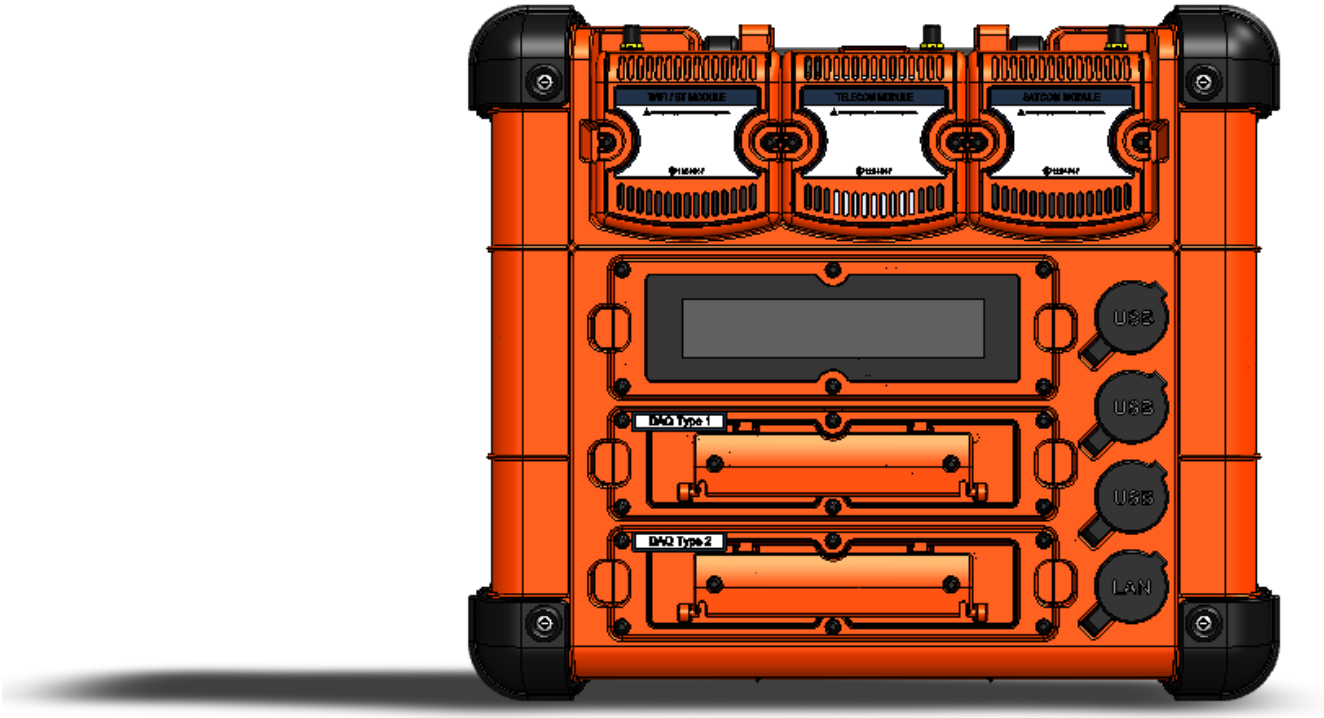


Safety Manual

SCN-100-9 series

Computer

Tiger Lake UP3 CORE i,Win 10

2023/03

Purpose

SCN-100-9 Remote Box is a computer device that allows SCANIA to distribute expert knowledge to all SCANIA Workshops and to remote locations on land and at sea.

SCANIA uploads the collected data to the cloud platform through the SCN-100-9 Remote Box wireless communication technology for data integration and technical statistics to provide users with professional technical support.

Scope

This user manual is organized through the following chapters, providing SCN-100-9 Remote Box hardware introduction and Instructions for using software functions.

Chapter 1 Specifications

Chapter 2 Dimensions and I/O Placement

Chapter 3 Installation and Connections

Chapter 4 LCM MMI Module Description

Chapter 5 Product label and Carton label

Safety Information and Standards

Certification information
Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

AVERTISSEMENT indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou des blessures graves.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

ATTENTION indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner des ou blessure modérée.

CE
This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage.

FCC Class B
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
--Reorient or relocate the receiving antenna.
--Increase the separation between the equipment and receiver.
--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--Consult the dealer or an experienced radio/TV technician for help.

Certification Standards

Remote Box tested this product for compliance with the following compulsory standards:
United States:
Federal Communications Commission, FCC Part 15, Class B

Underwriters Laboratories Inc., UL 62368, and CSA 62368 (Information Technology Equipment).

Europe: CE
2014/35/EU Low Voltage Directive, based on IEC 62368
2014/30/EU EMC Directive, class B, based on IEC 61000-6-1 and IEC 61000-6-3

Standard	Note
EN 55032/35	
EN IEC 62311	SAR
EN 303413	GNSS
EN 300328	BT 5.3
EN 300328	802.11 b/g/n
EN 301893	802.11 a/n/ac
EN 301893	DFS Band
EN 301908-1	UMTS (Band 1, 8)
EN 301908-1	LTE Band 1, 3, 7, 8, 20, 28, 42
EN 301489-1/-3/-19/-17/-52	NFC, GPS, BT, WIFI, WCDMA, LTE (Band 1, 3, 7, 8, 20, 28, 42,)

FCC & RF

Standard	Note
Part 15B	
Part15C	BT 5.3
Part15C	802.11 b/g/n
Part 15E	802.11 a/n/ac
Part 15E	DFS Band
Part 22/24	UMTS Band 2, 4, 5
Part 22/24,27,90	LTE Band 2, 4, 5, 7, 12, 13, 26, 41, 66
Part 2.1091	MPE

WEEE, Directive 2012/19/EU
RoHS, Directive 2011/65/EU
RoHS China, Standard GB/T 26572
REACH regulation EC 1907/2006

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from SCANIA. Please contact your local supplier for ordering information.

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclo-sure products.

FCC Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.
3. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Canadian Notice

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s).
Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Avis Canadien

L’émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d’Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée auxdeux conditions suivantes

1. L’appareil ne doit pas produire de brouillage;
2. L’appareil doit accepter tout brouillage radioélectrique subi, même si lebrouillage est susceptible d’en compromettre le fonctionnement.

Caution:

Exposure to Radio Frequency Radiation

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Attention

Exposition au rayonnement radiofréquence.

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant enconjonction avec une autre antenne ou transmetteur.
2. Pour se conformer aux exigences de conformité CNR 102 RF exposition, uneistance de séparation d'au moins 20 cm doit être maintenue entre l'antenne decet appareil et toutes les personnes

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equip-ment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
    If one of the following situations arises, get the equipment checked by ser-vice personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
14. **CAUTION**: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
    ATTENTION: DANGER D'EXPLOSION SI LA BATTERIE EST INEXACTE-MENT REMPLACÉE. REMPLACEZ SEULEMENT AVEC LA MÊME CHOSE OU LE TYPE ÉQUIVALENT RECOMMANDÉ PAR LE FABRICANT, JETTENT LES BATTERIES UTILISÉES INSTRUCTIONS DE S SELON FABRICANT DES'

16. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.
17. This product is intended to be supplied by an UL certified power adapter rated 12-32 Vdc, 10-3.75 A, Tma 55 degree C minimum and altitude 5000m minimum, if need further assistance, please contact SCANIA for further information.
18. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. By means of a power cord connected to a socket-outlet with earthing connection.
    Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à la prise de courant. Au moyen d'un cordon d'alimentation connecté à une prise de courant avec mise à la terre.
19. Rechargeable lithium battery warning
    - Replacement of a battery with an incorrect type that can defeat a safeguard
    - Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion
    - Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas

    Pile au lithium rechargeable Avertissement
    - Remplacement d'une batterie par un type incorrect qui peut annuler une protection
    - L'élimination d'une batterie dans le feu ou un four chaud, ou l'écrasement ou la découpe mécanique d'une batterie, pouvant entraîner une explosion
    - Laisser une batterie dans un environnement à température extrêmement élevée pouvant entraîner une explosion ou une fuite de liquide ou de gaz inflammable
20. The equipment is a Class III Computer which is intended to use with Audio/Video information and communication technology equipment.
21. Before using this equipment, make sure it is placing upright with the handle facing up.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Battery Information

