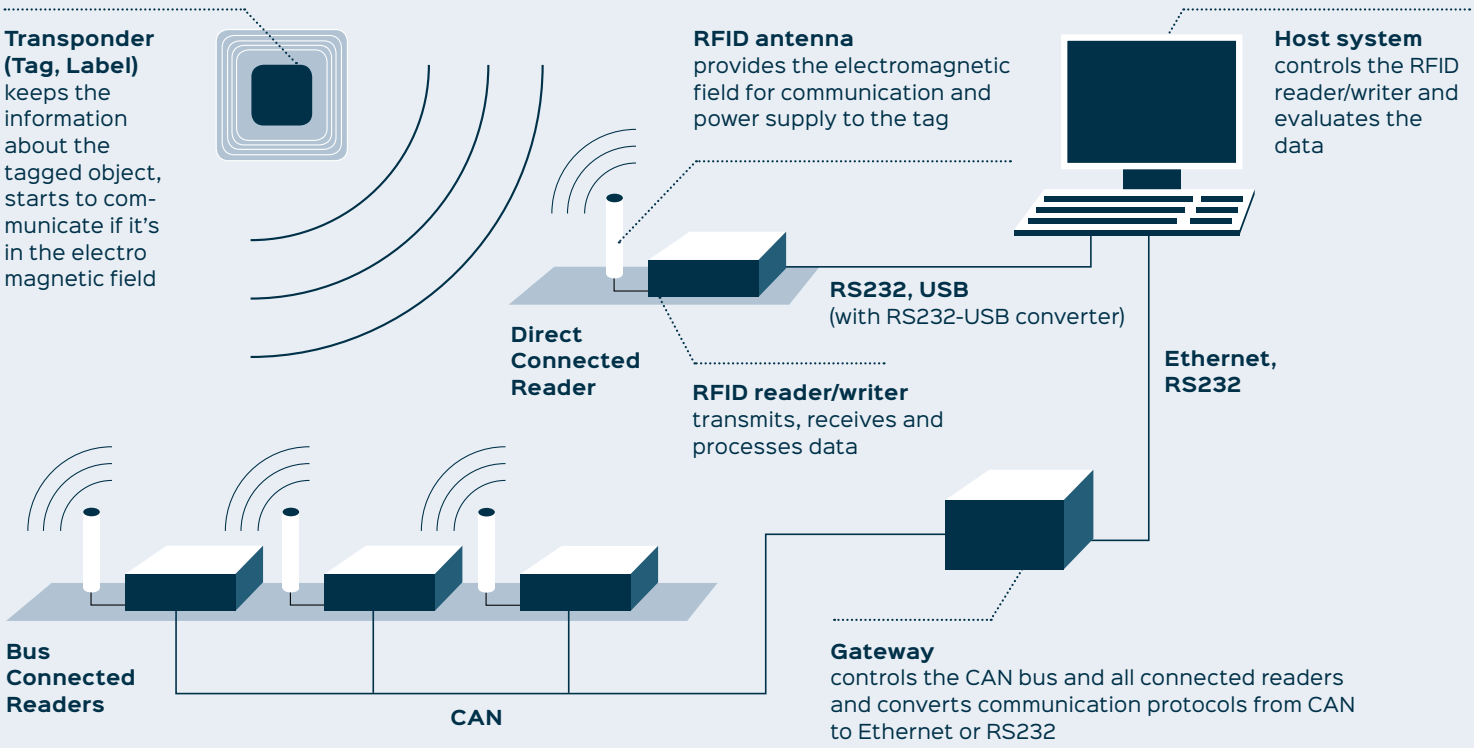
IDENTIFICATION

FABMATiCS
Automate your success

RFID PRODUCTS

Easy material tracking by automated identification

Small, smart, simple – How RFID works.



