DATECS

PD20/PD20-1
User Manual

REVISION HISTORY

Version	Data	Change description
1.0.0	08.01.2021	First Release
1.1.0	31.03.2021	Added PD20
1.2.0	16.04.2021	Updated section "TECHNICAL SPECIFICATIONS"
1.3.0	28.04.2021	Updated section "Status LEDs"
1.4.0	03.06.2021	Updated section "Smart cards reading" Added section "REGULATORY"
1.5.0	13.07.2021	Updated section "TECHNICAL SPECIFICATIONS"
1.6.0	27.07.2021	Updated section "REGULATORY"

CONTENTS

REGULATORY

FCC Statement

FCC ID: YRW-PD20

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.
Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

RF Exposure Information
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Specific Absorption Rate (SAR) information:
This Communicator meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Communicator has also been tested against this SAR limit. This device was tested for typical body-worn operations with the back of the PD20 kept 10mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain an 10mm separation distance between the user's body and the back of the PD20 The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

ISED Statement

IC: 25981-PD20

English: This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).
French: Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada.
L'exploitation est soumise aux deux conditions suivantes :
(1) Cet appareil ne doit pas provoquer d'interférences.
(2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.
l'appareil numérique du ciem conforme canadien peut - 3 (b) / nmb - 3 (b).

This device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.
Cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 2.5 du cnr - 102 et conformité avec rss 102 de l'exposition aux rf, les utilisateurs peuvent obtenir des données canadiennes sur l'exposition aux champs rf et la conformité.

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.
Cet équipement est conforme aux limites d'exposition aux rayonnements du Canada établies pour un environnement non contrôlé.

RF Exposure Statement
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.
L'appareil a été évalué pour répondre aux exigences générales d'exposition aux radiofréquences. L'appareil peut être utilisé en condition d'exposition portable sans restriction.

SAR English:
Specific Absorption Rate (SAR) information:
This PD20 meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. ISED RF Exposure Information and Statement the SAR limit of Canada(ISED) is 1.6 W/kg averaged over one gram of tissue. Device types: PD20 has also been tested against this SAR limit. This device was tested for typical body worn operations with the back of the PD20 kept 10mm from the body. To maintain compliance with ISED RF exposure requirements, use accessories that maintain an 10mm separation distance between the user's body and the back of the PD20 . The use of belt clips, holsters and similar accessories should not

contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with ISED RF exposure requirements, and should be avoided.

SAR France:

Informations sur le débit d'absorption spécifique (DAS):

Cette PD20 répond aux exigences du gouvernement en matière d'exposition aux ondes radio. Les lignes directrices sont basées sur des normes élaborées par des organisations scientifiques indépendantes à travers une évaluation périodique et approfondie des études scientifiques. Les normes comprennent une marge de sécurité substantielle conçue pour assurer la sécurité de toutes les personnes, quel que soit leur ge ou leur état de santé.

Information et déclaration d'ISDE sur l'exposition aux RF la limite DAS du Canada (ISDE) est de 1,6 W / kg en moyenne sur un gramme de tissu. Types d'appareils: la PD20 a également été testée par rapport à cette limite SAR. Cet appareil a été testé pour des opérations typiques portées sur le corps avec le dos de la PD20 gardé à 10 mm du corps. Pour maintenir la conformité avec les exigences d'exposition RF d'ISDE, utilisez des accessoires qui maintiennent une distance de séparation de 10 mm entre le corps de l'utilisateur et l'arrière de la PD20. L'utilisation de clips de ceinture, d'étuis et d'accessoires similaires ne doit pas contenir de composants métalliques dans son assemblage. L'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas être conforme aux exigences d'exposition aux RF d'ISDE et doit être évitée.
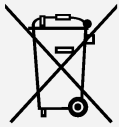
TECHNICAL SPECIFICATIONS

Processor	ARM Cortex® M3 Security Microcontroller
Memory	64KB Internal ROM 256KB Internal RAM 1MB Internal Flash
Application Memory	4MB Serial Flash
Keypad	• ON / OFF key and Bluetooth pairing conformation/cancel
Magnetic Card Reader	• 3-track bi-directional reading • ISO 7810, 7811 and 7813
Smart Card Reader	ISO7816, EMV L1 certified
Contactless Card Reader for payment applications (option)	• AMEX ExpressPay • Discover D-PAS • MasterCard Contactless • VISA PayWave • China Union Pay • JCB
Contactless Card Reader (option)	• NFC-A/ISO 14443 Type-A • NFC-B/ISO 14443 Type-B • NFC-F/Felica • NFC-V/ISO 15693
Battery	Rechargeable lithium-Polymer battery 3.87V, 400 mAh
Connectivity	• USB - Device • Bluetooth Low Energy 4.2
Audio indication	Electro-Magnetic Buzzer
OS compatibility	iOS, Android, Windows
Reliability	• 500 000 chip card cycles • 1 000 000 magnetic card swipes
Certifications	PCI PTS 6, CE, FCC
Dimensions (W x D x H), mm	75.80 (78.80) x 55.10 (58.10) x 15 (top housing max. outer dimensions)
Weight, g	74
Environmental	Operating (while internal battery is discharging): -10°C to $+40^{o}$C / 5 to 95% RH Operating (while internal battery is charging): 0°C to $+45^{o}$C / 5 to 95% RH Storage: -20°C to $+55^{o}$C / 5 to 90% RH
Power Supply	DC 5 V, 500mA through USB connector or POGO pins

