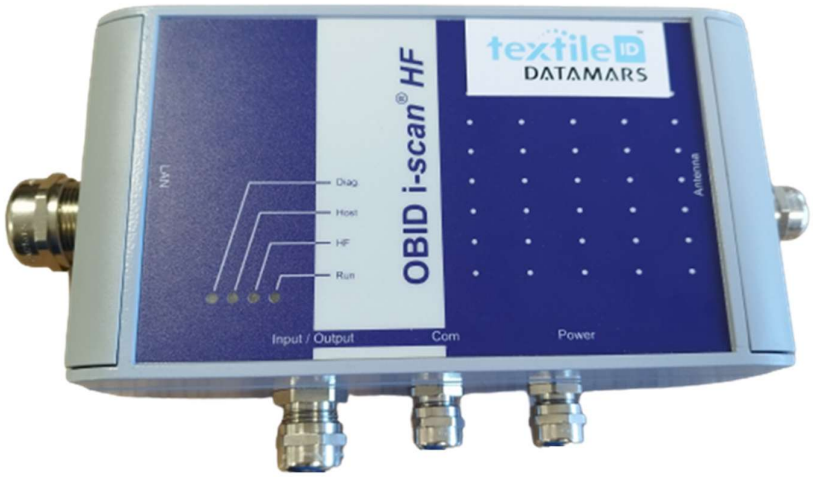
R-HF-LF1002-FG-L & R-HF-LF1002-FG-L-PLUS

HF multi-read

USER MANUAL

Rev. 1.0



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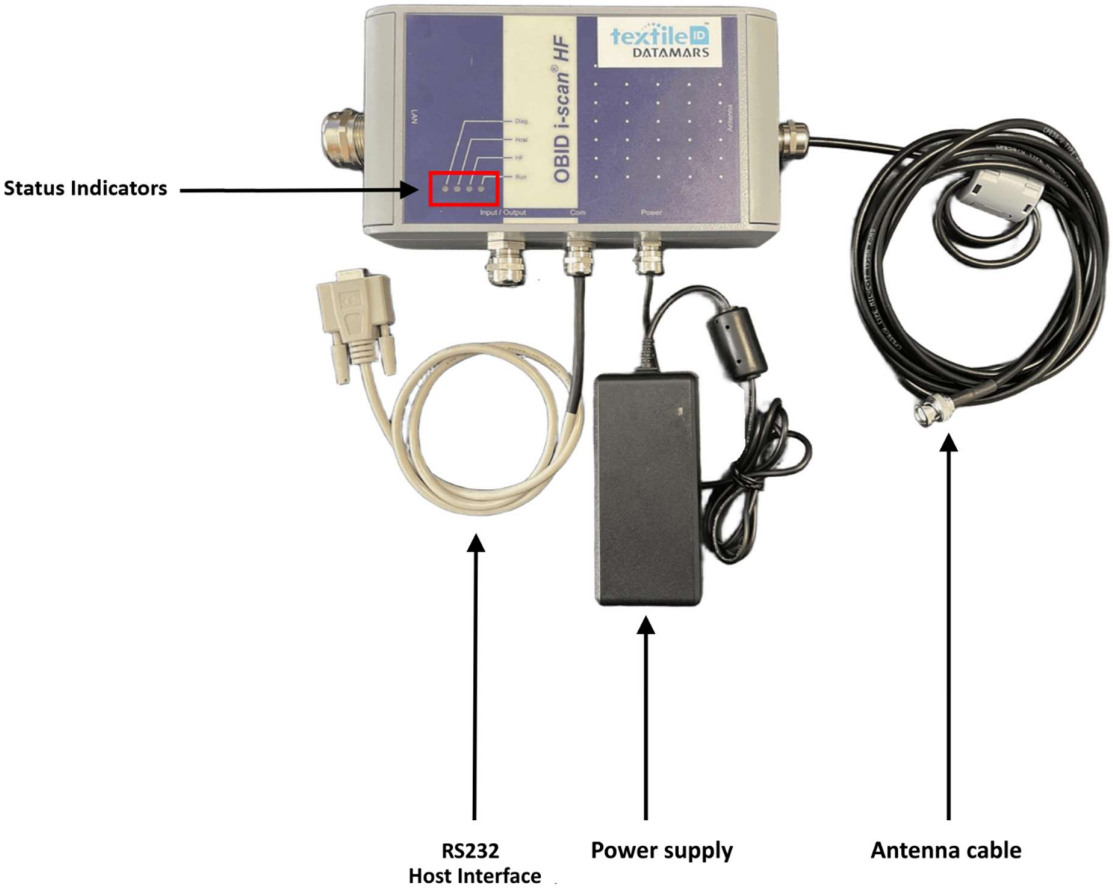
1 Introduction

The R-HF-LR1002-FG-L High Frequency (HF) RFID-reader is designed to work in industrial environments, it is resistant to vibrations, electromagnetic interference and able to detect the following transponder technologies:

- T-BT 1320, T-BT1315, T-BT1311 (**ISO 15693**), HF

The reader can read simultaneously more than one High Frequency (HF - multi-read) transponders (the quantity of detected transponders and the accuracy can vary depending on the transponder type, environment, antenna size, etc.).



