WORLDLINE

VALINA

Integration guide

Digital Payments
for a Trusted World

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1 List of abbreviations

EMV	Europay Mastercard Visa (card payment transactions) Electromagnetic compatibility (electric)
ECR	Electronic Cash Register
PCI PTS	Payment Card Industry PIN Transaction Security
FCC	Federal Communications Commission
NFC	Near Field Communication
WEEE	Waste of Electrical and Electronic Equipment
VMC	Vending Machine Controller

2 Logistics information

TERMINAL LABEL

Examples of product labels are provided to show what information is given on each label. Minor differences in layout may occur.

The VALINA terminal label shows:
- Maker's name: Worldline SA/NV
- Model name: VALINA
- Article number, referring to the specific terminal hardware. This number identifies the specific terminal hardware and customisations, and is used for certification purposes. It is not the same as the commercial article number mentioned on the packaging box, which is customer-specific.
- Serial number:
  – human-readable, for example Serial N°: ABC1234
  – barcode
- Production date in the format yywk, so 1549 for week 49 in 2015
- Country of origin: Made in Indonesia
- Voltage and current: 12 V 2 A
- Safety labels, for example CE, FCC
- WEEE-logo
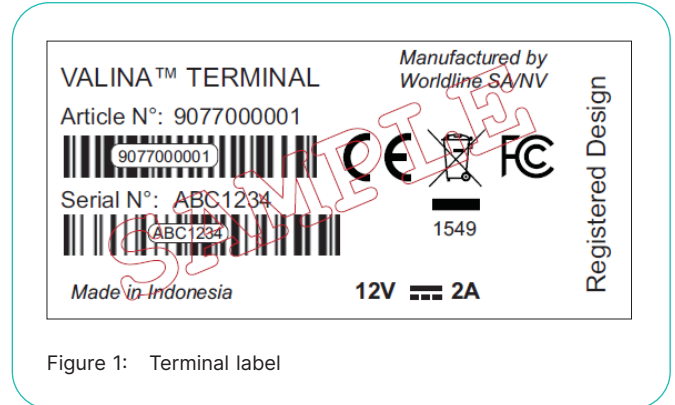
Figure 1:   Terminal label

The MAC address label contains communications and software information.
- MAC address, which can be
  – read from the barcode
  – consulted via software
- HW/ID (hardware ID) made up from a four-character prefix – 424B in the example – followed by the hexadecimal MAC address – 000819ABCDEF in the example the full HW/ID is not provided as a single barcode
- HW (production) code, for example TT001 this information can also be read from the barcode
- REV (hardware revision code)

Figure 2:   MAC address label

PACKAGING

All packages are designed to be as small as possible and to make it easy to check that all components are present.

In addition to the terminal, mains adaptor/USB adaptor, cable(s), fixation plate, documentation set and other accessories may be added at the distributor's site.

The multiple-item packages contain terminals ONLY. When needed, fixation plate, power supply and cables should be ordered separately. Please refer to the order list for ordering quantities.

Product packaging – single items

Equipment	W × L × H mm	Weight kg
VALINA	156 × 235 × 105	1.011

Product packaging – multiple items

Equipment per pack	W × L × H mm	Weight kg
VALINA	9385 × 460 × 115	6.1

PALLETING

The palleting information is for a europallet with a pile-up height between 1600 and 1800 mm.

Palleting – individually-packed equipment

Equipment	Per pallet	Weight* kg	Notes
VALINA	325	351	13 layers
Option	375	402	15 layers
Option	300	326	For air freight: 12 layers

* Weight includes europallet, foil, shipment papers and straps

Palleting – multiple packs

Equipment	Per pallet	Weight* kg	Notes
VALINA	360 (10 × 4 × 9)	268	

* Weight includes europallet, foil, shipment papers and straps

VALINA SPARE PARTS

All VALINA spare parts are supplied in bulk packaging. They cannot be ordered individually. See order list for details.

3 Approvals

The VALINA has been designed and manufactured with care for our environment. It complies with relevant European directives both at manufacture and at end of life:
- European directive 2011/65/EU on Restriction of Hazardous Substances (RoHS2) as amended by 2017/2102/EU, intended to reduce harmful substances such as lead, mercury and cadmium at source.
- European directive 1907/2006/EU on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), intended to ensure chemicals are produced and used in ways that lead to the minimisation of significant adverse effects on human health and the environment.
- European directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE), encouraging collection, treatment, recycling and recovery of such items.
- The VALINA is labelled with the WEEE-logo.

CERTIFICATIONS

The VALINA has been approved/certified in line with international standards including:
- EMV Level 1 for all chip-card interfaces
- EMV Level 2 approved kernel for payment application development
- PCI PTS
- EU directive 2014/53/EU (RED – radio equipment directive)
- EU directive 2014/35/EU (LVD – low voltage directive)
- EU directive 2014/30/EU (EMC – electromagnetic compatibility directive)

FCC 47 part 15
The equipment has been tested and found compliant to the requirements of the FCC 47 part 15 for digital devices.

IC ICES-003 and RSS-210
This class B equipment has been tested and found compliant to Canadian ICES-003 and RSS-210 for digital devices.

FCC rules: 15.105
The 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 an experienced radio/TV technician for help.

FCC rules: 15.19
The device complies with Part 15 of the FCC Rules and with RSS-210 and ICES-003 of Industry Canada.

Operation is subject to the following two conditions:
1. this device may not cause harmful interference, and
2. must accept any interference received, including interference that may cause undesired operation.

FCC rules: 15.21
Note: Changes or modifications made to this equipment not expressly approved by us may void the FCC authorization to operate this equipment.

Radio frequency radiation exposure information:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

APPROVALS RELATED TO USE IN A RAILWAY/ TRAMWAY ENVIRONMENT

Vibrations
Equipment used in a railway/tramway environments must be able to resist vibrations in the vehicles where it is installed, as measured by IEC standard 60068.

EN 50155
Railway applications. Rolling stock. Electronic equipment.

EN 50125-1
Railway applications. Environmental conditions for equipment. Rolling stock and on-board equipment.

Electromagnetic interference
Included in EU directive 2014/53/EU (RED – radio equipment directive)

Lightning-strikes
The equipment is protected against direct or indirect impacts of lightning-strikes by appropriate internal and external adapters.

IEC 1312-1
Protection against lightning electromagnetic impulse – part 1: general principles

Fire and smoke
EN 45545-2
Fire testing of materials and components for trains.