Batteries, battery packs and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

Chapter 1

Specifications

General Specifications
BOX PC (REMOTE BOX)

Category	Item	Description
General	System	● Computer Fanless System Design
	CPU	● INTEL Tiger Lake UP3, Support i3, i5 and i7 ● CORE i5-1145G7E 4C 1.6G-4.1G 15W 8~12 MB L2 Cache
	Memory	● One SDRAM DDR4 260pin, up to 32GB and 3200Mt/s speed (16GB is available maximum memory. TGL-UP3 platform can support 64GB maximum)
	Storage	● One M.2 2280
	Power Input	12~32V DC
	Power Consumption	● 2 batteries in charging mode and 100% loading, the worst case is ~100 watt, suggest 110watt ● Without 2 batteries and 100% loading, ~40watt, suggest 45watt
	Dimension (W x H x D in mm)	356mm x 306mm x 126mm
	Enclosure	Industry Polycarbonate (PC)
	Mounting	Handle
	Weight	● 5 Kg RB only with 2 batteries ● 5.5 kg with package and AC power adapter
	OS Support	WIN10 IOT Enterprise 2019 (64bit) LTSC
External I/O	Ethernet	● Standard Phone Jack RJ45 8pin, 10/100/1000 Base-T, ● Qty : 1 with IP65 rubber lid
	USB3.0	● Standard Type A 9P USB3.0, 5Gbit/s (compatible with USB2.0) ● Qty : 3 with IP65 rubber lid
	DC-IN Jack	● M12 T Code 4P ● Qty : 1 with IP65 rubber lid
	Power Button	● Stainless Steel Push Button with LED indication (IP65 already)

		● Qty : 1
	Battery	● 2 Battery Pack (Each Pack is 4 Series 1 Parallel of Panasonic NCR18650GA 3300mAh Battery Cell) ● Support Hot-Swappable function
Internal I/O	USB3.0	● Standard Type A 9P USB3.0 with 5Gbit/s (compatible with USB2.0) ● Qty : 1 ● Purpose : license Dongle, the size is same as what is used in mockup sample
	Reset Button	● TACT SW 4P/4.5mm/NY FR52/VA/GFL/S/Brown/H4.3mm for ● Qty : 1 ● Purpose : Development and Maintenance
	Power Button	● TACT SW 4P/4.5mm/NY FR52/VA/GFL/S/Brown/H4.3mm for ● Qty : 1 ● Purpose : Development and Maintenance
	Board to Board Connector	● FX23 BTB 2x20P/0.5mm/LCP/M/RA/G3u/S/BK/H7.3mm ● Qty : 7 ● WiFi Box x 1 (Native PCIe x1, Native USB 3.0/2.0, selected WiFi module uses PCIe x1, selected BT uses USB 2.0 x 1) ● LTE Box x 1 (Native PCIe x1, Native USB 3.0/2.0, selected LTE module uses USB 3.0 x 1) ● SATCOM Box x 1 (Native PCIe x1, Native USB 3.0/2.0) ● LCM Box x 1 (Native USB 2.0 x 1, Native COM x 1, Native SATA 3.0 x 1) ● Expansion Box 1 x 1 (Native PCIe x 1, Native USB 2.0 x 1) ● Expansion Box 2 x 1 (Native PCIe x 1, Native USB 2.0 x 1) ● Expansion Board x 1 (Native USB 3.0 for USB Hub, Native PCIe x1 for Ethernet x 1)
	M.2 2280	● NGFF

		75P/0.5mm/(F)/LCP/RA/GFL/S/BK/H4.20mm/B-key ● Qty : 1
	CMOS Battery	● FDK Manganese Dioxide Primary Lithium Battery ● CR14250SE-T-C16 ● 3V Voltage and 850mAh Capacity ● Qty : 1
	Special DP Debug Port	● Wafer 10x2 1.25mm ● Qty : 1 ● Unique and self-defined pin for Development and Maintenance
	Chassis Intrusion Switch	● WAFER BOX 2P 1.25mm 180D(M) DIP ● Qty : 1 (one for BOX PC)
Features	Power Source	● RB Battery ● Compliant DC input of power Adapter, Engine or Machine ● Charger IC manages the power to System and Battery (Same Laptop Design)
	Power Design	● OVP and UVP ● Surge Stopper ● Support Vehicle and Engine but not include power isolation (Vessels certification needs power isolation but SCANIA confirms no power isolation requirement in Vessels application)
	TPM	● Infineon SLB 9670 TPM2.0 SPI Interface ● Pin Compatible with TCM (NATIONZ Z32H330 QFN 32)
Environment	Storage Temperature	● Without Battery : -20°C ~ 70°C ● With Battery: ● -20°C ~ 50°C, less than 1 month ● -20°C ~ 40°C, less than 3 months

		● -20°C ~ 20°C, less than 12 months
	Operating Temperature	● Without Battery ● 0 ~ 55°C in 100% loading ● 0 ~ 70°C in 50% loading ● With Battery ● 0 ~ 45°C in 100% loading (Discharging) ● 0 ~ 35°C in 100% loading (Charging)
	Humidity	10~95% @ 40°C (non-condensing)

LCM BOX

Category	Item	Description
General	Storage	● Standard M.2 Type 2280 (only reserve the design)
	LCD	● STN LCD ● Operating Temp: -20°C ~ 80°C ● Contrast Ratio: 500 Typ. and 1000 Max. ● Lifetime : 50K hours above ● White, Green and Red Color
	Touch	● Single Capacitive Touch ● Support Water Use case (like the raining weather) ● High Noise Resistance

WIFI BOX

Category	Item	Description
General	Module	● M.2 2230 E-KEY ● Advantech EWM-W163M201E Module ● IEEE 802.11ac/a/b/g/n ● Bluetooth 4.2
	Antenna	● Internal Antenna (Main x 1, AUX x 1)

LTE BOX

Category	Item	Description
General	Module	● M.2 3042 B-KEY ● Sierra EM7565 Module (with GPS) ● LTE / DC-HSPA+ / HSPA+ / HSPA / UMTS (WCDMA) / DL LTE-FDD / DL LTE-TDD operation etc ● Worldwide Support
	Antenna	● Internal Antenna x 1 for GPS ● Internal Antenna for 3G/LTE (Main x 1, AUX x 1)

EXPANSION BOX 1

Interface	PCIe x 1, USB 2.0 x1
USB 3.0	Qty : 2 (PCIe x1 Gen3 converts to USB 3.0 x 2)
Power (Board to Board Connector)	3.3V, 5V, 12V

