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Operation Manual
RFID Reader
Covered Variants:
M/N: 12117-601

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The "12117-601" Reader/Writer is a desktop contactless smart card USB/RS232 & Bluetooth wireless Technology Smart card reader and writer combining the high-frequency card technologies. It supports Mifare, ISO 14443A/B and ISO 15693 standards. It has also RS232 interface.

Based on BALTECH's core technology it provides support of the latest smartcard technologies, encryption and security features.

Mounting and Connection

The reader generates magnetic field at 13.56MHz and 2.4 GHz which could be influenced by any electrically conductive material close to the device.

To ensure good performances and functionalities in terms of read range and reliability a minimum distance of 10cm from such materials is required. Mounting the unit directly to metal would result in a severe reduction of read range down to zero functionality. Care should be taken when testing the device after mounting at a problematic environment: Read ranges and performance vary from card to card and very much from card to tag or key-fob.

When mounting multiple readers, the distance between readers should be minimum 0.5 m in order to avoid degradation of performance due to interference.

To connect the device to a host system (a printer or a PC), please make sure that the system provides an USB socket intended for connection of the reader.

Operation

Whenever the device is connected to a proper power supply, it will switch on the internal antenna and periodically scan for a card. Once a card has been detected, the card number is read, the data converted and sent to the host system through the USB or RS232 Interface. To enable the device to read cards, tags and key-fobs successfully, they should be placed centred above the reader. The device is used for identification, access control.

Technical Features

Operating Frequency	• 13.56MHz • 2402MHz-2480MHz
Data transmission modulation reader to card:	ASK
Data transmission modulation card to reader:	AM/Load modulation
Interfaces	USB: Full speed 2.0, RS 232, Bluetooth 5.2
Contactless Card	Supported standards: LEGIC, ISO14443 A & B, ISO15693, Communication speed ISO14443A/B: Baud rate up to 424kBaud
Operating Range	• ISO14443A/B: up to 5cm • ISO15693: up to 8cm • Bluetooth wireless technology: up to 10m
Human	Red, Green, Blue LEDs & Buzzer
Supply Power [V_{DC}]	+5V ($\pm$5%)
Power Consumption [W]	Up to 1.5 / 1 typ.
Operating Temperature [°C]	-20 to +65
Operating Humidity [%]	20 to 80 relative humidity; non-condensing
Non-Operating Humidity [%]	10 to 90 relative humidity; non-condensing
Antennas	• 2.4GHz internal Chip antenna • 13.56MHz integrates PCB loop antenna
Duty cycle for normal use operation [6 minutes time window]	Use 1 time within 6 minutes. An interaction with the user is 10 seconds in the vicinity to the device. • Duty Cycle = (1 x 10s)/ 6 min = 2,78 %

Pinning

The reader supports USB host interface.

USB Interface Molex Header (4 pins)			
Molex Part Number: 53261-0471			
Pin#	**Name**	**Type**	**Description**
1	PWR	Power	5V Power Supply
2	D-	Data	USB-Data inverted
3	D+	Data	USB-Data
4	GND	Power	Signal and Power Ground

RS232 Interface Molex Header (5 pins)			
Molex Part Number: 53261-0571			
Pin#	**Name**	**Type**	**Description**
1	PWR	Power	5V Power Supply
2	GND	Power	Signal and Power Ground
3	MULTI_RX	Data	RX_UART
4	MULTI_TX	Data	TX_UART
5	MULTI_I/O	GPIO	Input, output pin.

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General regulatory requirements for 12117-601

FCC ID: OKY12117601A01A

IC : 7657A-12117601

Contains FCC ID: QOQ-BGM220S

Contains IC: 5123A-BGM220S

NOTICE:
This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s).
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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

   (1) l'appareil ne doit pas produire de brouillage, et
   (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications made to this equipment not expressly approved by BALTECH AG may void the FCC authorization to operate this equipment.

NOTE: This equipment 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.