4 VALINA key features

The VALINA is an intelligent all-in-one terminal for unattended payments with and without PIN, supporting a range of standards including EMV and Mifare. It handles payments by chip card, NFC cards and devices, and magstripe card.

The VALINA has been designed to provide a complete solution for EMV payments, and can run either newly-developed Android apps or legacy apps (written for the MAPS platform) from Worldline. It is PCI certified, SRED included.
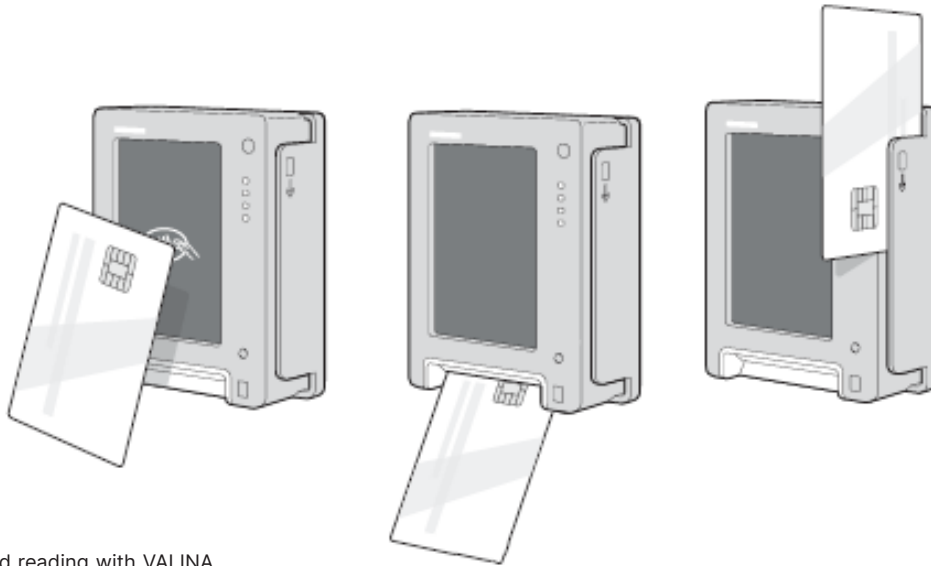
Figure 3: Card reading with VALINA

CONTACTLESS CARDS/DEVICES

The "landing zone" for contactless payments is:
- Easily recognizable and accessible
- Marked by the contactless symbol
  The contactless symbol is placed where the signal is strongest and shows the "landing zone" where customers should tap the card or device.

CHIP (CONTACT) CARDS

- The chip-card reader is at the bottom of the terminal, 45° from the vertical.
- The slot is illuminated to show the user where to insert the card.

MAGSTRIPE CARDS

- The magstripe-card reader is on the right-hand side of the terminal.
- Cards are swiped from the top of the slot to the bottom, as indicated in the housing.

KEY HARDWARE FEATURES INCLUDE:

- 3.5" touch TFT colour display for an enjoyable payment experience
- Small footprint matches EVA/CVS 1.3 standards for Standard Door Module (SDM) dimensions, making integration in vending machines easy.
- Onboard Ethernet, serial interface, MDB, USB host and USB device meet most communications requirements out-of-the-box.
- Patented proximity detector for improved power management.

Typical integration scenarios for the VALINA include:
- Vending machines, ticket machines and kiosks
- Petrol forecourts and car-washes
- On-street and off-street parking
- Dispensers and pre-payment meters
- Self-service checkouts

NETWORK CONSIDERATIONS

There are two options for connecting a VALINA to the outside world:
- integrated comms card supporting mobile broadband (GPRS, EDGE, 3G, 4G)
- onboard ethernet interface supporting landline broadband

Because Spica packages for the VALINA are significantly larger than their older SAMOA equivalents, broadband throughput and latency become more critical. Teleloading has specific requirements, including a minimum transfer-rate of 4 kbps over 30 seconds.

Acceptable transfer-rates and latency are easier to obtain using landlines.

> **Please note that**
> - We cannot influence/take responsibility for the quality of any broadband solution.
> - We will not support (or parameterize) hybrid solutions such as the use of mobile broadband routers/modems behind the Ethernet interface because there is too much dependency on the quality provided by the mobile operator, often impacted by deep indoor signal reception issues or Faraday-cage impact of the machine.

APPEARANCE
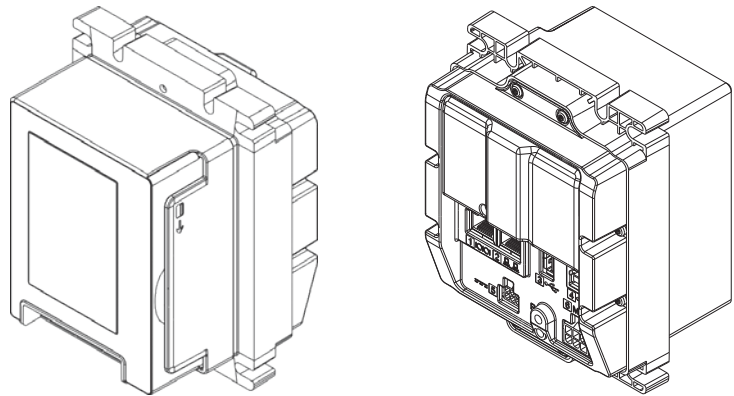

Figure 4:   VALINA and PIN privacy shield – example

Figure 5:   VALINA – front view (left) and back view

For more information on connectors, see Ports and pin-outs, on page 19.
For more information on integration dimensions, see General dimensions, on page 12.

5 Safety

Follow the guidelines in this manual when integrating the VALINA. We will not bear any responsibility or cost for malfunctioning, breakdowns or any anomaly that may result from incorrect handling of the VALINA. We decline any liability if the instructions and precautions contained in this manual are not observed.

If you notice that any VALINA component blocks, does not fit, or shows any other malfunction, contact our local service team. Do not try to repair or alter it in any way.

Use only accessories (power adaptor, cables and so on) provided by us or by an approved source.

Check that the VALINA has completed the required application-loading and key-loading stages.

OPERATING SAFETY

Keep the VALINA away from excessive heat, fire, high voltage, radiation, shocks and abrasive chemicals.

To guarantee safe operation of the VALINA, make sure:
- the VALINA is firmly fixed in the kiosk/vending machine and correctly powered.
- the kiosk/vending machine where the VALINA is mounted is protected from dust, strong sunlight, rain, wind and flying debris (for example, stones thrown up by passing traffic).
- the operating temperature of the VALINA remains between −20 °C and 70 °C. This corresponds to an environmental temperature of −20 °C to around +50 °C, depending on the position of the terminal (in direct sunlight, sheltered, …) and remembering that the terminal itself generates heat while in operation.
- the vending machine controller (VMC) is installed and positioned in line with manufacturer recommendations.