RFID (Radio Frequency IDentification) is a simple identification method for short ranges, while being reliable and low-cost. RFID allows the automatic and non-line-of-sight reading and writing of an electrical passive data medium. Fabmatics develops and produces RFID reading and writing devices featuring low frequency (LF) and high-frequency (HF) ranges. Our reader interfaces provide a variety of application options (see picture above). Using a CAN bus, only one physical interface is necessary to connect multiple readers. Readers with RS232 interfaces are easy to connect to a wide range of industrial equipment.

What you can expect from Fabmatics

As specialists in high complex production environments, we provide reliable RFID solutions for demanding industrial conditions. Because production is subject to constant change, we can customize and optimize our products according to your needs. You can be sure that RFID solutions by Fabmatics will suit your individual production needs exactly. Our products persuade with high quality and best cost-performance ratio. We will support you from the planning of an RFID project through installation and implementation and beyond.

IDENTIFICATION

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LF-134-SER

Connects with
practically anything.

Key Features

- **Standard RS232 interface**
- **Button triggered read test***
- **Two housing versions**
- **Functional design**
- **Industrially proven**

* for plastic model only

This RFID read/write device operates in the lower frequency range of 134.2 kHz. The serial interface is able to connect to practically any type of production equipment.

This LF reader enables the secure and fast identification of products and production batches. It provides read and write functionality for conventional 134.2 kHz RFID transponders. To facilitate evaluation and setup, an integrated test button allows manual read range tests without an RS232 connection.

An ideal area of application is production equipment featuring only one or very few identification positions (e.g. loadport).

Different communication protocols are available to enable integration with the host system. Please see our datasheets and user manuals for further information.

Technical data

Designation	LF-134-SER-P	LF-134-SER-M
Version	Serial LF Reader with plastic case and external test button for autonomous read function tests without software.	Serial LF Reader with fully shielded tinplate metal case for rough electro-magnetically environment.
Dimensions	120 x 90 x 50 mm	97 x 90 x 39 mm (without base plate) 117 x 90 x 44 mm (with base plate)
Weight	235 g	255 g (without base plate)
Case	ABS (Acrylonitrile Butadiene Styrene)	Housing: tinplate Base plate: POM (Polyoxymethylen)
Operating temperature	0°C to +50°C	
Storage temperature	-25°C to +50°C	
Voltage power supply	24 V/DC ±3%	
Power consumption	Reading 3.2 W (132 mA), idle mode 0.6 W (25 mA)	
Antenna	Designed for external 48µH ±3% ferrite or air-coil antenna (see „Accessories“)	
RFID frequency	134.2 kHz	
Readable transponder types	ISO 11784/785 HDX/FSK (e.g. RW, RO, SAMPT, MPT, TIRIS compatible transponders)	
Communication protocols	ASCII-L /-H /-A, SECS (SEMI E99)	
MTBF	≥ 40,000 h	
MCBF	≥ 1,000,000 reading cycles	
Reading time one page	Average 110 msec	
Permanent reading	30 minutes maximum at 14 cycles/s, after that 30mins cool down time necessary	
RS-232 interface speed	9600 bit/s , ASCII-H/-A vers. up to 57600 bit/s	
Connectors	24 V/DC (Binder Series 712-2p) Antenna (Binder Series 712-3p) RS-232 (DSUB-9 female)	

Options

Case	Product code	Test Button
Plastic	RFID-RD-LF134-SER-P-V4.0	●
Metal	RFID-RD-LF134-SER-M-V4.0	○

Accessories

Talk to our sales team for compatible antennas and accessories.

For detailed information please ask for the technical data sheet.

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IDENTIFICATION

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LF-134-CAN

The master of networking and connectivity

Key Features

- **Compact design**
- **Network-compatible***
- **Two housing versions**
- **Various connection options like:**
  - Sensors
  - Switches
  - LEDs
  - Display
- **Optionally available with adjustable RF power**

* only in conjunction with our CAN2WEB Advanced gateway

This RFID read/write device works in the lower frequency range (134.2 kHz). The integrated CAN bus interface enables simple networking between multiple devices.