Status indicators (from left to right)

Diag (red LED)	RF warning (indicates a problem with the antenna connection)
Host (yellow LED)	Host communication (RS232)
HF (blue LED)	Confirms the detection of or more transponders
Run (green LED)	Indicates the reader booting-status after power-on or reset

Host Interface Connect the RS232 cable to the serial port (COM) of your PC or to the UHF-COMBO cable

2 Installation

1. Connect the antenna cable to the HF antenna
2. Connect the RS232 serial cable (host interface) to the host
3. Connect the power supply to the power outlet

The reader is preconfigured to automatically start reading when it's powered up and to transmit the original 16 characters UID through the RS232 serial communication to the Host (baud-rate 9600 bits/sec).
To modify these parameters, you may follow instructions on chapter 3.

IMPORTANT NOTE:

⚠ Possibly keep the antenna away from metal surfaces to avoid detuning that could cause reading performance loss. Place the reader in ventilated areas. The reader may increase its temperature after some operating time.

⚠ Do not plug/unplug any connectors while the reader is turned ON.

⚠ Although R-HF-LR1002-FG-L is protected against ESD, avoid any direct electrostatic discharges happen to the reader's case, antennas or any metallic parts directly in contact with the reader's enclosure or antenna's structure.

3 Operating with graphical user interface (GUI)

To access the reader configuration, the ISOStart+ Software is required. You may verify with the DM-Support team (support-tid@datamars.com) which version is recommended for your reader.

3.1 Operating with terminal (RS-232)

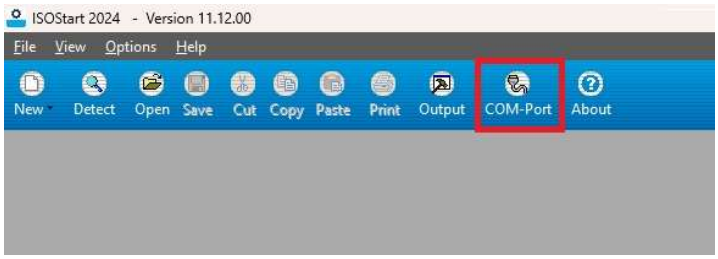
The default RS232 serial port settings are:

- Bits per second → 9600
- Data bits → 8
- Parity → None
- Stop bits → 1
- Flow control → None

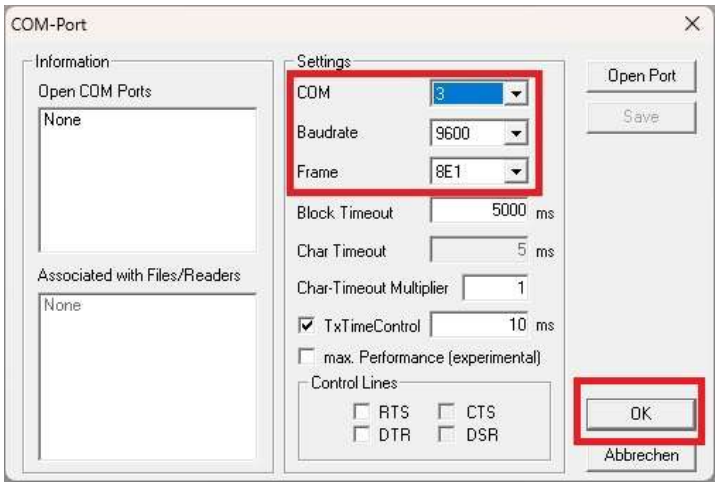
3.2 Reader configuration via serial port (RS-232)

Connect the RS232 serial cable to the PC, and start the ISOStart+ Software, then follow these steps:

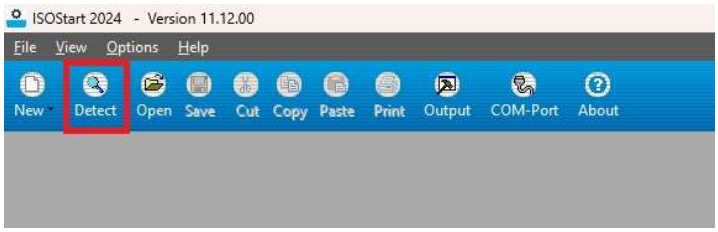
1. Click on the COM-Port icon in the top menu