Always
- use only the power adaptor supplied, or a power adaptor compliant with the appropriate specifications.
- disconnect the power adaptor before cleaning the housing and for servicing or repair.

Never
- drop, throw, slam or vibrate the VALINA.
- let oil, water or other liquids enter the VALINA.
- use extension cables to extend the power cable between the power adaptor and the VALINA.
- connect any unused cables to the VALINA.
- store, install or use the VALINA
  – near any source of excessive voltage fluctuations, electromagnetic fields or microwave radiation (for example, electric motors or high-frequency devices).
  – in a deep-freeze or a defrosting system.
- store the VALINA near food, or with explosive substances such as lighter fuel or petrol.
- open the VALINA.

REPAIRS AND END-OF-LIFE

All servicing other than the actions described in this manual must be performed by our service centre.

Dispose VALINA at the end of its life accordingly. Do not discard, give away or sell your VALINA as it contains materials that can be recycled and must be treated by a professional party.

6 Security recommendations

Security features are integrated at all levels of the VALINA design, from the external housing to the "system-on-chip" at the heart of the terminal. To combat fraud from external sources, regular visual checks are essential.

INTEGRATORS

Integrators must implement appropriate procedures to guarantee that every installation on the field is checked regularly. The purpose of the checks is to make sure that:
- no camera has been set up to track cardholder activity.
- no skimming device has been attached.
- no foreign object is present in either of the card-readers.

MERCHANTS

For security reasons, merchants are advised to check their VALINA every working day and make sure that:
- there is no sign of unusual cables connected anywhere on the terminal.
- there is no foreign object in either of the card-readers.
- the terminal is not displaying any warning message.
- the housing is not visibly damaged.
- the terminal serial number (on the label) corresponds to the inventory.

Note

If anything suspect is found in the chipcard reader, or if the VALINA is displaying a "tampered" warning message, the integrator must:
1. Disconnect the terminal from the power source.
2. Alert the police or computer crime unit and provide them with any requested elements for investigation.
3. Alert the acquirer with precise details on location and situation.
4. Alert the regulator if appropriate.

7 Installing VALINA

- Read Operating safety, on page 10, before you start installing a VALINA.
- Make sure that:
  - there is no sign of unusual cables connected anywhere on the VALINA.
  - there is no foreign object in either of the card-readers.
  - the terminal is not displaying any warning message.
  - the housing is not visibly damaged.
  - the terminal serial number (on the label) corresponds to the inventory.

- Make sure the vending machine has the necessary front panel/top panel openings and spot-welded connection bolts, and that the weld seams are within permitted limits.
- Make sure the front panel of the vending machine is smooth and rigid with no unfinished edges on any of the holes or openings.
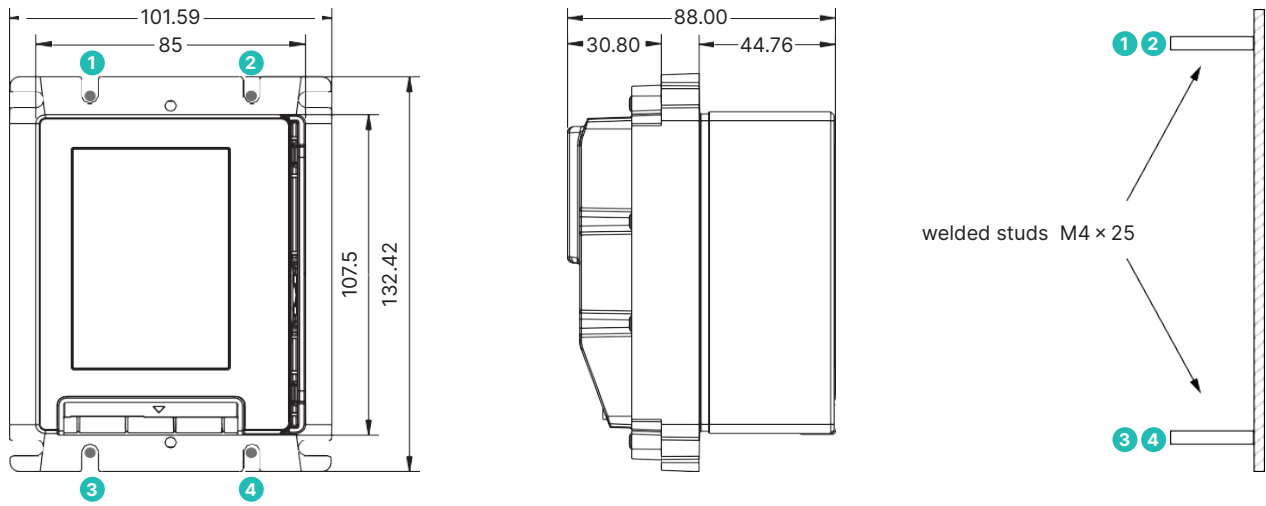- Make sure the VALINA cannot be removed from the vending machine after integration.

Figure 6:   General dimensions

For exact measurements, including tolerances, download the VALINA mounting instruction from worldline.com/merchant-services/download.
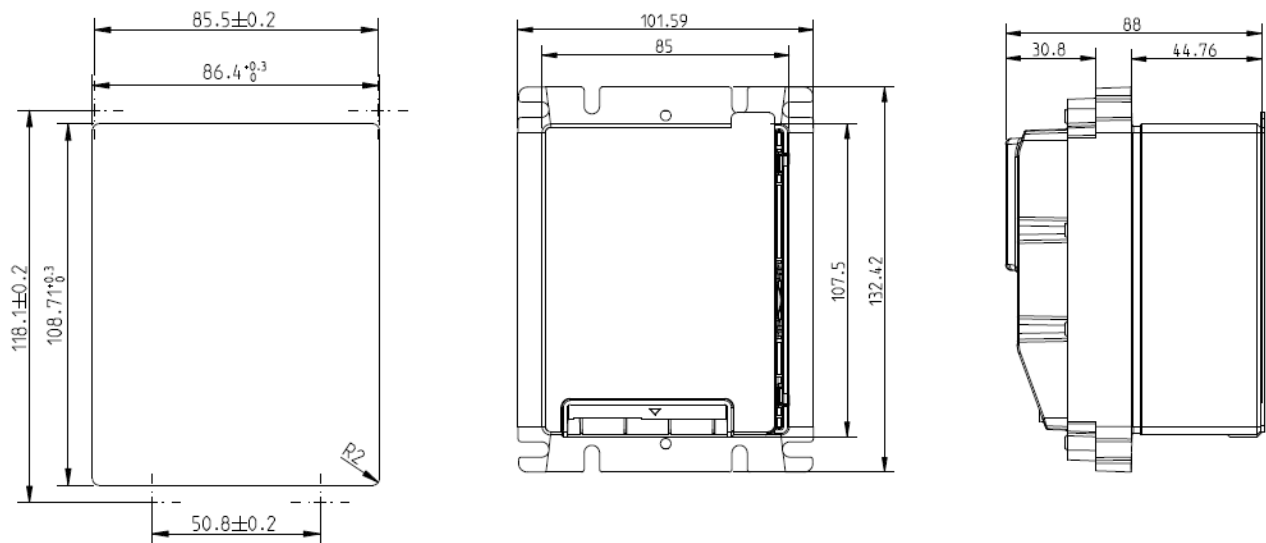