LF-134-CAN readers developed by Fabmatics provide secure and quick identification of products and production batches. The device is able to read and write any conventional LF transponder. Two inputs and outputs allow sensors, switches, LEDs and even a display to be connected directly.

Every LF-CAN reader has a daisy chain CAN IN/OUT interface to facilitate the setup of a large, multiple reader linking CAN bus structure. To provide the host system with a standard protocol and interface, our CAN2WEB Advanced gateway handles all communication between host and readers connected to the CAN bus. This model is therefore also suitable above all for systems featuring multiple identification articles (e.g. in storage systems).

Technical data

Designation	LF-134-CAN-P	LF-134-CAN-M
Version	Network RFID reader with plastic case	Network RFID reader with metal case; particularly suitable for production environments with high electromag-netic interference
Dimensions	127 x 70 x 25 mm	130 x 80 x 30 mm (without base plate) 150 x 80 x 35 mm (with base plate)
Weight	150 g	273 g (with base plate)
Case	ABS (Acrylonitrile Butadiene Styrene)	Housing: tin plate Base plate: POM (Polyoxymethylen)
Operating temperature	0°C to +50°C	
Storage temperature	-25°C to +50°C	
Voltage power supply (typical)	24 V/DC ±3 %	
Power consumption	Idle mode: 1.4 W (55 mA) Read mode: 5.1 W (210 mA) w/o anything connected accessories e.g. display	
Antenna	External ferrite or air-coil LF antenna: 48 µH ±3 % (see data sheet „Accessories“); Option “I” (plastic case) has built-in antenna only	
RFID frequency	134.2 kHz	
Readable transponder types	ISO 11784/785 HDX/FSK (e.g. RW, RO, SAMPT, MPT, Tiris RI-TRP-DR2B)	
MTBF	≥ 40,000 h	
MCBF	≥ 1,000,000 reading cycles	
Reading time one page	Average 110 msec	
Speed of CAN bus	Adjustable up to 1 MBit/sec, typical 100 kBit/sec	
Available CAN protocol	SDO	
Connectors	CAN In/Out (RJ45) CAN-Bus / power; Antenna (RJ10 - plastic case/Binder Series 712-3P - metal case) external antenna, n/a for opt. “I” (plastic case); Output A,B (RJ10) 2 digital channels out, ch.A is n/a for opt. “S” (plastic case); Input A,B (RJ10) 2 digital channels in; Display (RJ10) powered serial display link	

Options

Case	Product code	internal antenna	internal sensor
Plastic	RFID-RD-LF134-CAN-P-0-V4.0	○	○
	RFID-RD-LF134-CAN-P-0H-V4.0*	○	○
	RFID-RD-LF134-CAN-P-I-V4.0	●	○
	RFID-RD-LF134-CAN-P-S-V4.0	○	● top
	RFID-RD-LF134-CAN-P-IS-V4.0	●	● top
	RFID-RD-LF134-CAN-P-ISr-V4.0	●	● bottom
Metal	RFID-RD-LF134-CAN-M-V4.0**	○	○

* hat rail mounting
** only external antenna and sensor option

Accessories

Talk to our sales team for compatible antennas and accessories.

For detailed information please ask for the technical data sheet.