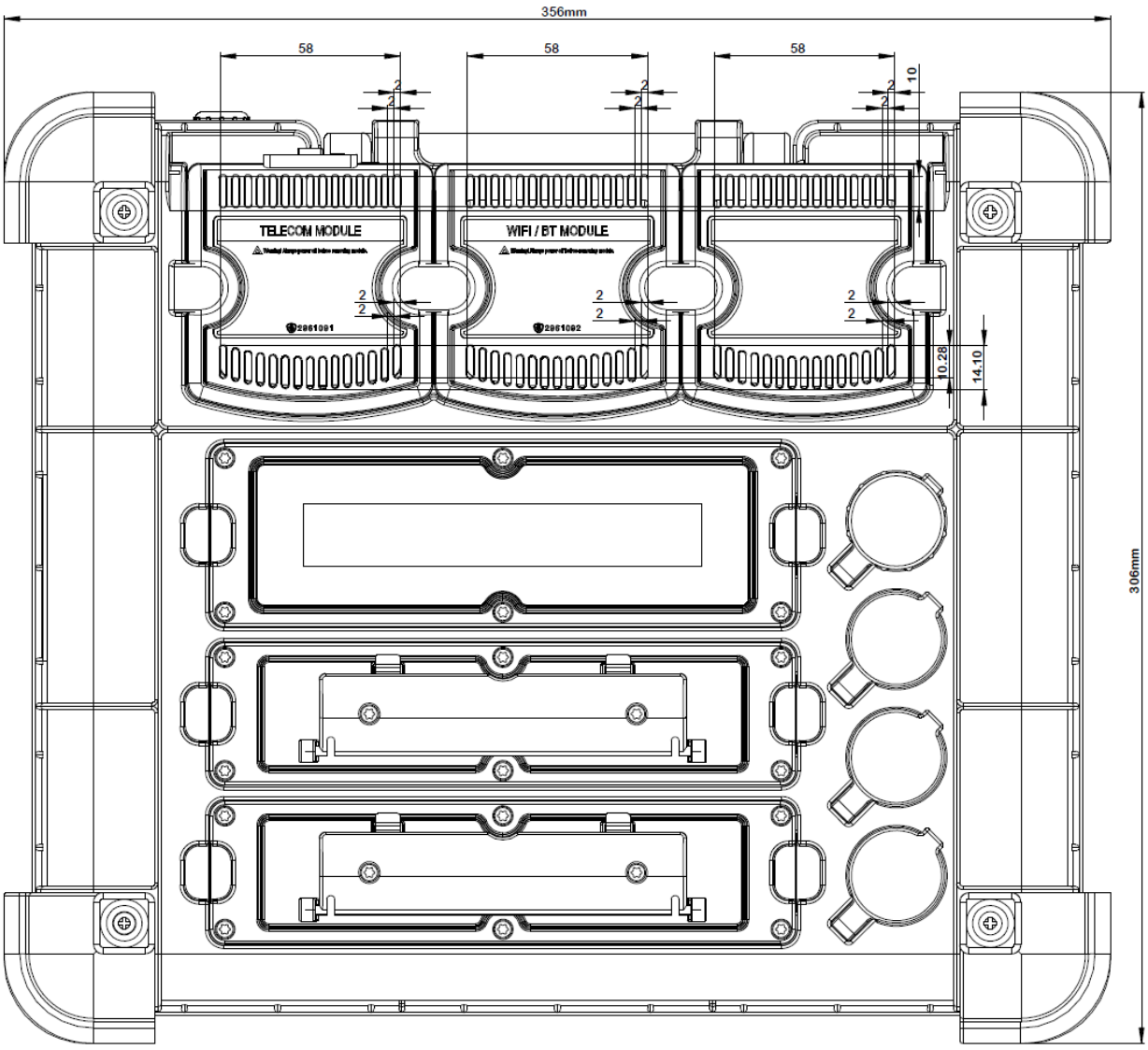
EXPANSION BOX 2

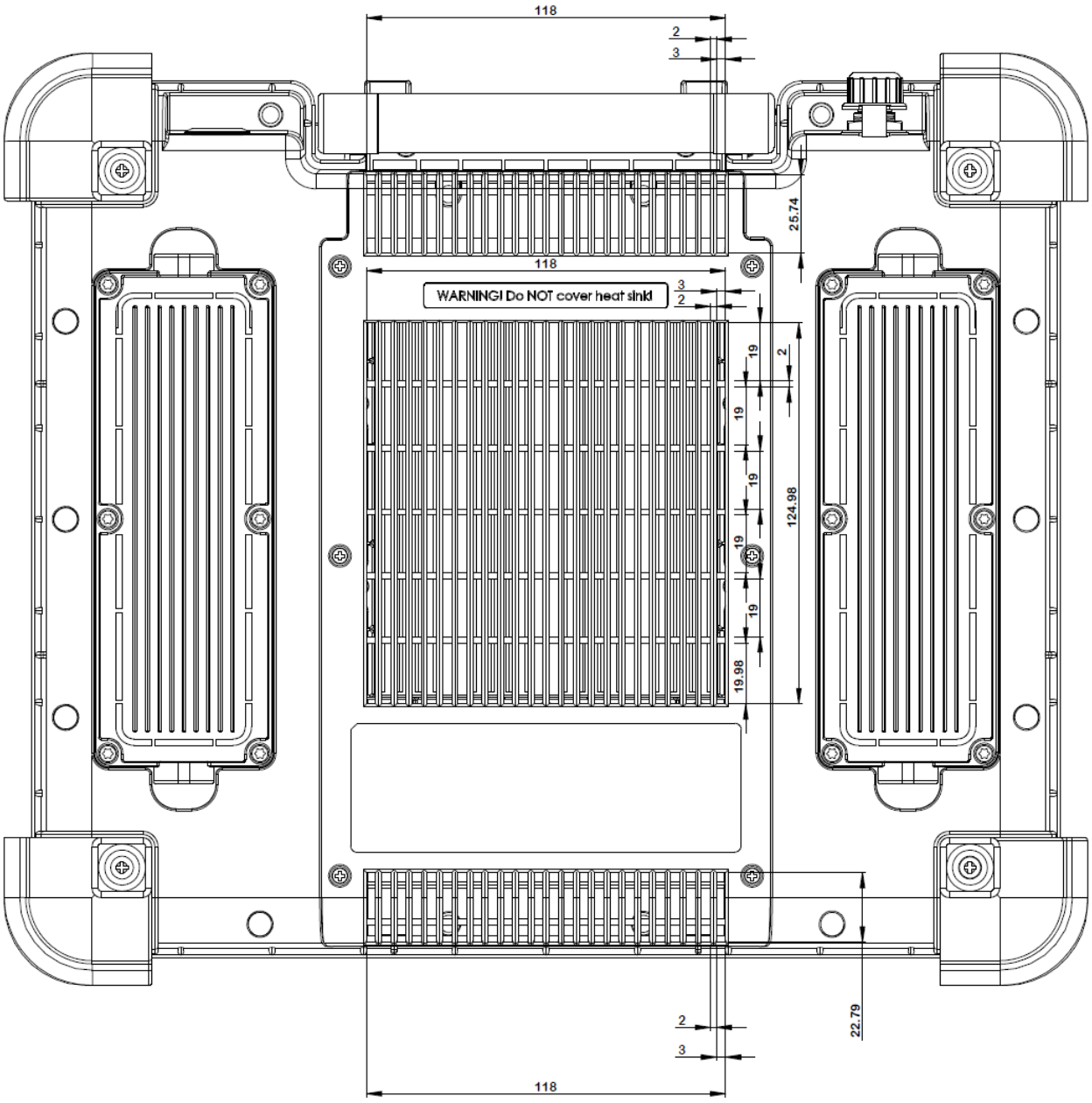
Interface	PCIe x 1, USB 2.0 x1
USB 3.0	Qty : 2 (PCIe x1 Gen3 converts to USB 3.0 x 2)
Power (Board to Board Connector)	3.3V, 5V, 12V