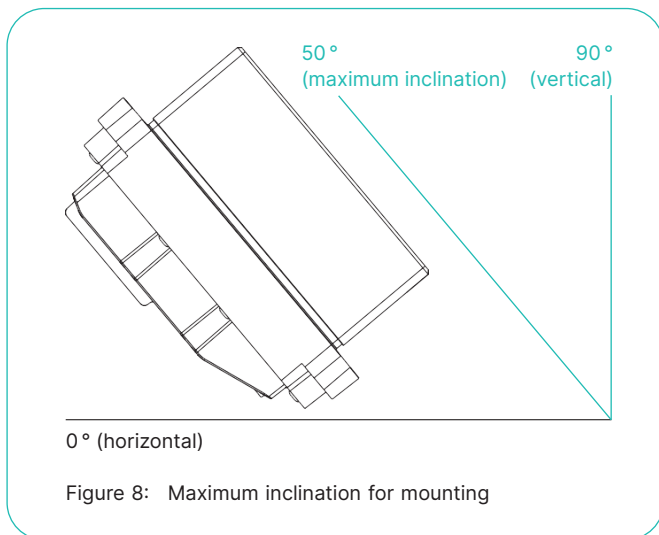Figure 7:   Opening in front plane and positioning studs

SELECTING A LOCATION

The terminal is designed for unattended use both indoors and outdoors. Electrical installations where the VALINA is installed must comply with local and regional codes for office and residential electrical wiring, such as International Electrotechnical Commission (IEC).

Finding a proper location is an important aspect of installing VALINA components.

Follow the guidelines given here, and also check local requirements:
- Select a location on the machine that is conveniently accessible.
- On the front side of the vending machine, make sure that:
  – the VALINA fits in the mounting position.
  – the VALINA faces the cardholder and will be clearly visible.
  – the display is readable.
  – the card slot is accessible.
- Avoid a position that exposes the VALINA to rain or hostile weather.
- Mount the VALINA vertically (recommended), and never less than 50 ° from the horizontal: this reduces the risk of water getting into the chip-card reader.

50 ° (maximum inclination)   90 ° (vertical)

0 ° (horizontal)

Figure 8:   Maximum inclination for mounting

- Make sure air can circulate freely around the components. Take extra measures to avoid condensation or humidity inside the vending-machine or other location when the VALINA is being integrated in an outdoor environment. Installing moderate levels of heating and/or ventilation can help, as can leaving the terminal active at all times.
- To avoid reflections and to guarantee readability, do not expose the display to direct sunlight.
- For the security of the card-holder, make sure that PIN privacy is guaranteed:
  – by locating the display outside the field of vision of cameras, mirrors and so on, and away from stairs.
  – by checking all local regulations and requirements for PIN privacy.
- For the convenience of the technician, make sure there is sufficient space on the vending machine to:
  – access the ground connection.
  – guide the cables without folding them, and use cable ties.
  – fit the mounting brace that fastens the terminal tightly into the machine
  – access the rear side of the VALINA.
- The maximum permitted length of the cable between the VALINA and the vending machine controller (VMC) is 3 m.

PACKAGING

Quantity	Item
1	VALINA
2	Fixing plates
1	Gasket
Optional items	
1	Power adaptor
Cable(s)	RS232 VALINA serial cable 2 m (ePOS/ECR to VALINA), Ethernet, RS232, USB, power (TTL) and other cables as ordered

Inspect the package for damage, and make sure it contains all the items listed. In case of doubt, or if items are missing or damaged, contact our local service team.

> If you are going to attach the mounting plate direct to the vending machine, you will also need four M4 locknuts and washers. These are not included in the package.

INSTALLING THE TERMINAL

> **Note**
> If you are going to install a 4G communications board and antenna, prepare the vending machine first: see Installing the 4G antenna, on page 17, for instructions.
>
> If you are going to install a SIM card or 4G comms board (described on page 18), complete this task before installing the VALINA in the vending machine.

Step 1: Check the gasket positioning
The lugs (pins) in the rubber should fit into the terminal openings above and below.

Step 2: Mount the VALINA in the vending machine
1. Line up the VALINA with the front panel opening on the vending machine.
2. Clamp the EVA frame to the rigid front plate of the machine using four locknuts.
   Note: These locknuts are not included in the terminal package.
3. Tighten the locknuts in a Z-pattern.
   To avoid damaging the VALINA, do not over-tighten the nuts. 0.7 Nm is recommended, depending on the material the front plate is made from.

After mounting the VALINA on the vending machine, continue by connecting the power and communications cables.