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IDENTIFICATION

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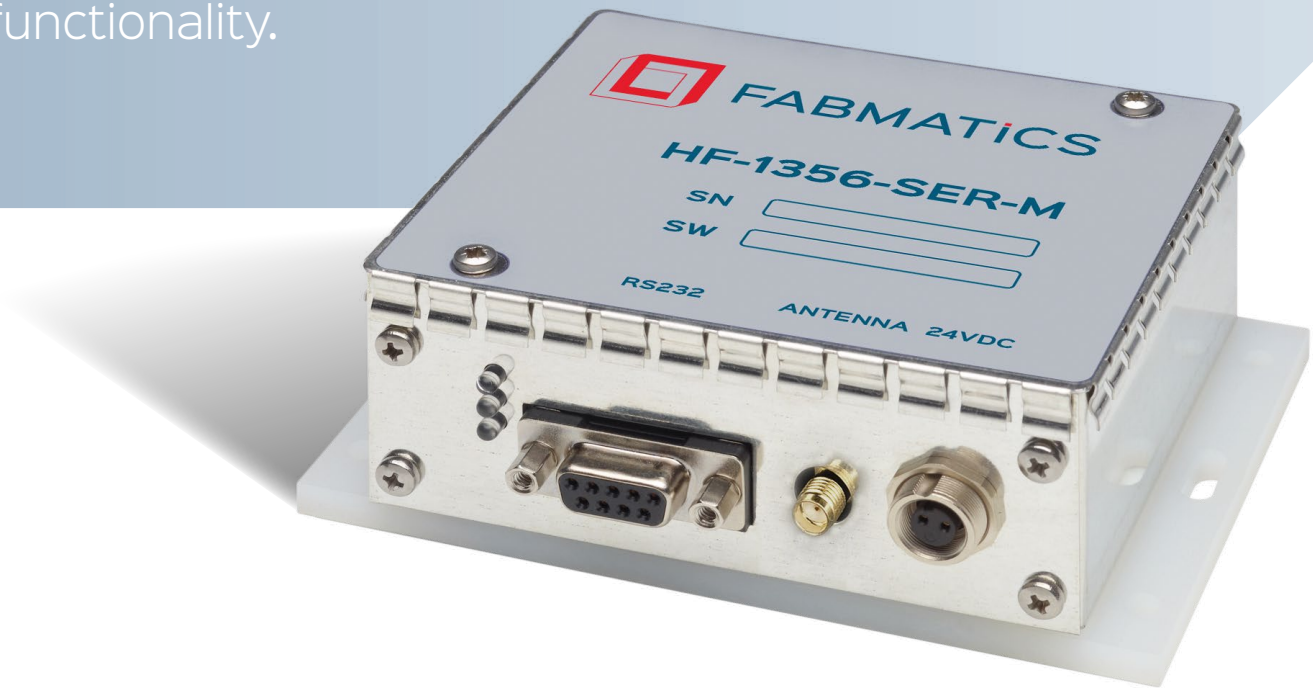
HF-1356-SER

Complete serial functionality.



Key Features

- **Compact design**
- **Standard RS232 interface**
- **Robust metal housing**
- **50 Ohm SMA antenna connector**

RFID read/write device for the high-frequency range 13.56 MHz. Includes a serial interface for convenient connection with nearly any type of production equipment.

Our HF-1356-SER reader enables secure and fast identification of products and production batches. The device operates in the 13.56 MHz frequency band and features read and write functionality for all conventional ISO15693 HF transponders.

This reader features an industry standard RS323 interface and communicates with a host system using the ASCII light protocol. Use cases for this reader include production equipment featuring only very few identification positions (e.g. single loadport).

Technical data

Designation	HF-1356-SER
Product code	RFID-RD-HF1356-SER-M
Version	Serial HF Reader with fully shielded tinplate metal case for rough electromagnetically environment.
Dimensions	97 x 90 x 39 mm (without base plate) 117 x 90 x 44 mm (with base plate)
Weight	235 g (without base plate)
Case	Housing: tinplate Base plate: POM (Polyoxymethylen)
Voltage power supply	24 V/DC ±3 %
Power consumption	Idle mode: 0.7 W (~30 mA) Read mode: 1.5 W (~60 mA)
Connectors	24 V/DC Power (Binder plug socket, Series 712-2p) Antenna (SMA) Serial RS232 (DSUB-9 female)
Communication protocol	ASCII-L
Antenna	HF antenna (see data sheet „Accessories“)
RFID frequency	RFID Frequency 13.56 MHz
Readable transponder types	ISO 15963; ISO 18000-3 (e.g. card RI-TRP-W4FF; disk RF-PT-25- 10) IFX SRF55V02P (e.g. card my-d vicinity)
Reading time one page	Average 110 msec
Permanent reading	maximum 1 cycle/s
Operating temperature	0 °C to +50 °C
Operating temperature	-25 °C to +50 °C
MTBF	≥ 40,000 h
MCBF	≥ 1,000,000 reading cycles

Accessories

Talk to our sales team for compatible antennas and accessories.