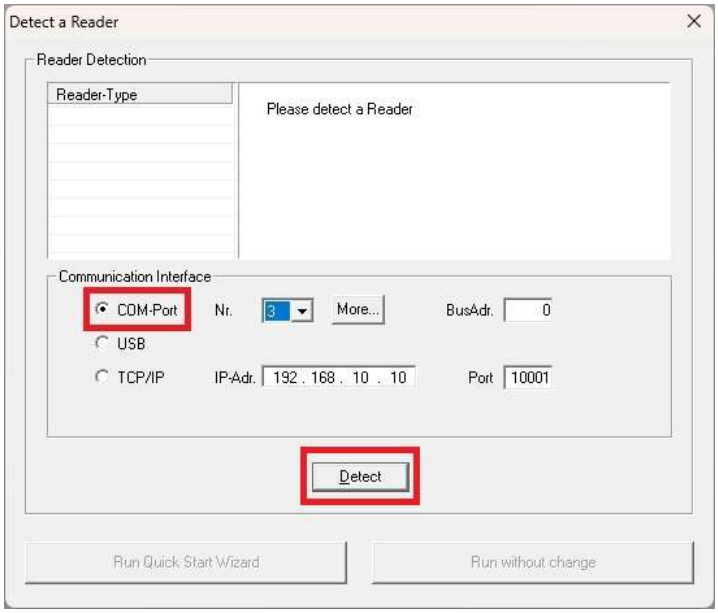
2. Set the serial parameters according to your PC values. Ensure that the selected COM port matches the COM port of the PC in use (you may verify the details in your PC's device manager).
3. Click the OK button



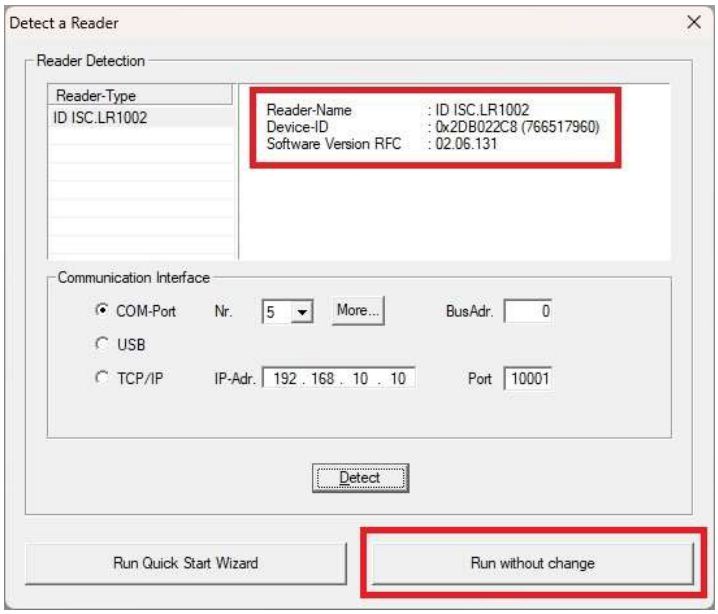
4. Click on the Detect icon in the top menu



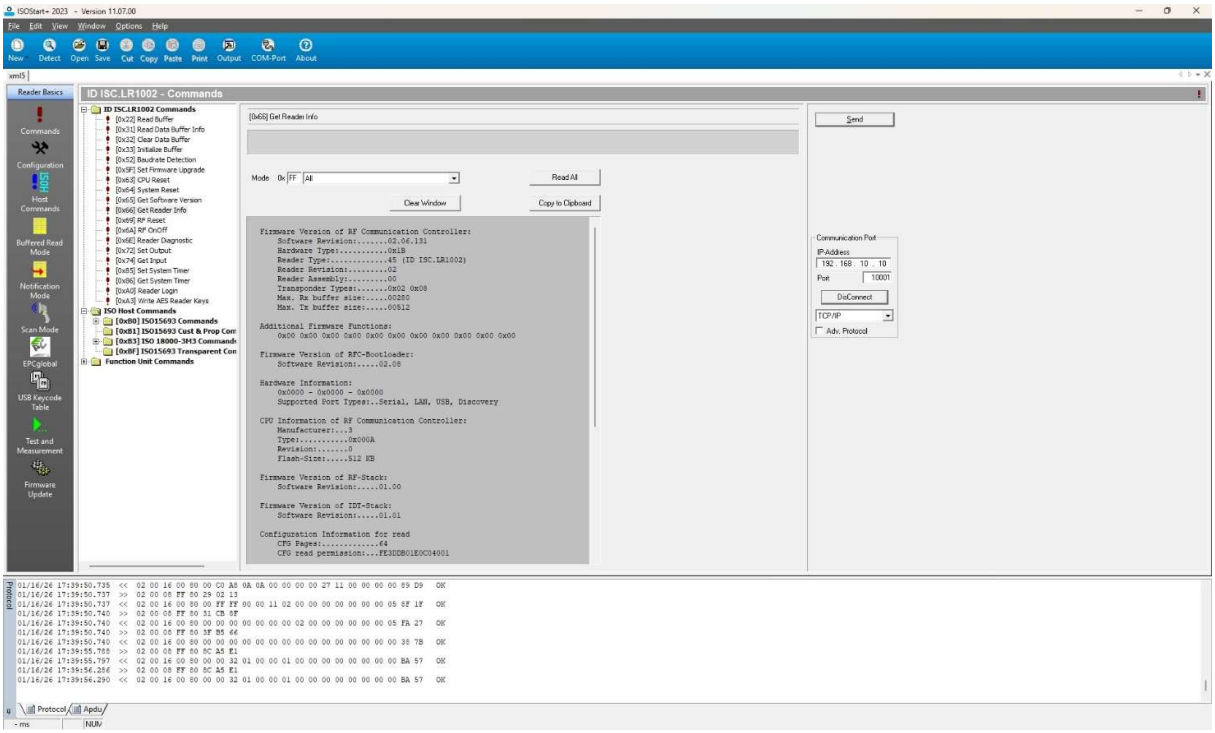
5. Select COM-port as Communication Interface and ensure the right COM port number is selected
6. Click on Detect and the PC will find the reader