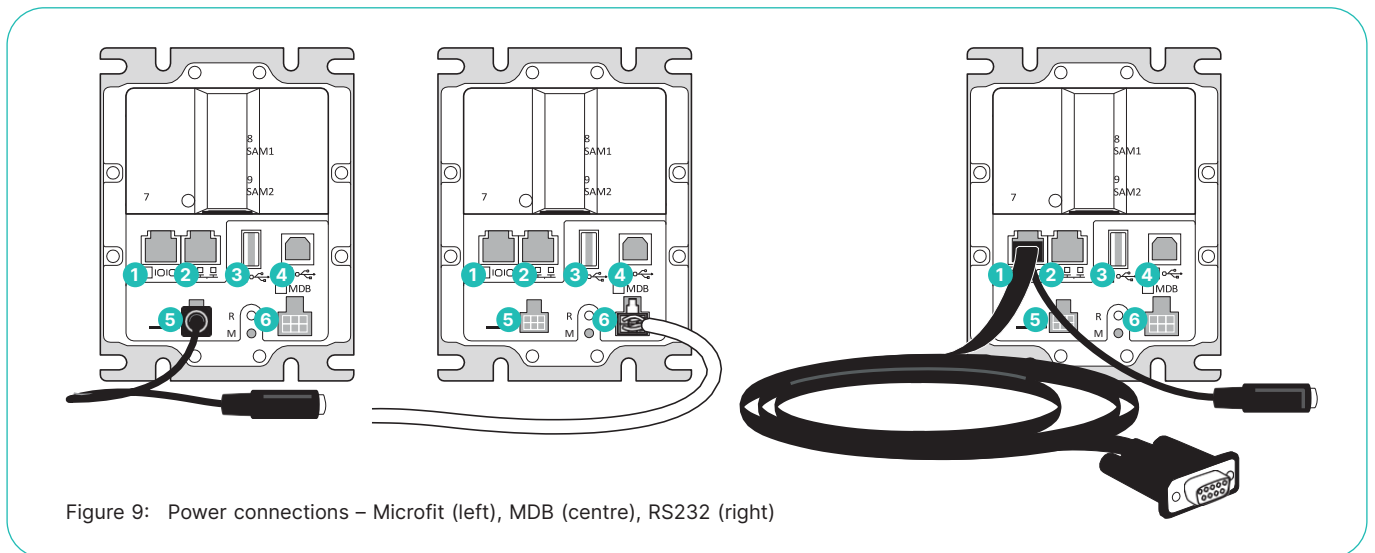### Step 3: Connect power and communication cables

Figure 9:   Power connections – Microfit (left), MDB (centre), RS232 (right)

There are six numbered interfaces on the back of the VALINA, for connections to external peripherals.

1 RS-232
RS-232 port with RTS/CTS flow-control, for connecting peripherals such as ePOS equipment or a printer. The port allows connection speeds up to 115,200 bps and is fitted with an RJ45 connector. See RS-232 interface, on page 19, for information on flow control. The RS-232 port can also be used to provide a power supply.

2 Ethernet
Ethernet connection 10/100 Mbit, using an RJ45 connector.

3 USB host
USB 2.0 high speed (up to 480 Mbps) host interface, which can be used to connect to a USB stick or other storage device.

4 USB device
USB 2.0 high speed (up to 480 Mbps) device interface, which can be used to connect to ePOS equipment/PC and to perform key loading.

5 TTL
TTL connector Microfit 43045 has one output and up to three inputs: used to attach a peripheral to the terminal. The TTL port can also be used to provide a power supply.

6 MDB
MDB interface supports the MDB 4.2 protocol, for communicating with vending machines or other devices supporting the standard. The MDB port can also be used to provide a power supply.

For detailed information on pinouts, see Ports and pin-outs, on page 19.

Step 4: Power up VALINA and fasten cables

The VALINA requires an external power supply, using one of these three options:

- connector 1 – 12 V DC 2A (RJ45 connector)
- connector 5 – 12 V DC 2A (Microfit connector)
- connector 6 – 24–45 V DC (MDB connector)

> **Note**
> The VALINA cannot be powered through any other port. To reduce wear on the connectors, use a cable tie to fasten the cables to the strain-relief points on the VALINA mounting-plates.
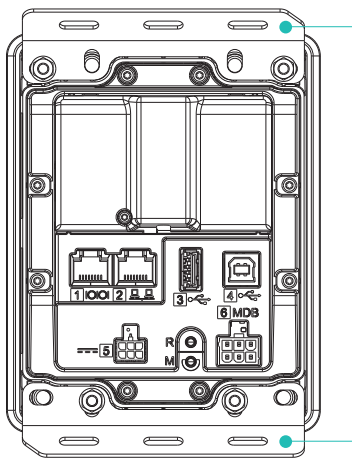

Figure 10: Strain-relief points on VALINA mounting-plates

> **Note**
> In normal state, the status LED on the front of the VALINA lights up steadily as soon as you power up the terminal. In tampered state, the device displays a warning message and it is not possible to use the terminal to make a payment. When a warning message is displayed:
> 1. Remove the terminal from service.
> 2. Contact your local service team immediately.
> 3. Keep the terminal available for possible forensic investigation.

Step 5: Install SAM card – optional

The VALINA has two type ID 0 SAM slots.

- Install any SAM card before installing the optional communications board.
- Install both the SAM card and the communications board before installing the VALINA in the vending machine.

1. Open the TELECOM cover
   Remove the retaining screw of the TELECOM cover and open the cover.
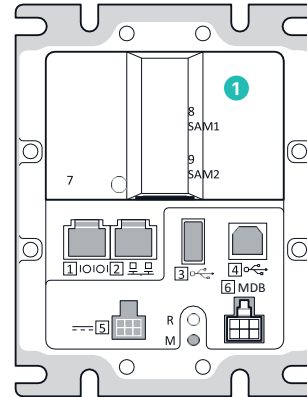
Figure 11: VALINA with TELECOM cover **1** in place

2. Open the SAM holder and insert SAM card.
   Open the SAM holder (with the two bar-code labels on) and insert one or two SAM cards as shown.
   Make sure the card is completely inserted.
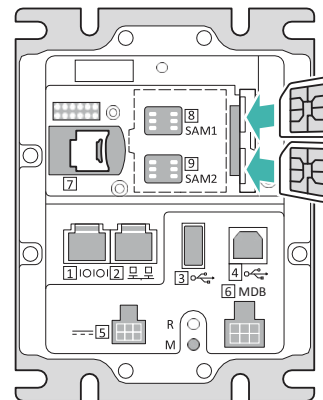
Figure 12: Fitting SAM cards

3. Close all slots.
   Close the SAM holder, and press it down until it engages with an audible click.
4. Close the TELECOM cover.

> **Note**
> If you will be installing the optional micro SD card or the optional communications board, do not close the TELECOM cover yet.
>
> If you are using a retaining screw for the cover, use one 8 torx screw (included). Do not over-tighten the screw.

Step 6: Install micro SD card – optional

1. Open the TELECOM cover.
   Remove the retaining screw of the TELECOM cover and open the cover.
2. Insert the microSD card in the holder as shown.
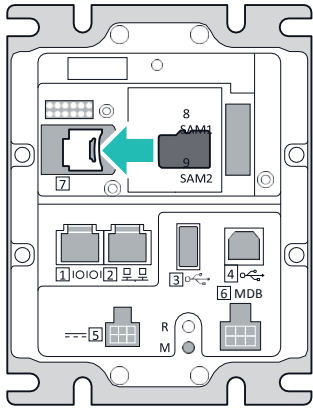
Figure 13: Inserting the micro SD card

Note

If you will be installing an optional communications board, do not close the TELECOM cover yet.

