

Metra WBC-WBI RFID ISO Module - Technical Manual [rev.2-010318]

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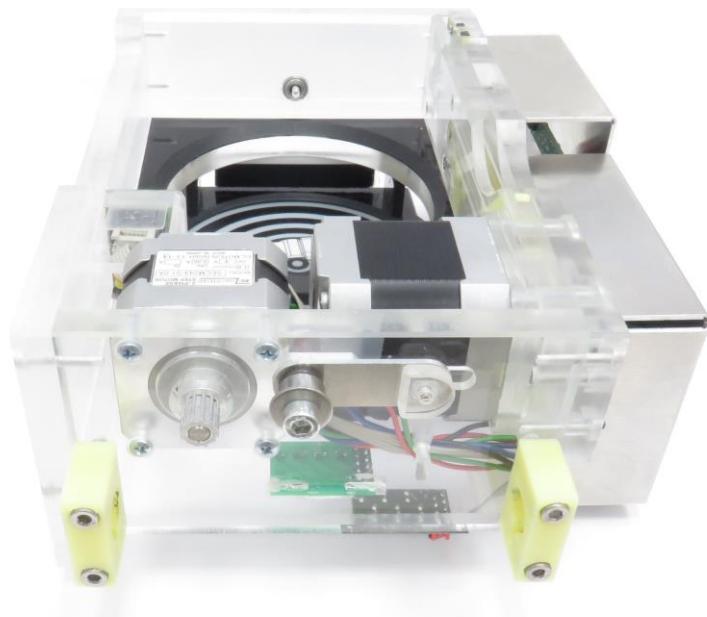
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# Metra WBC-WBI RFID ISO Module - Technical Manual

Manufacturer: Metra inženiring d.o.o.  
IOC Trzin  
Špruha 19  
SI-1236 Trzin, Slovenia

phone: +386 1 56 10 740  
fax: +386 1 56 10 744  
web: [www.metra.si](http://www.metra.si)

Trade Mark: Metra MEW System  
Model/Type ref.: Metra WBC-WBI RFID ISO Module  
Part Number: 1429  
FCC ID: 2ABT8000P1429  
Year of Construction: 2017

## NOTE

This product is for Metra internal use only!  
For integration into Metra products.

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This product is in conformity with the essential requirements and other relevant requirements of the following EU Directives:

- Radio and Telecommunications Terminal Equipment (R&TTE) Directive 2014/53/EU
- RoHS Recast (RoHS2) Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronics equipment.
- Low Voltage Directive (LVD) 2014/35/EU that ensures that electrical equipment within certain voltage limits provides a high level of protection for European citizens.



### Environmental Information for EU customers – WEEE Directive Statement:

This symbol indicates the product is in conformity with the protection requirements of European Council Directive 2012/19/EU. It requires that products marked with this symbol must not be disposed of with unsorted municipal waste.

This product must be disposed of separately from household waste via designated collection facilities appointed by local authorities. Please contact your local authorities or waste disposal service for more detailed information.



Model/Type ref.: Metra WBC-WBI RFID ISO Module  
Part Number: 1429  
FCC ID: 2ABT8000P1429

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the

instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment."

### • Product Marking Label



Photo 1 – Product marking label position

Trade Mark: Metra MEW System  
Model/Type ref.: Metra WBC-WBI  
RFID ISO Module  
Part Number: 1429  
FCC ID: 2ABT80006P1429  
Receiver category 3

**Metra**.si  
    
Manufactured by:  
Metra inženiring d.o.o.  
Špruh 19, Trzin SI-1236, Slovenia  
www.metra.si  
MADE IN SLOVENIA

Product Marking Label is attached to the front left side of the module housing as shown on the photo above. "Metra WBC-WBI RFID ISO Module" is Metra internal OEM product to be integrated to the Metra final products and is not intended for free market.

Metra inženiring d.o.o. integrates "Metra WBC-WBI RFID ISO Module" into different final products **and is responsible for proper labelling of the final product. The final product's label must include a statement "Contains FCC ID: 2ABT80006P1429".**

- Final product labelling – Example Metra Wristband Issuer

Photo below shows Metra final product called “Metra Wristband Issuer”. It integrates »Metra WBC-WBI RFID ISO Module« as an OEM module.



Photo 2 – Final product »Metra Wristband Issuer«



Photo 3 – Module integration into final product

Trade Mark: Metra MEW System  
Model/Type ref.: Metra  
Wristband Issuer  
Part Number: 1390  
Contains FCC ID:  
2ABT80006P1429  
Receiver category 3



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Metra inženiring d.o.o.  
Špruh 19, Trzin SI1236, Slovenia  
[www.metra.si](http://www.metra.si)

Photo 4 – Final product marking label

The same labelling principle should be applied for all other Metra final products integrating »Metra WBC-WBI RFID ISO Module«.