7. Click on Run without change

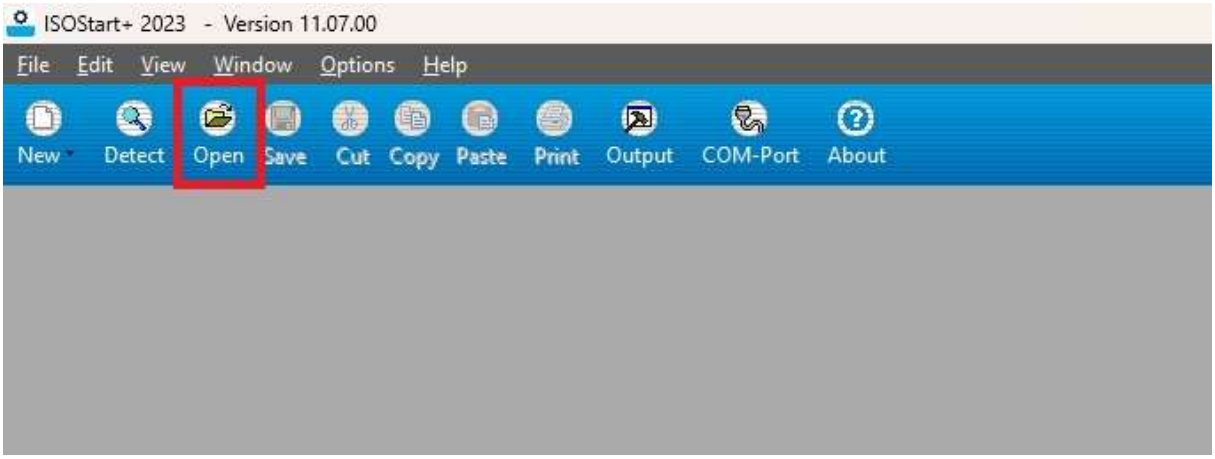


8. The reader is now ready to edit the necessary parameters

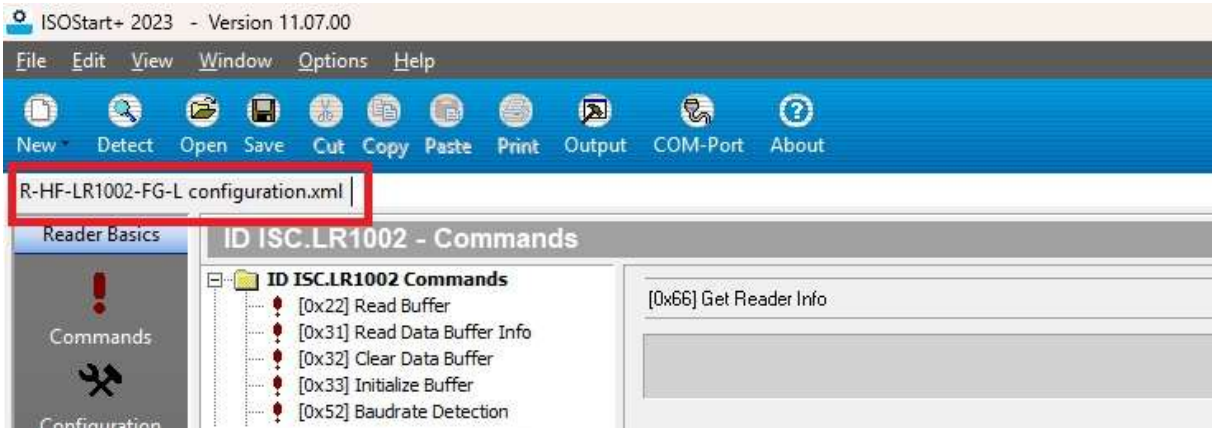


In order to load an existing configuration, then proceed as follow:Follow these steps to upload a configuration file when the reader is connected:

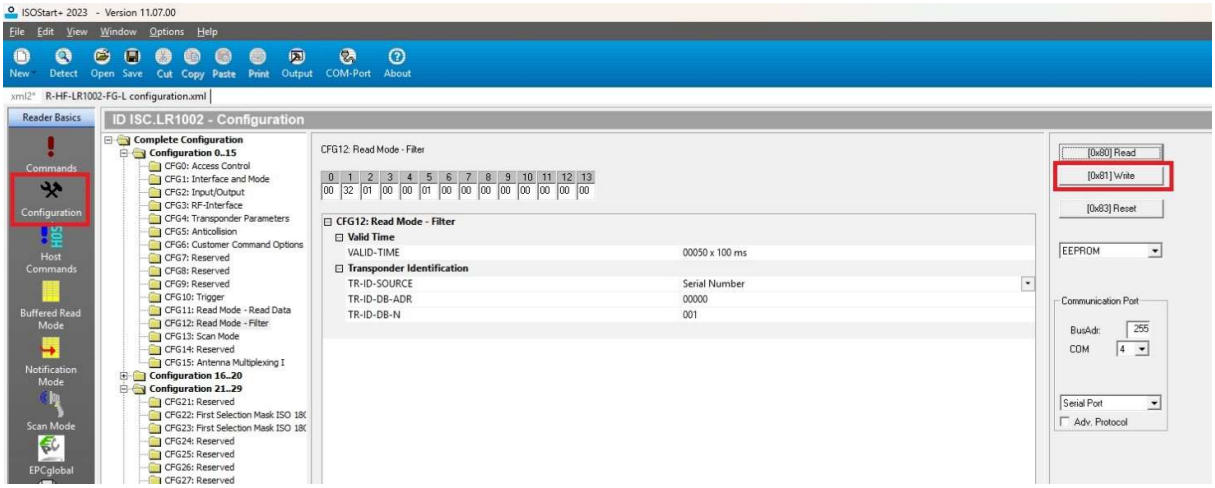
9. Click Open



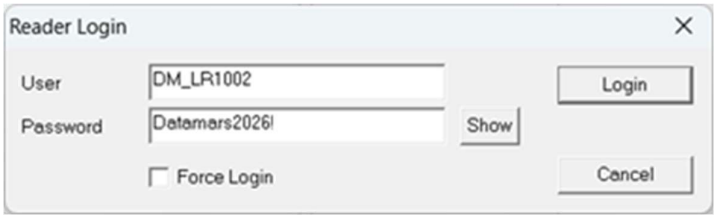
10. Select the .XML configuration file to be uploaded
11. Once the configuration file has been successfully uploaded, its name will be displayed in the top left corner



12. Click on the Configuration icon
13. Click on [0x81] Write to store the new settings to the reader



14. The reader may ask for login credential to finalize the saving you need to enter the following login:



User: DM_LR1002
Password: Datamars2026!

15. The reader will store and use the settings contained in the uploaded configuration

3.3 List of commands

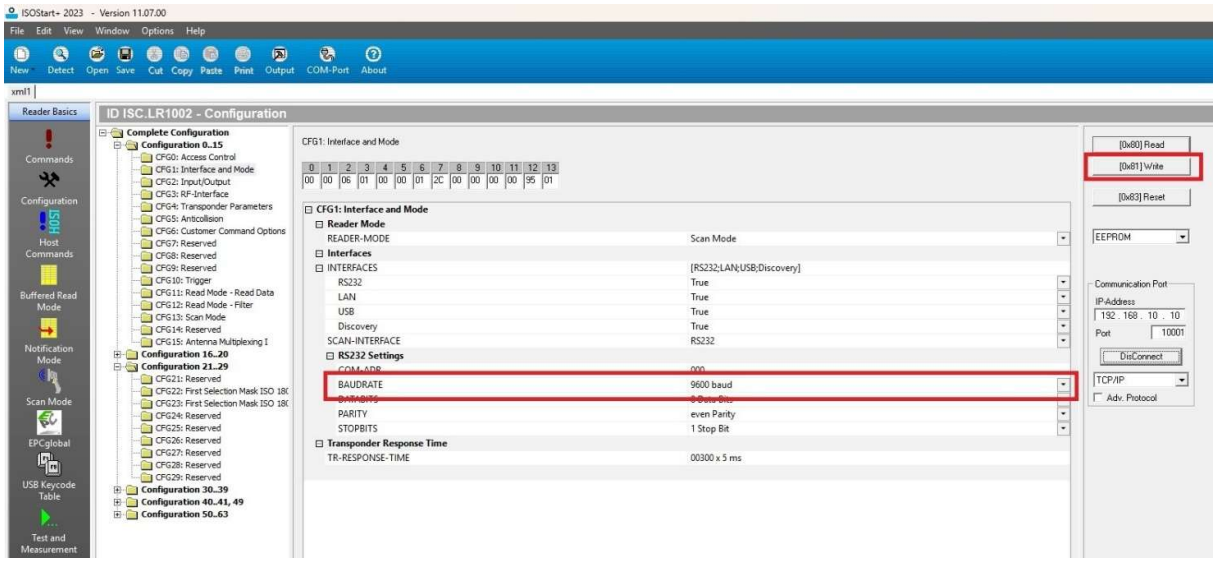
This chapter shows which parameters that can be changed through the ISOstart+ SW.

