



Applicant: Pultronics Inc.
Product: Tag Reader
Model: TR-434A
FCC ID: RSVPUL-TRA43401

Installation and Operation Manual

Prepared by:

PULTRONICS INC.

5375 rue Paré, suite 200
Montréal, QC
H4P 1P7
CANADA
Tel.: (514) 341-7001
Fax : (514) 340-4063
www.pultronics.com

Installation and Operation Manual

Tag Reader, model TR-434A

System Architecture, Asset Management and Data Acquisition Integrated Via Internet

The Tag Reader is a part of a real time tracking system, ideal for real-time tracking of assets, as well as for data collection from remote sensors. It features a remote real-time update of system databases through the Internet. This comprehensive 3-part system consists of active tags e.g. Sensor TagA devices, Tag Readers model TR-434A and software tools. The system provides the acquisition of parameters such as vibration, motion and temperature.

This system is fully automated and continually monitors data from the sensor tags. It utilizes miniature battery-operated radio tags, and a cellular system to detect the presence and location of the tags. The locating system is deployed as a modular matrix of Tag Readers installed at strategic locations and providing full coverage of the surveyed area.

Tag Readers continually update the central database with current sensor tag data. The update is as frequent as every few seconds. In typical applications system can simultaneously track millions of tags with a database update not exceeding few seconds.

The system takes a full advantage of communication means provided by the LAN and access to the Internet. It makes possible to streamline large amount of captured data both within the LAN and to an outside location accessible through the Internet. Internet connectivity enable users to achieve high-speed control and acquisition of data from anywhere in the world. It makes data accessible from worldwide locations. Low cost and universality of the Internet makes it a best suited medium to accommodate such demands.

Tag Reader

The Tag Reader is an Ethernet based radio frequency transceiver. Its basic function is to receive data from the sensor tags and transmit this data through the Internet to a server.

It is powered from Power Over Ethernet (POE) adapter. The Power Over Ethernet (POE) adapter is easy to install. It's Plug n Play and requires no tools or software. The Tag Reader terminal unit powered using POE can be mounted virtually anywhere in a building without worrying about the location of a power supply. A typical deployment of Tag Reader devices is depicted in Figure 1.

