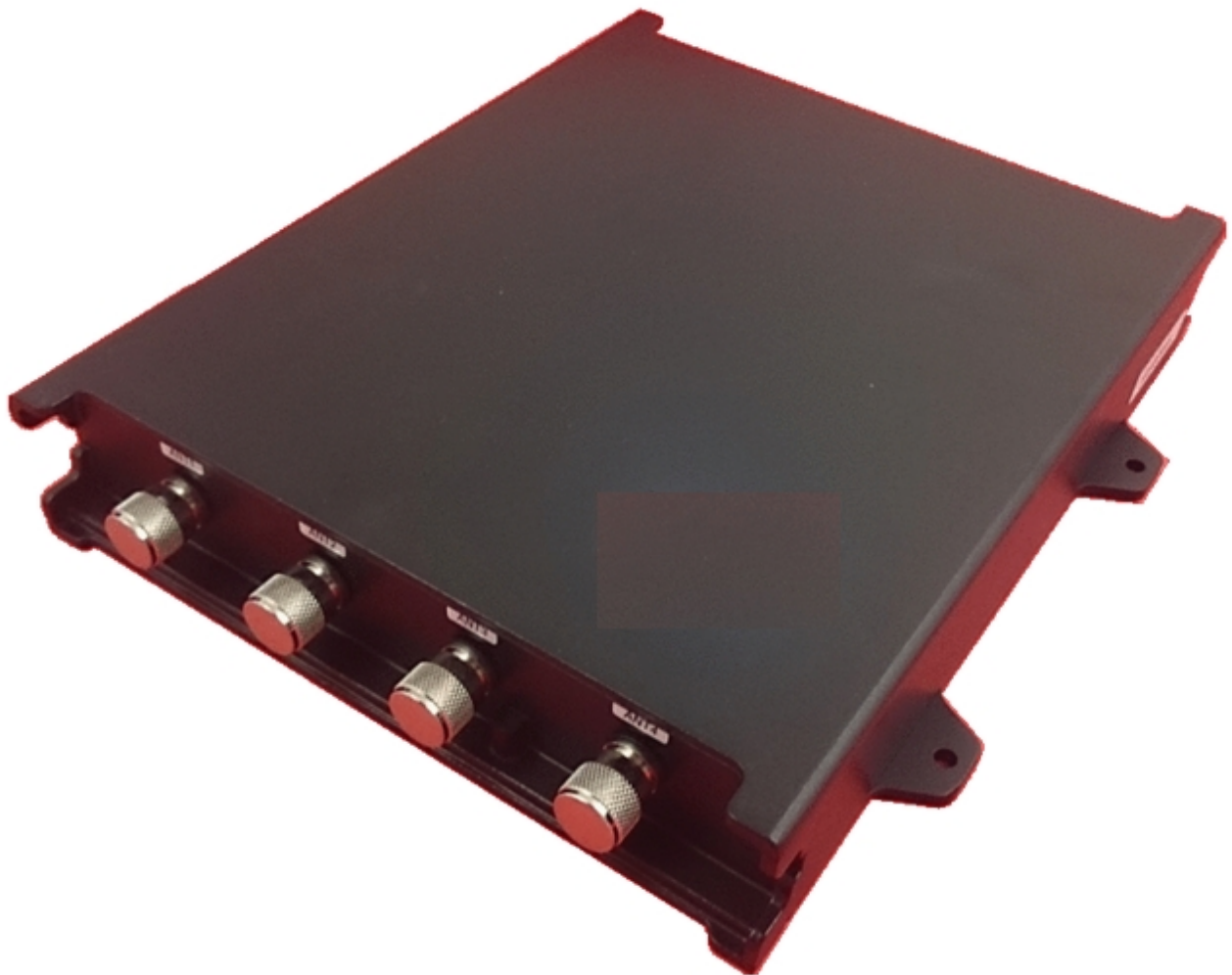


# RDR-8018QN-NEO

## **Installation & Operation Manual - 041501**



**FCC Compliance Statement**

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

**Non-modification Warning Statement**

Any changes or modifications to this device not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**RF Exposure Warning Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment should be installed and operated keeping the radiator at least 90cm or more away from person's body.

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**NOTE: READ AND USE THIS MANUAL**

**FAILURE TO FOLLOW THE INSTALLATION (SET UP) GUIDE MAY RESULT IN POOR PERFORMANCE OR EVEN CAUSE PERMANENT DAMAGE TO THE READER, THUS VOIDS THE PRODUCT WARRANTY.**

## 1. INTRODUCTION

RDR-8018QN-NEO is a four-antenna, long-range (35' to 50') Radio Frequency Identification (RFID) reader with TCP/IP interface and general purpose digital I/O (GP I/O - four (4) input four (4) outputs) that works with most leading passive UHF passive tags. This reader comes with a unique combination of long read range, ruggedized casing and low power consumption. Its primary applications are asset management and tracking, and fleet management applications.

