



# EDGE-60R V2 UHF Reader

Ruggedized reader built around the powerful M6e UHF RFID module. With integrated antenna and designed to operate in harsh / industrial environmental is ideal for deployment in a wide variety of indoor and outdoor applications.

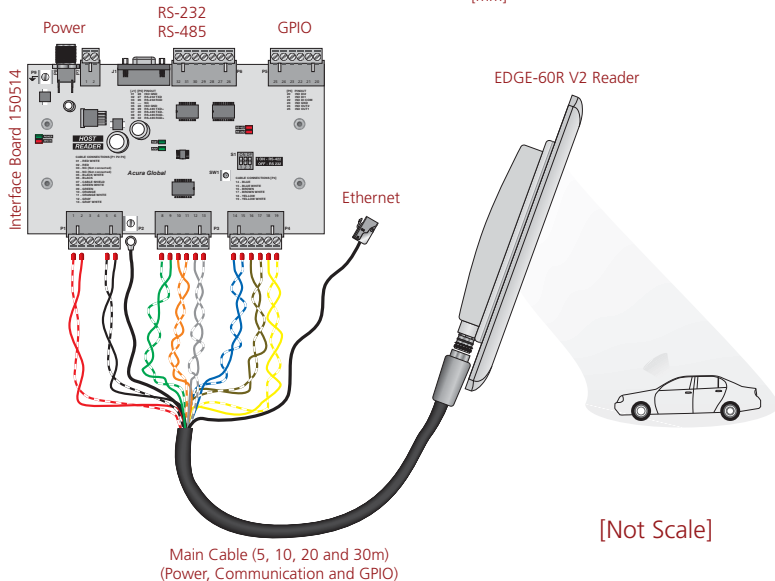
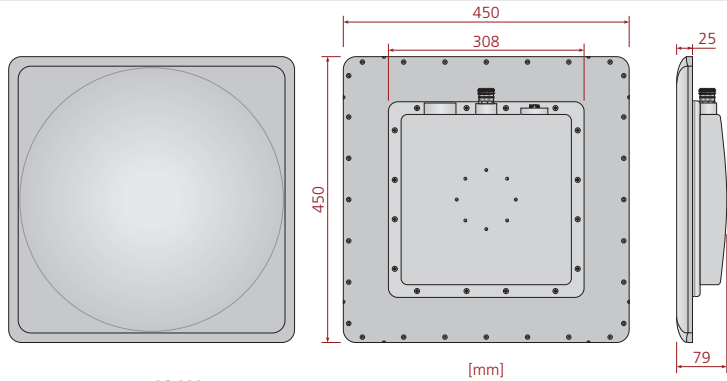
- ✓ Harsh environment (IP66)
- ✓ Excellent performance
- ✓ Ethernet
- ✓ Isolated RS-485
- ✓ Isolated RS-232
- ✓ Isolated GPIO

EDGE-60R READER	
<b>Transponder Protocols</b>	
Protocols	ARTEFATO PA SJ5511 v.1.0¹ SINIAY G0 v.1.0.0¹ BRASIL-ID P63¹ EPC Gen2 (ISO 18000-6C) ISO 18000-6B
<b>Custom commands implemented</b>	
Artefato PA SJ5511 protocol	Activate_Secure_Mode Authenticate_OBU
Siniay G0 protocol	Activate_SINIAY_Mode OBU_Auth_ID OBU_Auth_Full_Pass1 OBU_Auth_Full_Pass2 OBU_Auth_Full_Pass (Pass1 + Pass2) OBU_ReadFromMemMap OBU_WriteToMemMap
Brasil-ID P63 protocol	ReadSec WriteSec
EPC Gen2 (ISO 18000-6C) protocol	All mandatory commands (Read, Write, Lock, ReadMemBlock, WriteMemBlock, etc)
<b>RF Interface</b>	
RF Power Output	Separate read and write levels, command adjustable from 5 to 30 dBm (1W) with ±0.5 dBm accuracy above +15 dBm²
Regulatory	Pre-configured for the following regions: ANATEL (BR) 902 - 907 MHz e 915 - 928 MHz FCC (NA) 902 - 928 MHz ETSI (EU, IN) 865.6 - 867.6 MHz
Mode	Frequency Hopping or Fixed Frequency (Configurable frequency hoptable)
RF Modulation	PR-ASK
RF Encoding	FM0, Miller M2, M4 and M8
Backscatter Link Frequency (BLF)	250KHz, 320KHz and 640KHz
<b>Performance</b>	
Max Read Rate	Up to 750 tags/second using high-performance settings
Max Tag Read distance	Over 30 feet (9 m) with 12.5dBi antenna (36dBm EIRP)³
<b>Power</b>	
DC Power required	DC Voltage: 24VDC ± 1% Max Ripple: 200mVpp
DC power consumption @ RF level	Max 15W @30dBm With maximum duty cycle
<b>Control / Data Interface</b>	
Connectors	<b>Power, Communication and GPIO (shielded cable)</b> Industrial M23 Signal Straight Connector IP66 (connected) <b>External antenna</b> N type connector 50Ω IP66 (connected)