For detailed information please ask for the technical data sheet.

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IDENTIFICATION

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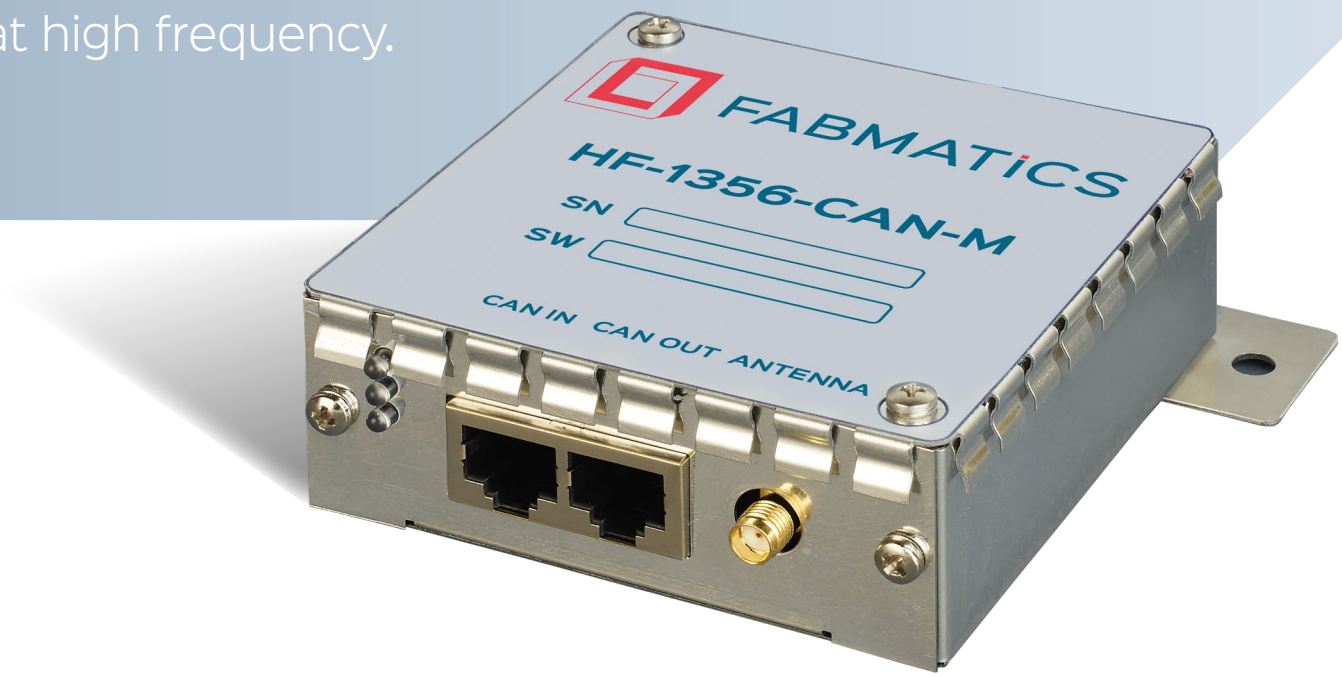
HF-1356-CAN

Simple connection
at high frequency.



Key Features

- **Compact design**
- **Network-compatible**
- **Robust metal housing**
- **50 Ohm SMA antenna connector**

This high-frequency 13.56 MHz RFID read/write device provides a CAN bus interface and easy connection of multiple devices.