In order to control the RDR-8018QN-NEO reader you will need the following:

- Computer with Network connection
- Host software (demo software or your own custom software).
- RFID Tags (EPC Class 1 Gen 2, ISO Type B, etc)

### 1.1. SPECIAL FEATURES

- Multi-Protocol: ISO-18000-6 Type B/C, EPC Class 1 Gen 2
- Four (4) ports for wide range antennas allowing selection for different applications
- Splash proof design for indoor or outdoor applications
- Ruggedized housing

## 2. SPECIFICATIONS

Input voltage .....	DC 12V
Input current .....	2.5A Max
Protocol language.....	ISO 18000-6 Type B/C, EPC Class 1 Gen 2
Read range .....	Depends on type & size of labels used
Output power .....	Up to 3 Watts
Transmit frequency .....	902-928 MHz
Receiver frequency.....	902-928 MHz (Amplitude Modulated)
Operating temperature range .....	-20° C to +50° C (-4° F to 122° F)
Color .....	Black
Output data formats .....	TCP/IP, Ethernet
GP I/O Input.....	4-input, 4-output
GP I/O Connector .....	10-pin MIL connector
Dimension.....	7.6x8.5x1.6" (19.4x21.7x4cm)
Weight .....	3.6lb (1.6kg)
Protection Class.....	IP 66

### 2.1.INPUT AND OUTPUT INTERFACES & CONNECTOR PIN ASSIGNMENT

(See Appendix section 6.1 for the interfaces)

#### 2.1.1. Ethernet connector (RJ45)

<u>Pin #</u>	<u>Function description</u>	<u>Pin #</u>	<u>Function description</u>
1	TX+	5	Spare+
2	TX-	6	RX-
3	RX+	7	Spare-
4	Spare+	8	Spare-

#### 2.1.2. General Purpose Input/Output

<u>Pin #</u>	<u>Function description</u>	<u>Pin #</u>	<u>Function description</u>
1	Input 1	6	Output Common
2	Input 2	7	Output 4
3	Input 3	8	Output 3
4	Input 4	9	Output 2
5	Input Common	10	Output 1

The four general-purpose inputs that use photo diodes are used to accept TTL input commands. Each input requires 15 mA and 5V to activate. The four outputs are solid-state relays, with 0.03 uA off-state leakage current and the ability to sink 120 mA at a breakdown voltage of 400V DC. All outputs are protected with reverse clamping diodes, and ready to drive inductive loads. The floating arrangement eliminates any ground loop considerations.

See Appendix 6.2 for wiring diagram of a sample application.

## **2.2. MEASURING READ DISTANCE**

Make sure you know the tag types. For instance, EPC tags must be pre-programmed to be read. For certain readers and tags, user must also be mindful of the tag's orientation and the reader's antenna orientation, what mounting surface the tags are designed for and how the tags are supposed to be mounted. Any departure from its intended purpose will drastically affect the reader's ability to energize the tag and its read range.

When measuring the reader's read range, make sure that the tag is properly oriented to the reader antenna, and for optimum performance, be sure the operator's finger is not within three (3) inches of the tag's antenna surface.

### 3. INSTALLATION PROCEDURE

This section provides installation and operation information for RDR-8018QN-NEO readers.

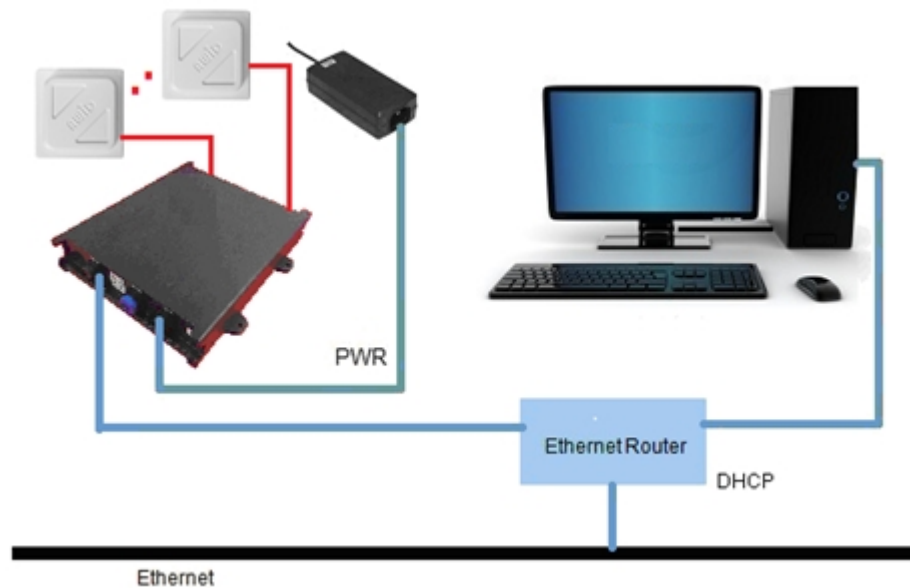
#### 3.1. PARTS LIST

Verify that all items listed below are present before the installation.

