YOMANI
colourful
innovation

worldline
e-payment services

• • • • • • an atos company

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1. Introduction

The YOMANI is a fully-equipped countertop terminal, specially designed for attended use in all retail environments. Major features of the YOMANI range include:

- all types of cards are accepted: chip, magnetic-stripe and, optionally, contactless

  Where to read each type of card is clear, thanks to thoughtful positioning of card interfaces. Configurable lighting shows the location of each available interface.

- large colour display, so the user interface both for customers and for merchants can offer more possibilities

- integrated privacy shield, an essential feature for customer security

  In addition to this very visible feature, many internal features (both software and hardware) also help make the YOMANI a highly secure terminal. This is guaranteed by PCI PTS 3.x certification.

- new engine with a faster processor, more memory and superior cryptographic functionalities for the best in performance

Variants

YOMANI ML

The YOMANI ML terminal offers multi-lane payment for large retailers, with a USB device interface offering a single-wire solution for connecting the YOMANI to ePOS equipment.

YOMANI XR

The YOMANI XR is the fully-equipped terminal for all retail environments. In addition to all the YOMANI ML features, it offers:

- USB host interface providing connectivity to various types of peripherals such as biometric devices, bar code readers, cheque readers and signature pads
- fast thermal printer (optional)
- support for PSTN dial-up (optional)

YOMANI XR with built-in antenna

In addition to all the YOMANI XR features, it offers support for a range of optional wireless communication technologies including 2G/3G and WiFi/Bluetooth.

About this book

This book contains information for anyone who wants to know the ins and outs of the YOMANI terminal. It covers the following main topics:

- YOMANI key features and YOMANI accessories – detailed terminal specifications, security, development environment and available accessories

- logistics information – product identification and packaging.

- Installing and maintaining the terminal – user comfort and security guidelines

USB terminology

The YOMANI terminal always has a USB device (USB B) socket.
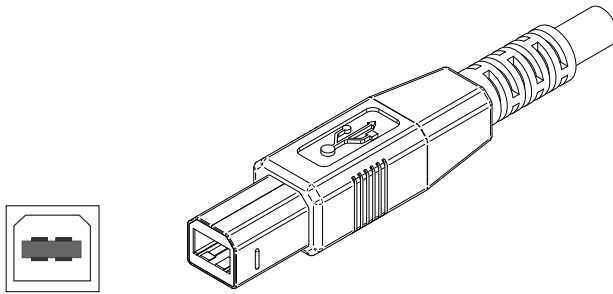
Figure 1.   USB device (USB B) socket and connector

The YOMANI XR also has a USB host (USB A) socket.
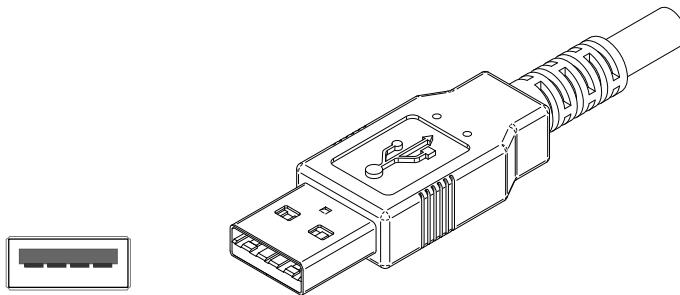
Figure 2.   USB host (USB A) socket and connector

2. YOMANI key features

Key features of the YOMANI range:

- compact, lightweight design
- large colour display
- all types of cards are accepted: chip, magnetic-stripe and, optionally, contactless
- integrated privacy shield, an essential security feature for the card holder
- wide range of communications interfaces

Dimensions and weight
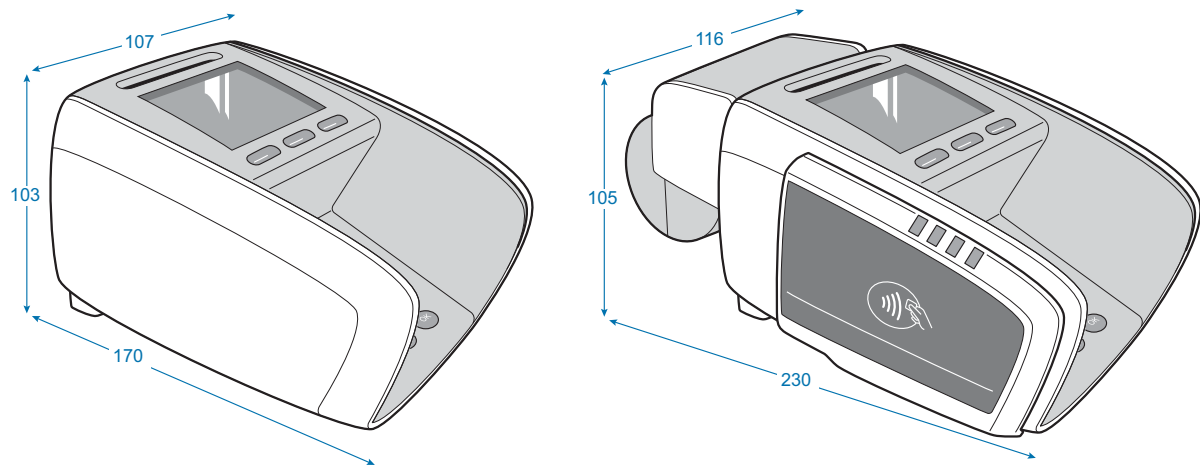
Figure 3.   Terminal dimensions

Without contactless reader or printer, a YOMANI terminal measures 107 mm wide x 170 mm long x 103 mm high and weighs 590 g.

With contactless reader and printer (but without paper roll) a YOMANI terminal measures 116 mm wide x 230 mm long x 105 high and weighs 800 g.

Keypad

The YOMANI has an alphanumeric keypad with 15 keys, in the area protected by the PIN privacy shield. Three programmable function keys (soft keys) are also provided, next to the display. These can be used for navigation, selection and custom functions

Figure 4.   Alphanumeric keypad

The alphanumeric keypad consists of:

- ten numeric keys
- a Menu key
- decimal separator key
- command keys Stop, Corr and OK

This keypad layout complies with ISO 9564-1, EN1332-3 and EMV 4.3 standards.

The mapping between letters and numbers on keys 2 to 9 complies with the European ITU E.161 and EBS 100 v3 standards and the American ANSI NCITS 118-1998 standard.

⇧ is used in alphanumeric entry to switch between lowercase and uppercase characters

␣ is the space symbol used during alphanumeric entry.

Alternative keypad layouts may be possible, depending on quantity.

User comfort and accessibility

For optimal accessibility, the keypad design has been enhanced with the following features:

- main keypad clearly bounded by the PIN privacy shield, preventing accidental use of function keys
- blue key backlight (adjustable intensity) to illuminate key boundary and main key character, for higher contrast and readability
- wear-and-tear resistant keys with the character imprinted under the surface, using in-mould decoration
- embossed dot tactile identifier on key 5
- embossed symbols (EBS 100 v3 standard) on the command keys: **X** on the stop key, **>** on the Corr key and **O** on the OK key
- concave key surface

Display

YOMANI has a large 2.8" TFT colour display, with:

- 320 x 240 pixel resolution (¼ VGA) representing a view area 57.6 mm wide x 43.2 mm high
- 16-bit colour mode, RGB (5, 6, 5)
- bright white backlight with adjustable intensity and contrast
- a text display area offering 8 lines of text, depending on the size of the font used

Increased usability

The new display offers plenty of scope for usable, comfortable applications:

- larger size and better resolution allow for more information on screen

  The standard font is Droid (proportional). Additional fonts are available to guarantee optimal readability for a specific context.

- better brightness and contrast for better readability
- colour opens various new possibilities: not just interface icons, but also text and images

These screenshots show just some of the possibilities:

Figure 5.   Display

Card interfaces

The terminal has two standard card interfaces:

- chip-card reader (EMV 4.3 level 1)
- triple-track magnetic-stripe card reader (ISO 1/2/3)
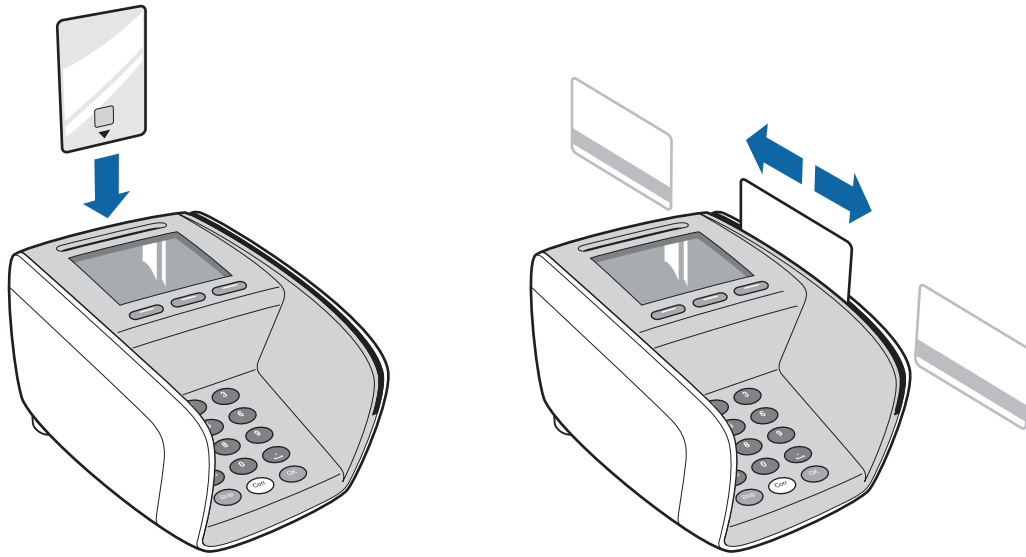
Figure 6.   Card interfaces

The characteristic design of the YOMANI terminal, with the fully integrated PIN privacy shield, allows easy access to both card interfaces. Where to read each type of card is clear, thanks to thoughtful positioning of card interfaces. The card interfaces are also indicated by software-controlled blue LED lighting, to make them even more apparent. These design decisions lessen the risk that users will mistake one interface for the other.

