TC-6110 Series Train Computer Quick Installation Guide

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Overview

TC-6110 train computers are specifically designed for onboard train applications. They come with 2 Gigabit LAN ports, 1 RS-232 serial port, 3 USB 2.0 hosts, and 2 expansion slots, offering an ideal solution for any auxiliary train application.

To guarantee high reliability and availability during train operations, TC-6110 computers come with M12 connectors for Gigabit LAN ports, USB ports, and dual power inputs. In addition, the expansion modules offer high flexibility for system integration. Users can easily expand the system with additional storage modules for greater storage capacity.

Model Names and Package Checklist

The TC-6110 Series includes the following models:

- **TC-6110-W7E:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, WLAN module (available on request), Win7 Embedded (32-bit) , -25 to 55°C operating temperature range, compliant with EN 50155 Class T1
- **TC-6110-T-W7E:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, WLAN module (available on request), Win7 Embedded (32-bit), -40 to 70°C operating temperature range, compliant with EN 50155 Class TX
- **TC-6110-CT-W7E:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, conformal coating, WLAN module (available on request), Win7 Embedded (32-bit) , -25 to 55°C operating temperature range, compliant with EN 50155 Class T1
- **TC-6110-CT-T-W7E:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, conformal coating, WLAN module (available on request), Win7 Embedded (32-bit), -40 to 70°C operating temperature range, compliant with EN 50155 Class TX
- **TC-6110-LX:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, WLAN module (available on request), Linux Debian 7, -25 to 55°C operating temperature range, compliant with EN 50155 Class T1
- **TC-6110-T-LX:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, WLAN module (available on request), Linux Debian 7, -40 to 70°C operating temperature range, compliant with EN 50155 Class TX
- **TC-6110-CT-LX:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, conformal coating, WLAN module (available on request), Linux Debian 7, -25 to 55°C operating temperature range, compliant with EN 50155 Class T1
- **TC-6110-CT-T-LX:** Modular 3U/42HP train computer, Intel Atom D525 1.8 GHz CPU, 4 expansion slots, 24 to 110 VDC isolated power, conformal coating, WLAN module (available on request), Linux Debian 7, -40 to 70°C operating temperature range, compliant with EN 50155 Class TX

Each basic system model is shipped with following standard items:

- TC-6110 train computer
- Rackmount kit
- Power switch with cable extender
- Power cable
- Documentation CD or DVD
- Quick installation guide (printed)
- Warranty card

Hardware Installation

Front View
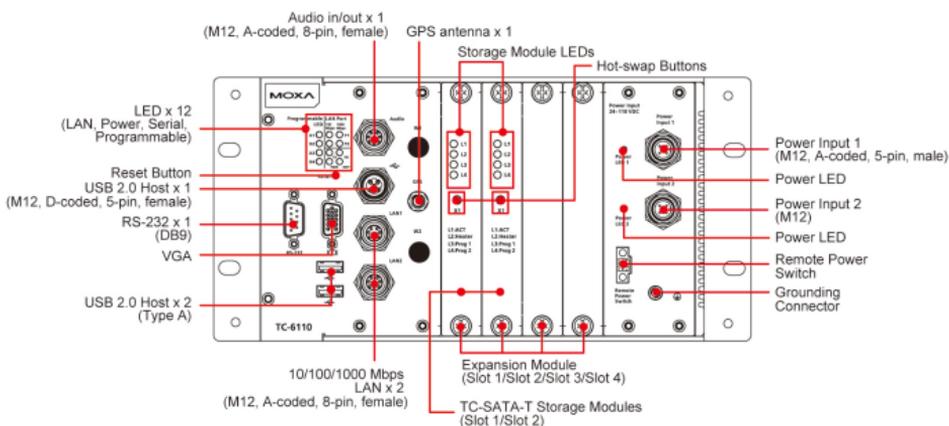
Front Panel LEDs

Information about each LED is given in the following table.

LED Name	LED Color	LED Function
Power	Green	Power is on and functioning normally
	Off	Power is off or power system error
System Ready	Yellow	Logged in to OS, functioning normally
	Off	Login failure or OS not functioning normally
Tx (P1)	Green	Serial port P1 transmitting data
	Off	Serial port P1 not transmitting data
Rx (P1)	Yellow	Serial port P1receiving data
	Off	Serial port P1 not receiving data
X1-X4	Green	Programmable by users
	Off	Programmable by users
LAN (P1-P2)	Green	Working 100 Mbps Ethernet link
	Yellow	Working 1000 Mbps Ethernet link
	Off	Disconnected or short circuit

Connecting to a Display

The TC-6110 comes with a female D-Sub DE-15 VGA interface on the front panel. To ensure that the monitor image remains stable, be sure to tighten the connector's thumbscrews after connecting the cable.