Data Communication	<b>Serial:</b> RS-485 Full-Duplex Complies with ANSI/TIA/EIA-485-A-98 and ISO 8482:1987(E) 5KV RMS fully isolated High common-mode transient immunity: >25 kV/µs ±15 KV ESD protection on RS-485 input/output pins Surge protection (Overvoltage and Overcurrent) with a coordinate scheme using GDT - TBU - TVS  <b>Ethernet:</b> Data rate: 10/100Mbps 1.5 KVAC isolated Surge protection (Overvoltage and Overcurrent) with a coordinate scheme using GDT - TBU - TVS
GPIO	<b>2x Opto-Isolated Digital Input:</b> 1KV RMS fully isolated Dry contact and Wet contact (any polarization) scheme supported Minimum pulse width: 100ms 3.0 ~ 24.0VDC - High level 0 ~ 2.0VDC - Low level  <b>2x Opto-Isolated Digital Output:</b> 1KV RMS fully isolated Open collector output type Max. Current sink: 400mA Max. Voltage sourcing: 40V
Shielded Cable	2 twisted pairs 24AWG (UTP) + 8 twisted pairs 22AWG Shield: bare copper braid 90% with tape viscose Cover: PU polyurethane compound 1.2mm thick Outside diameter: 12mm ±0,5mm
API support	C#/.Net, Java, C (Include samples, source codes and Demo Software)
<b>Mechanical / Environmental</b>	
Water Tightness	IP66 (with M23 correctly attached)
Integrated antenna	12.5dBi gain Linear Horizontal or Vertical polarization (See more details on antenna table)
Dimensions	450 x 450 x 79mm [LxWxH]
Weight	6Kg ±0.5Kg
Operational temperature	-10°C a + 65°C
Storage temperature	-10°C a + 70°C
Humidity	95%
Mounting	Both wall and pole mount (Pole size Ø 1" to 1.75" - 1.75" to 3")
Adjustable positions (angles)	40° ±3°Azimuth axis (Horizontal) e 30° ±3° Elevation axis (Vertical)
Mechanical shock	IEC 60721-3-4 4M5

