

# tBOX322-882-FL

Fanless Embedded System with 4th Gen Intel® Core™ Processor for Railway PC

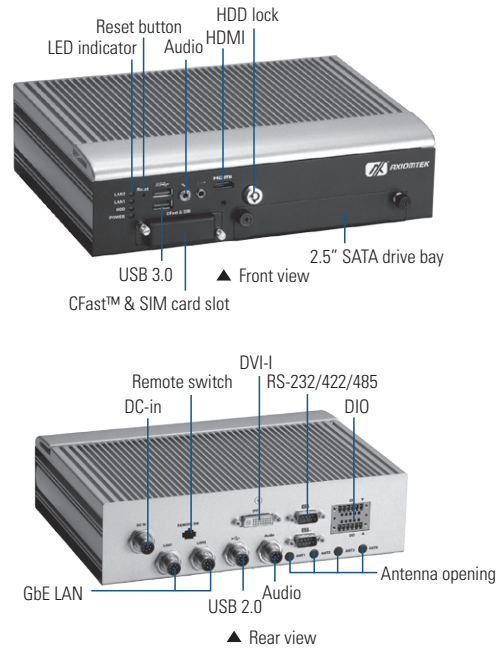
## Features

- EN 50155 and EN 50121 certified
- Fanless design and wide temperature range from -40°C to +70°C (EN 50155 class TX)
- Comply to fire protection of railway vehicles Europe standard PrCEN TS 45545-2
- 4th gen Intel® Core™ i7 or Core™ i3 processor
- DDR3L-1600 4GB or 8GB onboard
- Isolated RS-232/422/485 and DIO
- USB 3.0 and SATA 3
- 1 removable & lockable 2.5" SATA HDD and 1 CFast™/mSATA
- 3 internal PCIe Mini Card slot and 2 SIM slots
- Lockable M12 LAN, audio, power and USB connectors
- Suspension designed for HDD



## Specifications

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Color        | Silver-Black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Construction          | Aluminum extrusion and heavy-duty steel, IP40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| CPU                   | Intel® Core™ i7-4650U (1.7 GHz up to 3.3 GHz) or Intel® Core™ i3-4010U (1.7 GHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| System Memory         | DDR3L-1600 4GB or 8GB DRAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Chipset               | SoC integrated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| BIOS                  | AMI UEFI BIOS with OA 3.0 built                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| System I/O Outlet     | <table><tr><td>Rear Side</td><td>2 x GbE LAN (M12 A-coded)<br/>2 x Isolated RS-232/422/485<br/>1 x Isolated DI/DO (6-in/2-out)<br/>1 x USB 2.0 (M12 A-coded)<br/>1 x Audio (mic-in/line-out, M12 D-coded)<br/>1 x DVI-I<br/>1 x VDC power input (M12 A-coded)<br/>1 x Remote power switch<br/>4 x Antenna opening<br/>1 x Power switch</td></tr><tr><td>Front Side</td><td>2 x USB 3.0<br/>2 x Audio (mic-in/line-out, screw type)<br/>1 x HDMI<br/>1 x Reset switch<br/>1 x 2.5" SATA drive tray<br/>1 x CFast™ slot + 2 x SIM card sockets</td></tr></table> | Rear Side | 2 x GbE LAN (M12 A-coded)<br>2 x Isolated RS-232/422/485<br>1 x Isolated DI/DO (6-in/2-out)<br>1 x USB 2.0 (M12 A-coded)<br>1 x Audio (mic-in/line-out, M12 D-coded)<br>1 x DVI-I<br>1 x VDC power input (M12 A-coded)<br>1 x Remote power switch<br>4 x Antenna opening<br>1 x Power switch | Front Side | 2 x USB 3.0<br>2 x Audio (mic-in/line-out, screw type)<br>1 x HDMI<br>1 x Reset switch<br>1 x 2.5" SATA drive tray<br>1 x CFast™ slot + 2 x SIM card sockets |
| Rear Side             | 2 x GbE LAN (M12 A-coded)<br>2 x Isolated RS-232/422/485<br>1 x Isolated DI/DO (6-in/2-out)<br>1 x USB 2.0 (M12 A-coded)<br>1 x Audio (mic-in/line-out, M12 D-coded)<br>1 x DVI-I<br>1 x VDC power input (M12 A-coded)<br>1 x Remote power switch<br>4 x Antenna opening<br>1 x Power switch                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Front Side            | 2 x USB 3.0<br>2 x Audio (mic-in/line-out, screw type)<br>1 x HDMI<br>1 x Reset switch<br>1 x 2.5" SATA drive tray<br>1 x CFast™ slot + 2 x SIM card sockets                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Watchdog Timer        | 255 levels, 0 ~ 255 sec./min.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Storage               | 1 x 2.5" SATA HDD (Removable and with lock protection)<br>1 x CFast™/ 1 x mSATA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Expansion Interface   | 3 x PCIe Mini Card slot<br>2 x SIM card slot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| System Indicator      | 1 x green LED for system power on<br>1 x green LED for HDD active<br>1 x green LED for LAN1 link<br>1 x green LED for LAN2 link                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Power Supply          | Power input: 14 VDC ~ 32 VDC (isolation)<br>Typical: 24 VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Power Consumption     | 1.8A @ 24V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Operating Temperature | -40°C ~ +70°C (-40°F ~ +158°F) with W.T. SSD<br>-25°C ~ +55°C (-13°F ~ +131°F) with W.T. HDD                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |
| Humidity              | 5% ~ 95%, non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |                                                                                                                                                                                                                                                                                              |            |                                                                                                                                                              |



