Controller Module
ANTENNA READER

The Impro Antenna Reader Module (ARM) is one of the new, 3rd-generation, Access Portal Cluster Modules from Impro Technologies.

This Cluster Extension Module may be plugged into an existing Cluster (or connected to a Cluster Controller Module via S-Bus) to add full Anti Pass-back (APB) control of one door, or Single Entry Access Control of two doors.

The Module has two full-featured Antenna Reader Terminals with their associated Relays, Door Open Sense and Request To Exit digital inputs.

The Antenna Reader Module is presently available as a Cluster Module in a black ABS plastic Housing - and a PCB Card version for installation into an IPS (Integrated Power Supply) Housing.
Key Features

- Cost effective, modular solution that allows for:
  - **Scaling** to the size requirement of the application
  - **Expansion** - Quick and convenient (plug-in) should needs increase
  - **Zero Downtime** - Replacing an ARM will not require downtime (the Tag memory and Transaction Buffer reside in the CCM).

- A Software utility to upgrade Firmware while installed on-site, without removal of the ARM.

- Flexibility in installation – The ARM may be:
  - Plugged (together with other Expansion Modules into the CCM, forming part of a “Cluster” of Impro Controller Modules)
  - Installed up to 150 away from its CCM (connected via S-Bus)
  - Installed (as a PCB Card) in a 19” Rack version of the system.

- The ARM supports the following tags:
  - Slim Tags (Read only)
  - Omega Tags (Read Only)
  - Philips HITAG™ 1 and Philips HITAG™ 2 (Read/Write)
  - HID 125 kHz Tags (Read Only).

NOTE: HID is a registered trademark of HID Global Corporation (an ASSA ABLOY Group Brand).

- 16-step Auto-tune that allows for increased cable distances of up to 25 m (82 ft.) for Non-keypad Antenna Readers and up to 16 m (53 ft.) for Keypad Antenna Readers.

- End-of-Line (EOL) Sensing on Door Open Sensor (DOS) Inputs.

- Connection to up to two Antenna Readers per ARM, allowing Relaxed or Full Anti-passback (APB) access.

- An excellent user interface consisting of 8 LED “Diagnostic Indicators”.

- Two independent single-pole, double-throw (SPDT) Relay Outputs which let you interface to door strikes, magnetic locks and other third-party devices (for example alarms panels or lighting).

- IXP220 / ImproNet System Compatible

- Four Dry Contact Digital Inputs including two Door Open Sensor (DOS) and two Request to Exit (RTE) Inputs. (When used in Access Portal Pro or IXP220 Systems, these inputs may be configured for other uses, including; Scanner Inhibit, Alarm interface and Action Request)

- A Software utility to upgrade Firmware while installed on-site, without removal of the ARM (provided the ARM is clustered with its CCM).

---

**Environmental Specifications**

- **Operating Temperature**: -25°C to +60°C (-13°F to +140°F)
- **Storage Temperature**: -40°C to +80°C (-40°F to +176°F)
- **Humidity Range**: 0 to 95% relative humidity at +40°C (+104°F) non-condensing

- **Dust & Splash Resistance**: Designed to work in an indoor (dry) environment similar to IP40. The ARM is not sealed against water

- **Drop Endurance**: 1 m (3.28 ft.) drop (in packaging).

**Electrical Specifications**

**Power**

- **Input Voltage**: 12 V DC to 15 V DC, (polarity sensitive) when powered separately as necessary for a remote, S-Bus installation

<table>
<thead>
<tr>
<th>Power Requirements</th>
<th>Input Voltage 12 V DC with no Antennas attached</th>
<th>Input Voltage 12 V DC with Antennas attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (mA)</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>Power (W)</td>
<td>0.6</td>
<td>2.4</td>
</tr>
</tbody>
</table>

**Power Input Protection**: Reverse polarity, and Transient voltage protection is provided

**Relay Power Requirements**: An additional ~0.4 W per Relay in use

**Communications**

- **Direct**: When the ARM is plugged (side-by-side) directly into the CPU, or installed as a PCB Card in a 19” Rack Installation.

- **S-Bus (Device)** (Baud Rate: 9600) : S-Bus allows for the remote installation of the ARM, up to 150m away from its CPU.

- **Module Status**: Slave

**Reader Options**

- **Antenna Port**: 2 Fully functional Antenna Reader Ports.

**Digital Inputs**

- **Input Type**: 2 Dry-contact inputs with End-of-line (EOL) Sensing and 2 Dry-contact inputs without End-of-line (EOL) Sensing.

- **Detection Resistance Range**: < 2 kΩ

- **Protection Range**: +15 V continuous.

---

**Physical Specifications**

**Antenna Reader Module in Plastic Housing**

- **Length**: 186 mm (7.3 in)
- **Width**: 99 mm (3.9 in)
- **Height**: 57 mm (2.3 in)
- **Approximate Weight**: 266 g (9.38 oz.)
- **Housing Material**: ABS Plastic
- **Colour**: Black

www.p-tron.com
Relays
Relay Output: 2 Independent, single-pole, double-throw (SPDT) Relays, each with NO, COM and NC contacts.
Contact Ratings:
- 10 A at 28 V DC
- 5 A at 220 V AC
- 12 A at 120 V AC
Operations: 100 000 Minimum

Processor
Type: ARM Cortex M0 operating at 45MHz
Total RAM: 4 K Byte
Flash: 48 K Byte

Other
Anti-tamper Switch: 1 PCB Mounted Switch

Related Information
For extra information relating to this product refer to the:

Ordering Information
Order the Antenna Reader Module using the following Part Numbers:
- HML900-0-0-GB-XX: Module in plastic Cluster Module Housing
- HML901-0-0-GB-XX: PCB Card on base for IPS Housing

User Interfaces
LED Status and Diagnostic Indicators
Status LED: Continuous Red for Normal Operation, Flashing Red During Firmware Upgrade, Off when Supply Voltage outside limits
Data: Flashing Green as per outgoing data.
Relay [2]: Continuous Red on activation of the Relay.
Relay [1]: Continuous Red on activation of the Relay.
Reader 2, RTE [2]: Continuous Green on detected contact closure.
Reader 2, DOS [1]: Continuous Green on detected contact closure.
Reader 1, RTE [2]: Continuous Green on detected contact closure.
Reader 1, DOS [1]: Continuous Green on detected contact closure.
Data: Flashing Green as per outgoing data.

Beep Codes
Fails Power-on Self-test: Continuous beep for 2 seconds.
Passes Power-on Self-test: Two short beeps of 200 ms duration, separated by a 200 ms inter-beep pause.

Warranty Details
CAUTION: We reserve the right to nullify the products warranty where you have not properly installed the Metal-oxide Varistors.
This product conforms to our Warranty details on www.impro.net.

Figure 1 – System layout showing how Antenna Reader Modules may be connected to a Cluster Controller Module

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Issue</th>
<th>Date</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>HML300-0-0-GB-XX</td>
<td>Module in plastic Cluster Module Housing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HML900-0-0-GB-XX</td>
<td>PCB Card on base for IPS Housing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This Product Specification Catalogue applies to the Impro (ARM) Antenna Reader Module, HML900-1-0-GB-01, HML901-1-0-GB-00.
(The last two digits of the Impro stock code point to the issue status of the document or product.)