As chip cards are becoming the most widely-used type of payment card, the chip-card reader has been put in the most prominent place just behind the display. The position of the slot encourages users to insert cards upright, which is easier than sliding a card in flat.

The magnetic-stripe card reader, on the right-hand side of the terminal, also lets users hold their cards upright. The length of the reader provides extra card guidance, resulting in optimal reading quality.

Applications can provide extra guidance for users by illuminating only the slot they need to use and by displaying pictograms that explain how to use the contactless reader, the chip card reader or the magnetic-stripe card reader.

The screen shot below shows one possible example.
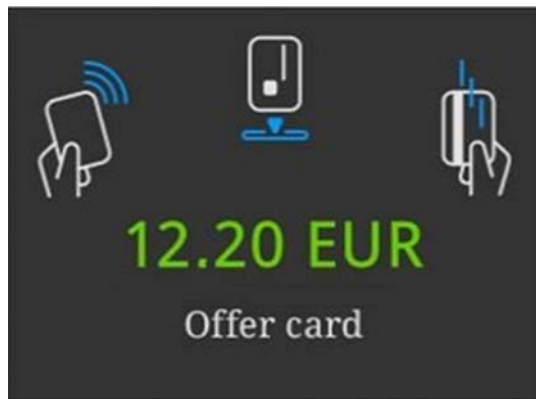
Figure 7.   Card pictograms on the display

PIN privacy shield

To protect cardholders against shoulder surfing while they are entering their PIN code, the YOMANI has a stylish privacy shield integrated in the design.

The PIN privacy shield complies with the latest international security regulations such as PCI PTS.
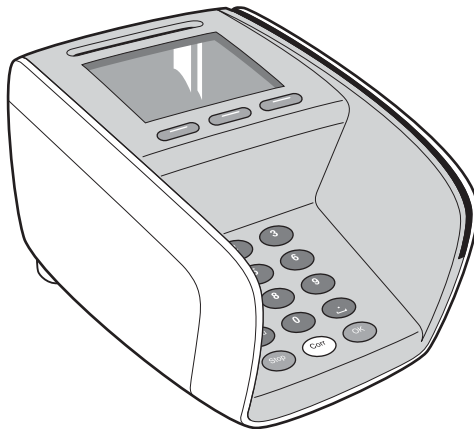
Figure 8.   PIN privacy shield

Secured Application Modules (SAMs)

YOMANI has two internal chip-card interfaces (type ID0) for secured application modules (SAM, CSM) supporting 5V cards. The two slots together provide up to 80 mA; one of the slots can be used as a Powered SAM (PSAM) supporting 50 mA current usage.
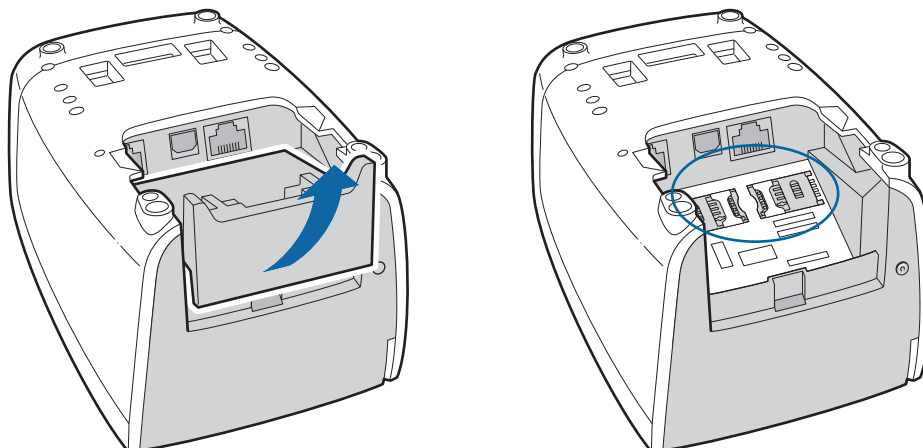
Figure 9.   Removing cover to see SAM slots

For information on installing SAMs, see "Installing SAM card(s) – optional" in the YOMANI Owners' Manual.

Communication interfaces – YOMANI ML

The YOMANI ML model comes with three communications interfaces as standard:

- USB device (USB B)
- Ethernet
- serial

All three are located on the underside of the terminal.
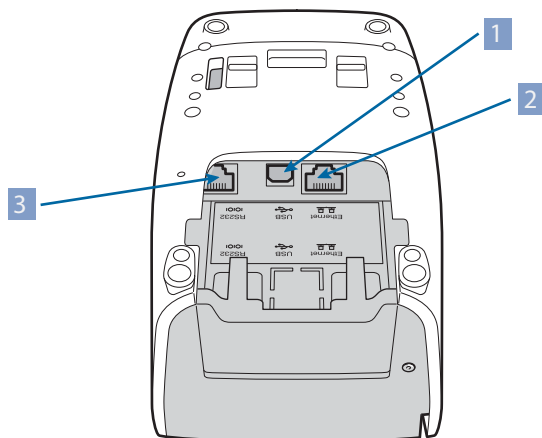
Figure 10. Communication interfaces on YOMANI ML			
1	USB device	3	RS-232 serial
2	Ethernet		

USB device

In line with the *single-wire* concept, the USB device connection can be used for data communications with an electronic cash register (ECR) or a PC. Using an AWG20-28 cable, this connection provides a 5 VDC, 500 mA power supply plus data communication.

The interface has the following main specifications:

- USB 2.0 high speed compatible
- communications speed up to 480 Mbit/s
- connector type USB B

The USB device connection is also used for keyloading and software loading, when the YOMANI is connected to an XPS client PC.

Figure 11.   Keyloading via USB device connection

> ⚠ The YOMANI ML does not support USB host functionalities: you cannot connect USB powered peripherals such as a biometric device, a bar-code reader or a ticket printer to the ML.

Ethernet

The Ethernet interface lets you integrate YOMANI terminals as nodes in a local area network (LAN) connecting equipment such as ticket printers, computers, ePOS equipment and other YOMANI terminals.

> ⚠ Ethernet is used only for data communication, not for powering the terminal

The IEEE 802.3 compliant YOMANI Ethernet interface has the following main specifications:

- Ethernet encapsulation for IP-protocol, IP address, subnet mask and gateway
- communications speed up to 100 Mbps
- logic integrated in the high-tech ASIC
- 10 Base-T/100 Base-TX interface, connector type RJ45
- link and activity LEDs on the connector

- fast interface for development purposes and remote software download

RS-232 serial

The serial interface provides an alternative way of connecting the YOMANI terminal to ePOS equipment or a PC. It can also be used to connect peripherals such as a bar code reader or a ticket printer.

The serial interface can only be used for data communication, not for powering the terminal.

The YOMANI serial interface has the following main specifications:

- RS-232 compliant
- communications speed up to 115,200 bps
- logic integrated in the high-tech ASIC
- connector type RJ45

It is possible to plug the Ethernet cable into the serial socket (or the serial cable into the Ethernet socket) by mistake. This will not damage the terminal, but there will be no communication with the network.

Additional communication interfaces – YOMANI XR

In addition to the standard interfaces, the XR configuration offers a USB host socket (USB A) and can be fitted with one of a range of optional communication interface boards. See Communications interface boards – YOMANI XR, on page 28, for more information.
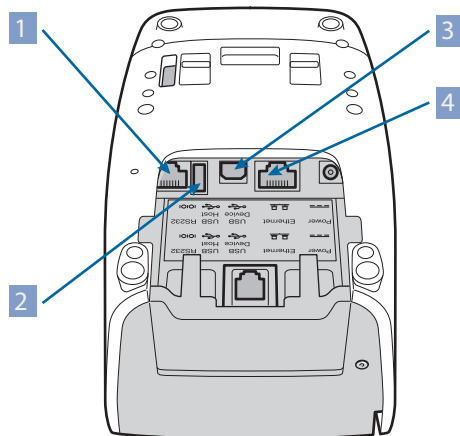
Figure 12.	Communication interfaces on YOMANI XR
1	RS-232 serial socket
2	USB host socket (USB A)
3	USB device socket (USB B)
4	Ethernet socket

USB host – YOMANI XR

The USB host functionalities available on the YOMANI XR let you connect USB powered peripherals such as a biometrics device, a bar code reader or a ticket printer to the YOMANI terminal.