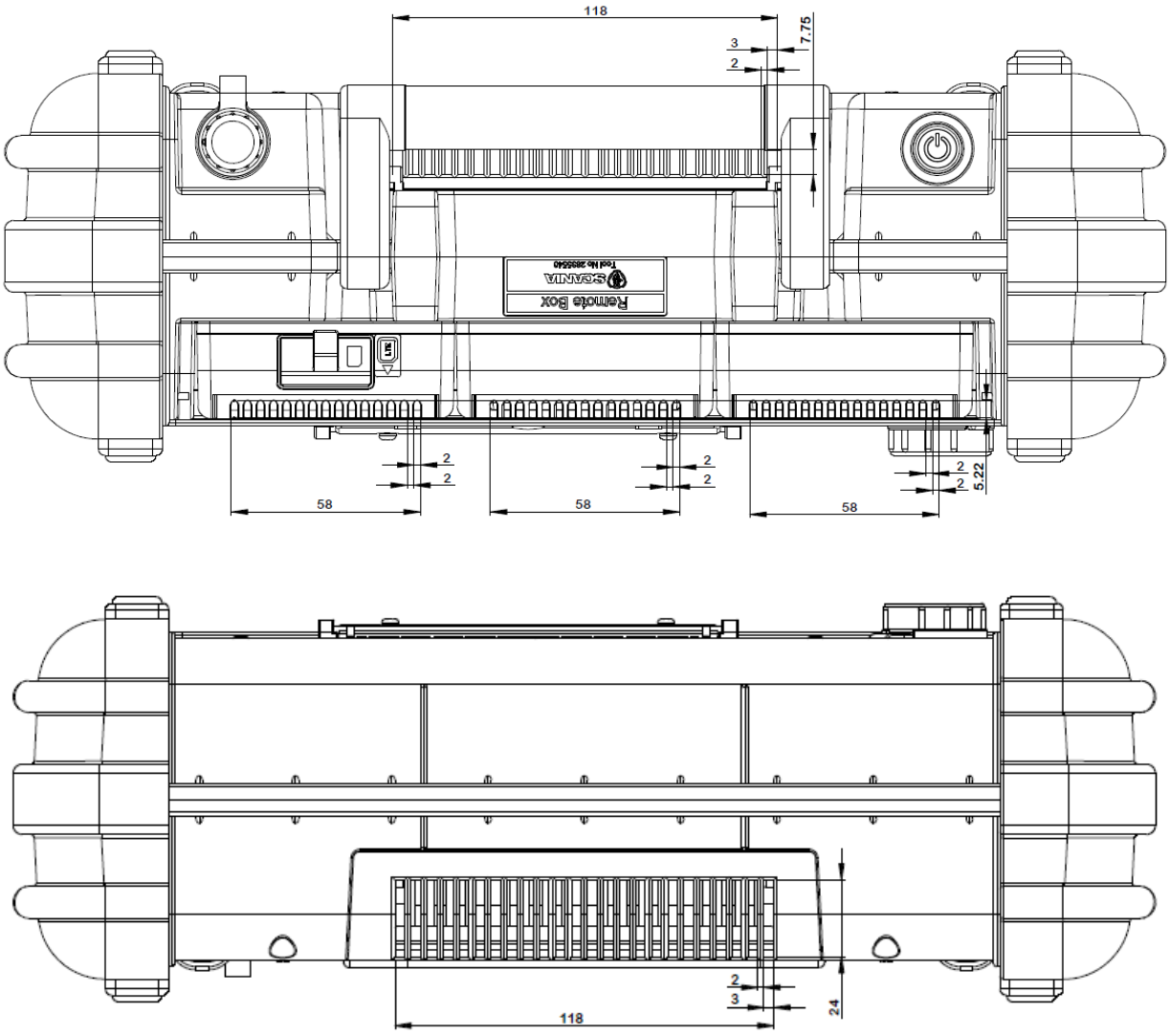
Chapter 2

Dimensions

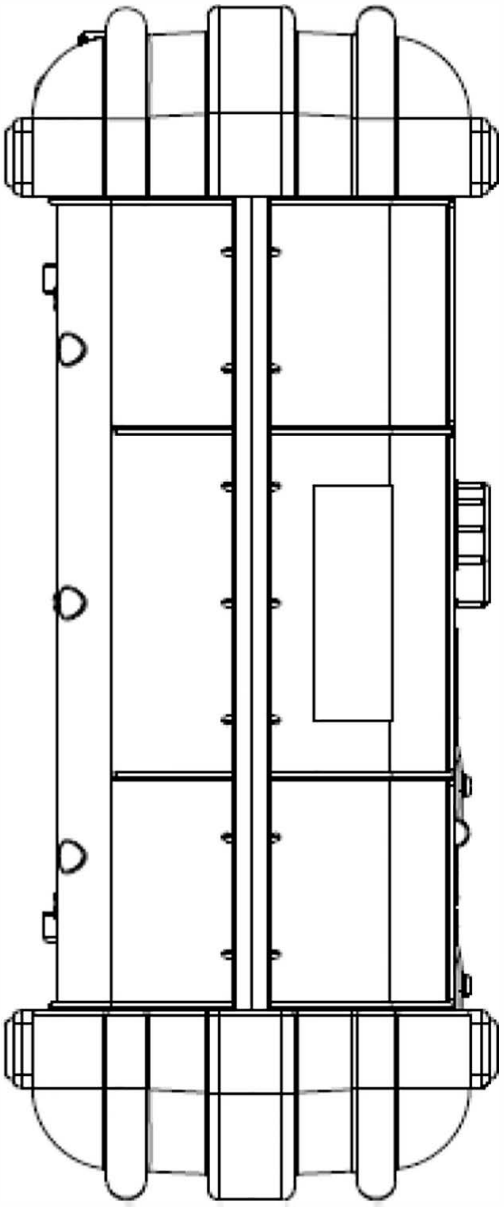
Remote Box Dimensions

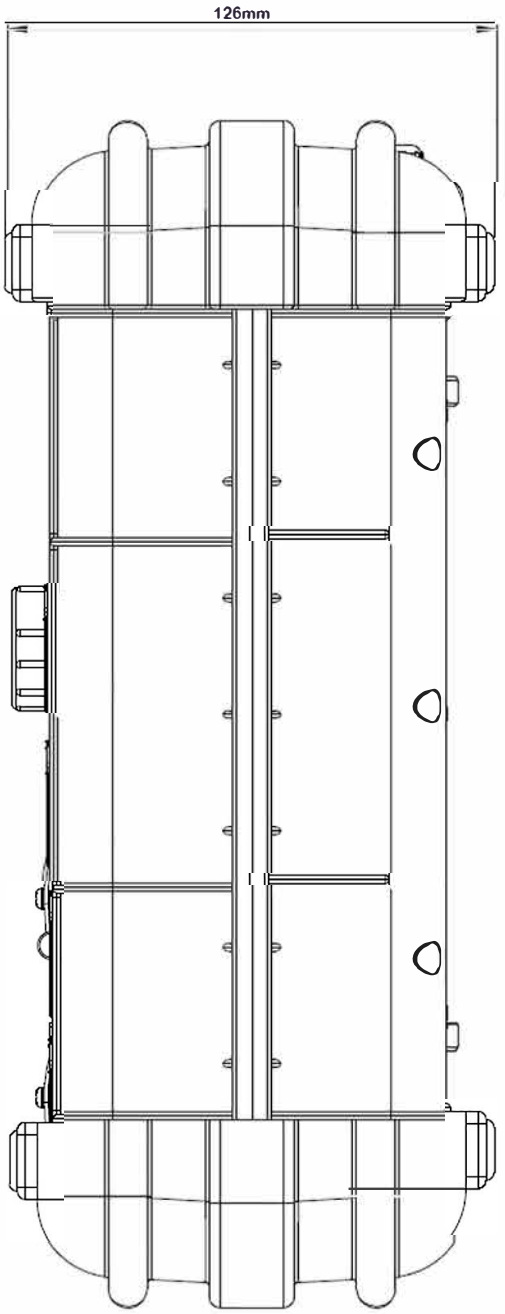



118
2
3
25.74
118
WARNING! Do NOT cover heat sink!
3
2
19
2
19
19
124.98
19
19
19.98
2
3
22.79
118