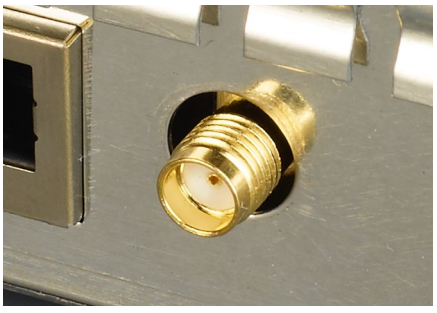
Our HF-1356-CAN reader enables secure and fast identification of products and production batches. The device operates in the 13.56 MHz frequency band and features read and write functionality for all conventional ISO15693 HF transponders.

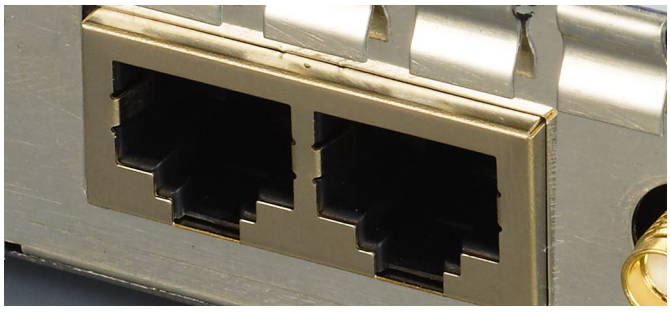
Compared to LF RFID, the transmission speed and the transmitted data increase while enabling very thin tags. It is also possible to identify multiple RFID tags in the reading area of the antenna used with our HF reader (bulk reading).

Every reader has a daisy chain CAN IN/OUT interface to facilitate the setup of a large, multiple reader linking CAN bus structure. To provide the host system with a standard protocol and interface, our CAN2WEB Advanced gateway handles all communication between host and readers connected to the CAN bus. This model is therefore also suitable above all for systems featuring multiple identification articles (e.g. in storage systems).

Technical data

Designation	HF-1356-CAN
Product code	RFID-RD-HF1356-CAN-M
Version	With metal case; particularly suitable for production environments with high electromagnetic interference
Dimensions	90 x 90 x 30 mm
Weight	185 g
Case	Tinplate
Operating temperature	0°C to +50°C
Storage temperature	-25°C to +50°C
Voltage power supply	24 V/DC ±3 %
Power consumption standard antenna	2.7 W reading / 0.5 W stand-by (typical)
Power consumption maximum	6.0 W reading ANTD-HF-120-120E
Antenna	HF antenna (see data sheet „Accessories“)
RFID frequency	13.56 MHz
Readable transponder types	ISO 15963; ISO 18000-3 (e.g. card RI-TRP-W4FF; disk RF-PT-25-10) IFX SRF55V02P (e.g. card my-d vicinity)
MTBF	≥ 40,000 h
MCBF	≥ 1,000,000 reading cycles
Speed of CAN bus	Adjustable up to 1 MBit/sec, typical 100 kBit/sec
Available CAN protocol	SDO
Available connectors	CAN IN (RJ45) CAN-Bus / power in CAN OUT (RJ45) CAN-Bus / power out Antenna (SMA) 50 ohm impedance





Accessories

Talk to our sales team for compatible antennas and accessories.

For detailed information please ask for the technical data sheet.

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CAN2WEB ADVANCED

A box full of possibilities.