The USB host interface on the YOMANI XR has the following main specifications:

- USB 2.0 high speed compatible
- communications speed up to 480 Mbit/sec
- connector type USB A

Power supply – YOMANI ML

in the ML configuration, the YOMANI is powered via the USB B (device) socket, with a USB cable connected to ePOS equipment, PC or power adaptor.
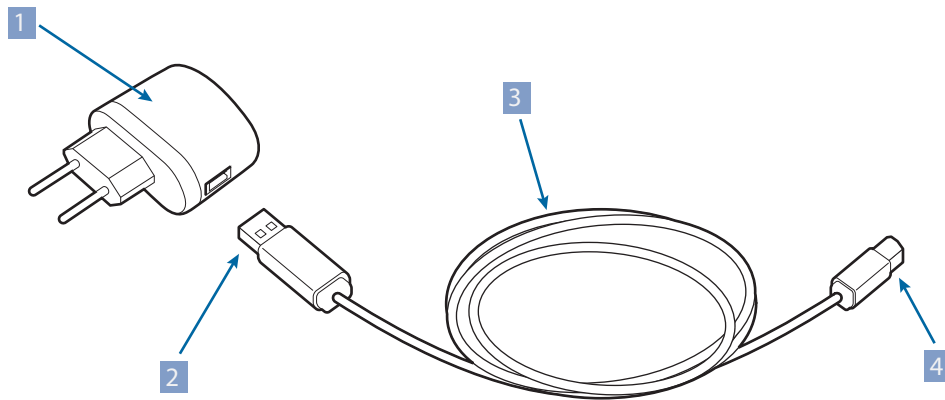
Figure 13.	YOMANI – USB adaptor and cable
1	USB adaptor (plug type depends on country)
2	USB A type plug to fit USB A host socket on adaptor or ePOS equipment
3	USB cable
4	USB B type plug to fit USB B device socket on terminal

Note the following requirements:

adaptor

Indoor USB adaptor with an input of 100 – 240 vAC, 50 – 60 Hz, a country-specific power plug and an output of 5 VDC, 700 mA via USB A (host) socket.

You can either purchase adaptors locally or have them supplied by Worldline.

cable

Type AWG20-28 USB cable.

This type of cable is essential to avoid voltage drops over the cable, and especially important when using the contactless reader. A maximum cable length of 3m is recommended.

Power supply – YOMANI XR

In the XR configuration, the YOMANI is normally powered from a mains adapter connected to the power input socket.

Note: the optional contactless reader has no impact on power supply requirements
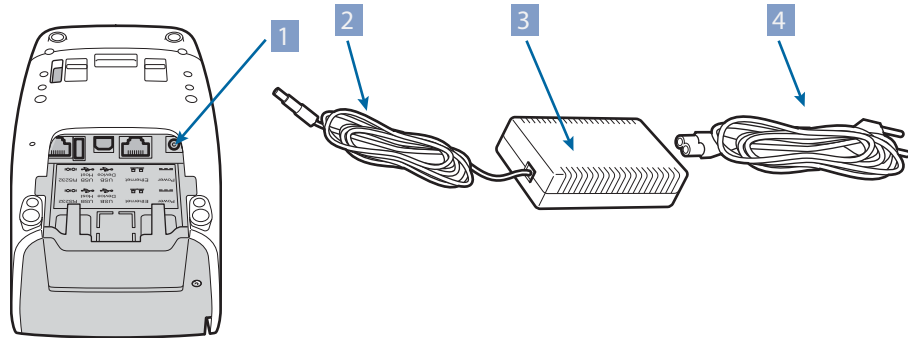
Figure 14. Power supply – YOMANI XR	
1	power input socket
2	power cable (from mains adapter to YOMANI)
3	mains adapter
4	mains cable (to AC wall socket)

You must power the YOMANI through the power input socket:

- if the YOMANI terminal is fitted with a printer, a communications interface board, or both
- if anything is plugged in to the USB host socket

Exceptionally, when you are using a YOMANI XR terminal without a printer or a communications interface board and without anything plugged into the USB host socket, you can power the terminal through the USB device socket, from:

- ePOS equipment or a PC
- a USB adaptor
- a Merchant Unit

Reset button

If the YOMANI terminal locks up for any reason, you can reset it by pushing the Reset button at the back of the terminal. Push the button very firmly with a pencil or some other pointed object and hold it until the screen goes blank. Release the Reset button and wait for the terminal to reboot.

Note: the time the terminal takes to reboot depends on the applications installed.
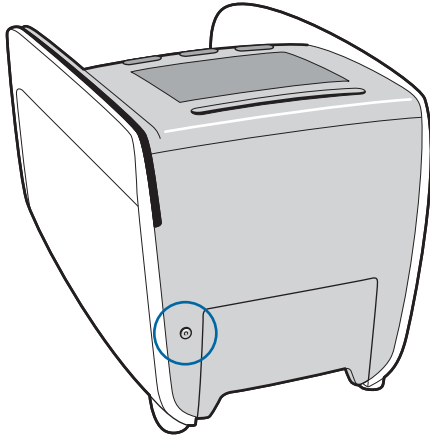
Figure 15.   Terminal Reset button

Stand-by function

To save energy, YOMANI can automatically switch to stand-by mode after, for example, finalizing the transaction. This function is software controlled. Some background processes (for example the optional GSM/GPRS) remain active, and pressing any key (or inserting a card) makes the terminal fully active in only a second.

In stand-by mode

- YOMANI ML consumes only 0.16 W, as against an average of 1.27 W in operation
- YOMANI XR consumes only 0.19 W, as against an average of 1.41 W in operation (1.92 W with ticket printing)

Buzzer

YOMANI is equipped with a multi-tone buzzer for audible feedback to the user.

Housing colour

YOMANI has a two-colour housing: a white outer case and an anthracite grey inner case. (colours based on Natural Colour System codes 1000-N and 8500-N) Other housing colours may be possible, depending on quantity.

The housing uses an attractive combination of glossy and matte surfaces. The parts touched by customers are generally matte.
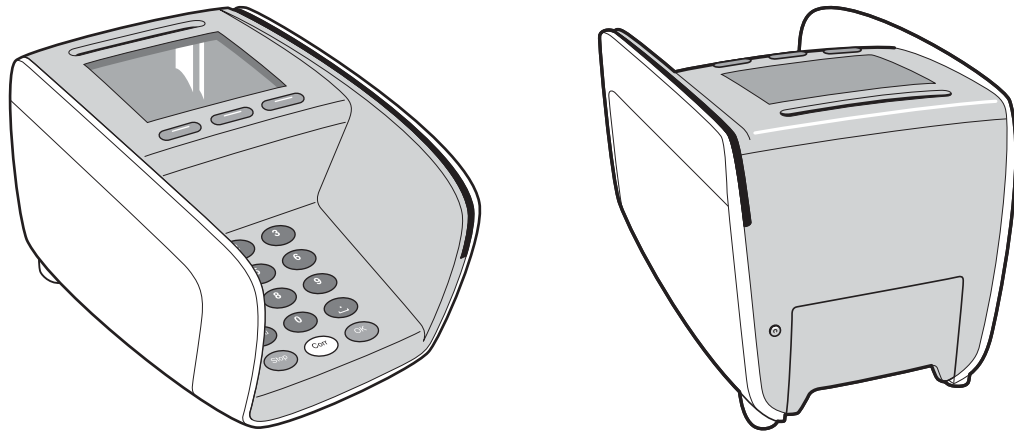
Figure 16.   YOMANI – front and back view

Worldline System-on-Chip

The YOMANI ML and XR models, in line with the YOXIMO and YONEO terminals, use the high-tech SAMOA II "system-on-chip", designed by Worldline. A single chip provides all essential features, including:

- dual ARM 926EJS processor cores:
  - security/communication core (MP1)
  - application/communication core (MP2)
- processor speed up to 350 MHz
- 64 MB RAM memory
- 128 MB NAND Flash memory
- real-time clock (RTC)
- embedded Ethernet and USB functionality
- low power consumption
- a range of improved cryptographic functions, including hardware DES/3DES encryption module, hardware RSA accelerator, and both DRNG and NDRG random number generators
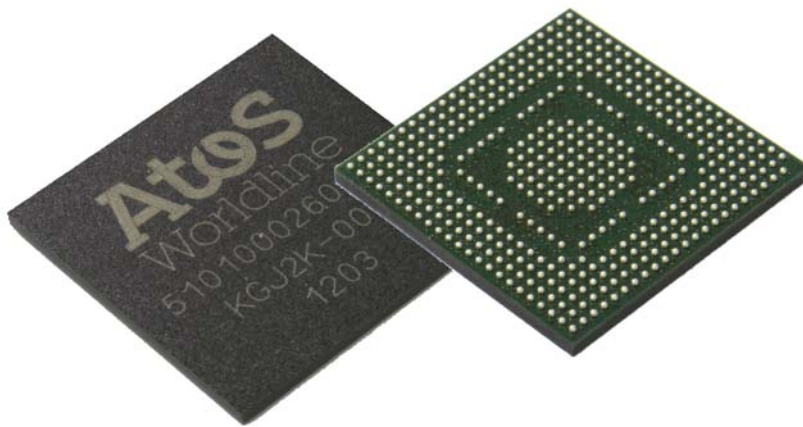
Figure 17. Worldline System-on-Chip

3. Security

Security features are integrated at all levels of the YOMANI design, from the external housing to the "system-on-chip" at the heart of the terminal.

Terminal design

The most tangible security feature is the integrated PIN privacy shield, which prevents shoulder-surfing while a cardholder is entering a PIN.

To prevent fraudsters from placing overlays, the YOMANI terminal is designed with illuminated card slots and a lot of curved surfaces on both the housing and the keypad.