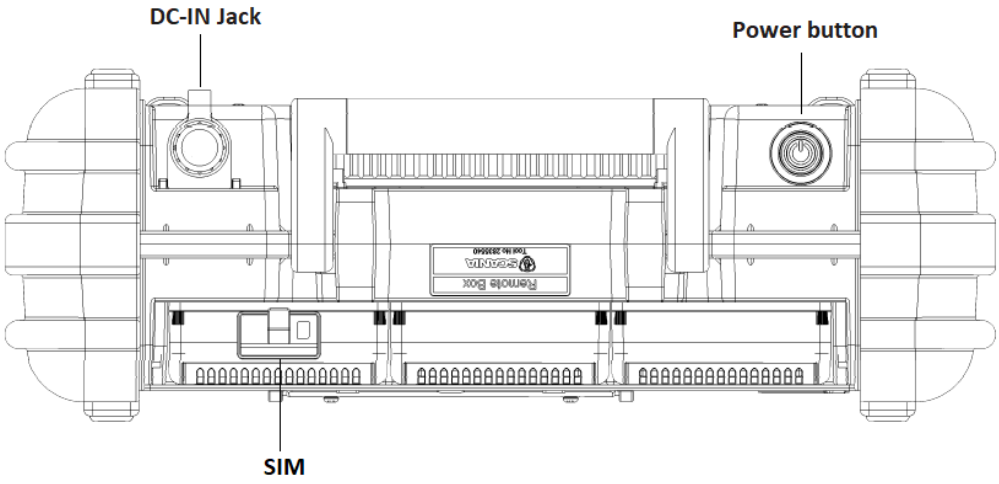

118
3
2
7.75
Remote Box
Tool No. 2000540
LOCK
2
2
58
58
58
2
2
2
2
5.22

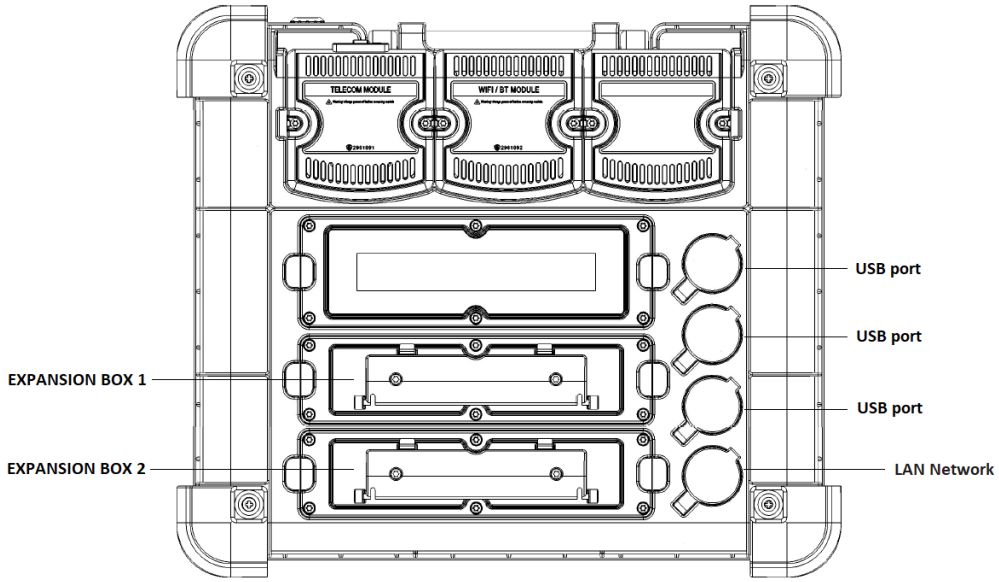
2
3
118
24




126mm

I/O Placement





Note
Please press the power button for at least 6 seconds when turning on
Or look at the LCM display BOOTING and then release the power button to start the boot process

Chapter 3

Installation

Overheating of the system can cause incorrect software behavior. To prevent the system from overheating, be aware of the following:

- **The environment characteristics of the system must be respected.**
- **The Remote Box vent holes must not be covered.**

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not place the Magelis Industrial PC next to other devices that might cause overheating.
- Keep the Magelis Industrial PC away from arc-generating devices such as magnetic switches and non-fused breakers.
- Avoid using the Magelis Industrial PC in environments where corrosive gases are present.

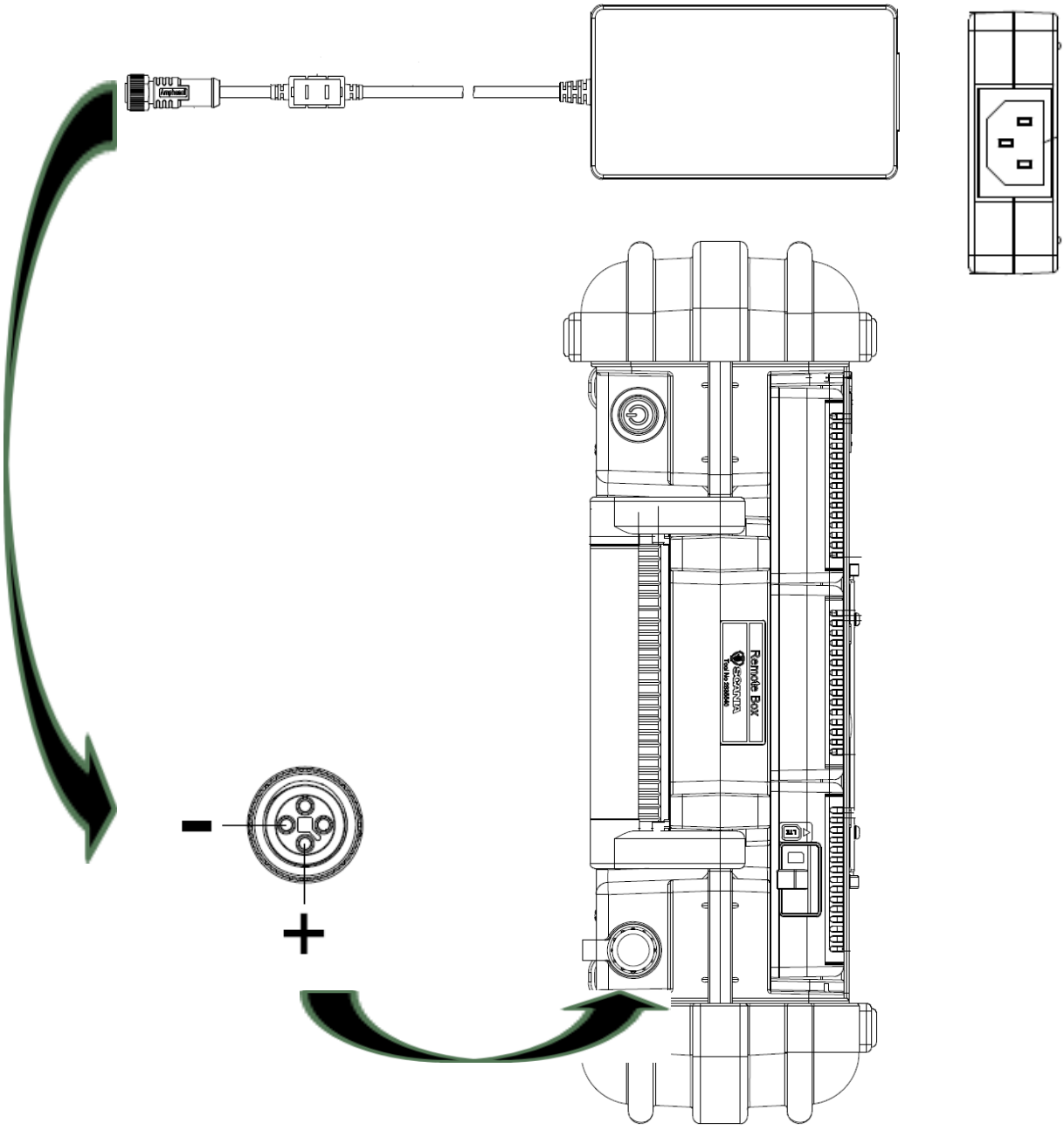
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Connections

This chapter describes the connection of the Remote Box to the main power supply. It also describes the I/O interface and battery replacement.