|                     |                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------|
| Vibration Endurance | 3 Grms with SSD or CFast™ (5 ~ 500Hz, X, Y, Z directions)<br>2 Grms with HDD (5 ~ 500Hz, X, Y, Z directions) |
| Dimensions          | 244 mm (9.6") (W) x 180.5 mm (7.1") (D) x 65.1 mm (2.56") (H)                                                |
| Weight (net/gross)  | 2.94 kg (6.48 lb)/ 3.94 kg (8.68 lb)                                                                         |
| Certificate         | CE (Class A), EN 50155, EN 50121, EN 45545-2, EN 60950-1 compliance                                          |
| EOS Support         | WE8S, WES 7, Linux                                                                                           |

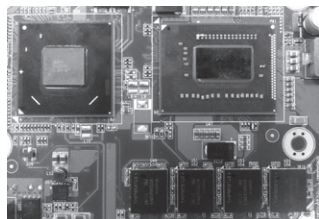
## Ordering Information

| Standard                                   |                                                                                                                    |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| tBOX322-882-FL-i7-DC (P/N: E26N322100)     | Fanless railway embedded system with Intel® Core™ i7-4650U, 4GB DDR3L, 2 GbE LANs (M12), 2 isolated COM and CFast™ |
| tBOX322-882-FL-i3-DC (P/N: E26N322101)     | Fanless railway embedded system with Intel® Core™ i3-4010U, 4GB DDR3L, 2 GbE LANs (M12), 2 isolated COM and CFast™ |
| tBOX322-882-FL-8GB-i7-DC (P/N: E26N322102) | Fanless railway embedded system with Intel® Core™ i7-4650U, 8GB DDR3L, 2 GbE LANs (M12), 2 isolated COM and CFast™ |
| tBOX322-882-FL-8GB-i3-DC (P/N: E26N322103) | Fanless railway embedded system with Intel® Core™ i3-4010U, 8GB DDR3L, 2 GbE LANs (M12), 2 isolated COM and CFast™ |

| Optional              |               |
|-----------------------|---------------|
| 2.5" SATA HDD/SSD     | 16GB or above |
| CFast™                | 1GB or above  |
| 3G module             |               |
| Wi-Fi module          |               |
| Wi-Fi Bluetooth       |               |
| GPS module            |               |
| M12 Gigabit LAN cable |               |
| M12 power cable       |               |
| M12 USB cable         |               |
| M12 audio cable       |               |
| Remote switch cable   |               |

\*Specifications and certifications may vary according to various options.

## Expansion & Installation



Onboard 4th generation Intel® Core™ CPU and 4GB/ 8GB DDR3L DRAM



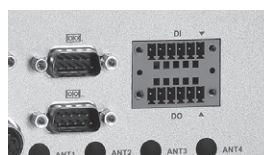
Swappable and lockable SATA3 HDD/SSD, Audio jack, USB 3.0 and CFast™



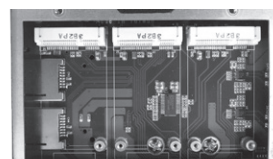
M12 type for Gigabit LAN, USB 2.0 and audio ports



M12 type power connector and remote switch connector



Isolated RS-232/422/485 and DIO ports



3 PCIe Mini Card slots and 2 SIM slots

## Packing List

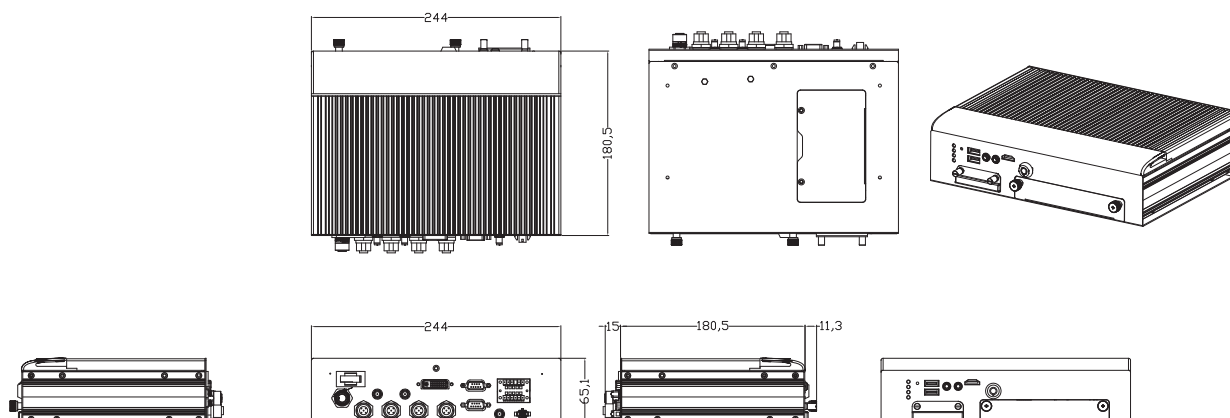
- 1 x Quick manual
- 1 x Driver CD
- 1 x Screw pack
- 4 x Foot pad
- 1 x Wall-mount kit

## Power Protection

### DC Version

- SCP (short circuit protection)
- OVP (over voltage protection)
- UVP (under voltage protection)

## Dimensions



# Mouser Electronics

Authorized Distributor

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