Integrated security ASIC

The ASIC contributes to the high security level of the YOMANI by integrating:

- intrusion detection: a number of tamper sources detect any attempted intrusion
- 62 Kbytes of integrated secure memory, instantaneously erased if any attempted intrusion is detected
- strict control of the secure boot process of the terminal, via key management: only code that is certified and signed by a known certification authority will run on the security processor (MP1)

Key management

The software supports the Derived Unique Key Per Transaction (DUKPT) key management scheme, where the working key changes for each transaction. Other schemes such as master/session can be developed on request.

Networking

YOMANI supports both the VPN (Virtual Private Network) method and the SSL (Secure Socket Layer) protocol. SSL is used mainly to send and receive information securely over unsecured networks like the Internet.

Security standard compliance

The security-related functions comply with the following standards:

- ISO 9564 (PIN management and security)
- ISO 11568 (key management – retail)
- ANSI X9.24 (financial services symmetric key management – retail)
- ANSI X9 TR-31 (Interoperable secure key exchange)

4. Accessories

Accessories for the YOMANI terminal include:

- contactless reader
- Merchant Unit
- fixation plate
- swivel
- USB cable – USB device to powered USB
- printer (XR only)
- communications interface board (XR only)
- revolving stand (third-party product)

Contactless reader

The YOMANI contactless reader is an elegant, ergonomically-designed, easily accessible module that supports fast, fully secure payments with contactless cards and devices of all signalling schemes defined in the ISO14443 standard.
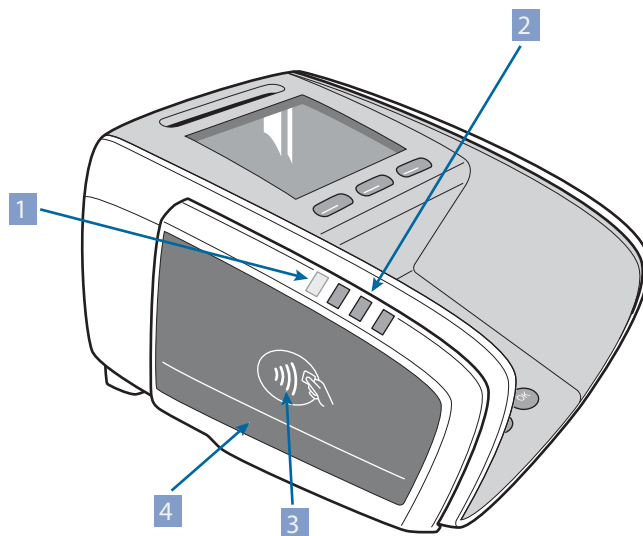
Figure 18.	YOMANI contactless reader
1	LED – contactless field active
2	LEDs – card reading in progress
3	landing zone for contactless devices
4	sticker area for indicating supported brands

The contactless reader can either be factory-mounted or fitted by qualified personnel at a later stage.

⚠️ The contactless reader for YOMANI ML/XR cannot be used on earlier YOMANI models, because of changes in the shape of the antenna to match the new hardware design.
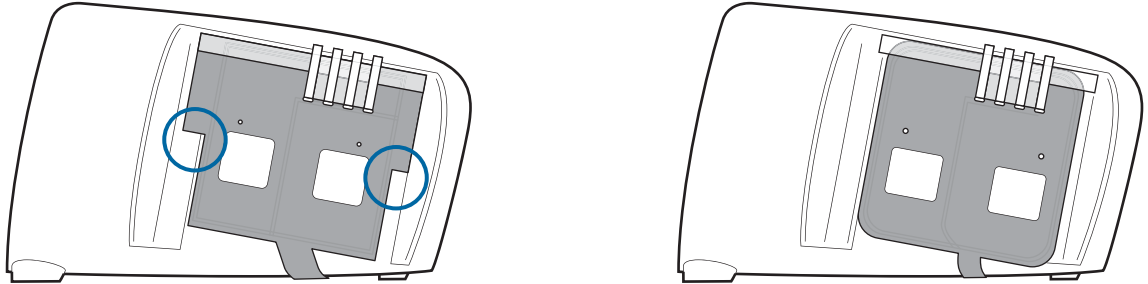
Figure 19.   New (left) and old (right) YOMANI antenna design

The YOMANI terminal and the contactless reader are connected by a flat cable at the bottom of the antenna.

Contactless reader specifications

The contactless reader measures 10 mm wide x 110 mm long x 93 mm high, and weighs 46 g.
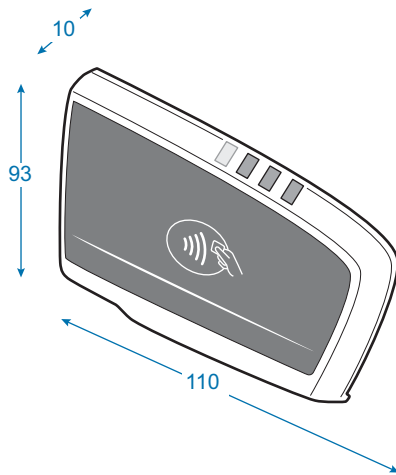
Figure 20.   Contactless reader dimensions

The landing zone for contactless payment is:

- easily recognisable and accessible
- marked by the contactless symbol and the four LEDs

  The contactless symbol is placed where the signal is strongest, and shows the "landing zone" where customers should tap the card or device.

Secure transactions with the contactless reader

The reader is truly secure, as it communicates directly with the MP1 security processor of the terminal. With MP1 having full control over the communication, specific logical security actions can be taken, which is not the case when communicating over an external interface.

The integrated approach, in contrast with the typical USB or serial communication between contactless devices and payment terminals, allows for very fast reaction times. This speed advantage will be noticeable to a cardholder.

Operating the contactless reader

The YOMANI contactless reader can work with all types of signalling schemes. ISO 14443 type A, ISO 14443 type B, and NXP MIFARE have already been implemented; other schemes such as Sony Felica can be developed upon request. These schemes can be integrated in contactless cards, mini-cards, watches, key-fobs and mobile phones.

The YOMANI contactless reader offers card holders the real "tap & go" experience. Thanks to the powerful antenna in the terminal, the contactless device only has to be held near the landing zone.

Contactless-reader software

The YOMANI contactless reader is a non-intelligent device. To actually read contactless cards and devices, the necessary software must be installed on the YOMANI terminal. All the software needed to use the reader runs in the terminal and can be upgraded remotely.

The MasterCard PayPass and the Visa payWave engines (contactless engines similar to the EMV engine) are available. These engines deal with the communication between the contactless reader and the terminal. Other engines, for example American Express ExpressPay, can be developed upon customer request.

Specific contactless applications like CTAP and ZKA are developed locally, since they deal with communications between terminal and host.

Merchant Unit

The Merchant Unit can be used with all models of YOMANI terminal. It makes operations easier for the merchant when the terminal is not connected to ePOS equipment or a PC, by functioning as a second display and keypad. The Merchant Unit also features a thermal printer.

 The YOMANI ML/XR Merchant Unit is labelled YOMANI ML/XR Merchant Unit underneath; a second label indicating the hardware version shows the number TT006 or higher.

Adding a Merchant Unit can, for example, save the merchant from having to turn the terminal round to enter the amount the cardholder has to pay.

The Merchant Unit is visually quite different from the terminal, and has no card interfaces. This makes it unlikely that cardholders would try to enter their PIN on a Merchant Unit.

> ⚠ The Merchant Unit is not a secure device and should not be used by the cardholder.

Merchant Unit specifications
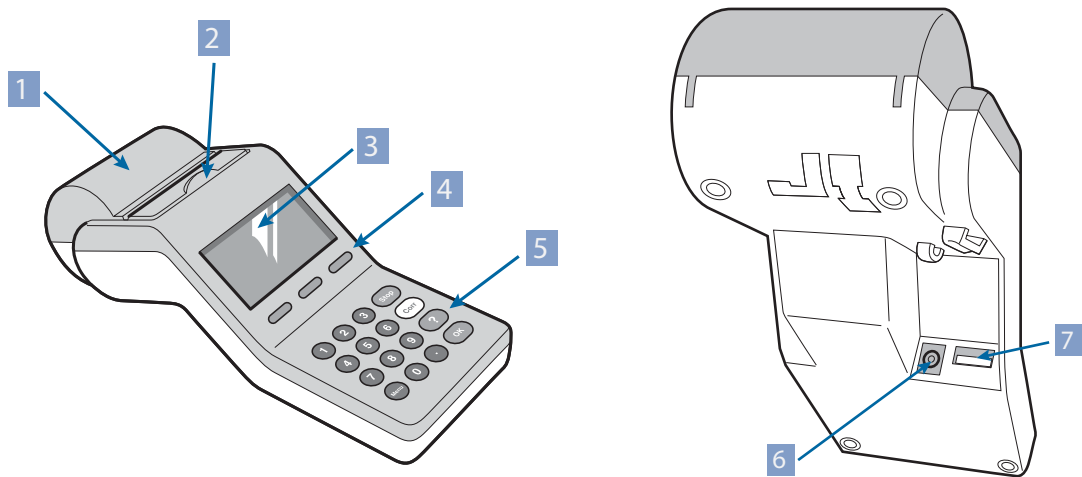
Figure 21.	YOMANI Merchant Unit – front and back views		
1	printer cover	5	keypad
2	printer open button	6	USB host socket
3	display	7	power input socket
4	function keys		

The Merchant Unit measures 91 mm wide x 228 mm long x 68 mm high. Without paper, it weighs 309 g.

The USB host socket is used for communications and to power the Merchant Unit from the terminal. It is also used when upgrading the Merchant Unit firmware from a USB stick.

