

## TEK3-IMX6UL Quickstart Guide



### 1 Safety Precautions

Thank you for purchasing a TechNexion TEK series device. This installation guide will be helpful in the installation, wiring and inspection of your TechNexion embedded fanless box PC. Before using the product, please read this guide to ensure correct use. You should thoroughly understand all safety precautions before proceeding with the installation, wiring, and operation. Place this instruction sheet in a safe location for future reference. The following suggestions will help you.

#### 1.1 Storage and Installation

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, allow it to dry completely.
- Do not use or store the device in dusty or dirty areas. Its parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device. This product is designed for specific applications and needs to be installed by qualified personnel.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not paint the device. Paint can clog the parts and prevent proper operation.
- Unauthorized modifications or attachments could damage the device and may violate regulations governing radio devices.

#### 1.2 Wiring

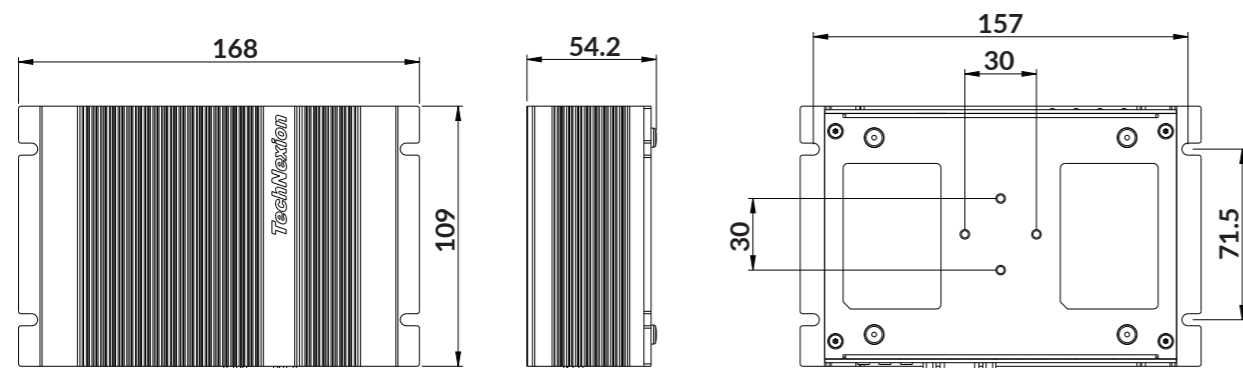
- Make sure that the available power source matches the required input power of the device. Failure to observe this caution may result in electric shock or fire.
- Do not power the unit by DC input when you apply power over the PoE (RJ45).

#### 1.3 Maintenance and Inspection

- Do not touch any internal or exposed parts of the device as electrical shock may result.
- Do not open the device while power is on. Otherwise electrical shock may result.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Be sure the ventilation holes are not obstructed during operation. Otherwise malfunction may result due to bad ventilation or overheating.

These suggestions apply equally to your device, battery, charger, or any enhancement. If any device is not working properly, take it to the nearest authorized service facility for service.

### 2 Dimensions



Unit : mm

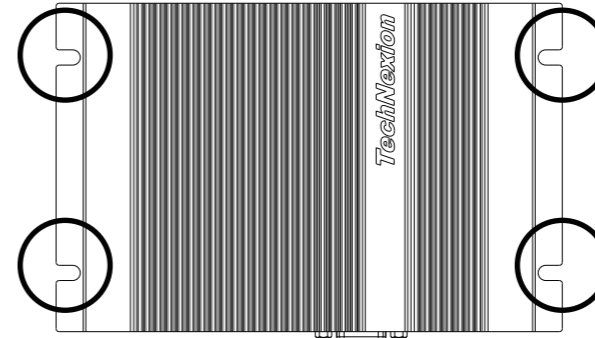
### 3 Installation Instructions

This section describes the mounting procedures for TEK series device. The material in the mounting area must provide sufficient strength for support of this embedded box PC.