## • Product description

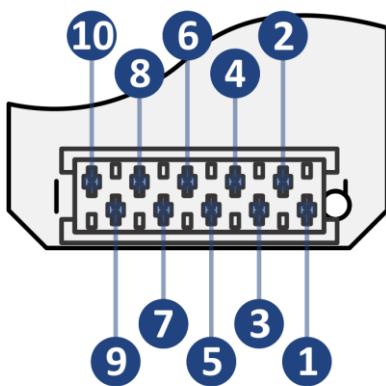
»Metra WBC-WBI RFID ISO Module« is an Cortex-M3 microcontroller based **OEM RFID transceiver module** intended for internal Metra use only.

Its purpose is to use it as electronics controlled module for different products manipulating (moving through machine) Metra RFID Wristbands. For that purpose it contains specific electronic parts that enables construction of the RFID electromechanical devices. It is not intended for sale as standalone product and is integrated into Metra final products such as "Metra Wristband Issuer".

»Metra WBC-WBI RFID ISO Module« main features are:

- Cortex-M3 (NXP LPC1769) microcontroller chip.
- Two L6470H fully integrated microstepping motor driver chips.
- RFID reader (NXP CLRC663) connected to Passive RFID Antenna tunned to 13,56 MHz (PAN Antenna). It Reads ISO 15693, ISO 1443A, ISO 14443B compatible RFID media.
- Hall proximity sensors on external PCB used for positioning control.
- External PCB LED signalisation.
- Internal LED and audio signalization.
- MEW communication interface.
- Power supply unit. DCDC converters from 24VDC to 12VDC/3V3DC/5VDC.
- Door sensor input.

## • Connectors Pin-out



Pin numbering for MM Connectors

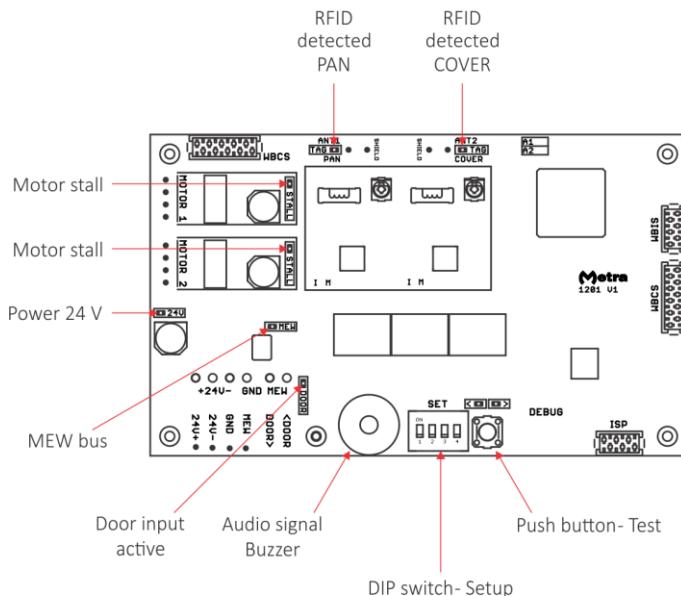
CON4 and CON5: WBCS (WBC LED & Hall Sensors)

Pin number	Signal	Description
1	LEDWR	RED LED signal output (3V3 logic output)
2	N.C.	Not Connected
3	LEDWB	BLUE LED signal output (3V3 logic output)
4	+24V	+ 24V Power Supply Output
5	HALL1	Hall Sensor 1 input (logic 3V3 tolerates 5V)
6	HALL2	Hall Sensor 2 input (logic 3V3 tolerates 5V)
7	HALL3	Hall Sensor 3 input (logic 3V3 tolerates 5V)
8	HALL4	Hall Sensor 4 input (logic 3V3 tolerates 5V)
9	+5V	+ 5V Power Supply Output
10	GND	Ground