Merchant Unit keypad

- 10 numeric keys
- decimal separator key
- menu key
- 4 command keys: Stop, Corr, ? and OK

- 3 programmable function keys (soft keys) for navigation, selection and specific functions

A numeric and an alpha-numeric keypad layout are available. Alternative keypad layouts may be possible, depending on quantity.

Merchant Unit display

The Merchant Unit has a monochrome graphical LCD display with:

- 128 x 64 pixel resolution, representing a view area of 72 mm wide x 36 mm high
- bright green backlight with adjustable intensity and contrast
- a text display offering six lines of text, depending on the size of the characters used
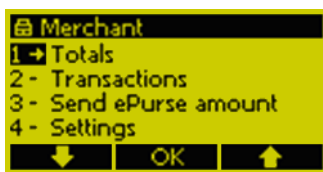
Figure 22.   Merchant Unit display

Merchant Unit printer

A fast thermal graphic printer is built into the Merchant Unit. Features include:

- printing width of 48 mm on 58 mm paper rolls (length up to 30 m)
- resolution of up to 8 dots per mm, 384 dots per line
- printing speed of 40 mm/s for normal text tickets and graphics of maximum 64 dots per line

    Printing speed increases when using smaller fonts, lighter lettering, more white areas on the ticket, and so on.

- easy paper-load mechanism
- detectors for paper out and overheating

Use only Worldline-approved paper, as other paper may damage the printing system. We can supply:

- high sensitivity thermal paper Jujo AF50KS-E3
- Mitsubishi *thermoscript* P5047(55) phenol-free paper

Merchant Unit power supply

The YOMANI Merchant Unit is always powered by a mains adaptor (for indoor use). The 2 m mains cable between the adaptor and the mains socket has a country-specific plug. The power cable between the adaptor and the terminal is permanently attached to the adaptor.

- adaptor input 100 - 240 VAC, 50 - 60 Hz and 0.7 A
- adaptor output 6.5 VDC and 3.05 A
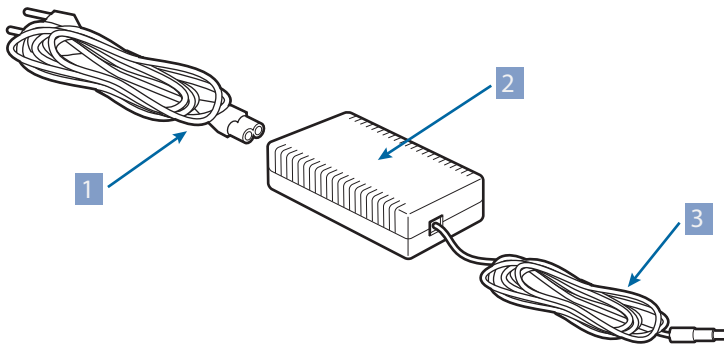
Figure 23. Merchant Unit – mains adaptor	
1	mains cable (to mains power socket)
2	mains adaptor
3	power cable (from mains adaptor to Merchant Unit power input socket)

⚠ Because the YOMANI Merchant Unit does not have a RJ485 socket, it cannot be connected to a XENTA terminal

Merchant unit housing colour

The YOMANI Merchant Unit has a white and an anthracite grey case; the colours are based on Natural Colour System codes 1000-N and 8500-N. Other housing colours may be possible, depending on quantity.

Merchant Unit firmware/software

The Merchant Unit is loaded with the latest version of the firmware at production. When required, this firmware can be upgraded from a USB stick.

The YOMANI Merchant Unit is a pure slave device of the YOMANI terminal, without operating system, platform or applications. The software needed to drive the Merchant Unit runs on the MP1 security processor in the terminal, which also provides the necessary drivers. When required, the software on the MP1 is upgraded through a secure system of remote software loading.

Fixation plate

To attach the YOMANI terminal to the counter, a fixation plate is available. First the fixation plate is screwed to the counter, or connected in a non-damaging way, using options such as double-sided adhesive tape or Velcro. The terminal then clicks on to the fixation plate.
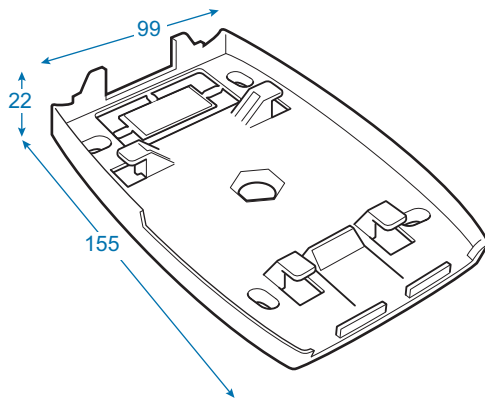
Figure 24.   Fixation plate dimensions

The fixation plate measures 99 mm wide x 155 mm long x 22 mm high, and weighs 56 g.

Swivel

To use the YOMANI terminal (with or without the optional printer) in a standalone configuration, a compact swivel is available to easily turn the terminal between a position facing the merchant and a position facing card holder. Rotation over nearly 270° is possible.
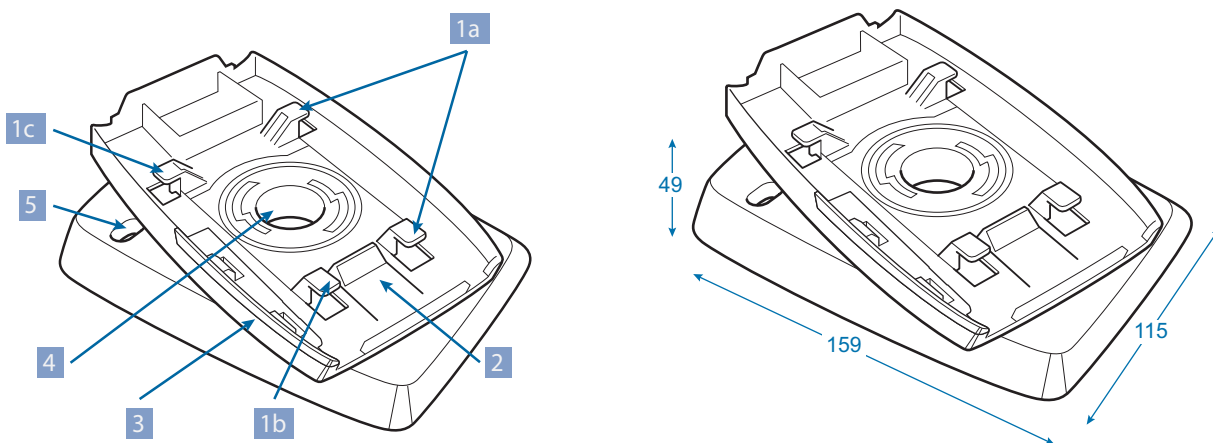
Figure 25.   Swivel and dimensions

The swivel measures 115 mm wide x 159 mm long x 49 high, and weighs 185 g.

Printer – YOMANI XR

A fast thermal graphic printer can be attached to the rear of the terminal at any time. For a detailed description, please refer to the YOMANI ML/XR Service Manual.

The printer has the following main specifications:

- dimensions: 91 mm wide x 60 mm long x 101 mm high
- weight: 140 g (without paper roll)
- printing width of 48 mm on 58 mm paper rolls (length up to 30 m)
- resolution of up to 8 dots per mm, 384 dots per line
- printing speed of 40 mm/s for normal text tickets and graphics of maximum 64 dots per line

  Printing speed increases when using smaller fonts, lighter lettering, more white areas on the ticket and so on.
- easy paper-load mechanism
- detections for paper out and overheating

⚠️ Use only Worldline-approved paper, as using other paper may damage the printing system. We can supply:

- high sensitivity thermal paper Jujo AF50KS-E3
- Mitsubishi *thermoscript* P5047(55) phenol-free paper

Communications interface boards – YOMANI XR

By adding a communications interface board in a YOMANI XR, Worldline approved technicians can extend the communications functions with one of the following options:

- PSTN, for communications over an analogue telephone network
- WiFi/Bluetooth
- 2G (GSM/GPRS/Edge)
- 3G (HDSPA/UMTS)

⚠️ Only one interface board at a time can be installed.

PSTN interface board

The PSTN interface allows communication to the transaction host using an analogue telephone connection.

The PSTN interface for the YOMANI XR has the following main specifications:

- analogue telephone connection according to TBR21 and FCC part 68
- Bell 103, Bell 212, V.21, V.22, V.22b, V.23, V.32, V.32b, V.34, V.90, V.92 modem modulation protocols

- V.42/MNP4 and V.42b/MNP5 error correction and data compression, V.44 data compression
- tone and pulse dialling
- communication speed up to 57,600 bps, helpful for remote software downloads
- RJ11 connector

WiFi/Bluetooth interface board

YOMANI XR can be equipped with a WiFi/Bluetooth interface board.

⚠ The range of Bluetooth and WiFi connections is reduced by obstructions (walls, metal constructions) and interference (PCs, monitors …)

- WiFi makes it possible to integrate the terminal as a node in a local area network that interconnects other players such as ticket printers, computers, ePOS equipment and other YOMANI terminals. No cabling is required.

  WiFi – connecting a YOMANI XR to equipment such as a router, an ADSL modem or a cable modem – has a range of up to 100 m.

  WiFi requires the same level of network management as any comparable wired network. YOMANI XR must be set up with the same security as installed on the access point; for example WEP, WPA or WPA2.

  WiFi is highly flexible and gives wide coverage. When several access points are available, YOMANI XR connects to the strongest signal. YOMANI will adapt to the security installed on the access point in use.

