

## TEK5-APL 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

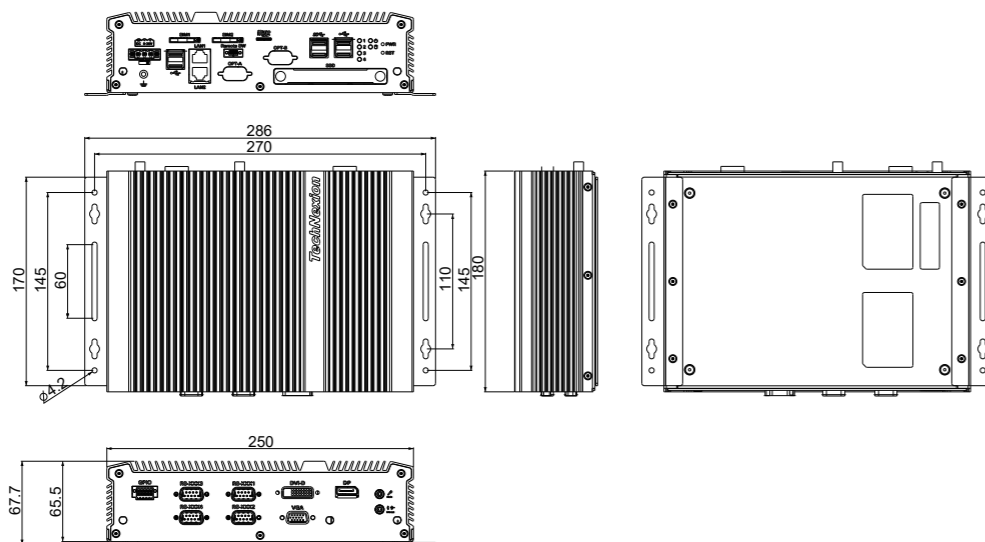
- Make sure that the available power source matches the required input power of the device. Failure to observe this caution may result in electric shock or fire.
- Do not power the unit by DC input when you apply power over the PoE (RJ45).

#### 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

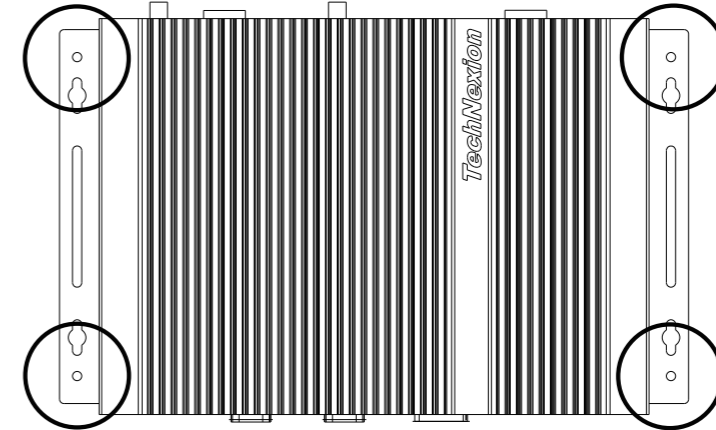


### 3 Installation Instructions

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.

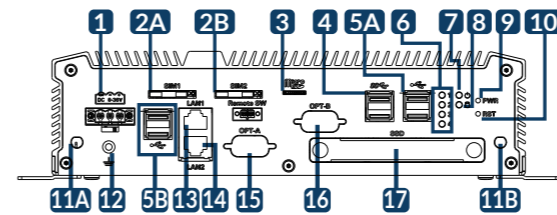
#### 3.1 Surface Mounting

There are 4 mounting holes (M5) on the top 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.

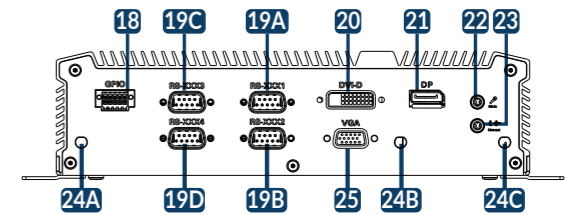


### 4 External Connectors

Front view:



Rear view:



No.	Description	No.	Description
1	Power Input connector	15	OPT-A connector hole
2A	SIM1 (Mini-SIM) card slot	16	OPT-B connector hole
2B	SIM2 (Mini-SIM) card slot	17	2.5" SSD Drive Rack
3	microSD card slot	18	GPIO DB15 connector
4	2x USB 3.0 Host connector	19A	RS-XXX1 (Serial Port) DB9 connector
5A	2x USB 2.0 Host connector	19B	RS-XXX2 (Serial Port) DB9 connector
5B	2x USB 2.0 Host connector	19C	RS-XXX3 (Serial Port) DB9 connector
6	LED Light 1/2/3/4 indicators	19D	RS-XXX4 (Serial Port) DB9 connector
7	Power LED indicator	20	DVI-D connector
8	SATA LED indicator	21	DP connector
9	Power button	22	3.5mm jack Mic in
10	Reset button	23	3.5mm jack Line out
11A	Antenna hole	24A	Antenna hole
11B	Antenna hole	24B	Antenna hole
12	Grounding screw	24C	Antenna hole
13	LAN1 RJ45 connector	25	VGA (15-pin D-SUB) connector
14	LAN2 RJ45 connector		