<u>Part</u>	<u>QTY</u>
1 RDR-8018QN-NEO reader	1
2 12 VDC wall plug power supply unit	1
3 RJ-45 Cable	1
4 Documentation and demo SW	1

#### 3.2. PREPARATION/SETUP

It is always a good idea to verify system operation before committing to a full-scale installation. The following are the necessary steps to test reader's operation in a static environment<sup>1</sup>.



**Figure 1 RDR-8018QN-NEO Setup in LAN**

<sup>1</sup> Warning: some fluorescent lighting may cause interference thereby degrading reader performance.

### 3.2.1. Installation Steps

- Connect reader to network with a RJ-45 cable at TCP/IP port
- Power up computer
- Connect the RJ-45 cable between the reader and connector labeled “*Out*” on the 12 V PS unit, connect from Ethernet Hub/Switch to where “*In*” is labeled. Plug in power.
- Check to ensure that all connections are secure. Make sure that all wires through the cable clamps are anchored properly; avoid dangling wires that may become a safety hazard.
- Mount the Reader/Antenna using the screw posts to fasten to reader on the desired mounting surface.
- Load and launch the demo program on installation PC. Try *Connect* after filling in the IP address of reader and then some commands once connected.
- Place the RFID tags on the exact same locations as the final configuration
- Measure tag’s read distance and confirm that read distance is correct.



## **4. Notes on Software Programming and System Operation**

### **4.1. SET UP AND SYSTEM OPERATION**

#### **4.1.1. Setting Up RDR-8018QN-NEO**

Power up with the 12-V power supply unit, connect to network through the Ethernet port with RJ-45 cable.

#### **4.1.2. Running a Custom Software Application or the Demo Program**

If AWID Demo Program is not used, it is expected that user will launch a custom software application to send commands defined in Neology MPR Communication Protocol and/or the supporting SDK to the reader.

### **4.2. USERS NOTE**

#### **For System Integrators and/or Software Developers**

System Integrators and/or Software developers should get familiar with the Neology MPR Communication Protocol (Reference I) specifications and/or the supporting SDK for developing applications that control MPR network readers.

#### **For Custom System Users**

For custom system user, please refer to your host software user guide for information regarding system and software operations

#### **For Demo Software Users**

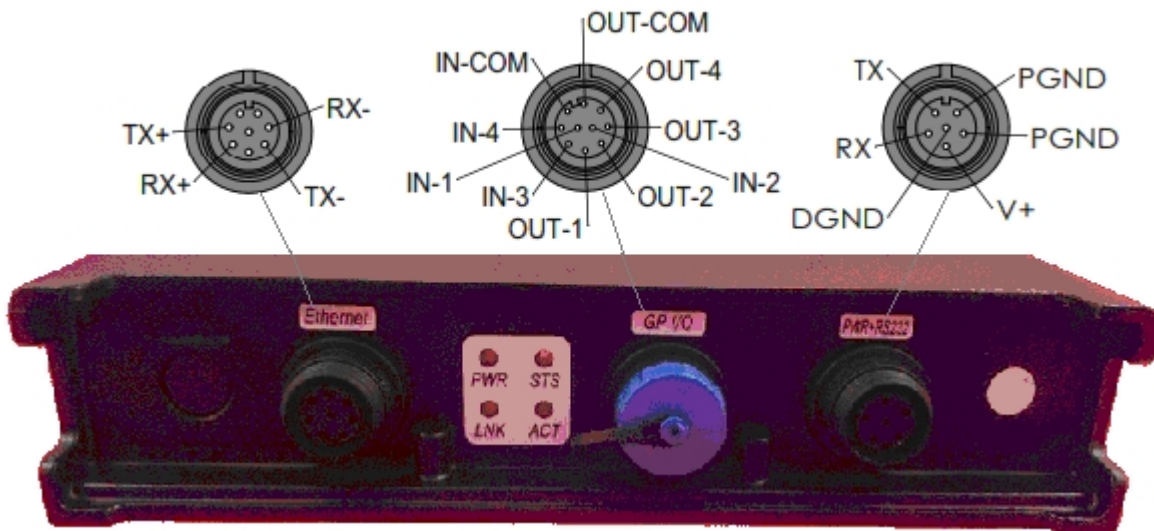
If you are using the AWID RFID demonstration software application which is .NET based with easy-to-follow GUI operations, simply fill in the IP address of RDR-8018QN-NEO installed then click "Connect" should get you started.

## **5. Reference**

- I. *MPR Communication Protocol* – Doc# 041487

## 6. Appendix

### 6.1. RDR-8018QN-NEO GPIO AND CONNECTOR ASSIGNMENT



### 6.2. SAMPLE WIRING DIAGRAM FOR GP I/O