Reset Button

The reset button on the TC-6110's front panel initiates a soft system reboot. Once the system has completed the reboot the **Ready** LED will maintain a steady glow.

Powering the TC-6110

TC-6110 computers come with DC power inputs. When connecting the TC-6110 to an office AC source (for testing), an adaptor must be used. To connect the AC adaptor, follow these steps:

Step 1: Connect the ends of the extended power switch cable to the male portion of the 2-pin Euroblock (provided).

Step 2: Plug the male Euroblock into the matching female terminal on the front panel.

Step 3: Make sure the power switch is turned off (**Open**, in the diagram below).
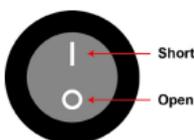
Step 4: Connect the earth/ground cable to the Phillips-head ground connector on the lower right corner of the front panel.
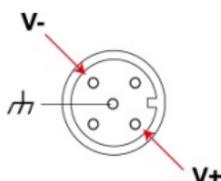

Step 5: Connect the power cable (CBL-Power Jack to M12) to the M12 (A-coded, 5-pin, male) connector as shown at right. Then connect the power connector to power input 1 on the front panel.

Step 6: On the other side of the power cable, connect to the PWR-24250-DT-S1 power adaptor (optional), and a PWC-series power cord (optional).

Step 7: To check power redundancy, use the same method to connect the power to the power input 2.

Step 8: Switch on the TC-6110 (**Short** state). If power supply is connected properly, both power input and system power LEDs will be on (green), as well as the yellow **Ready** LED.
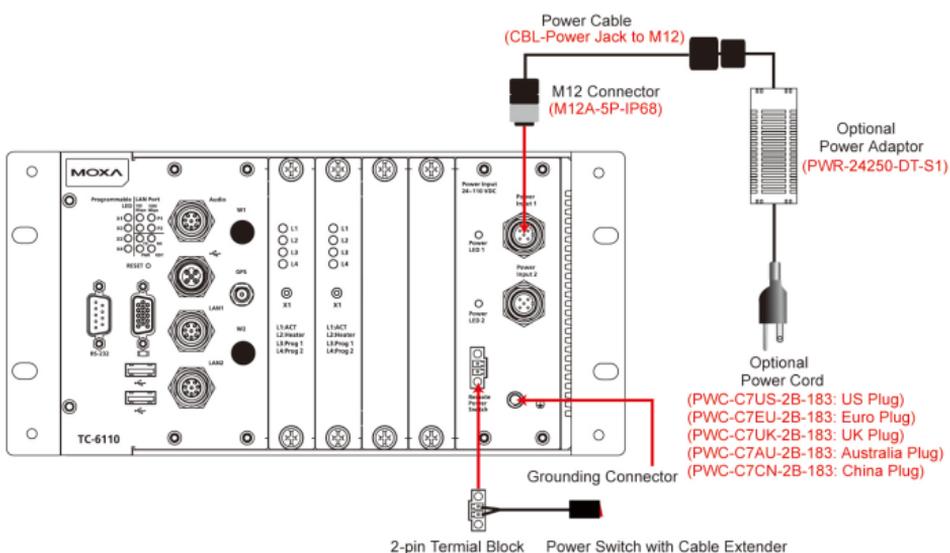
When installing TC-6110 computers at a field site, follow these steps:

Step 1: Connect the ends of the extended power switch cable to the male portion of the 2-pin Euroblock (provided); you may also choose to not use the cable extender, and connect the switch to the terminal directly.

Step 2: Plug the male Euroblock into the matching female terminal on the front panel.

Step 3: Make sure the power switch is turned off (**Open**).
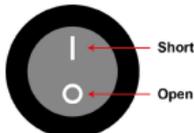
Step 4: Connect the earth/ground cable to the Phillips-head ground connector on the lower right corner of the front panel.
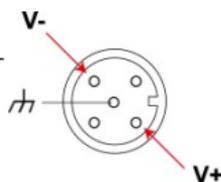

Step 5: Connect the M12 connector to the power source using the pin assignment at right.

Step 6: Connect this M12 connector to power input 1 on the front panel of the computer.

Step 7: Use the same method to provide power to power input 2.