If you are using a retaining screw for the cover, use one 8 torx screw (included). Do not over-tighten the screw.

INSTALLING THE 4G ANTENNA

To use the VALINA with a 4G connection, you need a 4G communications board and a 4G antenna. The recommended configuration, which has been certified, uses an MA412.A.BI.030 antenna supporting 4G plus 3G and 2G fallback.

You may use other models of 4G (MIMO 1/MIMO 2) antenna, but performance cannot be guaranteed. Note that the MIMO 1

cable must always be connected to the MAIN SMA connector on the 4G communications board.

For easy access, start by installing the SIM on the telecoms board. Next, install the telecoms board in the VALINA. Mount the VALINA in the vending machine, install the 4G antenna and connect the antenna cables to the telecoms board.
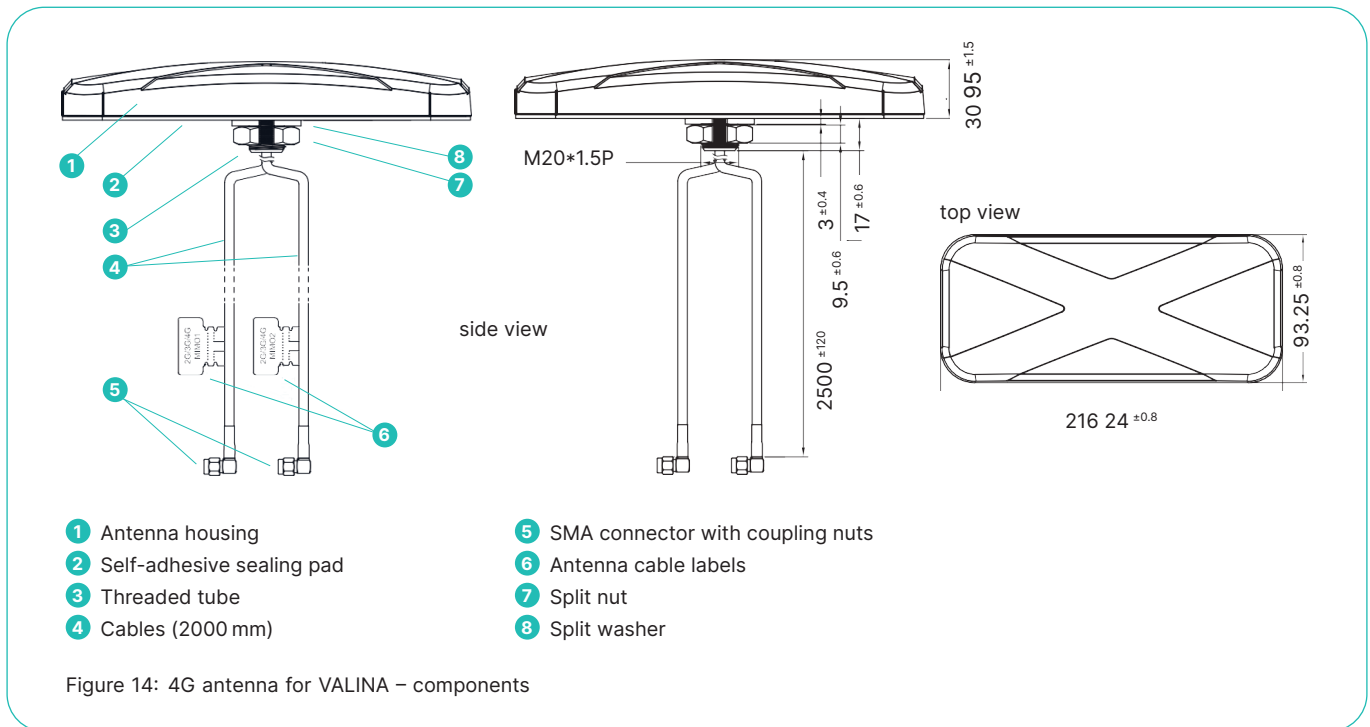

1	Antenna housing	5	SMA connector with coupling nuts
2	Self-adhesive sealing pad	6	Antenna cable labels
3	Threaded tube	7	Split nut
4	Cables (2000 mm)	8	Split washer

Figure 14: 4G antenna for VALINA – components

Step 1: Drill the mounting hole
Drill the mounting hole in the top of the vending machine. The mounting hole must be 20 mm in diameter, and it is recommended to drill it in the centre of the top panel.

Step 2: Remove the split washer and split nut
Remove the split washer and split nut from the threaded tube underneath the antenna.

Step 3: Remove the protective foil
Peel the protective foil off the self-adhesive sealing pad on the bottom of the antenna.

Step 4: Fit the threaded tube and the two antenna cables
Insert the threaded tube and the two antenna cables through the mounting hole. Make sure the long edge of the antenna is aligned with the long edge of the vending machine, and that the cables are not kinked or trapped.

Step 5: Press the antenna firmly into position

Step 6: Position the two cables
1. Put the two cables inside the split washer and slip the washer over the threaded tube.
2. Put the two cables inside the split nut, and screw the nut on to the threaded tube. Use a spanner to make sure the nut is firm, but do not apply excessive force.

The antenna is now fixed firmly in place on top of the vending machine, and the two antenna cables are hanging freely.

INSTALLING THE 4G COMMUNICATIONS BOARD

Step 1: Prepare the 4G communications board
1. Unpack the board, taking precautions to avoid electrostatic discharge (ESD).
2. Make sure that all the required accessories (cables, antenna and so on) are correct and present.

Step 2: Open the TELECOM cover
Remove the holding screw of the TELECOM cover and open the cover.

### Step 3: Fit the microSIM card to the 4G communications board
1. Slide the microSIM card cover towards the bottom of the VALINA to unlock it.
2. Open the cover, insert the microSIM card and close the cover.
3. Slide the microSIM card cover towards the top of the VALINA to lock it.

Step 4: Fit the 4G communications board in the VALINA
1. Hold the 4G communications board with the two SMA connectors facing you and at the lefthand side of the board.
2. Slide the 4G communications board under the clips on the left.
3. Make sure the connector on the underside of the board is aligned with the connector on the VALINA.
4. Gently press the right-hand edge of the board down into the holding clip on the right, until it engages with an audible click.