  The WiFi interface for the YOMANI XR has the following main specifications:

  − conforms with IEEE 802.11 b/g/n standard
  − low-power, small form-factor, integrated solution
  − communication speed of up to 11 Mbps through the air
    The net data rate is lower due to protocol overhead, which is a few Mbps.

- Bluetooth – connecting a YOMANI XR to another Bluetooth device – has a range of up to 10m.

  The Bluetooth interface for the YOMANI XR has the following main specifications:

  − class 1.5 (up to 10m)
  − Bluetooth standard version 1.2
  − data rate of at least 0.5 Mbps

Wireless transfer from terminal to host is secured using SSL (Secure Socket Layer).

👉 To use your YOMANI XR with a wireless connection, you need to order the terminal version with built-in antenna. The antenna is mounted behind the light-guides of the magstripe reader.

2G interface board

The YOMANI XR with a 2G interface board offers increased mobility.

- GSM transactions exchange data directly with the transaction host, using the GSM network
- GPRS transactions exchange data with the transaction host over a data network such as the public internet, using the TCP/IP protocol

  Typically, with this type of transaction, data transfer from terminal to host is secured using SSL (Secure Socket Layer).

The 2G interface for the YOMANI XR has the following main specifications:

- GSM supports communication speeds of up to 14,400 bps
- quad-band module suited for use on 850, 900, 1800 and 1900 MHz frequency networks
- GPRS class 10 supports data rates of up to 85,600 bps in download mode (from host to YOMANI) and upload mode (from YOMANI to host)
- full roaming service
- SMS capability (send/receive up to 160 alphanumeric characters)

To use your YOMANI XR with a 2G connection, you need to order the terminal version with built-in antenna. The antenna is mounted behind the light-guides of the magstripe reader.

The 2G interface board has a dedicated SIM slot.

3G interface board

The YOMANI XR with a 3G interface board supports the latest advances in wireless data communications.

The 3G interface for the YOMANI XR has the following main specifications:

- 3G (HSDPA/UMTS) supports data transfer rates up to 10Mb/s
- two frequency-band options:
  - 900-1800-2100 MHz
  - 850-1900 MHz
- full roaming service
- SMS capability (send/receive up to 160 alphanumeric characters)

Note: both versions of the 3G board support fall-back to equivalent 2G service.

To use your YOMANI XR with a 3G connection, you need to order the terminal version with built-in antenna. The antenna is mounted behind the light-guides of the magstripe reader.

The 3G interface board has a dedicated SIM slot.

USB cable – USB device to powered USB (12V – teal blue)

The powered USB cable is an option for a secure connection, where the plug clips firmly into the USB power socket – 12V (teal blue) – on the ePOS equipment. The power requirements stay the same, at 5V, 500mA.
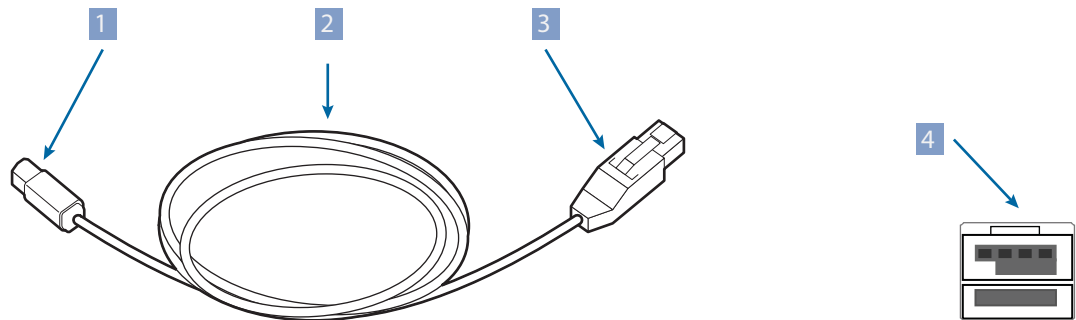
Figure 26.	USB cable with clip
1	USB device connector to fit USB device socket on terminal
2	USB cable
3	powered USB connector (12V) to fit powered USB host socket on ePOS equipment
4	powered USB socket (12V) on ePOS equipment

Revolving stands – third-party products

In large retail environments, fitting payment terminals on revolving stands often makes them easier to use. For examples, see:

- the payment mount from SpacePole, described in Banksys Payment brochure 1.2 available from the Payment Mounts page (www.spacepole.com)

- the Atos YOMANI PEDpack from Tailwind Solutions, illustrated on the PEDpacks page (http://www.tailwind-solutions.co.uk)

5. Logistics information

This chapter provides:

- samples of rating plates and other labels for the YOMANI terminal, accessories and packaging
- information on product packaging

Product labels

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

Terminal rating plate

Figure 27.   Terminal rating plate

article number

in the example, `90700000001`

The general article number (code128a barcode and human-readable text) identifies the specific terminal model (XR, ML …) and customisations such as housing colour or keypad layout. It 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

in the example, `AVT 7491`

The serial number (code 128a barcode and human-readable text) is unique for each terminal

production date

in the example, `1235`

The four-digit code after the serial number is the production date in the format `yyww` – in the example, week 35 of 2012

Terminal MAC address/hardware

Figure 28.   Terminal MAC address label

MAC address

> The MAC address (code128a barcode only) is a unique, six-digit hexadecimal number for identifying equipment in a network. It is displayed in six groups of two hexadecimal digits, for example 00 08 19 21 19 06 AE.

> This number can be consulted via software

hardware ID

> in the example, `424B 00081921906E`

> The hardware ID (human-readable text only) is a 4-character prefix followed by the MAC address.

> It is a unique number per terminal used for key loading and terminal parameterisation. This number cannot be consulted via software.

hardware version reference

> in the example, `TT001`

> The hardware version reference code (128a barcode and human-readable text) is a two-letter manufacturer code followed by a hardware version number,
> This reference is used for tracking hardware version changes.

hardware revision

> in the example, `REV AB`

> The hardware revision code (128a barcode and human-readable text) is a two-letter code. It is incremented for major revisions where re-certification may be implied, for example main board upgrade from version 1.0 to 2.0.

> – the first letter identifies the security revision

> – the second letter identifies the major revision

Terminal package

Figure 29.   Terminal package label

commercial name

> The commercial name identifies both the article and any customer-specific configuration. for example YOMANI SE for a YOMANI terminal with specific configuration for customer SE

article number

> in the example, `75001*01`

> The commercial article number (128a barcode and human-readable text) identifies the complete configuration. It is customer-specific.

production date

> in the example, `1235`

> The four-digit code after the serial number is the production date in the format $yyww$ – in the example, week 35 of 2012

software loaded by Worldline

> in the example, `none`

> The software code identifies any software already loaded on the terminal by Worldline. If no software code is given, or a value `none`, the terminal contains only the loader software.

serial number

> in the example, `AVT7491`

> The serial number (code 128a barcode and human-readable text) is unique for each terminal.

MAC address

> The MAC address (code128a barcode only) is a unique, six-digit hexadecimal number for identifying equipment in a network. It is displayed in six groups of two hexadecimal digits, for example 00 08 19 21 19 06 AE.

hardware version reference

> in the example, `TT001`

> The hardware version reference code (128a barcode and human-readable text) is a two-letter manufacturer code followed by a hardware version number, This reference is used for tracking hardware version changes.

> The commercial name and the commercial article number should also appear on your orders and invoices.

> The production date, serial number, MAC address, hardware version reference and safety labels are identical to the information on the terminal labels.

Contactless reader rating plate

Figure 30.   Contactless reader rating plate

article number

> in the example, `3034030001`

> The article number (code128a barcode and human-readable text) identifies the specific reader hardware and customisations such as housing colour.

serial number

> in the example, `AVR6997`

> The serial number (code 128a barcode and human-readable text) is unique for each contactless reader.

hardware version reference

> in the example, `TT002`

> The hardware version reference code (128a barcode and human-readable text) is a two-letter manufacturer code followed by a hardware version number, This reference is used for tracking hardware version changes.

XR printer rating plate

YOMANI™ XR PRINTER
Article N°: 3034020001

Serial N°: AUD6947

Made in Singapore

Manufactured by Atos Worldline SA/NV

CE

1235

6,5V⎓ 3,2A

Figure 31.   Printer rating plate

article number

in the example, 3034020001

The article number (code128a barcode and human-readable text) identifies the specific printer hardware and customisations such as housing colour.

serial number

in the example, AUD6947

The serial number (code 128a barcode and human-readable text) is unique for each printer.

production date

in the example, 1235

The four-digit code after the serial number is the production date in the format yyww – in the example, week 35 of 2012

Merchant Unit rating plate

Manufactured by Atos Worldline SA/NV

YOMANI® MERCHANT UNIT
Article N°: 9067100000

9067100000

Serial N°: AAA0002

AAA0002

1149
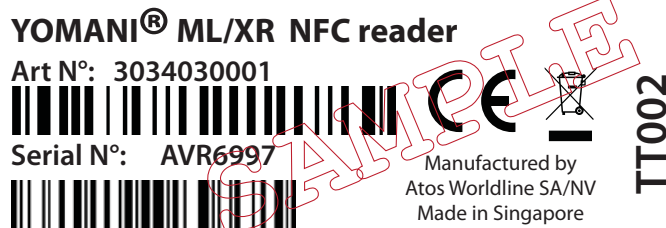**Made in Singapore**

CE

6,5V⎓ 3,2A

Figure 32.   Merchant Unit rating plate

article number

in the example, 9067100000

The article number (code128a barcode and human-readable text) identifies the specific Merchant Unit hardware and customisations such as housing colour or keypad layout.