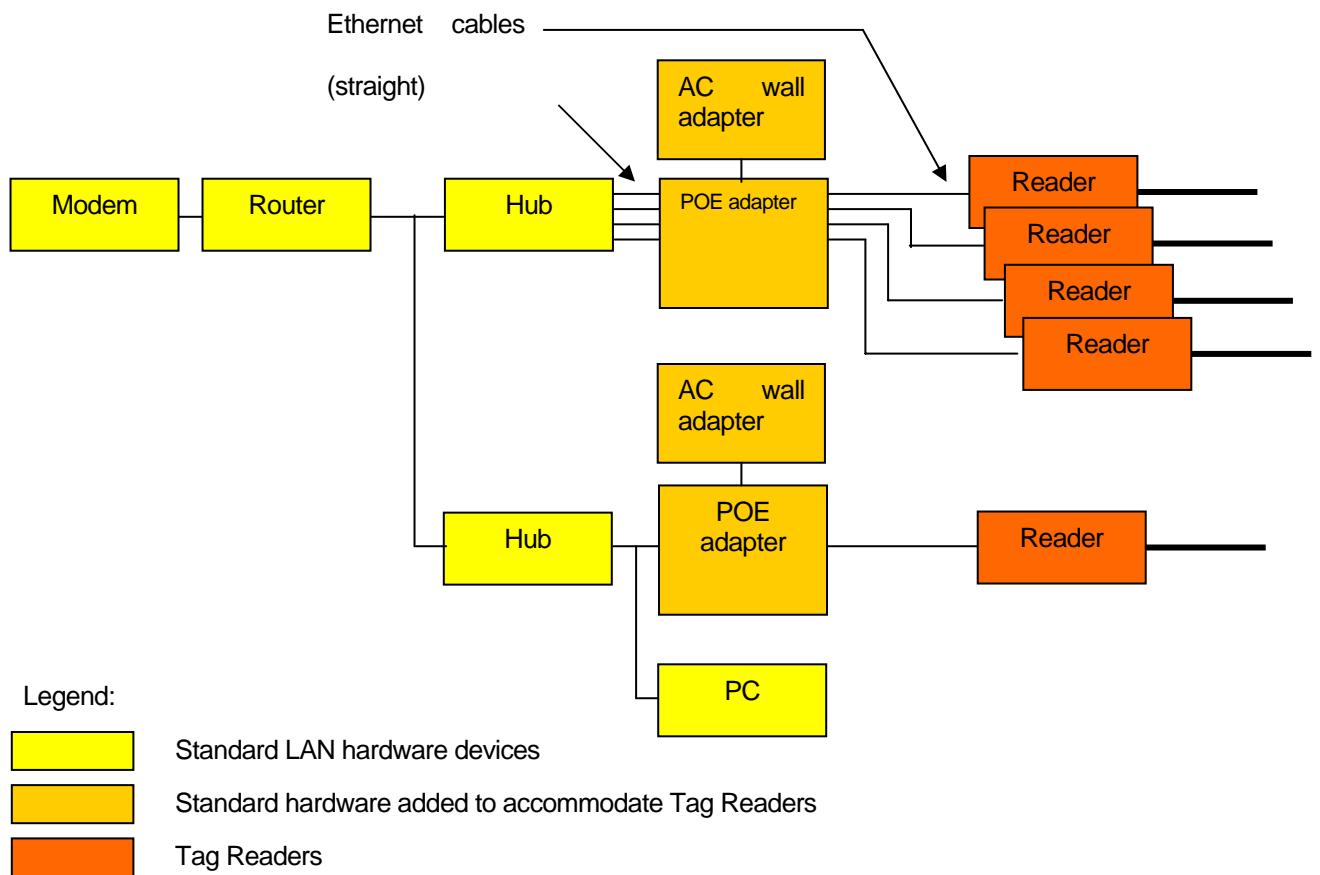


Figure 1. Typical deployment of Tag Reader devices in of a LAN

Tag Reader top view



Installation

Required materiel

Materiel required to install a network as depicted in Figure 1:

- Modem (optional)
- Router (optional)
- Hubs or switches as required to install the LAN
- Wall AC to DC adapters . Number of wall adapters is the same as number of POE adapters . To power one Reader following requirements should be met:
 - 9 to 48 V DC output , default 12 V
 - minimum 500 mW power (typical dissipation of a reader is 330mW)
 - AC input as required in the country of deployment
- POE adapters
 - should support DC voltage supplied by wall adapters (e.g. 9 V DC)
 - available configurations 1x1 (1 input 1 output + DC input), 4x4
- Ethernet straight cables (RJ-45 plugs both sides)
 - Note that global length of Ethernet cable between Hub and Reader should not exceed maximum allowed distance of 100m. If this distance is longer it is necessary to add a repeater.
- Tag Reader devices
- PC (laptop) with Windows NT /2000 with installed test program (optional)

Installation procedure

Deployment plan of the network components

1. Plan the optimum locations of the Reader devices. Best locations are:
 - In the areas which are expected to have a non-obstructed view of the incoming tags
 - Above the door
2. Plan disposition of POE adapters and wall adapters
 - They should be located close to power outlets (distance limited by a length of power cable from wall adapter to switch). Note that the DC can be sent over a relatively long distance. The limitation is set by Ethernet signal and not by DC power supply.
3. Plan disposition of HUBs and repeaters to respect maximum allowable distance
4. Plan routing of the Ethernet cables

Installation of the software tools

1. Carefully follow software installation procedures , as specified by the manufacturer.

Unpacking Procedures

Use the following procedure when unpacking your Tag Reader.

2. Verify that the module is the correct model by matching the model number listed on the side of the shipping carton to the model number you ordered (TR-434A).
3. Remove the module from the shipping carton.

- Page 5

4. Inspect the module for damage. If the module appears to be damaged, replace it in the shipping carton and contact your local supplier.

Install modem, router and eventually PC, configure and test the equipment

1. Place Hubs. Connect to the network, carefully follow installation and configuration procedures detailed by their manufacturers
2. Place POE adapters
3. Place Tag Readers
4. Prepare and route cables, use Cat 5 straight Ethernet cables
 - Cut cables to desired length
 - Install RJ-45 plugs (Crimp tool)
 - Test cable continuity (LAN Test set)
5. Connect HUBs, POE adapters, wall adapters, carefully follow installation and configuration procedures detailed by their manufacturers
6. When the network is ready to connect Tag Readers:
 - Plug an Ethernet cable to "power and data" socket of the POE adapter
 - Plug the other end of this Ethernet cable to the Tag Reader
7. Place Reader devices. Plug one by one into the network.
 - Verification with the local PC or laptop: run Reader program to verify communication with each Tag Reader added to the LAN.
 - Verification from the central office: run test program, verify that each Tag Reader passes the test.
8. Use test tag to verify reception by each Tag Reader device.
9. Run test from central office.

Warnings

This product is designed to give you years of service if handled properly. Observe the following guidelines:

1. Do not open the plastic package.
2. Do not tamper with internal components.
3. Do not make any changes or modifications to this product. Unauthorized changes may void your right to use this product.
4. Do not replace batteries.
5. Do not subject this product to extreme force, shock, or fluctuations in temperature or humidity.
6. Content of this user manual are subject to change without notice.

<u>Warning:</u> Changes or modifications not expressly approved by Pultronics Inc. could void the user's authority to operate the equipment
--

Model: Tag Reader TR-434A FCC ID: RSVPUL-TRA43401
--

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS. (1) THE DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
--