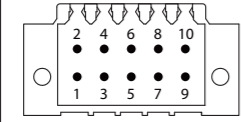
## 5 Pin Definition

This product is available with five connectors: GPIO, RS-XXX1, RS-XXX2, RS-XXX3, and RS-XXX4 that can be ordered in either a galvanic isolated or non-galvanic isolated version.

### 5.1 Galvanic Isolated Connectors Pin Definition (TEK5-Exxxx-Rxx-x-1-xxx-xxxx-xxxx-x-xxxx-T1-xxxx) (optional)

#### 5.1.1 Digital I/O Connector (GPIO)

This product is available with one GPIO connector. The galvanic isolated GPIO connector has the following pinout:

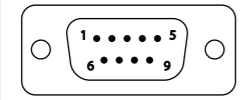
Port	Pin #	Signal	Description	Voltage	Current Max.
	1	GPIO1A	DIG_IN1	5V	1A
	2	GPIO1B	DIG_OUT1	12V	125 mA
	3	GPIO1C	DIG_IN2	5V	1A
	4	GPIO1D	DIG_OUT2	12V	125 mA
	5	GPIO1E	DIG_IN3	5V	1A
	6	GPIO1F	DIG_OUT3	12V	125 mA
	7	GPIO1G	DIG_IN4	5V	1A
	8	GPIO1H	DIG_OUT4	12V	125 mA
	9	GND	Common Ground		
	10	VCC	Supply output	5V	300 mA

Header on TEP5-APL: DINKLE 0156-1810L (10-pin 2.54mm pitch terminal block) connector socket.  
Cable receptacle: DINKLE 0156-1A10-BK (10-pin 2.54mm pitch terminal block) connector plug.

#### 5.1.2 Serial Ports (RS-XXX1/RS-XXX2/RS-XXX3/RS-XXX4)

This product is available with four full function galvanic isolated serial ports.

RS-XXX1/RS-XXX2 are set as RS-232 during manufacturing. For setting details of RS-XXX1/RS-XXX2 serial ports in other modes, please refer to the TEK5-APL HARDWARE MANUAL. RS-XXX3/RS-XXX4 serial ports can be used as a standard RS-232 only. The ports have the following pinout:

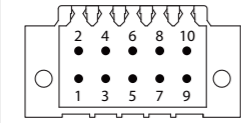
Port	Pin #	Signal	Description	Device
	1	SERIAL1/2/3/4_DCD	Data Carrier Detect (input)	COM1/2/3/4
	2	SERIAL1/2/3/4_RXD	Receive data (input)	COM1/2/3/4
	3	SERIAL1/2/3/4_TXD	Transmit data (output)	COM1/2/3/4
	4	SERIAL1/2/3/4_DTR	Data Terminal Ready (output)	COM1/2/3/4
	5	GND	Ground	
	6	SERIAL1/2/3/4_DSR	Data Set Ready (input)	COM1/2/3/4
	7	SERIAL1/2/3/4_RTS	Request-to-send (output)	COM1/2/3/4
	8	SERIAL1/2/3/4_CTS	Clear-to-send (input)	COM1/2/3/4
	9	VCC*	5V supply output (current max. 500mA)	

Header on TEK5-APL: DB9 (9-pin) standard D-Sub male connector.  
Cable receptacle: DB9 (9-pin) standard D-Sub female connector.

### 5.2 Non-Galvanic Isolated Connectors Pin Definition (TEK5-Exxxx-Rxx-x-N-xxx-xxxx-xxxx-x-xxxx-T1-xxxx) (optional)

#### 5.2.1 Digital I/O Connector (GPIO)

This product is available with one GPIO connector. The non-galvanic isolated GPIO connector has the following pinout:

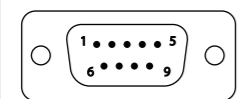
Port	Pin #	Signal	Description	Voltage	Current Max.
	1	GPIO1A	DIG_IN1	3.3V	12 mA
	2	GPIO1B	DIG_OUT2	3.3V	12 mA
	3	GPIO1C	DIG_IN3	3.3V	12 mA
	4	GPIO1D	DIG_OUT4	3.3V	12 mA
	5	GPIO1E	DIG_IN5	3.3V	12 mA
	6	GPIO1F	DIG_OUT6	3.3V	12 mA
	7	GPIO1G	DIG_IN7	3.3V	12 mA
	8	GPIO1H	DIG_OUT8	3.3V	12 mA
	9	GND	Common Ground		
	10	VCC	Supply output	5V	300 mA

Header on TEP5-APL: DINKLE 0156-1810L (10-pin 2.54mm pitch terminal block) connector socket.  
Cable receptacle: DINKLE 0156-1A10-BK (10-pin 2.54mm pitch terminal block) connector plug.