serial number

in the example, `AAA0002`

The serial number (code 128a barcode and human-readable text) is unique for each Merchant Unit.

production date

in the example, `1149`

The four-digit code after the serial number is the production date in the format `yyww` – in the example, week 49 of 2011

Merchant Unit package

The Merchant Unit package box label contains the following information:

Figure 33. Merchant Unit package label

article number

in the example, `76009*1`

The commercial article number, (code 128a barcode and human-readable text) identifies the content of the package; that is, the device and any accessories included with it.

production date

in the example, `1249`

The four-digit code after the serial number is the production date in the format $yyww$ – in the example, week 49 of 2012

software

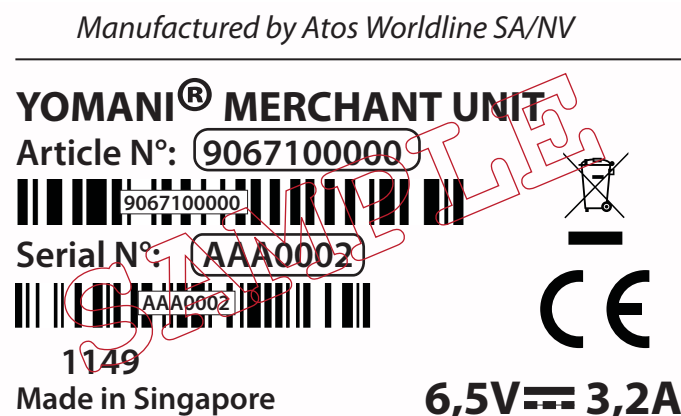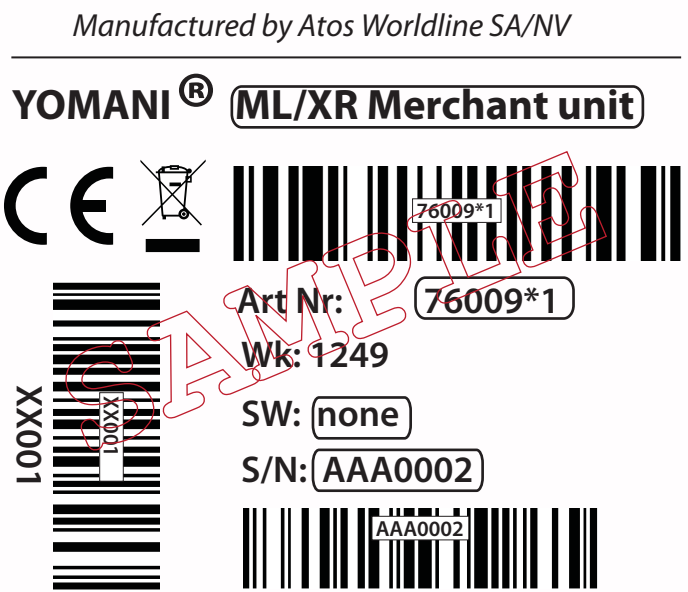Since no software is loaded in the Merchant Unit, SW: none is marked

serial number

in the example, AAA0002

The serial number (code 128a barcode and human-readable text) is unique for each Merchant Unit.

hardware version reference

in the example, XX001

The hardware version reference code (128a barcode and human-readable text) is a two-letter manufacturer code followed by a hardware version number, This reference is used for tracking hardware version changes.

The commercial name and the commercial article number should also appear on your orders and invoices

The production date, serial number, hardware version reference and safety labels are identical to the information on the Merchant Unit rating plate.

Storage and transport

The following storage and transport conditions apply to all product packages:

- temperature: -25°C to + 70°C
- relative humidity: 5% to 95%, non-condensing

Product packaging – individual terminal

All packages are designed to be as small as possible, and to make it easy to check that all components are present. Individual packages contain one the following configurations:

- a YOMANI terminal, with or without contactless reader mounted
- a YOMANI XR terminal without printer, with or without contactless reader mounted
- a YOMANI XR terminal with printer, with or without contactless reader mounted

Mains adaptor/USB adaptor (depending on terminal type), cable(s), fixation plate and documentation set may be added at the distributor's site.

Paper (XR with printer) is only included on request.

Table 1	Product packaging – single items	
equipment	**w * l * h mm**	**weight g**
ML, XR without printer	158 x 240 x 140	815
+ NFC		861
XR with printer	158 x 294 x 140	955
+ NFC		1001

Palleting – individual terminal

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

Table 2	Palleting – individually-packed equipment		
equipment	**qty per pallet**	**weight kg**	**notes**
ML, XR without printer	300 (12 x 25)	270	
+ NFC		284	
option	256 (4 x 4 x 16)	240	16 individual packages in a 400 x 400 x 600 box
+ NFC		252	
XR with printer	240 (12 x 20)	255	
+ NFC		266	
option	128 (4 x 4 x 8)	200	8 individual packages in a 400 x 400 x 600 box
+ NFC		206	

Multi-terminal packages

Table 3	Product packaging – multiple items		
equipment	**per pack**	**w * l * h mm**	**weight kg**
ML, XR without printer	9	550 x 372 x 140	6.53
+ NFC			6.94
XR with printer	6	550 x 372 x 140	5.50
+ NFC			5.77

Note: 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.

Palleting – multi-terminal packages

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

Table 4 Palleting – multiple packs		
equipment	**qty per pallet**	**weight kg**
ML, XR without printer	432 (12 x 4 x 9)	340
+ NFC		360
XR with printer	288 (12 x 4 x 6)	290
+ NFC		305

Product packaging – Merchant Unit

Table 5 Product packaging – Merchant Unit		
equipment		**weight**
Merchant Unit (single)	170 mm wide x 280 mm long x 85 mm high	995 g
Merchant Unit (pallet)	quantity: 266 (14 x 19)	290 kg

YOMANI accessories and spare parts

All YOMANI accessories (with the exception of the Merchant Unit) are supplied in bulk. Bulk packages may contain individually packed items, but these items cannot be ordered individually. See order list for details.

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

6. Installing the terminal

Finding a proper location is an important aspect of installing the YOMANI terminal.

Observe the guidelines listed in the sections below in order to establish a location that is convenient for both the merchant and the customer.

Make sure that:

- the keypad and the display are facing the customer
- the terminal is at an appropriate height for the customer:
  - for sitting down to use the terminal, the height of a standard table
  - for standing up to use the terminal, between 90 and 120 cm
- there is enough space (typically 10 cm on all sides) around the YOMANI terminal, so that it is easy to:
  - insert a chip card in the chip-card interface
  - swipe a magnetic card with the magnetic-stripe reader
  - tap a contactless device on to the landing zone
  - reach the Reset button
  - open the cover of the printer and replace the paper (if using an XR with printer)
- direct light sources do not make it difficult to read the display or the keypad

Cables

Make sure that cables are positioned so that they:

- allow for the necessary movement of the terminal
- do not get in the way of you or your customers

Keep the cables strapped together, and guide them through:

- a hole in the surface on which the YOMANI terminal is placed
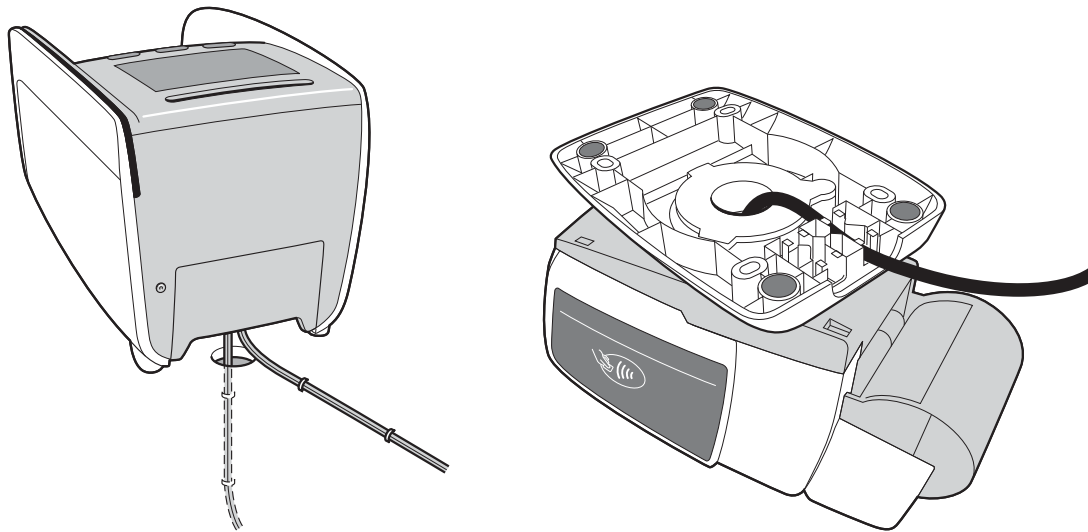- the opening at the back of the YOMANI terminal

Figure 34.   Guiding the cables (right: through optional swivel)

Physical surroundings

YOMANI has been designed for use:

- on a flat and stable surface
- at an operating temperature between 0° C and 50° C
- in an operating relative humidity (RH) between 20% and 85%, non-condensing

Always avoid exposing your YOMANI to:

- shocks and vibrations
- excessive heat and dust
- explosive environments
- oil, moisture, water or condensation
- direct sunlight or objects that radiate heat
- environments where humidity fluctuations might occur

Do not place your YOMANI:

- close to devices that cause excessive voltage fluctuations and/or electromagnetic fields such as electric motors or high-frequency devices
- less than 80 cm from low-frequency Electronic Article Surveillance (EAS) equipment
- less than 20 cm from high-frequency Electronic Article Surveillance (EAS) equipment

Security

Make sure that the cardholders have the necessary privacy when entering their PIN code. This means locating the YOMANI terminal outside the field of vision of cameras, mirrors and so on.