> **Note**
> Do not press down on the microSIM-card!
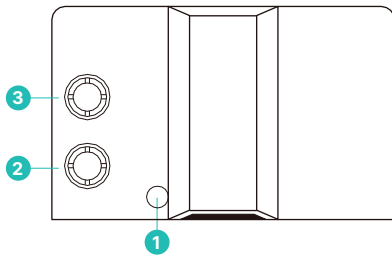
1 Hole for fixing-screw
2 Knock-out for SMA connector (MIMO 1/main antenna)
3 Knock-out for SMA connector (MIMO 2/diversity antenna)

Figure 15: TELECOM cover
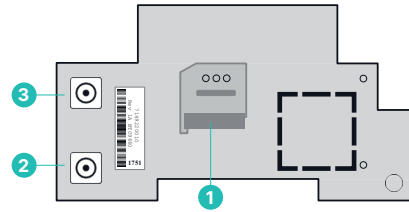
1 MicroSIM card cover
2 SMA connector for MIMO 1/main antenna
3 SMA connector for MIMO 2/diversity antenna

Figure 16: 4G communications board

Step 5: Connect cables to 4G communications board
1. Remove and throw away the two knock-outs on the TELECOM cover.
2. Replace the TELECOM cover, guiding the two SMA connectors through the holes.
3. Replace the 8 torx screw for the TELECOM cover; do not over-tighten the screw.
4. Connect cables to 4G communications board.
   a. Attach the MIMO 1 antenna cable to the main SMA connector 2 .
   b. Attach the MIMO 2 antenna cable to the diversity SMA connector 3.
   c. Screw the coupling nuts finger-tight to hold the cables firmly in position.

> **Note**
> Do not use a spanner and do not press down on the microSIM-card!

8 Ports and pin-outs

There are six sockets at the back of the VALINA:
- four for data/peripherals
- one for power supply and data/peripherals
- one for power supply only

The VALINA is powered from an external power adaptor through port 5 (TTL), port 6 (MDB) or port 1 (RJ45).

The VALINA is CE certified in combination with the Powertech ADS 0271-B adaptor. If any other power supply is used, they have to be compliant with local safety requirements and regulations.
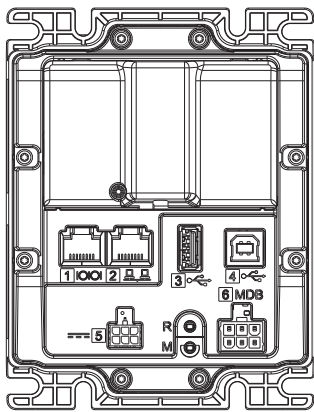

Figure 17: Power supply/data connectors on the VALINA

See page 14 for more information on the connectors.

RS-232 INTERFACE

VALINA has one RS-232 interface with RTS/CTS flow-control, for connecting to peripherals such as a vending machine controller (VMC), ePOS equipment or a printer.

The interface allows connections up to 230,400 bps and is fitted with an 8p RJ45 connector with the following pinout.

Pinout for RS-232 interface

Pin	Description	Direction
1	GND	
2	GND	
3	RTS	OUT
4	CTS	IN
5	RXD	IN
6	TXD	OUT
7	VNR	IN
8	VNR	IN

ETHERNET 10/100 MBIT

VALINA has a standard 10/100 megabit Ethernet interface with RJ45 (8p/8c) connector.

> **Note**
> VALINA cannot be powered through the Ethernet interface.

Pinout for Ethernet 10 Mbit connector

Pin	Description	Direction
1	TXP	OUT
2	TXM	OUT
3	RXP	IN
4	GND	
5	GND	
6	RXM	IN
7	GND	
8	GND	

USB-A (HOST) INTERFACE

The VALINA is fitted with a USB 2.0 high speed (up to 480 Mbps) host interface, which can be used to connect to a USB stick or other storage device.

> **Note**
> VALINA cannot be powered through the USB host interface: it always needs an external power supply.

Pinout for USB host interface

Pin	Description	Direction
1	VCC	OUT
2	D–	bidirectional
3	D+	bidirectional
4	GND	

USB-B (DEVICE) INTERFACE

The VALINA is fitted with a USB 2.0 high speed (up to 480 Mbps) device interface, which can be used to connect to ePOS equipment or a PC and to perform keyloading.

The necessary USB-driver is included in recent installation packages of most operating systems (Windows, MacOS and Linux). If the driver is not available, contact the local service team.

> **Note**
> VALINA cannot be powered through the USB device interface: It always needs an external power supply.

Pinout for USB-B interface

Pin	Description	Direction
1	VCC	IN
2	D−	bidirectional
3	D+	bidirectional
4	GND	

POWER SUPPLY – TTL

The TTL interface is a surface-mounted, dual-row, 6 circuit connector (Molex Microfit connector) with a press-fit metal retention clip.

Pinout for Microfit 43045-0616 interfaces

Pin	Direction
1	VNR
2	GND
3	WAKEUP
4	IN [0]
5	IN [1]
6	OUT [0]

POWER SUPPLY – MDB

The MDB ICP is a standard interface for communicating with the vending machine controller (VMC). The VMC is integrated into the vending machine and controls various peripherals.

Pinout for MDB interface

Pin	Direction
1	VNR [in]
2	GND
3	NC or common (depending on jumper setting)
4	TXD [out]
5	RXD [in]
6	Common

PROXIMITY SENSOR

The VALINA is fitted with a proximity sensor that helps supports smart energy consumption by switching between different states.

Power consumption

State	Details
Transaction	Terminal processing transaction by Ethernet (backlight on)
Sleep	Wake-up triggered by proximity detector wake-up time ≤ 1 second
Stand-by	Wake-up triggered through TTL port wake-up time ≤ 65 seconds

POWER MANAGEMENT

VALINA is equipped with smart power management profiles. Each profile puts the terminal in a different state and supports different ways to wake up the terminal. Using the different profiles in a smart way will minimise the amount of energy the VALINA requires when not in use for a transaction. The information below is indicative. Measurements in the field may differ, depending on applications that might call for additional resources.
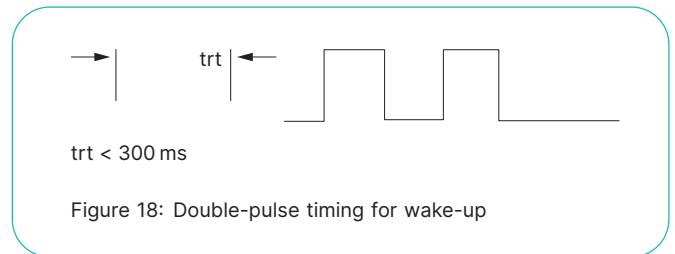
Stand-by profile
Consumption:
• 0.019 W