3.3.1 Baud rate

The default baud rate is set to 9600 bits/second. In case you need to change it to another value, follow these steps:

1. Click on the Configuration icon
2. Click on CFG1: Interface and mode

3. Enter the new BAUDRATE value
4. Click on [0x81] Write to save the new configuration
5. **The reader may ask for login credential to finalize the saving (see 3.2 chapter)**



3.3.2 Lock code (Filter)

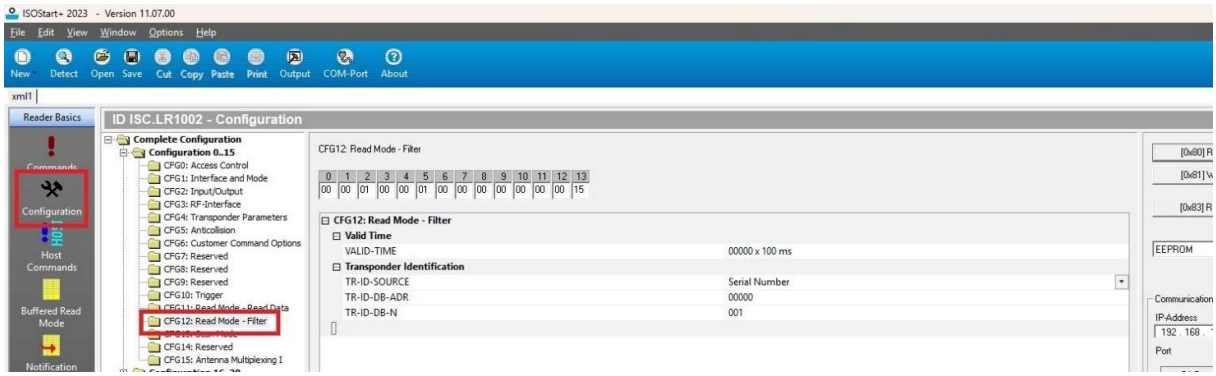
DETAILS for the lock code:

- The lock-code time can be set in the “VALID-TIME” field, the value must be entered in multiples of 100ms, therefore if you want i.e. to set a 3 second lock code filter, enter 00030 x 100 ms (30x100ms = 3000ms = 3s).

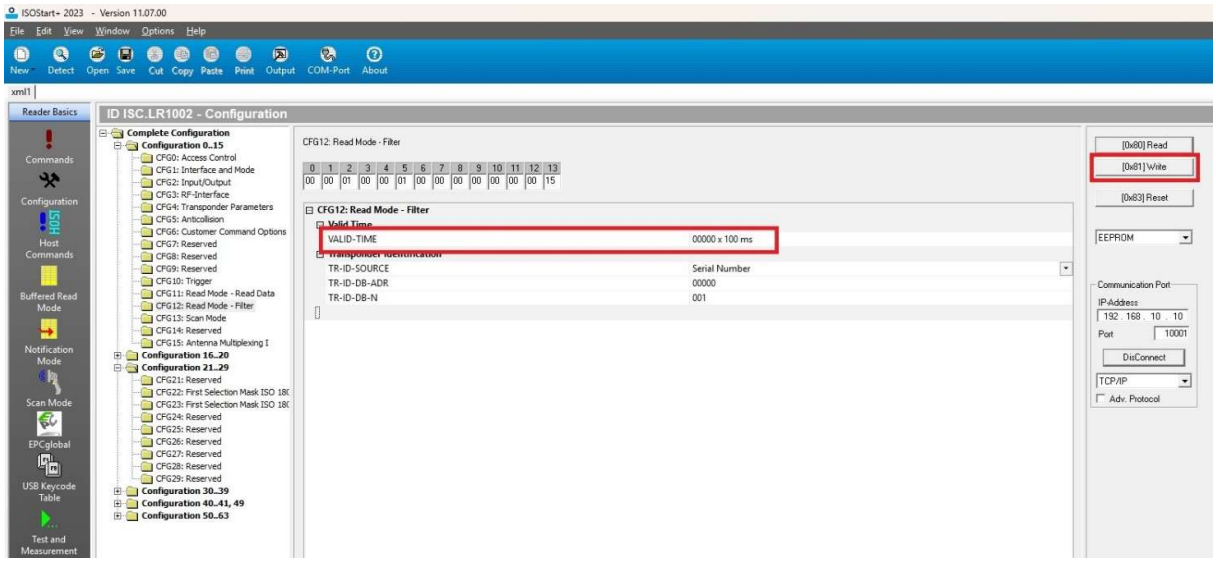
- The HF-chip can be read again only after the defined lock-time filter time.

The lock code time is set to 5 seconds by default. In case you need to change it to another value, follow the next steps:

1. Click on the Configuration icon
2. Click on CFG12: Read Mode – Filter



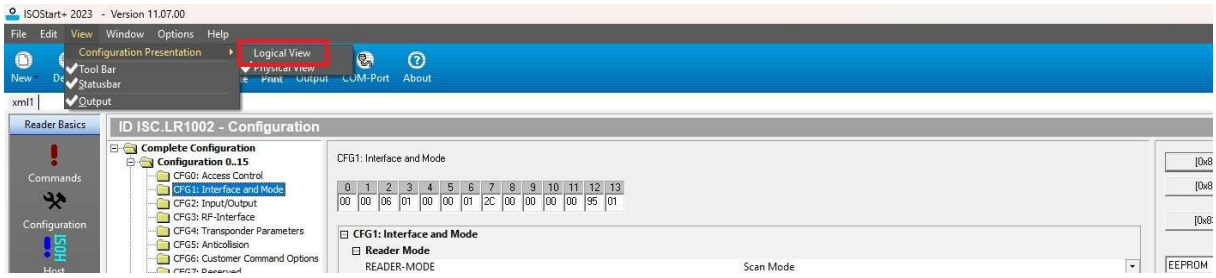
3. Enter the new value in the VALID-TIME field
4. Click on [0x81] Write to save the new configuration
5. **The reader may ask for login credential to finalize the saving (see 3.2 chapter)**