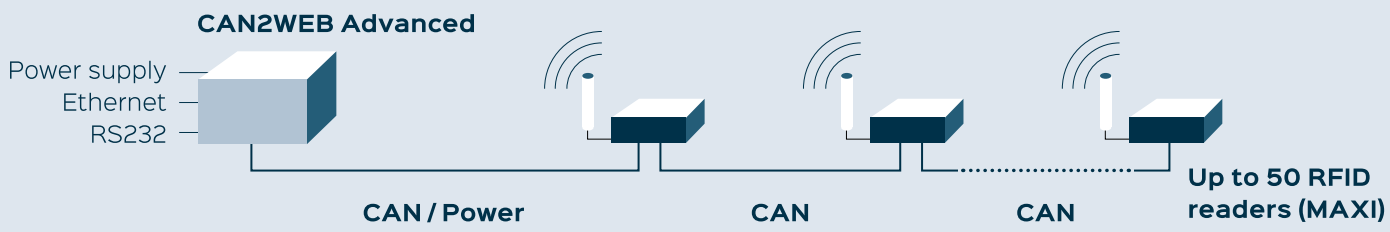
Key Features

- **Supports different network sizes (MINI, MIDI, MAXI)**
- **EM robust metal housing**
- **Up to 50 CAN-RFID devices may be connected (MAXI)**

The CAN2WEB Advanced is the communications expert: it provides a reliable connection between CAN bus devices and your own Ethernet LAN.

The Fabmatics CAN2WEB Advanced is an intelligent gateway, which handles the communication between Fabmatics CAN readers and a host system (MES, MCS, etc.).

Three different models (MINI, MIDI, MAXI) allow us to adapt the CAN2Web Advanced exactly to your needs. The MIDI and MAXI versions have an integrated power supply that enables CAN networks with up to 25 or 50 CAN readers, respectively. The MINI version allows up to 8 readers.



Technical data

Designation	C2W-A-MAXI	C2W-A-MIDI	C2W-A-MINI
Product code	RFID-GW-CAN2WEB-MAXI-V2.0	RFID-GW-CAN2WEB-MIDI-V2.0	RFID-GW-CAN2WEB-MINI-V2.0
Dimensions	188 x 160 x 120 mm	188 x 160 x 80 mm	136 x 30 x 60 mm
Weight	1580 g	1208 g	221 g
Case	Aluminum		
Number of connectable readers	Up to 50	Up to 25	Up to 8
Power supply	100 W internal SMPS	50 W internal SMPS	24 W minimum[1] external low voltage supply
Voltage supply (typical)	85-264 V/AC universal input 50/60 Hz		24 V/DC ±3%
Power consumption stand-alone	10 W	9 W	2.4 W
Power consumption with maximum number of readers	97 W	54 W	20 W
Primary fuse	2 A / 250 V, 5 x 20 mm, slow-blow	1 A / 250 V, 5 x 20 mm, slow-blow	1 A – Must be integrated in parent system power supply[2]
Secondary fuse	4 A / 250 V, 5 x 20 mm, slow-blow	2 A / 250 V, 5 x 20 mm, slow-blow	none
Connectors	1x power supply (IEC60320-C13)		1x power supply (24 V) DC plug socket binder 712-2p
	1x CAN bus (DSUB9 female), 1x RS-232 (DSUB9 male), 1x Ethernet 10/100 Mbps full duplex (RJ45), 1x auxiliary power out 24 V/DC (binder plug socket, 680-2p)		
Supported host communication protocols	IRG, ASCII, SECS (SEMI E99)		
CAN bus communication protocol	CANopen SDO		
Operating system	Embedded Linux		
Operating temperature	0 °C to +50 °C		
Storage temperature	-25 °C to +50 °C		
MTBF	≥ 40,000 h		
Certificate	CE-Certificate		

Connectable RFID readers

- LF-134-CAN
- HF-1356-CAN

Accessories

Talk to our sales team for compatible accessories.

1 The power supply is specified by customers' parent system. Be aware that the given value is only intended for the CAN2WEB Advanced. Check if the designated power supply is strong enough, especially if there are other circuits powered by the same source.

2 Make sure that the CAN2WEB Advanced is supplied from a separately fused busbar.

For detailed information please ask for the technical data sheet.

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FABMATICS
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ACCESSORIES

Extras for RFID communication.

LF antennas

External antennas for low frequency RFID readers.
Required for reader devices without an internal antenna.
For reliable alignment, the coil center is marked.