* Specification can be change without any notice.

⚠️ **Use only original equipped cable USB-A to USB-C.**

Use only approved USB adapters. The minimum requirements of USB adapter are 5V/500mA.

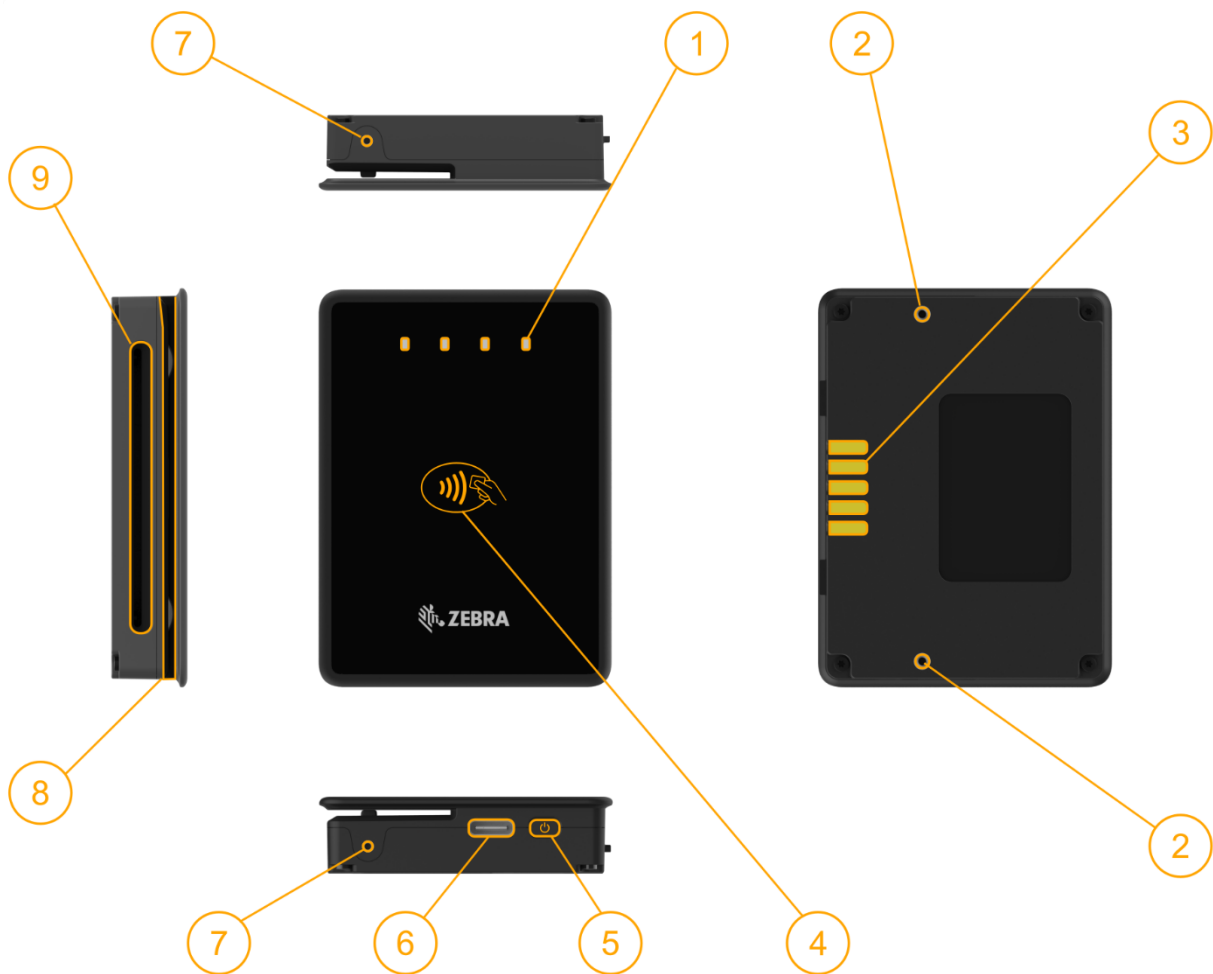|	Waste Electrical & Electronic Equipment
♿	The symbol means that according to local laws and regulations your product shall be disposed of separately from household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

