T100(M12) 3/4G datasheet

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1 Introduction

T100(M12) is a smart terminal which is able to collect and analyse information. Information can be measured directly from generic voltage and current signal sensors attached to the smart terminal. Information can also be read using digital buses via Ethernet or RS485 connection. Information usually consists of industrial machinery usage hours, temperatures, pressures, RPM, vibrations, moistures or any other information which is used to determine the health condition of the monitored asset. Information is sent to cloud service using either wireless mobile 3G connection or wired Ethernet connection.

T100 and T100M12 models share the same principal electronics stack inside the enclosure but the difference between these two models is the enclosure and the connectors in the enclosure. T100 comes with cable glands for more customization and T100M12 utilizes reduced number of connectors but with M12 connectors for the available channels.

2 Device properties

2.1 Supply voltage

- Class II power supply is required
- 10-50 VDC possible
    - Recommendation: Select a power supply unit which output power is close to required maximum power to the equipment attached to T100(M12)
- Maximum power consumption: 4 W
- Overvoltage withstand: 60 VDC (continuous)
- Reverse polarity protected
- Non-isolated power input - negative pin is connected to system ground

2.2 Inputs

- 3 (1x in T100M12) x DC voltage inputs with software selectable measurement range:
    - 0...10 V
    - 0....30 V
- 1 (0 x in T100M12) x DC current input with fixed measurement range:
    - 0 … 25 mA
- 11-bit AD conversion for all inputs
- Voltage inputs resistance: more than 120 kΩ
- Current input resistance: 100 Ω
- Over voltage and reverse polarity protection
- Non-isolated inputs - negative pin of all inputs are connected to system ground

2.3 Output

NOTE: Deprecated feature as of 12/2021.

- 1 x SPDT type relay output
- Latching type relay - relay state will stay when device is unpowered
- Relay contacts are isolated from system ground
- Maximum switching voltage: 42 VAC / 60 VDC (SELV limits)
- Maximum switching current: 2 A
- Maximum switching power: 62.5 VA or 30W
- Minimum switching load: 0.01 mA / 10 mVDC

2.4 Wired communication interfaces

- 1 x 10/100 MBit ethernet (100BASE-TX)
- 1 x RS485 interface with 115 kbps maximum tested signaling rate
- 1 x RS232 interface (3-wire)
- 120 ohm termination for RS485 and CAN selectable by jumpers or with a switch (T100M12)
- Over voltage and reverse polarity withstand for serial buses: 100V (continuous)
- Non-isolated serial buses: bus ground is connected to system ground

2.5 Wireless communication interfaces

- Integrated 3G mobile broadband (SMA antenna included)
    - Five-band UMTS/HSPA+ 800/850/900/1800/2100 MHz
    - Quad-band GSM 850/900/1800/1900 MHz
    - Data rates DL: max. 14.4 Mbps, UL: 5.76 Mbps
- GPS and Glonass (antenna needed for external SMA connector)
- SMA connectors for external antennas

- MicroSIM (3FF)

2.6 Other interfaces

- MicroSD slot combined with MicroSIM slot
- High speed USB host interface
- 3 x LEDs:
    - 1 x for indicating that power supply is OK
    - 1 x (LED1) for indicating status of the software stack
    - 1 x (LED2) for indicating that cloud connection is OK

2.7 Built-in features

- RTC for keeping wall clock time back up maximum of two week depending on the temperature conditions

2.8 Processor specifications

Main processor:

- Freescale® Vybrid™ 400 MHz ARM Cortex™-A5
    - Memory: 128MB DDR3
    - Flash: 128MB NAND

Co-processor for analog IO and CAN:

- Atmel AT32UC3C1xxxC 32-bit AVR flash microcontroller
    - Up to 512KB Flash
    - 64KB SRAM

2.9 Wire colours

Customer specific (T100).

2.10 Mechanical specifications

- T100
  - Ensto custom modified 175x125x60 mm based on ENSTO SPCP131806T
- T100M12
  - Ensto custom modified 175x125x60 mm based on ENSTO SPCP131806T
- UL 746 C 5V flame rated
- Fibre glass reinforced polycarbonate
- IK08 impact proof
- BVPC-11 ventilation against condensing humidity
- Shipped with ENSTO SFL1 mounting legs ENSTO SFL1
- Additional mounting style directly to wall hiding the mounting screws under the lid
- Tested both IP66 and IP67 requirements passed
- Installed power input cable
- T100 3/4 x cable glands (KTM24.16) for cable diameter 5-10 mm
- T100M12 4 x M12 circular connectors

2.11 Environmental specifications

2.11.1 Temperature

- Operating temperature range: -40...+70°C

2.11.2 IP class

- IP67