Wake-up possibilities:
• external trigger via the TTL I/O interface
• reset button on the back (not accessible by cardholder)
• double pulse via the TTL I/O interface

trt < 300 ms

Figure 18: Double-pulse timing for wake-up

Wake up time:
65 seconds to make the terminal available in a ready for transaction state

Sleep profile
Consumption:
• 0.104 W

Wake-up possibilities:
• alarm generated by the Real Time Clock (RTC)
• insertion of a card
• proximity sensor detecting someone approaching the machine
• input on TTL I/O (same as stand-by mode)
• Reset button on the back (not accessible by cardholder)
• data on the serial interface (RS232)

Wake up time:
1 second to make the terminal available in "ready" state

Transaction profile
Consumption: 2.4 W during the transaction

9 JTAG/Debug port

For development and repair purposes, the VALINA is equipped with a JTAG/Debug port, underneath the TELECOM cover. This port can be used to connect a PACIFIC Debug Interface for debugging and logging purposes. This port can also be used to connect a JTAG Interface for repair and reflash purposes.

The following interfaces are available on this port:
- JTAG-interface towards the ASIC
- 3.3V UART interface towards Core 1 (secured – UART_A3)
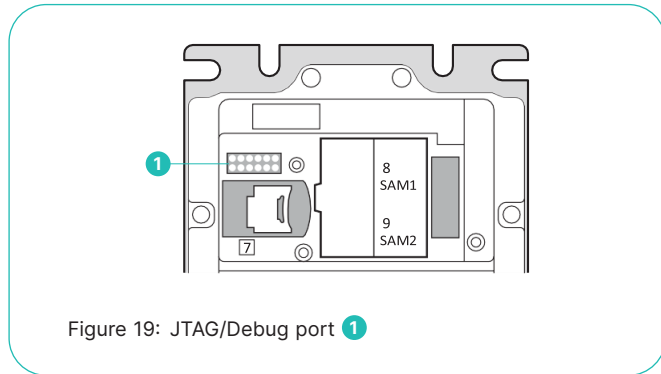- 3.3V UART interface towards Core 2 (unsecured – UART_B3)

Figure 19: JTAG/Debug port **1**

The JTAG/Debug port uses a spring-loaded connector with 2.54 mm pins.

Pinout for JTAG/Debug port – springport

Pin	Description	Pin	Description
1	3.3V	11	TDO
2	GND	12	GND
3	TRSTn	13	3.3V
4	GND	14	12C_SCL
5	TDI	15	12C_SDA
6	GND	16	SRSTn
7	TMS	17	UART4_RXD
8	GND	18	UART4_TXD
9	TCK	19	UART5_RXD
10	GND	20	UART5_TXD

The JTAG/Debug Port is also available via a pinheader with a pitch of 1.27 mm, which is available on prototypes and development terminals.

Pinout for JTAG/Debug port – pinheader

Pin	Description	Pin	Description
1	GND	7	SRSTn
2	TCK	8	3.3V
3	TDI	9	UART4_ RXD (debug)
4	TDO	10	UART4_TXD (debug)
5	TMS	11	UART5_ RXD (debug)
6	TRSTn	12	UART5_TXD (debug)

10 Cleaning

For optimal functioning of your Worldline terminal and accessories, clean them regularly.
1. Disconnect the equipment from the power supply.
2. Clean the equipment with a soft damp cleaning cloth.
3. Clean the display with a soft dry anti-static cleaning cloth.
4. Clean card readers every two weeks, with an appropriate cleaning card. Contact your local service team for information about cleaning cards.

After cleaning, do not forget to re-connect the equipment.

Do not:
- Immerse the product in water, or use a lot of water while cleaning.
- Let dirt enter the card readers.
- Use detergents, solvents, alcohol or abrasive products. These products may damage the surface and make transparent parts opaque.

11 Repairs and end-of-life

All servicing other than the actions described in this manual must be performed by our local service team.

When a VALINA or any of its accessories is at the end of its life, it must not be simply thrown away, given away or sold on. As terminal owner, you are responsible for the correct decommissioning of terminals and their components or accessories at their end of life.

Remember that:
- Security awareness requires erasing cryptographic components securely and completely.
- Sustainability requires recycling as many components as possible.
- Environmental awareness requires disposing of hazardous materials professionally.

STEP BY STEP

Inspect the terminal for completeness, signs of intrusion and tampering, as explained under Security recommendations, on page 11.

If you find any evidence of tampering, report the problem to us and keep the terminal available for possible forensic investigation.
1. If you do not find any evidence of tampering, dispose of the terminal following local rules and regulations for disposal of electronic equipment, such as WEEE. Make sure that the person or organization responsible effectively destroys the terminal and its components.
2. Log the physical disposal of the terminal in the assets register.

Appendix technical specifications

Display
3.5", 320 × 480 pixels, 64K colour, capacitative touchscreen (backlit)

Communications – on-board
Ethernet 10/100 RS-232

Communications – optional extensions
2G/3G–GSM, GPRS, EDGE/UMTS, HSDPA
Bluetooth/WiFi

Interfaces
Ethernet
RS232, to serial peripherals
(for example, vending machine controller or printer)
Microfit 43045, power input/output socket (12 V DC, 2A)
MDB
USB host and USB device

Chip security modules
2 SAM slots type ID 0
2G/3G interface board contains 1 SIM slot

Processing capabilities
Hardware cryptographic accelerators

Memory
512 Mbytes RAM
4 Gigabytes Flash
memory Micro USD

Power supply
12 V DC, 2A (when using Microfit)
24–45 V DC (when using MDB)
Proximity detector

Weight
573 g

OPTIONAL ACCESSORIES

- Debug interface
- Power adaptor
  Input100-240 VAC, 50–60 Hz; output 12 V DC 2A

ENVIRONMENTAL CONDITIONS

Operating temperature/humidity
–20 °C to +70 °C; 0% to 90% RH non-condensing
This corresponds to an environmental temperature of –20 °C to around +50 °C, depending on the position of the terminal (in direct sunlight, sheltered …) and remembering that the terminal itself generates heat while in operation.

Storage temperature/humidity
–25 °C to +70 °C; 0% to 95% RH non-condensing

Flammability rating
ANSI/UL 94 V-0

Dust-/waterproof rating
IP65

Protection classification
vandal-proof class IK09

SOFTWARE

- Android and Linux® OS
- Linux-based development kit (C and Java™)
- Secured remote download of software