GENERAL VIEW

Figure 1

1. **LEDs indication for Contactless transaction / LEDs indication for device status**
2. **Mounting insert 1**
3. **Rear Pads (USB and charging)**
4. **Contactless reader**
5. **On/Off button (Bluetooth pairing and cancel button)**
6. **USB port**
7. **Mounting insert 2**
8. **Opening for magnetic card**
9. **Opening for inserting smart card**

1. **LEDs indication for Contactless transaction / LEDs indication for device status**
2. **Mounting insert 1**
3. **Rear Pads (USB and charging)**

GETTING STARTED

PD20/PD20-1 has rechargeable Li-Po battery. Can be charge from USB port or Rear pads.

⚠️ **Before first use, battery must be fully charged.**
If the device is fully discharged, charging time to fully charged would be approx. 1 hour and 30min.

Charging form USB adapter:

⚠️ **Main battery replacement:**
To replace the main battery of PD20/PD20-1 please contact with your local Datecs representative or service provider.

PERIODIC INSPECTION AND MAINTENANCE

The following inspections must be performed on a regular basis after initial receipt and installation of PD20/PD20-1:

• There are no visual indications for trying unauthorized opening of the device
• There are no unusual wires connected to the ICC acceptor or any of the ports on the terminal.
• There is no shim device in the ICC acceptor slot.
• The terminal serial number (on the label) corresponds to the one in the inventory paperwork.

OPERATION MODES

For start operating with PD20/PD20-1 needs to be paired to another Bluetooth BLE device with installed application. For downloading the latest SDKs for iOS, Android and Windows please contact with your distributor.

Application download mode, System mode and Clearing Bluetooth paring info

Application download mode - to enter application download mode on the PD20/PD20-1, the power button must be maintained pressed and USB cable plugged. A characteristic sound is played and first white LED will start to light, then is releasing the power button. When device is in Boot Loader/Application download mode will be played characteristic sound.

System mode - to enter in "SYSTEM MODE" on the PD20/PD20-1, the power button must be maintained pressed and USB cable plugged. A characteristic sound is played and first white LED will start to light. Power button must be hold until third white LED is light on, then is releasing the power button.

Clear Bluetooth paring information - to enter in "Clear Bluetooth Pairing Info" on the PD20/PD20-1, the power button must be maintained pressed. A characteristic sound is played, and first white LED will start to light, then is releasing the power button. When pairing info will be played characteristic sound.

Status LEDs

LED indication	
🟩	Green LED continuously light on
🟢	Green LED flashing

LED indication		Description
Device operating		
	No indication	Device is turned off
	No indication (Depends of Application)	Device is turned on
System errors		
	After power on the device, on front side first LED light continually and fourth LED blinking	Device is TAMPERED
	second LED light continually and fourth LED blinking	Device error (General Exception)