AC Power Supply Module (FSP180-AAAN3) Description

The AC power supply module (FSP180-AAAN3) can optionally be mounted on the Remote Box to be operated with 100...240 Vac.
The figure shows the AC power supply module:

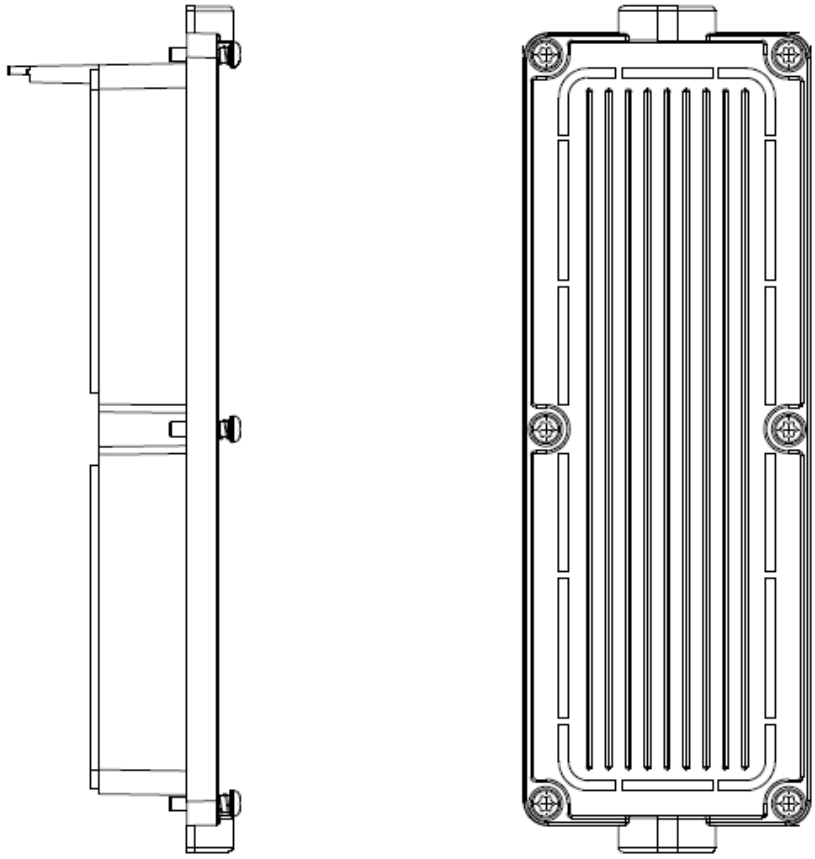


Installing the AC Power Supply Module (FSP180-AAAN3)

1. **Remove the Remote Box waterproof rubber cover.**
2. **Align the Pin Key.**
3. **Turn the connector tight**

Battery Pack Module (SCN-100-BT00A) Description

The figure shows the Battery Pack module:



⚠ DANGER

EXPLOSION, FIRE, OR CHEMICAL HAZARD

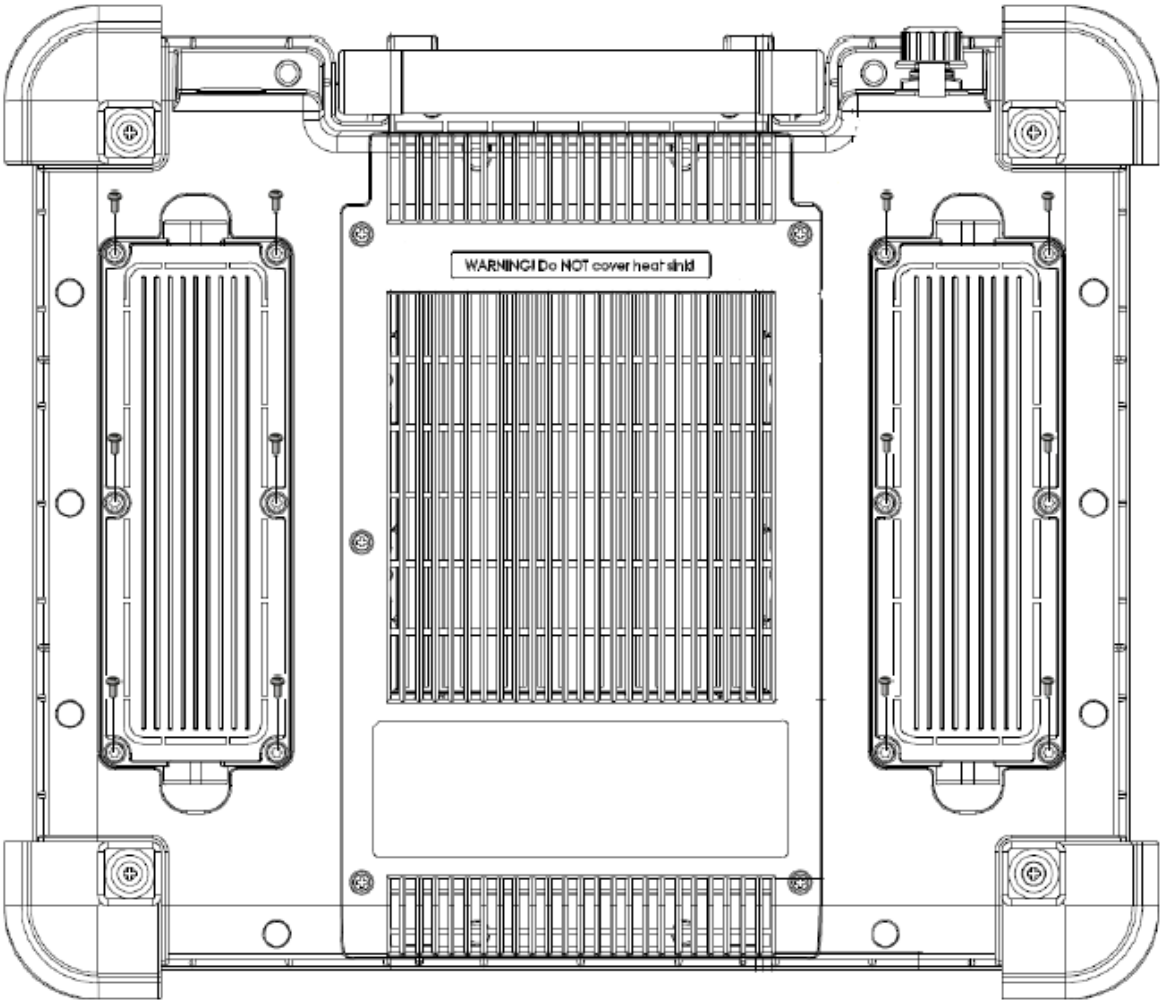
Handling and storage:

- **Store in cool, dry and ventilated rooms with impermeable surfaces and appropriate containment in case of leakage.**
- **Protect from adverse weather conditions and keep separate from incompatible materials during storage and transport.**
- **A sufficient supply of water must be located nearby.**
- **Damage to containers where batteries are stored and transported must be prevented.**
- **Keep away from fire, sparks, and excessive heat.**

Failure to follow these instructions will result in death or serious injury.

Battery Pack Module (SCN-100-BT00A) Description

The Battery Pack module (CN-100-BT00A) can optionally be mounted on the Remote Box to be operated with 14.4 Vdc.



To replace the battery

1. **Remove the 6 screws first**
2. **Remove the battery**
3. **Put in a new battery and tighten the 6 screws**

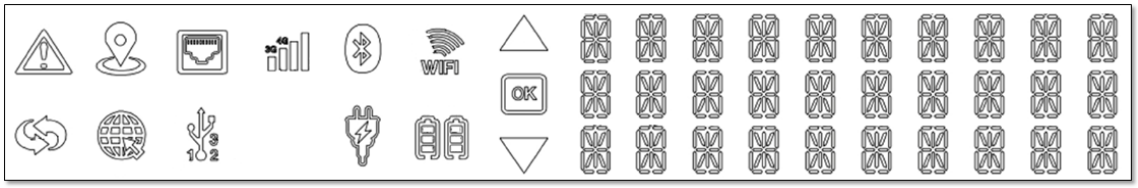
The Battery Pack module is subject to wear and should be replaced regularly, depending on the battery status.

Chapter 4

LCM MMI Module Description

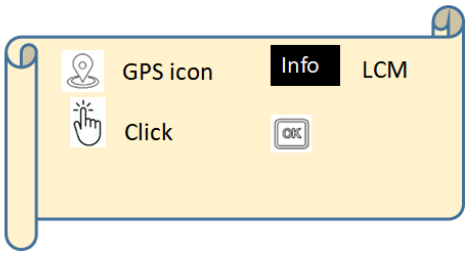
RB status and information can be obtained through the MMI module.