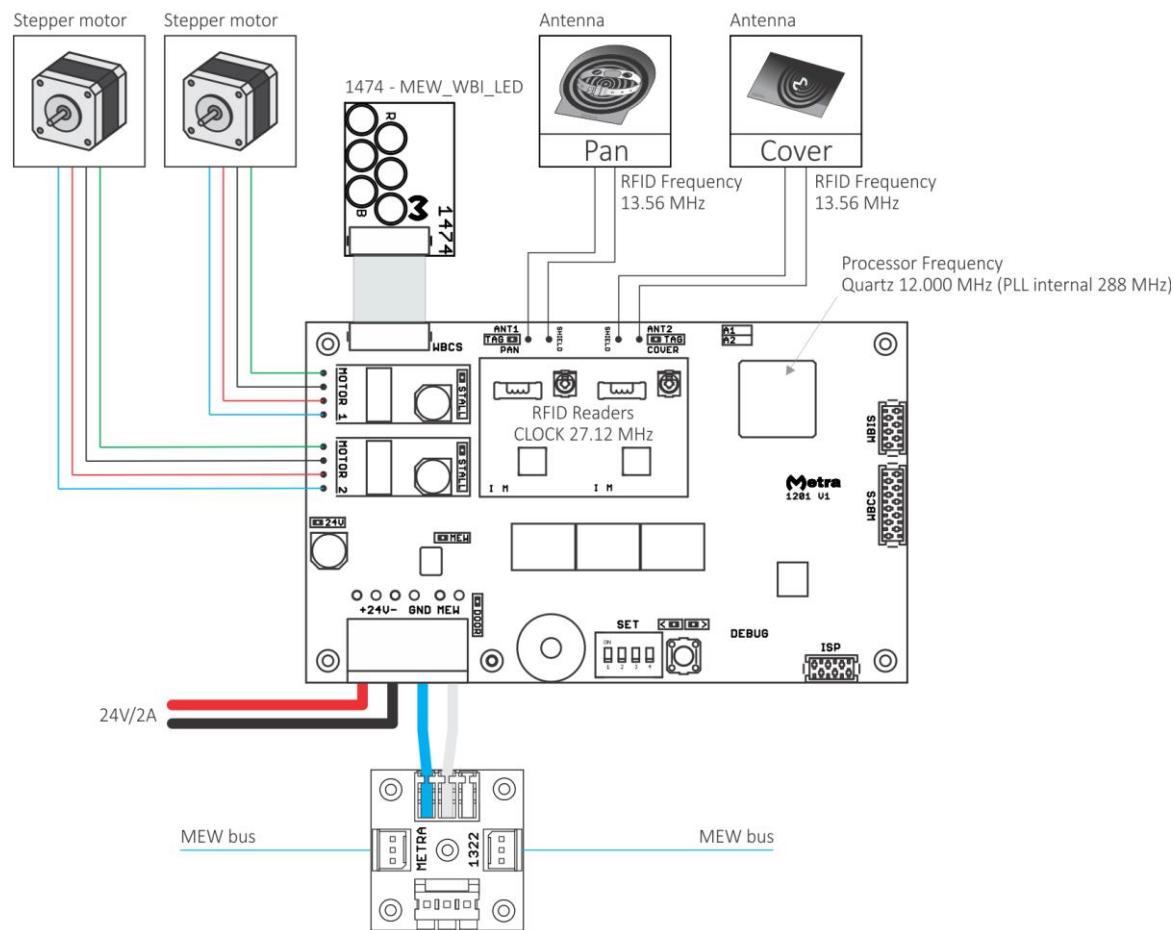
CON6: WBIS (WBI Hall Sensors)

Pin number	Signal	Description
1	SENS2	Hall Sensor 2 input (logic 3V3 tolerates 5V)
2	GND	Ground
3	SENS3	Hall Sensor 3 input (logic 3V3 tolerates 5V)
4	SENS1	Hall Sensor 1 input (logic 3V3 tolerates 5V)
5	SENS4	Hall Sensor 4 input (logic 3V3 tolerates 5V)
6	+5V	+ 5V Power Supply Output

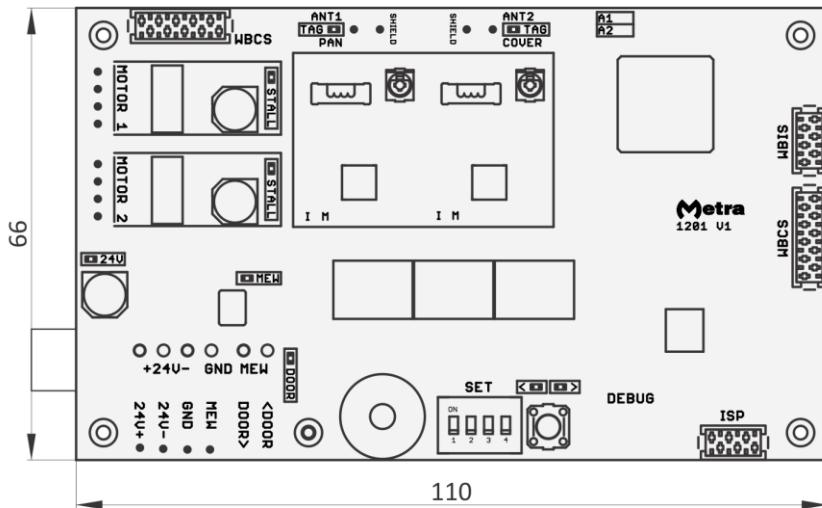
## • PCB LED Indications and Inputs



• Blok Scheme



## • Technical data



PCB dimensions

**Operating voltage/Current cons.** 24 VDC 0.2A average / 1.5A max

**Operating temperature range** -10 to +50 °C

**External LED signalization** Blue LEDs and Red LEDs on external connector

**Audio signalization** Buzzer

**On board LED signalisation** RFID detected, Motor Stall, PWR 24V, MEW active, Door Input

**Built-in RFID reader** Reads ISO 15693, ISO 1443A, ISO 14443 B compatible RFID media.

**RFID Antenna** Passive antenna tuned to 13.56MHz.

**Motor Drivers** Two Stepper Motors max 1.5A/phase

**External Inputs** 4 Hall sensors, Door sensor

**Communication** 1xMEW (LIN)

**Connectors** 24VDC, MEW, Motors, RFID Antenna, LED&Hall Sensors

**PCB dimensions in mm (w/h/d)** 110/66/12