3.3.3 Line Terminator

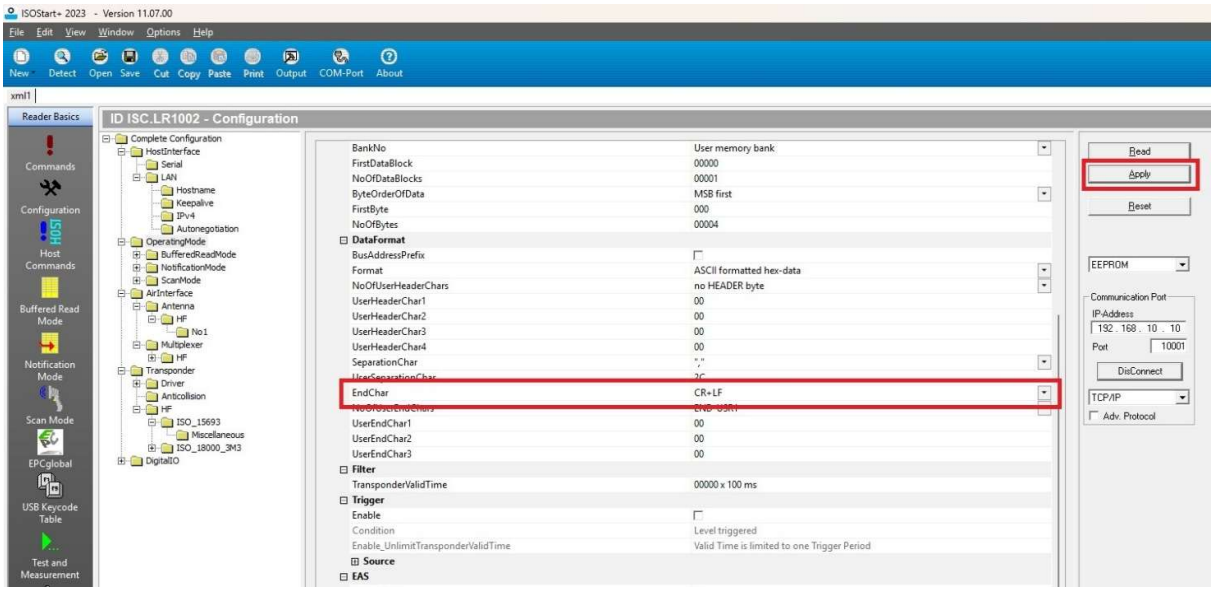
The Line Terminator character is set to CR+LF by default. In case you need to change it to another value, follow these steps:

1. Change the view to Logical View first



2. Click on the Configuration icon
3. Click on OperatingMode

4. Change the EndChar to the new value
5. Click on [0x81] Write to save the new configuration
6. **The reader may ask for login credential to finalize the saving (see 3.2 chapter)**

