iCLASS® OEM150 Module

Contactless Smart Card Module • Read/Write • Wiegand/Serial Interface • 3121

◗ **Fully ISO Compliant** – 13.56 MHz reader module, including ISO15693, 14443A and 14443B.

◗ **FIPS 201 Compliant** – PIVII compliant reader module (end-point solution).

◗ **Flexible Interfaces** – Expansion modules offer either RS232, UART-to-UART, RS485 or USB interfaces.

HID

ACCESS flexibility.

Designed for embedding into products manufactured by third-parties, the iCLASS® OEM150 Module is a 13.56 MHz read/write contactless smart card reader/writer in a printed circuit board form factor.

The OEM150 enables iCLASS technology to be used for multiple applications including cashless vending, biometrics, time and attendance, alarm system control, HVAC control, process control, and point of sale terminals.

A fully functional Wiegand reader with remote antenna, the OEM150 is easy to use – just connect power, data, and control lines. For read/write functionality, just plug in expansion modules which provide RS232, UART-to-UART, RS485 or USB interfaces.

When used with iCLASS cards, the OEM150 offers security features such as RF data encryption and mutual authentication using 64-bit keys for each application area, and optional DES or Triple DES data encryption for the HID application area. HID provides key management for access control and other data, stored in the HID application area.

For access control applications, the OEM150 can read either iCLASS credentials (transmitting the Wiegand formatted data as encoded) or MIFARE® credentials (transmitting Wiegand data based on the card serial number in 26-, 32-, 34-, 37-, 40- or 56-bit formats).

For non-access control applications, the OEM150 module can read or write to any application area on the iCLASS credential, with all reader functions controlled by an external host processor via the serial port using the iCLASS serial protocol.

The OEM150 has an audio output, operated by internal firmware, by the beeper control line, or by serial commands via the serial port. The unit can produce tone sequences indicating various status conditions.

When the configurable Hold control line is asserted, either all card reading is disabled, or the module will buffer one card read and ignore subsequent reads until the line is released.

The OEM150 has an Open Collector output, which is a normally-open logic output controlled by a serial command. The output can be latched, unlatched, or momentarily closed for 1-255 seconds.

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Features

Card Compatibility	The iCLASS® OEM150 Contactless Smart Card Module is compatible with all iCLASS credentials. The module's versatility allows it to read credentials meeting several ISO standards: • 15693 – read/write; 2k bit (256 Byte), 16k bit (2k Byte), and 32k (4k Byte) iCLASS credentials • 14443A - read only (MIFARE® card serial number) • 14443B read-write; 16k bit (2k Byte), and 32k (4k Byte) iCLASS credential
Application Support	HID offers Certification Training, as well as a Software Developer's Kit (available separately). See HID Application Note 28 for details.
Mounting	The module should be mounted on non-metallic standoffs, or held in place by plastic clips, by gluing or by potting. Nearby metallic components may reduce the card reading distance of the module. The module will not read cards or tags if completely enclosed in a metallic enclosure. (If a metal enclosure is required, the module should be placed behind a non-metallic bezel.) Do not drill any mounting holes through the board.
Environmental	The module must be epoxy potted or installed in a watertight enclosure if used in outdoor environments.
Antennae	Consult Factory
Expansion Modules	Consult Factory
Warranty	Warranted against defects in materials and workmanship for one year. (See complete warranty policy for details.)
Part Numbers	Base Part Number: 3121
Options	Key Management - Standard or Custom Selectable Output Type (for MIFARE Cards) Standard Termination: none, solder pads provided Programmable LED/Beeper Operation

Specifications

Typical Maximum Read Range
Dependent upon enclosure design, materials used, and proximity of metal components.

Dimensions
2.441" x 1.102" x 0.611" (6.200 x 2.800 x 1.550 cm)

Material
FR-4 Fiberglass laminate

Power Requirements
Nominal input: 5 VDC
Range: 5 – 16 VDC reverse voltage protected
Linear supply recommended
(Other types may degrade performance)

Current Requirements (Avg/Peak)
42/70 mA @ 5 VDC

Open Collector Rating
50 mA @ 12 VDC

Operating Temperature
-31° to 150° F (-35° to 65° C)

Operating Humidity
5% to 95% relative humidity non-condensing

Weight
.582 oz. (16.511 g)

Transmit Frequency
13.56 MHz

Pending Certifications
UL 294 Recognized
(US and Canada) OEM or integrator must secure
regulatory approvals, for the entire integrated device, consisting of the module and OEM components.
IP55

Cable Distance
Wiegand Interface – 500 feet (150 m)
UART – 1 foot (30 cm)
RS232 - 150 ft. (45 m)
RS485 - 5000 ft. (1524 m)
USB - 10 ft. (3 m)
Recommended cable is ALPHA 1295 (22AWG)
5-conductor stranded with overall shield or equivalent. Additional conductors may be required to connect all outputs.

HID

ACCESS experience.

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