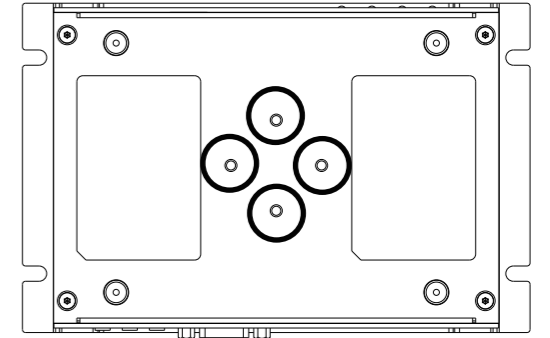
#### 3.1 Surface Mounting

There are 4 mounting holes (M5) on the front side of the device required for surface mounting. Four M4 or M5 screws with at least 8mm head-to-tip length are required to secure this device to the surface.

Top view:



Bottom view:

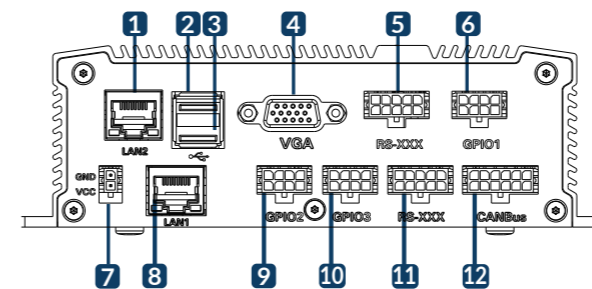


#### 3.2 DIN Mounting

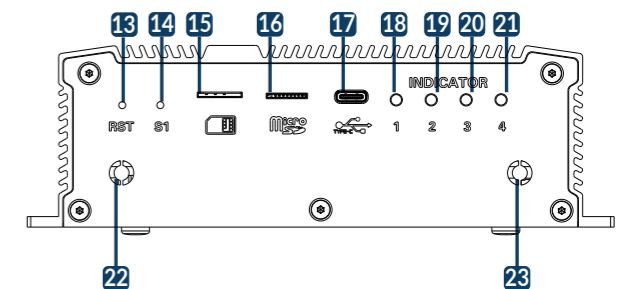
The device can be mounted on a DIN rail by using a DIN-rail bracket. There are four mounting holes (M3) on the rear side of the device required for DIN bracket mounting (30mm DIN rail standard). Secure the DIN bracket to the back of this device by using two M3 screws with at least 5mm head-to-tip length.

### 4 External Connectors

Front view:



Rear view:



No.	Description	No.	Description
1	LAN2 RJ45 connector	13	Reset button
2	USB Host connector	14	S1 Boot Select button
3	USB Host connector	15	Micro-SIM cardslot
4	VGA (15-pin D-SUB) connector	16	MicroSD cardslot
5	RS-XXX (Serial Port) connector	17	USB OTG (Type-C) connector
6	GPIO1 connector	18	LED Light 1 indicator
7	Power Input connector	19	LED Light 2 indicator
8	LAN1 RJ45 connector	20	LED Light 3 indicator
9	GPIO2 connector (optional)	21	LED Light 4 indicator
10	GPIO3 connector (optional)	22	Antenna hole
11	RS-XXX (Serial Port) connector (optional)	23	Antenna hole
12	CAN Bus connector (optional)		

## 5 Pin Definition

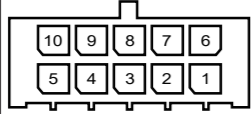
This product is available with two obligatory: GPIO1, RS-XXX and four optional connectors: GPIO2, GPIO3, RS-XXX and CAN Bus that can be ordered in either galvanic isolated or non-galvanic isolated versions.

### 5.1 Galvanic Isolated Connectors (TEK3-IMX6G-05-Rxx-Exx-G-Lxxx-XG20-xx-xxxx)

The TEK3-IMX6G-05-Rxx-Exx-G-Lxxx-xx-xxxx has two galvanic isolated connectors: GPIO1 and RS-XXX. The TEK3-IMX-6G-05-Rxx-Exx-G-Lxxx-XG20-xx-xxxx has six galvanic isolated connectors: GPIO1, GPIO2, GPIO3, two RS-XXX and one CAN Bus.