Step 8: Turn on the computer. If the power supply is connected properly, the **Power** and **System Power** LEDs will be on, and the yellow **Ready** LED will also be on. If you need to disconnect the power, reverse these steps.
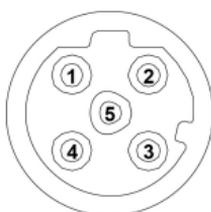
Please note that the branch circuit over current protection must be rated maximum 10 A.
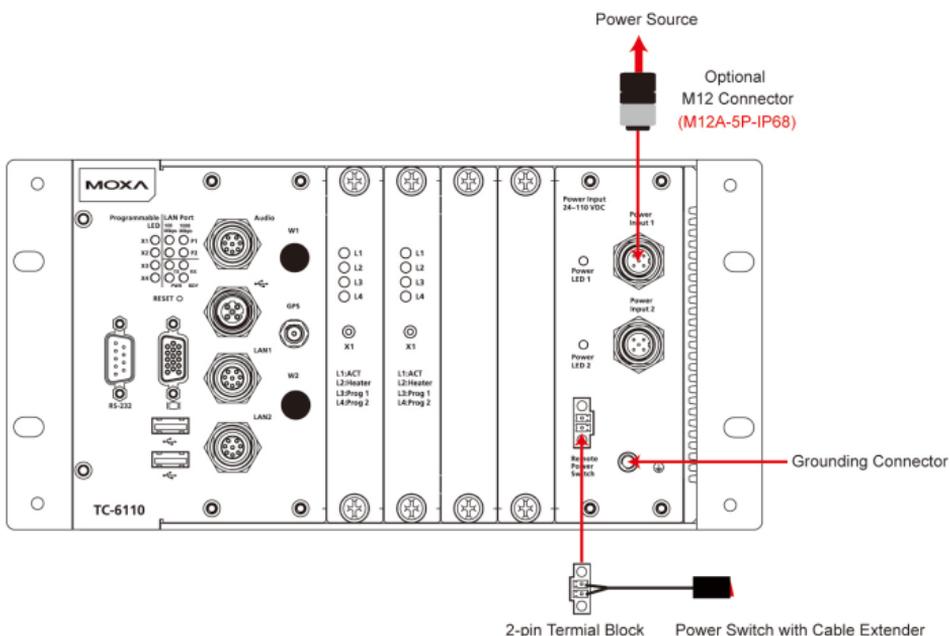
USB Ports

The TC-6110 embedded computer has three USB 2.0 ports: two come with type A connectors, and one with an M12 (D-coded, 5-pin, female) connector. All of the ports are UHCI, Rev 2.0 compliant and support Plug & Play

Pin	USB
1	D+
2	D-
3	+5V
4	GND
5	N.C.

and hot swapping. These ports can be used to connect USB devices, such as a keyboard, mouse, USB flash disk, and USB CD-ROM. In addition, both USB ports support system boot up, which can be activated by modifying the BIOS settings. See the following table and figure for the pin assignment of the USB host with M12 connector.

Serial Ports

The TC-6110 comes with one DB-9 (male) RS-232 serial interface. The pin assignments for the ports are shown in the following table:

Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
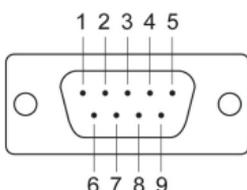
Ethernet Ports

The TC-6110 has two 10/100/1000 Mbps LAN ports with M12 (A-coded, 8-pin, female) hardware interfaces. When the cable is properly connected, the LEDs on the front panel will glow to indicate a successful link.

Pin	10/100 Mbps	1000 Mbps
1	–	TRD3+
2	–	TRD4+
3	–	TRD4-
4	ERx-	TRD1-
5	ETx+	TRD2+
6	ERx+	TRD1+
7	–	TRD3-
8	ETx-	TRD2-

These LAN ports use DHCP for the IP address.

Audio Input/Output

The TC-6110 Series comes with an audio input/output connector and an M12 (A-coded, 8-pin, female) connector. Use a cable to connect the audio input and output. See the following figure and table for pin assignments.

Pin	Audio
1	Line in, right
2	GND
3	–
4	Line in, left
5	Line out, left
6	–
7	Line out, right
8	GND

Installing the SSD/HDD into the Storage Tray

The TC-6110 computers come with two storage trays that can be installed with SSD or HDD for storage expansion. Refer to the hardware manual for detailed description for the installation.

Configuring the Ethernet Interface

Follow these steps to configure the Ethernet interface for a static network address (begins on next page).

Step 1: Go to **Start → Control Panel → Network and Internet → Network Connections**.

Step 2: Go to the **Local Area Connection** tab and click **Properties**, then click **Internet Protocol (TCP/IP)**, and lastly select **Properties**.

Step 3: Click **OK** after inputting the proper IP address and netmask.

Refer to User's Manual for additional configuration information.