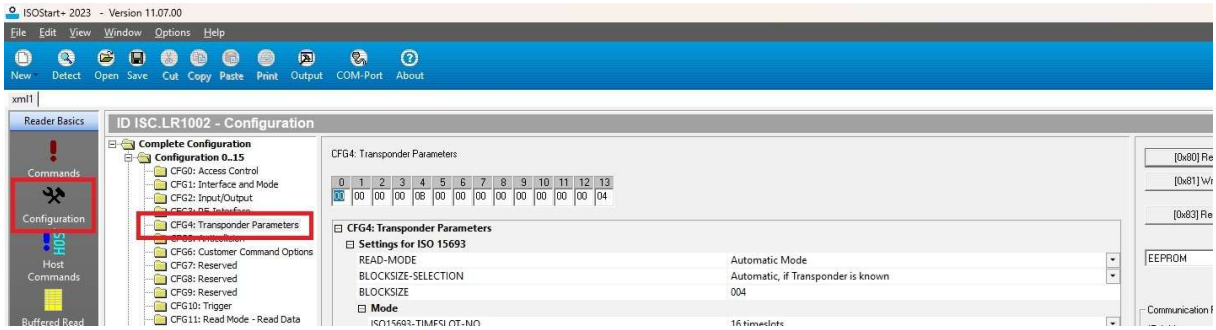


3.3.4 Time Slot ISO 15693

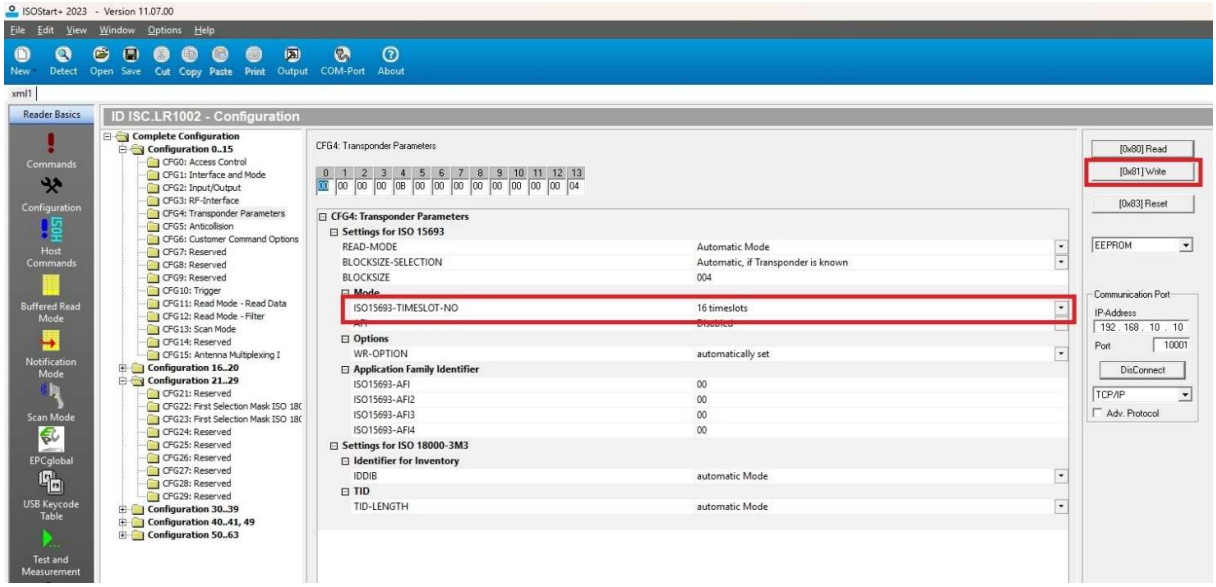
The Time Slot parameter is set to 1 timeslots by default. (For single read we suggest keeping 1 time slot, while to read multiple items, we suggest changing it to 16 time slots).

In case you need to change it to another value, follow these steps:

1. Click on the Configuration icon
2. Click on CFG4: Transponder Parameters



3. Change the ISO15693-TIMESLOT-NO to the new value
4. Click on [0x81] Write to save the new configuration
5. **The reader may ask for login credential to finalize the saving (see 3.2 chapter)**



3.4 Download the configuration file from a reader

To download the configuration file from the reader, follow these steps:

1. Click on Save

2. Select the folder where to save it
3. Define a configuration file name
4. Click on Save

4 TECHNICAL SPECIFICATIONS FOR LR1002

4.1 Operational and Characteristics

The RFID reader LR1002 is an integrated analog system for RFID Applications (RFID=radio frequency identification) which works at 13.56MHz. It allows reading data stored into ISO-RFID transponders or ISO-Labels at 13.56 MHz. Single- and Multi-read operations are supported. The communication between the reader and the transponder is based on the ISO 15693 (Part 1-3) protocol.

All transponders (contact less memories) are powered by a transmitted carrier radio wave at 13.56MHz and are compliant with the ISO 14443-B recommendation for the transfer of power and signals via radio transmission. For this purpose, the reader LR1200 amplitude modulates the data on the carrier using amplitude shift keying (ASK) and the tag replies by load modulating the data on the carrier

Once the reader is connected to an appropriate client-network (via a dedicated computer) it works based on the installed software like a server providing the received data from the transponders to the final client-application.

The service software helps to control and update the reader in user-friendly way.

LR1002 supports different antennas as well as multiple configurations

4.2 Technical Data

Mechanical data:

WEIGHT	1,1 kg
DIMENSIONS (W x H x D)	255 mm x 135 mm x 65 mm (6.29 inch x 4.72 inch x 1,38 inch)
IP PROTECTION DEGREE	IP54

Electrical data

POWER SUPPLY	24 V ±15 %
POWER CONSUMPTION	Max.16 VA
ANTENNA	External (50 Ω, SWR≤1.3)
OPERATING FREQUENCY	13,56 MHz
RF TRANSMITTING POWER	1 W – 5 W (adjustable)
TRANSPONDER TYPE	ISO15693, ISO18000-3-A, ISO18000-3M3 (Upgrade Code required)
COMMUNICATION PROTOCOL	ISO Host Mode BRM (Data Filtering and Data Buffering) Scan Mode Notification Mode
INDICATOR	4 x LED
INTERFACE	RS232, Ethernet (TCP/IP)

Environment conditions

OPERATING TEMPERATURE	-25 °C bis +55 °C / -13 °F to +131 °F
HUMIDITY	5% - 80% (non-condensing)
VIBRATION	EN 60068-2-6 10 Hz to 150 Hz: 0,075 mm / 1 g
SHOCK	EN 60068-2-27 Acceleration: 30 g

4.3 Regulations

4.3.1 Applicable standards

RF APPROVAL	
Europe	EN 300 330
UK	EN 300 330
USA	FCC 47 CFR Part 15
Canada	RSS-210
EMC	EN 301 489
SAFETY	
Low Voltage Directive	EN 62368-1
Human Exposure	EN 50364

4.3.2 Warranty

If the reader is opened by not certified personnel by mistake, the warranty is voided, and we cannot guarantee the fulfillments of the above-mentioned regulations