#### 5.1.1 Galvanic Isolated Serial Port Connectors (RS-XXX/RS-XXX\*) (optional\*)

RS-XXX/RS-XXX\*:

Port	Pin #	RS-XXX Signal	Device	RS-XXX* Signal	Device
	1	GND		GND	
	2	SERIAL1A_TXD	ttymxc4	SERIAL2A_TXD	ttymxc5
	3	SERIAL1A_RXD	ttymxc4	SERIAL2A_RXD	ttymxc5
	4	NC		SERIAL2A_RTS	ttymxc5
	5	NC		SERIAL2A_CTS	ttymxc5
	6	GND		GND	
	7	SERIAL1B_TXD	ttymxc3	SERIAL2B_TXD	ttymxc1
	8	SERIAL1B_RXD	ttymxc3	SERIAL2B_RXD	ttymxc1
	9	NC		SERIAL2B_RTS	ttymxc1
	10	NC		SERIAL2B_CTS	ttymxc1

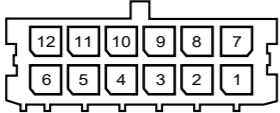
Header: Molex 43045-1012 (10-pin Micro-Fit 3.0).

Cable receptacle: Molex 43025-1000 (10-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

Shielding with 6.3mm male spade terminal connector.

#### 5.1.2 Galvanic Isolated CAN Bus Connector (CANBus\*) (optional\*)

CANBus\*:

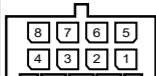
Port	Pin #	Signal	Interface
	1	GND_CAN	
	2	CAN1A_TERM_N	can1
	3	CAN1A_P	can1
	4	CAN1A_N	can1
	5	CAN1A_TERM_P	can1
	6	NC	
	7	GND_CAN	
	8	CAN1B_TERM_N	can2
	9	CAN1B_P	can2
	10	CAN1B_N	can2
	11	CAN1B_TERM_P	can2
	12	NC	

Header: Molex 43045-1200 (12-pin Micro-Fit 3.0).

Cable receptacle: Molex 43025-1200 (12-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

#### 5.1.3 Galvanic Isolated Digital I/O Connectors (GPIO1/GPIO2\*/GPIO3\*) (optional\*)

GPIO1/GPIO2\*/GPIO3\*:

Port	Pin #	GPIO1 Signal	GPIO1 Description	GPIO2*/3* Signal	GPIO2*/3* Description	Voltage
	1	GPIO1A	DIG_IN1	GPIO2A/3A	DIG_IN1	Max. 6V
	2	GPIO1B	DIG_IN2	GPIO2B/3B	DIG_IN2	Max. 6V
	3	GND_DIO	Ground for digital I/O	GND_DIO	Ground for digital I/O	
	4	GND	Common Ground	GND	Common Ground	
	5	GPIO1C	DIG_OUT5	GPIO2C/3C	DIG_OUT5	Max. 16V
	6	GPIO1D	DIG_OUT6	GPIO2D/3C	DIG_OUT6	Max. 16V
	7	VCC_DIO	Supply input for digital I/O	VCC_DIO	Supply input for digital I/O	Max. 16V
	8	VCC	Supply output	VCC	Supply output	12V

Header: Molex 43045-0800 (8-pin Micro-Fit 3.0).

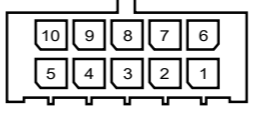
Cable receptacle: Molex 43025-0800 (8-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

### 5.2 Non-Galvanic Isolated Connectors (TEK3-IMX6G-05-Rxx-Exx-Lxxx-XS20-xx-xxxx)

The TEK3-IMX6G-05-Rxx-Exx-Lxxx-xx-xxxx has two non-galvanic isolated connectors: GPIO1 and RS-XXX. The TEK3-IMX-6G-05-Rxx-Exx-Lxxx-XS20-xx-xxxx has six non-galvanic isolated connectors: GPIO1, GPIO2, GPIO3, two RS-XXX and one CAN Bus.