## INTEGRATED ANTENNA

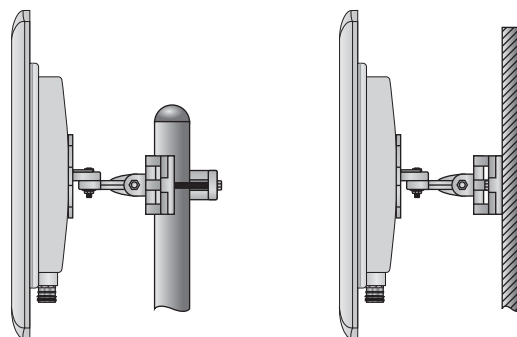
Electrical	
Frequency range	902 - 928 MHz
Gain	12.5 dBi (min)
VSWR	1.7:1 (max)
3dB Beamwidth	42° (typical)
Polarization	Linear (Vertical or Horizontal)
Sidelobes levels	-19dB (max)
Front/Back ratio	-24dB
Input Impedance	50 Ohms
Input Power	6W (max)
Lightning protection	DC Ground
Mechanical / Environmental	
Radome	Plastic
Base plate	Aluminum with chemical conversion coating
Operational temperature	-10°C to + 65°C
Storage temperature	-10°C to + 70°C
Water Tightness	IP64
Environmental Tests	
Test	Standard and notes
Low temperature	IEC 68-2-1 (72h -55°C)
High temperature	IEC 68-2-2 (72h +71°C)
Temperature cycling	IEC 68-2-14 (1h -45°C +71°C)
Vibration	IEC 60721-3-4 (30min/axis 4M3)
Mechanical shock	IEC 60721-3-4 (4M3)
Humidity	ETSI EN300-2-4 T4.1E (144h 95%)
Water tightness	IEC 529 (IP64)
Solar radiation	ASTM G53 (1000h)
Wind speed	Operation 160Km/h Survival 220Km/h
Wind load (survival)	Front thrust 58,3Kg Side thrust 3,9Kg



## INTERFACE BOARD (150514) - Code: 100.273

Control / Data Interface	
Connectors	<p><b>Power:</b> Connector power Jack 2,5mm (connector P8) Terminal Block Plug, solid/stranded wire 12-24 AWG (P7) Screw terminal M3 (connector P9)</p> <p><b>Communication:</b> DB9 connector female (J1) Terminal Block Plug, wire 12-24 AWG (P1, P3 and P6) Screw terminal M3 (connector P2)</p> <p><b>GPIO:</b> Terminal Block Plug, wire 12-24 AWG (P4 and P5)</p>
Serial data communication	<p><b>Communication between Reader and Interface Board</b> RS-485 Full-Duplex</p> <p><b>Communication between Interface Board and Host</b> RS-232 or RS-485 Full-Duplex selection through DipSwitch</p> <p><b>1x RS-485 Full-Duplex (Reader &lt;-&gt; Interface Board) (P3)</b> <b>1x RS-485 Full-Duplex (Interface Board &lt;-&gt; Host) (P6)</b> Complies with ANSI/TIA/EIA-485-A-98 and ISO 8482:1987(E) 5KV RMS fully isolated High common-mode transient immunity: &gt;25 kV/μs ±15 kV ESD protection on RS-485 input/output pins Open - Short-circuit, fail-safe receiver inputs Data rate: 9600 to 921.600 bps</p> <p><b>1x RS-232 (Interface Board &lt;-&gt; Host) (P6 e J1-DB9)</b> Meets EIA/TIA-232E specifications 2.5KV RMS fully isolated High common-mode transient immunity: &gt;25 kV/μs ESD protection on in and out pins: ±8 kV: contact discharge ESD protection on in and out pins: ±15 kV: air gap discharge Data rate: 9.600 a 921.600 bps</p>
Visual feedback	<p>Power led (On/Off) Signal led indication (TX/RX) Interface led indication (RS232 or RS485)</p>
Power	
DC Power required	DC Voltage: 24VDC ± 1% Max Ripple: 200mVpp
DC power consumption @ Baudrate	Max 2.5W @ > 500Kbps
Mechanical / Environmental	
Water Tightness	Indoor use only
Dimensions	175 x 120 x 20mm [LxWxH]
Weight	200g ± 20g
Operational temperature	-10°C to + 65°C
Storage temperature	-10°C to + 70°C
Humidity	80%
Mounting	Compatible with top hat DIN Rail TS35 (35 x 7,5mm)

- <sup>1</sup> Brazil standards for tolling and supply chain applications.
- <sup>2</sup> Maximum power may have to be reduced to meet regulatory limits, which specify the combined effect of the module, antenna, cable, etc.
- <sup>3</sup> Read distance may vary depending of Tag, antenna and environmental conditions.



Supplied with mounting kit for pole / wall

Purchase Code:
100.270 - 05M
100.275 - 10M
100.276 - 15M
100.277 - 20M
100.278 - 30M