YOMANI has been designed to be a secure, freestanding device:

- all sides but the bottom should be visible for a cardholder to verify

  Building the YOMANI into a desk or panel is not allowed. Other models are available if you need a terminal for unattended/semi-unattended use.

- except for accessories supplied by Worldline, nothing may be attached to the terminal

Customisation – terminal

There are no restrictions on painting a company logo or text on the terminal or accessories, but there are restrictions on stickers:

- stickers should always have a transparent background, so they do not hide anything from a cardholder

- on the terminal, stickers must never be applied on the shaded areas shown below
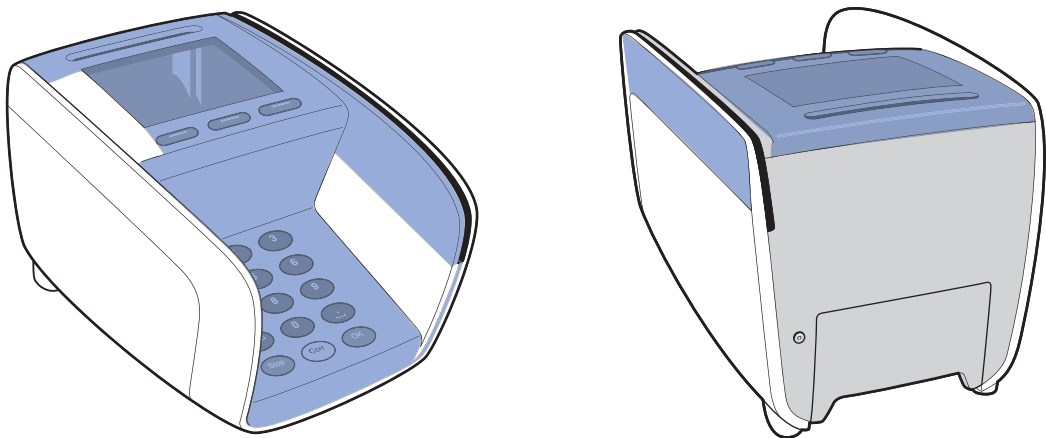

Figure 35.   Sticker-free areas on YOMANI terminal

Customisation – contactless reader

There are no restrictions on sticker or painting on the contactless reader, as long as:

- the landing-zone icon and LEDs must always be clearly visible
- payment scheme logos are added below the white line, on the area highlighted with stripes in the illustration
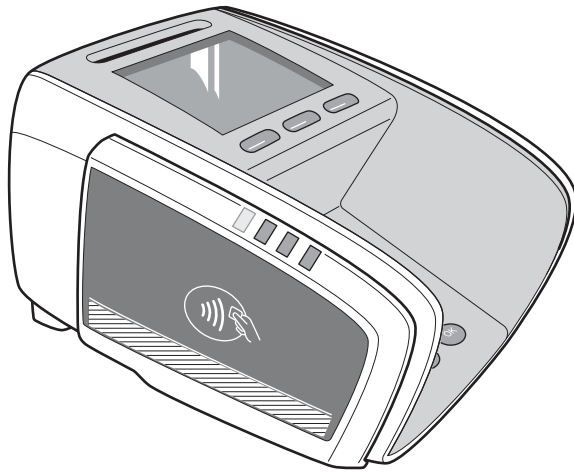

Figure 36.   Sticker placement on contactless reader

Customisation – printer and Merchant Unit

There are no restrictions on stickers or painting on these accessories.

7. Maintaining YOMANI terminals

This section covers:

– cleaning the equipment
– cleaning the card interfaces

Cleaning the equipment

For optimal functioning, the YOMANI terminal – and any accessories such as contactless reader, printer, or Merchant Unit – should be kept clean and cleaned regularly.

When cleaning your equipment, proceed as follows:

1. Disconnect the cables, depending on the model:

   – if you are using a YOMANI ML, disconnect the USB cable (this is the power cable) from the ePOS equipment/PC or USB adaptor
   – if you are using a YOMANI XR and a USB cable, disconnect the USB cable
   – if you are using a YOMANI XR with a mains adaptor, disconnect the power cable between the adaptor and the terminal
   – if using a Merchant Unit, disconnect the mains cable from the mains wall socket

2. Clean the housing with a soft damp cleaning cloth.

3. Clean the display with a soft dry anti-static cleaning cloth.

Do not forget to re-connect the cables after cleaning.

⚠️ Do not use detergents, solvents or alcohol. These products may damage the surface and render transparent parts opaque. Do make sure that dirt does not enter the card readers.

Cleaning the card interfaces

Clean the card interfaces every two weeks, using a cleaning card.

- chip-card reader: insert and remove the white cleaning card several times, always with the same side of the card
- magnetic-stripe card reader: pull the white cleaning card several times through the reader, always with the same side of the card
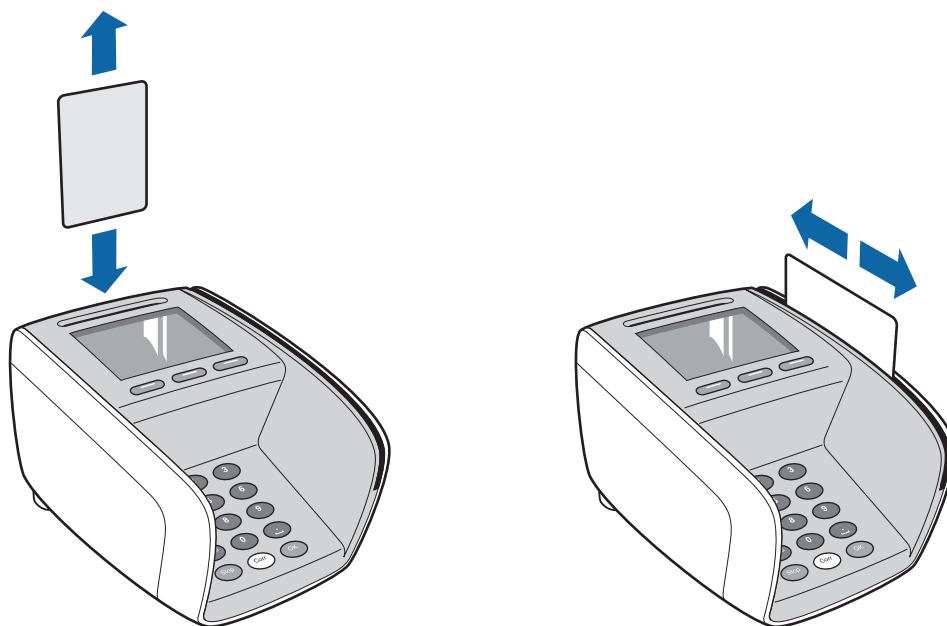

Figure 37.   Cleaning the card interfaces

Mark the used side of the card after each cleaning. The card can be used one time per side, giving four cleanings with each card. See order list for details.

Contact your vendor for information about other types of cleaning card.

8. Approvals

The YOMANI terminal and all YOMANI accessories have been designed and manufactured with care for our environment.

They comply with relevant European directives both at manufacture and at end of life:

- European directive 2011/65/UE on Restriction of Hazardous Substances (RoHS2), intended to reduce harmful substances such as lead, mercury and cadmium at source

- European directive 2006/1907/EC on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), phasing out the use of potentially dangerous chemicals and improving communication at every stage in the supply chain

- European directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), encouraging collection, treatment, recycling and recovery of such items

- The YOMANI terminal is labelled with the WEEE-logo (crossed-out wheeled bin)

Approvals – YOMANI terminal

The YOMANI terminal has been approved/certified in line with international standards including:

- EMV 4.3 Level 1 for all chip-card interfaces

- EMV 4.3 Level 2 approved kernel for payment application development

- PCI PTS 3.x

- EC directive 2004/108/EC (electromagnetic compatibility)

- EC directive 1995/5/EC (for R&TTE – radio and telecommunication terminal equipment)

- EMC specification: EN 55022 / CISPR 22, EN 50082-1, EN 61000-3-2 and 3, EN 60950

This list is not exhaustive.

Approvals – accessories

YOMANI accessories have been approved/certified in line with international standards including the following.

contactless reader

- EMV 2.2 contactless communication protocol for all contactless-card interfaces
- electrical safety, according to IEC/EN 60950-1:2006 and R&TTE directive 1999/5/CE
- EMC specification: EN 55022 / CISPR 22, EN 55024, EN 50082-1, EN 61000-3-2 and 3, EN 301489-1 and 3, EN 61000-6-1 and 3, EN 302291-1 and 2

Merchant Unit

- CE (directive 2004/108/CE) for electromagnetic compatibility
- EMC specification: EN 55022/CISPR 22, EN 50082-1, EN 61000-3-2 and 3, FCC Part 15 (US)

printer

- CE (directive 2004/108/CE) for electromagnetic compatibility
- EMC specification: EN 55022/CISPR 22, EN 50082-1, EN 61000-3-2 and 3

PSTN interface board

- TBR21

This list is not exhaustive.