RFID-ANT-LF-CYL-20115

- High performance ferrite coil antenna with PTFE housing
- 115 mm length, 20 mm diameter (housing)
- Available cable length: 500, 1000, 2000 mm and on request; with high-flex option
- Available with different connectors

RFID-ANT-LF-CYL-1381

- Ferrite coil antenna with PTFE housing
- 81 mm length, 13 mm diameter (housing)
- Available cable length: 500, 1000, 2000 mm and on request; with high-flex option
- Available with different connectors
- Antenna holder optional

RFID-ANT-LF-CYL-0865

- Ferrite coil micro antenna with polystyrene housing
- 65 mm length, 8 mm diameter (housing)
- Available cable length: 500, 1000, 2000 mm and on request
- Available with different connectors
- Antenna holder optional

RFID-ANT-LF-CIG-15110-V1.0

- High performance ferrite coil antenna with ABS housing
- 110 mm length, 15 mm diameter, 31 mm height (housing)
- Available cable length: 500, 1000, 2000 mm and on request; with high-flex option
- Available with different connectors

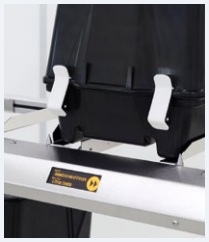
Special antennas and antenna designs are available on request.

HF antenna

RFID-ANT-HF-SQU-9673-SMA

- External high frequency RFID PCB antenna for 13.56 MHz band
- 73 mm x 96 mm x 10 mm (POM housing)
- Available cable length: 800 mm and on request
- Antenna SMA connector
- 50 ohm impedance
- Two mounting screw holes on the bottom side
- Tuneable through a small hole in the antenna housing using a suitable screwdriver
- Cable is covered by a 400 mm meshwork tube beginning at antenna housing in order to install the antenna on moving parts

Displays



256x64 dots OLED display

- Modul size: 105.6 x 31.8 x 9.5 mm
- Viewable area: 78.78 x 21.18 mm
- Background color: yellow
- Integrated into CAN networks via a separate interfacing PCB

8x40 characters LCD display

- Max. dimensions: 180 x 65 mm
- Viewable area: 134 x 40.2 mm
- Background color: green
- Connection to our LF-134-CAN readers via RJ10 connector

Special antenna fixtures

To retrofit loadports of process tools with RFID antennas, Fabmatics developed some clean and cost effective fixture solutions.

Bridge

- For process tools with several adjoining loadports (2 - 4 loadports)
- Can be easily adapted to different tools with a minimum of mechanical processing

Lantern

- For single antenna integration (single loadport)
- Its foot can be attached to any metallic surface. A stainless steel pipe, guiding the antenna cable, can be bent to allow for a great range of different geometries which guarantees an unobtrusive positioning.

Special antenna fixture adaptions, e.g. for vacuum chambers and wafer sorters, are also available.

RFID retrofitting of wafer carriers

The first step to factory automation is a reliable identification system. Fabmatics has developed a solution to retrofit existing carriers with glass tube transponders. These have proven to be robust and reliable for long-term use even under harsh conditions such as high temperatures during carrier cleaning. Talk to our sales team for more information regarding our RFID retrofit solution.

For detailed information please ask for the technical data sheet.

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STORAGE
ZERO FOOTPRINT STOCKER
PURGE SYSTEMS
RFID RACKS

HANDLING
MOBILE ROBOTS
EFEMs
ROBOTIC CELLS

TRANSPORT
CONVEYOR SYSTEMS
AGVs/RGVs
PGVs

UNIQUE PRODUCT PORTFOLIO FOR THE **COMPLETE MATERIAL HANDLING AUTOMATION**

IDENTIFICATION
RFID SYSTEMS
RFID RETROFITTING

SOFTWARE
FLEET MANAGER FOR MOBILE ROBOTS
SOFTWARE INTEGRATION

SERVICE
TECHNICAL SERVICES
FEASIBILITY STUDIES

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