Bluetooth Pairing

Turn on PD20/PD20-1, connect it to PC via USB cable. When device is connected to PC, will create virtual COM port. Check on device manager on which port is connected. After that run the special application for PC (Fig. 3). Press "Search" button on the app, and in right side will be show all available COM ports. Select on which is connected device, then press "Connect to device". From Bluetooth management on mobile device (equipped with BLE 4.2) select connect to PD20/PD20-1, then on mobile device screen will be show PASSKEY (Fig. 6). White LEDs will start to light one by one continually, on special app will be show Passkey (Fig. 4), if they are same press "On/Off" two times on PD20/PD20-1 to confirm (Fig. 5), then special app return message "THE DEVICES ARE CONNECTED" (Fig.7 when on each device is confirming pairing). If Passkey is being different press "On/Off" button one time on PD20/PD20-1 to cancel pairing.
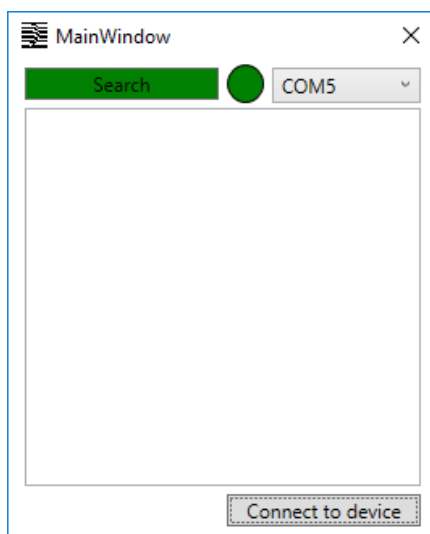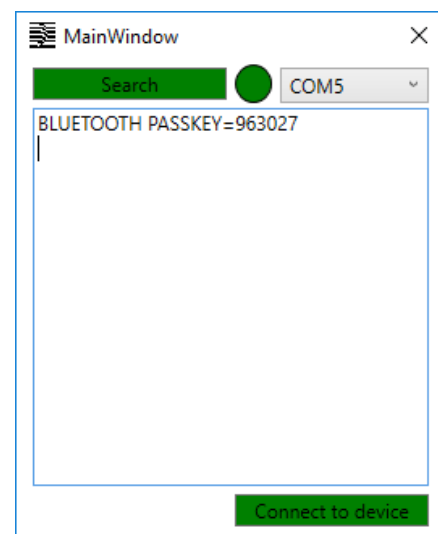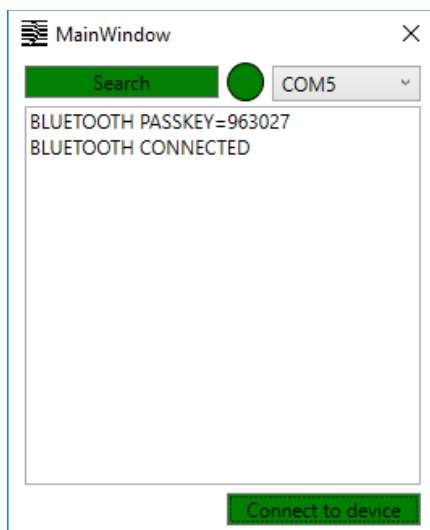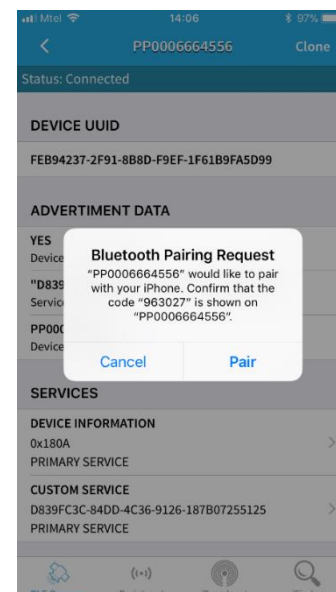

Figure 3

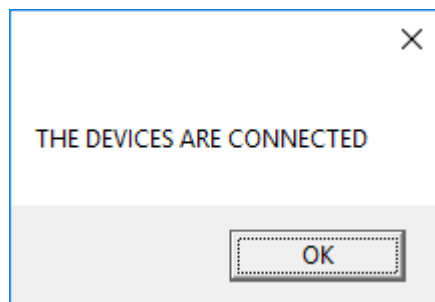Figure 4

Figure 5

Figure 6

Figure 7

Magnetic cards reading

The PD20/PD20-1 has a built-in magnetic card reader. The card reader incorporates a (3) track magnetic read head, requiring a single swipe to read field data from all three tracks.

The magnetic reading head faces up. When swiping the card into the reader, the magnetic stripe must be facing down as shown in the figure below. Keep the edge of the card flat on the inner base of the reader to ensure that the magnetic stripe passes over the reading head evenly.

Figure 8

Contactless cards reading

The contactless card transaction procedure can vary depending on the application loaded on the PD20/PD20-1. Verify the proper procedure with your application provider before performing a contactless card transaction.

In order to use the Contactless card reading function, special software must be used. Please contact your distributor in order to get the latest demo application and SDK.

To Conduct a Contactless Credit/Debit Card Transaction
1 Place a contactless card to shown on the PD20/PD20-1 contactless logo.
2 Remove the card when the display indicates the transaction is completed.

Figure 9

Smart cards reading

The smart card transaction procedure can vary depending on the application loaded on the PD20/PD20-1. Verify the proper procedure with your application provider before performing a smart card transaction.

To Conduct a Smart Card Transaction
1 Position a smart card with the gold contacts facing downward.
2 Insert it into the ICC card reader slot in a smooth, continuous motion until it seats firmly.
3 Remove the card when indicates the transaction is completed.

Figure 10

CARE, MAINTENANCE AND WARRANTY

- **Keep the PD20/PD20-1 side of the reach of small children.**
- **Keep the PD20/PD20-1 dry. Precipitation, humidity and liquid contain minerals that will corrode electronic circuits.**
- **Do not use or store in dusty or dirty areas.**
- **Do not drop or knock PD20/PD20-1.**

- **Do not open the PD20/PD20-1. Only qualified personnel can open the device and make repair. If the PD20/PD20-1 is not working, please contact with your dealer.**
- **Forbidden is allowing unqualified personnel to service your PD20/PD20-1!**

SERVICE AND SUPPORT

Service and Support:

For PD20/PD20-1 problems, product service, and repair information, contact your local Datecs representative or service provider.

• International – Contact your local Datecs distributor

Service Returns:

All customers, please contact your local Datecs Ltd representative or distributor for assistance with your service, return, or replacement.