

HT104 User terminal



Summary **HT104 is a human-machine interface for monitoring and control of multiple mark or wall controllers with Merbon runtime. It has one Ethernet interface.**

This type is replacement for HT102. Aperture dimensions of HT104 are bigger than those of HT102.

Application

- **Control panel for free-programmable control units for HVAC systems or other technologies**
- **Terminal for receptions and rough environments – overview and control of remote technologies**

Function

The terminal is controlled by six buttons and LCD display 4x20 characters with backlight. The communication interfaces is Ethernet (web configuration or SoftPLC). The program status is indicated by RUN LED located at the back panel together with the Power indication LED. For default IP address set the DIP SW3 to ON and power the device; at the same time, the menu file is not loaded and the terminal is ready for diagnostics (INIT state). DIP SW4 disables the web interface and FTP access – this may be used for increased network security.

After menu upload and restart, the display shows menu with tree structure (maximum 32 items in one submenu and 56 time schedules) and the terminal starts to communicate with the process devices. Maximum number of Merbon RT connections is 8. Users move in the menu using buttons – the **active line is the second** from the top, which is enhanced by the red line on the printed cover. Objects such as Value setting, Alarm, and Time schedule have predefined functionality, and thus for the configuration it is only necessary to set addresses, assign data points, and complete user texts.

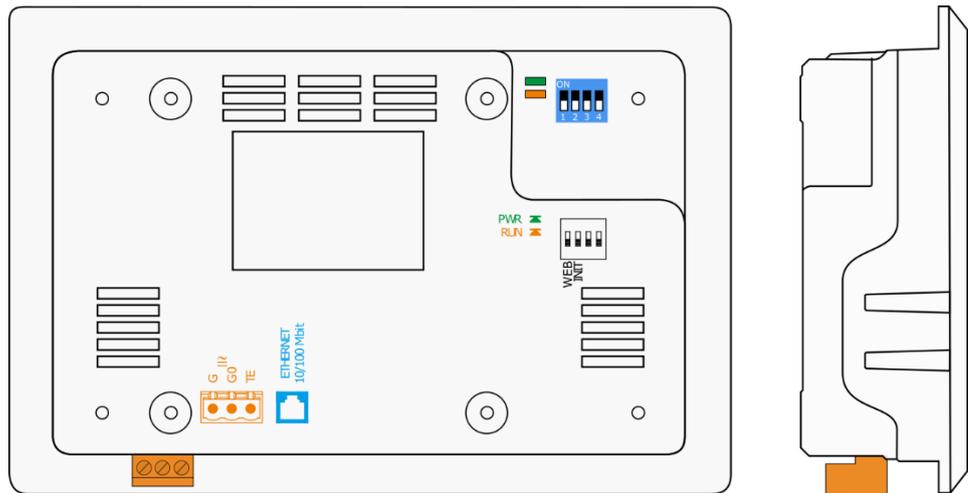
The menu is uploaded to the terminal Flash memory either through Merbon IDE, or over FTP protocol into the file system of the terminal over the Ethernet interface. A file named J.txt is uploaded. The default IP address is 192.168.1.99.

The device is installed using four metal clamps into an aperture in panel door or any suitable box. The aperture dimensions are 153 × 100 mm, with tolerance +2 mm.

Technical data

Power	24 V AC/DC ± 20%; 5 W
Communication	1× Ethernet 10/100BaseT RJ45, 2 LED (link, data) integrated in the connector
LCD display	4 rows × 20 characters, blue backlight
Buttons	6 buttons on a membrane keyboard, water and dirt resistant
2× LED	PWR, RUN
Number of connections	max 8 connections Merbon RT
HW	ARM Cortex M4 168 MHz, 10 MB FLASH, 256 KB SRAM, 4 KB + 64 KB NVRAM, 8 MB external SDRAM
SW	Merbon IDE maximum number of time schedules 56 maximum number of submenu 32
Housing	polycarbonate (PC) box (UL94V-2); front panel polyester membrane keypad
Front panel dimensions	171.8 × 116.5 × 39.3 mm; see scheme below
Aperture dimensions	153 × 100 mm (deviation +2 mm) different from aperture dimensions of HT102
Protection degree	IP65 (EN 60529 + A2:2019)
Terminals	screw terminals M3, recommended wire diameter 0.35...1.5 mm ²
Ambient temperature	from -20...50 °C; 5...85% relative humidity; non-condensing gases, chemically non-aggressive conditions, fog, ice and frost (according EN IEC 60721-3-3 ed. 2:2019 climatic class 3K22, 1K21, 3M11) for installation at high altitude, it is necessary to consider the reduction of dielectric strength and a limited cooling air (EN IEC 60664-1 ed.3: 2020)
Standards of conformity	EMC EN IEC 61000-6-2 ed. 4:2019, EN IEC 61000-6-4 ed. 3:2019 (industrial environment) electrical safety EN IEC 62368-1 ed. 2:2020+A11:2020 hazardous substances reduction EN IEC 63000:2019

Terminals



Terminals and connectors:

G	power
G0	power
TE	optional connection for shielding
Ethernet	network interface

LED indication:

PWR	green LED – power (ON: power OK; OFF: no power applied, weak or damaged power supply, ...)
RUN	orange LED – system cycle (OK: LED flashes periodically 1 s ON, 1 s OFF; ERROR: LED flashes in other pattern, LED is still ON or OFF)
TxD	not used
RxD	not used

DIP switches:

WEB	DIP1 web and FTP disabled – increased network security
INIT	DIP2 INIT - Switch DIP ON, switch OFF/ON power supply. Menu is not displayed and IP is set to default 192.168.1.99, mask 255.255.255.0

Configuration

The menu definition is uploaded in terminal through Merbon HMI Editor or through web interface. Other settings could be configure through service web.

Merbon HMI editor

The process of creation a menu and uploading menu definition are described in Merbon IDE help in chapter HMI.

Service web

The HT104 service web can be accessed over a web browser on the device IP address (the browser PC must be in the same network). In Settings there is network configuration. It is possible to upload/download the menu definition and upload new version of HT104 application.

Communication

The default network settings are:

IP address	192.168.1.99
subnet mask	255.255.255.0
default gateway	192.168.1.1

User for FTP: root
Password for FTP: root99

Notice: Do not forget to note the new network settings after change!

WEEE notice

The device contains a non-rechargeable battery which backups the real-time clock and part of the memory. After the device is not operable, please return it to the manufacturer or dispose of it in compliance with local regulations.

Safety note

The device is designed for monitoring and control of heating, ventilation, and air conditioning systems. It must not be used for protection of persons against health risks or death, as a safety element, or in applications where its failure could lead to physical or property damage or environmental damage. All risks related to device operation must be considered together with design, installation, and operation of the entire control system which the device is part of.

**Changes in
versions**

03/2021 – First version of datasheet.

07/2021 – Specification edit.

04/2022 – Aperture information specified.