#### 5.2.2 Serial Ports (RS-XXX1/RS-XXX2/RS-XXX3/RS-XXX4)

This product is available with four full function non-galvanic isolated serial ports.

RS-XXX1/RS-XXX2 are set as RS-232 during manufacturing. For setting details of RS-XXX1/RS-XXX2 serial ports in other modes, please refer to the TEK5-APL HARDWARE MANUAL. RS-XXX3/RS-XXX4 serial ports can be used as a standard RS-232 only. The ports have the following pinout:

Port	Pin #	Signal	Description	Device
	1	SERIAL1/2/3/4_DCD	Data Carrier Detect (input)	COM1/2/3/4
	2	SERIAL1/2/3/4_RXD	Receive data (input)	COM1/2/3/4
	3	SERIAL1/2/3/4_TXD	Transmit data (output)	COM1/2/3/4
	4	SERIAL1/2/3/4_DTR	Data Terminal Ready (output)	COM1/2/3/4
	5	GND	Ground	
	6	SERIAL1/2/3/4_DSR	Data Set Ready (input)	COM1/2/3/4
	7	SERIAL1/2/3/4_RTS	Request-to-send (output)	COM1/2/3/4
	8	SERIAL1/2/3/4_CTS	Clear-to-send (input)	COM1/2/3/4
	9	VCC*	5V supply output (current max. 500mA)	

Header on TEK5-APL: DB9 (9-pin) standard D-Sub male connector.  
Cable receptacle: DB9 (9-pin) standard D-Sub female connector.

## 6 LED Light Indicators

The TEK5-APL has six LED light indicators including four programmable LED Light indicators.

LED#	Color	PCB Location	Registered Address
1	Green	LED-A1	0xF9_BIT4 (SIO)
2	Green	LED-A2	0xF9_BIT3 (SIO)
3	Green	LED-A3	0xED_BIT2 (SIO)
4	Green	LED-A4	0xED_BIT1 (SIO)

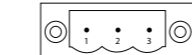
Besides, the TEP5-APL features Power LED and SATA LED indicators. The Power LED Light indicator is lit, when the system is powered on. The SATA LED Light indicator is blinking, when the SATA SSD is active.

LED#	Color	ON	OFF
5	Green	Power on	Power off
6	Red	SATA SSD is active (blinking)	SATA SSD is not active

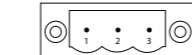
## 7 Power Input Connector

The TEP5-APL can be powered over the DC INPUT connector. This device can be ordered with (TEK5-Exxxx-Rxx-P-x-xxx-xxxx-xxxx-x-xxxx-T1-xxxx) or without (TEK5-Exxxx-Rxx-L-x-xxx-xxxx-xxxx-x-xxxx-T1-xxxx) a power ignition feature.

TEK5-Exxxx-Rxx-P-x-xxx-xxxx-xxxx-x-xxxx-T1-xxxx:

Connector	Pin #	Signal	Description
	1	VCC	DC Voltage input (8-36VDC)
	2	GND	Ground
	3	IGN	Signal from MCU

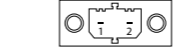
TEK5-Exxxx-Rxx-L-x-xxx-xxxx-xxxx-x-xxxx-T1-xxxx:

Connector	Pin #	Signal	Description
	1	VCC	DC Voltage input (8-36VDC)
	2	GND	Ground
	3	NC	

Header on TEP5-APL: DINKLE 2EHDRM-03P (3-pin 5.08mm pitch terminal block with threaded flange).  
Cable receptacle: DINKLE 2ESDVM-03P (3-pin 5.08mm pitch terminal block connector plug).

## 8 Remote Power Button Connector

The TEP5-APL features a remote power button connector.

Connector	Pin #	Signal	Description
	1	PWRON	Switch power source
	2	GND	Ground

Header on TEP5-APL: DINKLE 0225-1602 (2-pin 3.50mm pitch terminal block with threaded flange).  
Cable receptacle: DINKLE 0225-0602 (2-pin 3.50mm pitch terminal block connector plug).

## 9 Software and Driver Installation

The unit is by default preloaded with software that can download and install a selection of Linux OS images over hardwired network. Simply connect a display to the unit through the DP or DVI-D or 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/>

To download drivers for the Windows operating systems, go to our Download Center at:

<https://www.technexion.com/support/download-center/>

For more information about installing and configuring the Windows operating systems, see: <https://msdn.microsoft.com/en-us/>

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