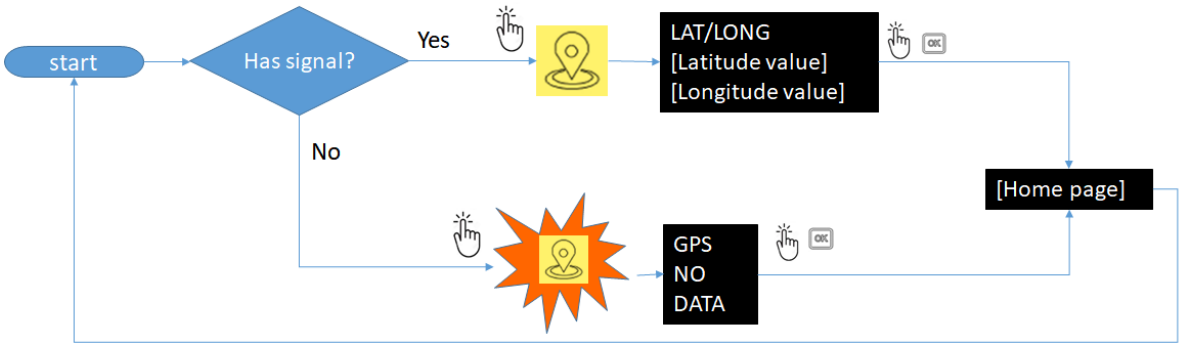
The figure shows the MMI module:



The flowchart below describes how to use

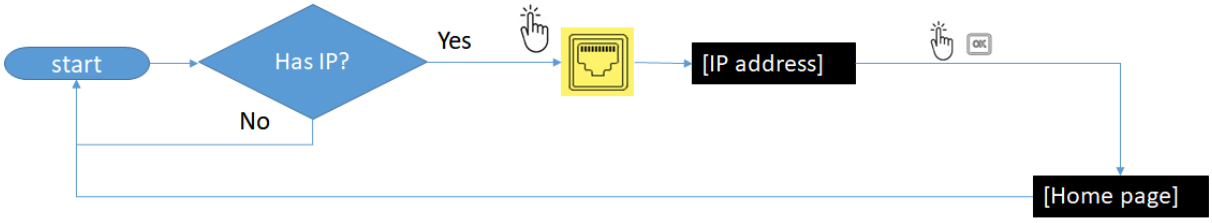
GPS



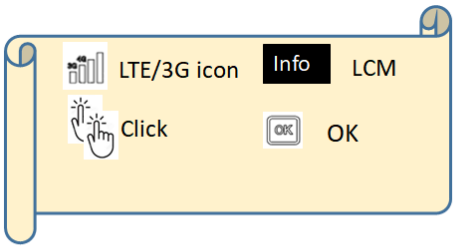


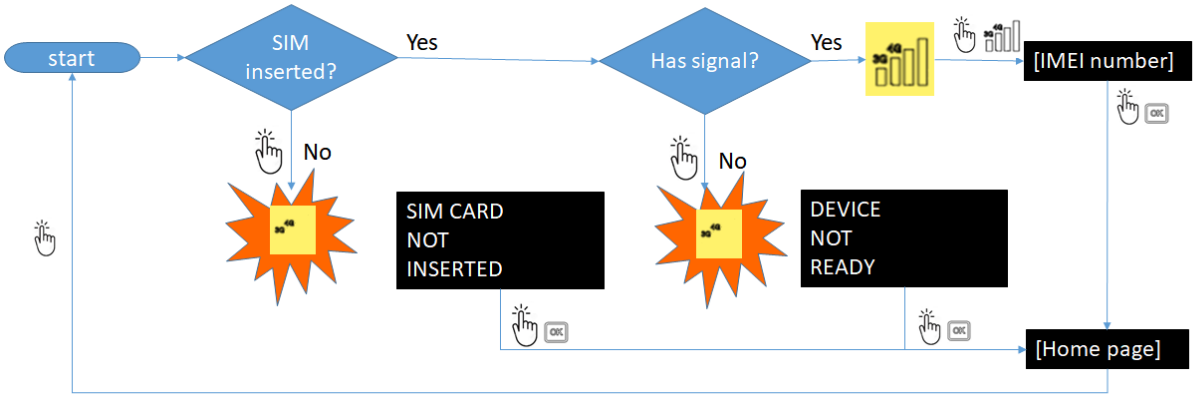
Network

Device	Connected	Disconnected	LCM text	Touch
Ethernet cable		N/A	IP/None	N/A

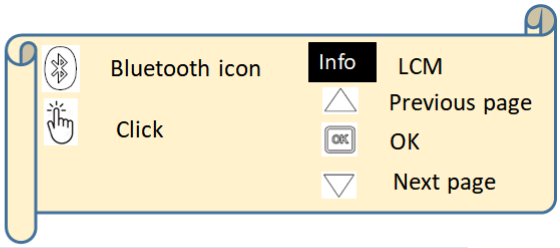


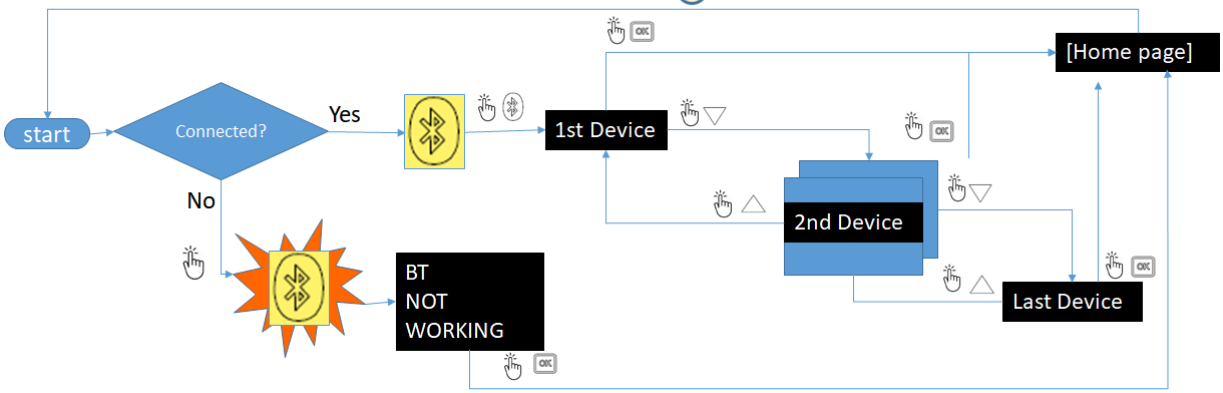
LTE/3G



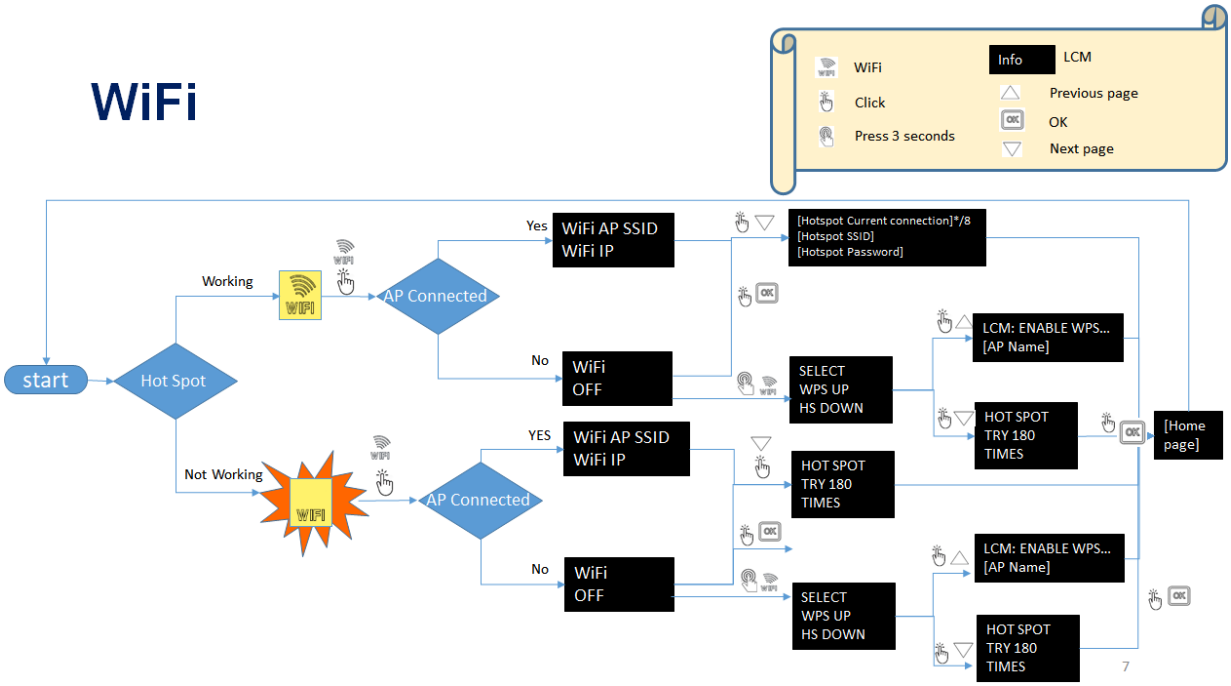


Bluetooth





WiFi



Internet

Status	Success	Fail	LCM	Touch
Internet access		N/A	N/A	N/A

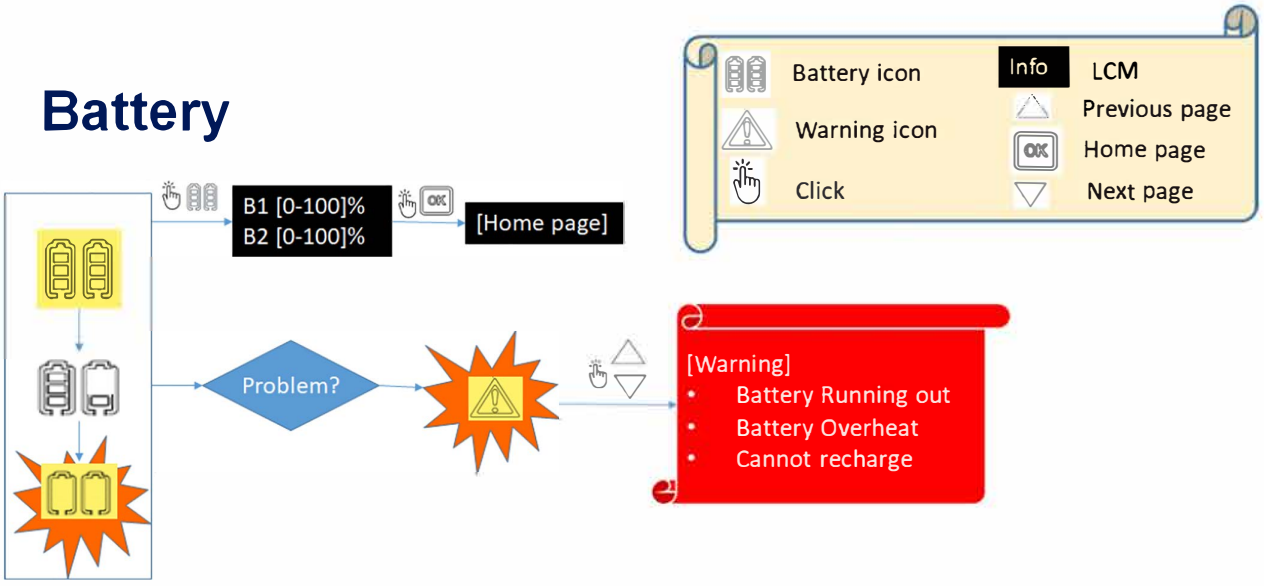
USB Port 1/2/3

Device	Connected	Disconnected	LCM	Touch
USB Port 1			N/A	N/A
USB Port 2				
USB Port 3				

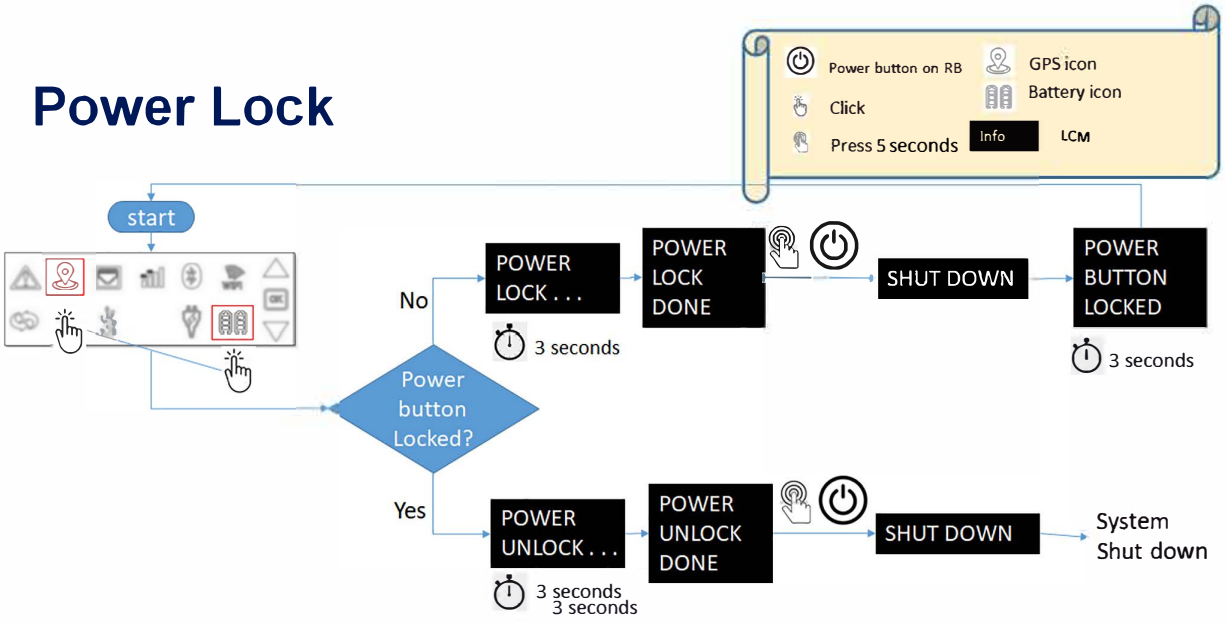
DC in

Device	Connected	Disconnected	LCM text	Touch
Power core		N/A	N/A	N/A

Battery



Power Lock



EU Regulatory Conformance

This device can be operated in at least one Member State without infringing applicable requirements on the use of radio spectrum.

RF Exposure Information

The device can safely be used with a distance of 20 cm to the human body.

Restrictions in the 5 GHz band

The 5150 to 5350 MHz frequency range is restricted to indoor use in: AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, UK(NI). In accordance with the relevant statutory requirements in the UK, the 5150 to 5350 MHz frequency range is restricted to indoor use in the United Kingdom.

Frequency Bands and Maximum Output Power

Mode	Maximum Power (dBm)
WLAN 2.4 GHz	22.34
RLAN 5GHz, B1-3	24.66
RLAN 5.8 GHz	15.42
Bluetooth	15.54

Mode	Maximum Power (dBm)
WCDMA Band I	25.83
WCDMA Band V	25.01
WCDMA Band VIII	25.67
LTE Band 1	26.48
LTE Band 3	27.47
LTE Band 7	25.84
LTE Band 8	26.65
LTE Band 20	25.72
LTE Band 28	24.07
LTE Band 42	27.73
LTE Band 43	28.83
GPS Band:	0