#### 5.2.1 Non-Galvanic Isolated Serial Port Connectors (RS-XXX/RS-XXX\*) (optional\*)

RS-XXX/RS-XXX\*:

Port	Pin #	RS-XXX Signal	Device	RS-XXX* Signal	Device
	1	GND		GND	
	2	SERIAL1A_TXD	ttymxc4	SERIAL2A_TXD	ttymxc5
	3	SERIAL1A_RXD	ttymxc4	SERIAL2A_RXD	ttymxc5
	4	NC		SERIAL2A_RTS	ttymxc5
	5	NC		SERIAL2A_CTS	ttymxc5
	6	GND		GND	
	7	SERIAL1B_TXD	ttymxc3	SERIAL2B_TXD	ttymxc1
	8	SERIAL1B_RXD	ttymxc3	SERIAL2B_RXD	ttymxc1
	9	NC		SERIAL2B_RTS	ttymxc1
	10	NC		SERIAL2B_CTS	ttymxc1

Header: Molex 43045-1012 (10-pin Micro-Fit 3.0).

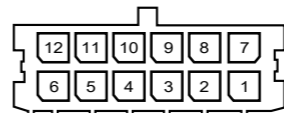
Cable receptacle: Molex 43025-1000 (10-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

Shielding with 6.3mm male spade terminal connector.

#### 5.2.2 Non-Galvanic Isolated CAN Bus Connector (CANBus\*) (optional\*)

For detailed settings information of the TEK3-IMX6UL CAN Bus connector, please refer to the TEK3-IMX6UL HARDWARE MANUAL.

CANBus\*:

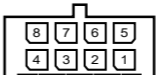
Port	Pin #	Signal	Interface
	1	GND_CAN	
	2	CAN1A_TERM_N	can1
	3	CAN1A_P	can1
	4	CAN1A_N	can1
	5	CAN1A_TERM_P	can1
	6	NC	
	7	GND_CAN	
	8	CAN1B_TERM_N	can2
	9	CAN1B_P	can2
	10	CAN1B_N	can2
	11	CAN1B_TERM_P	can2
	12	NC	

Header: Molex 43045-1200 (12-pin Micro-Fit 3.0).

Cable receptacle: Molex 43025-1200 (12-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

#### 5.2.3 Non-Galvanic Isolated Digital I/O Connectors (GPIO1/GPIO2\*/GPIO3\*) (optional\*)

GPIO1/GPIO2\*/GPIO3\*:

Port	Pin #	GPIO1 Signal	GPIO1 Description	GPIO2*/3* Signal	GPIO2*/3* Description	Voltage
	1	GPIO1A	DIG_IN1/OUT1	GPIO2A/3A	DIG_IN1/OUT1	Max. 3.6V
	2	GPIO1B	DIG_IN2/OUT2	GPIO2B/3B	DIG_IN2/OUT2	Max. 3.6V
	3	NC	Ground for digital I/O	NC		
	4	GND	Common Ground	GND	Common Ground	
	5	GPIO1C	DIG_IN5/OUT5	GPIO2C/3C	DIG_IN5/OUT5	Max. 3.6V
	6	GPIO1D	DIG_IN6/OUT6	GPIO2D/3D	DIG_IN6/OUT6	Max. 3.6V
	7	NC		NC		
	8	VCC	Supply output	VCC	Supply output	12V

Header: Molex 43045-0800 (8-pin Micro-Fit 3.0).

Cable receptacle: Molex 43025-0800 (8-pin Micro-Fit 3.0) plug with crimp contact Molex 43030-0007.

## 6 LED Light Indicators

The TEK3-IMX6UL has four programmable LED Light indicators.

LED#	Color	GPIO Kernel	GPIO Bank/IO
1	Green	GPIO 505	pca9555_9
2	Green	GPIO 506	pca9555_10
3	Green	GPIO 507	pca9555_11
4	Green	PWM1 9	1_9

## 7 Software Installation

The unit is preloaded with software that can download and install a selection of OS images over hardwired network. Simply connect a display to the unit through the VGA connector and a network through the Ethernet LAN RJ45 connector and power it up, then follow the steps on the screen to load the software. Local proxies will interfere with this process. For more information, go to our Knowledge Base at: <https://www.technexion.com/support/knowledge-base/>

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