VT335i / Remote Monitoring Unit

Documentation page: https://vutlan.atlassian.net/l/c/gTr18F3Q

Product page: https://vutlan.com/remote-monitoring-units/164-vt335i-monitoring-unit.html

Function and purpose

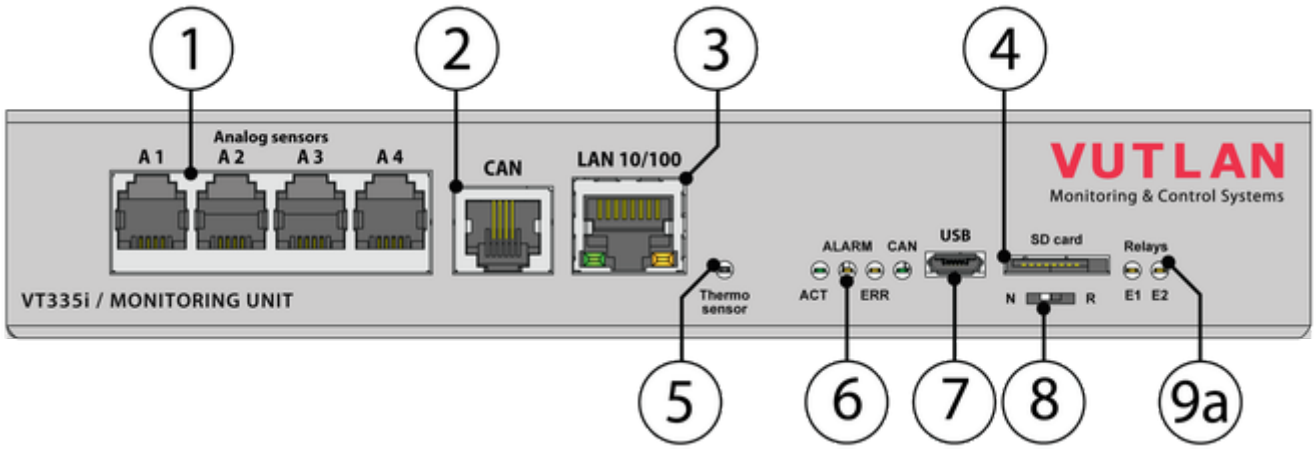
The unit is used for environmental monitoring (e.g. temperature, humidity, voltage, leakage, smoke, airflow). It is also used as an I/O controller (e.g. door control, fans, generator, control panels, UPS, circuit breakers, alarms). Can use up to 700 different elements - notifications, triggers, timers, logic schemes, sensors, dry contacts. Has built-in Web interface with virtual sensors, logic schemes, different types of notification, and control panels. Has a slot for an LTE modem for an ethernet connection reservation.

VT335i is a new model and it replaces VT335S. New features include:

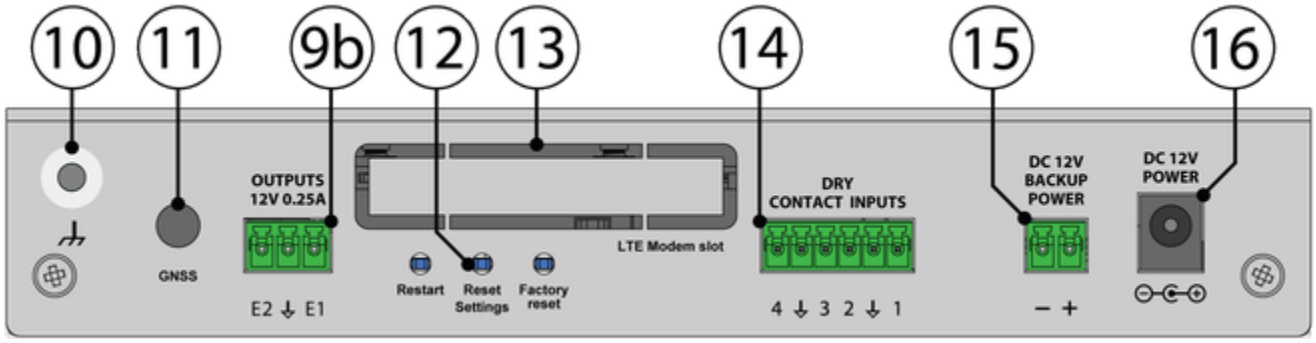
- two times more powerful processor.
- ability to handle more elements (+200)
- slightly smaller dimensions
- slot modem
- power reservation
- USB camera higher max. resolution

Physical Description

Front panel:



Back panel:



1. "**Analog sensors: A1..A8**" - x8 RJ12 6P4C analog sensor inputs with auto-sensing. Read instructions at "Analog sensors connection", "Sensor configuration".

2. "**CAN**" - digital connector RJ12 6P4C for the connection of CAN sensors/extensions/devices on a CAN bus. Modules can be chained together. Read instructions at "CAN devises connection", "Setting up CAN".

- "**LED: CAN**" - green LED indicates CAN bus status.
- The LED blinks slowly - nothing is connected
- The LED blinks fast - configuration is in process
- The LED glows constantly - connected to CAN devices

3. "**LAN port**" - Ethernet 10/100 Base-T port, provides an Ethernet connection. Read more in this section "LAN, GSM, LTE, RADIUS, DNS, SSL, VPN".

- "**Orange LED**" - orange LED for Ethernet port. It shows network traffic.
- "**Green LED**" - green LED for Ethernet port. It shows network traffic. Flashes green when the system starts up. Shows the connection state (constant green light - the connection is established, blinking green - the connection attempt).

4. "**SD card**" - MicroSD card slot with an ejector. The card is needed for data storage or the "system restore". Read instructions at "Saving system logs to SD card", "Restore of the appliance (for VT960 series)".

5. "**TEMPERATURE SENSOR**" - accuracy +/- 1 °C.

6a. "**LED: ACT**" - green LED indicates appliance system status,

- - operating mode of the device: switches at a frequency of 2 times per second;
- - successful completion of the software update process: switches at a frequency of 4 times per second;

6b. "**LED: ALARM**" - The button can be programmed from the interface for alarm indication.

6c. "**LED: ERR**" - red LED indicates error and traffic.

- the operating mode of the device: If everything is normal, the LED is extinguished, if not - there's a constant glow;
- software update mode: switches at a rate of 2 times per second;

6d. "**LED: CAN**" - green LED indicates CAN bus status.

7. "**USB**" - micro USB-port 2.0 is needed for USB camera recording, USB Flash for system logs, and the system restore. Read instructions at "Connecting USB camera", "USB camera settings. How to save a video", "Saving system logs on USB flash drive" , "USB upgrade or restore of default settings".

8. "**Dip switch**"

- Normal mode: The switch is switched to the left . The switch should be always in this position.
- Recovery mode: The switch is switched to the right . Use this option only in case you need to recover manufacturing settings.

9. **"OUTPUTS 12V 0.25A"** - 12V 0.25A (for each output) terminals outputs (electronic relay). Pitch 3.81mm, 3P. Read instructions at "Connecting 12V devices to 12V outputs".

- "**LEDs: E1, E2**" - status indicators for two 12V 0.25A output on the front panel.
- The LED is ON (orange) - the output is ON (the initial state can be configured).
- The LED is OFF (orange) - the output is OFF ((the initial state can be configured).

10. "**Chassis grounding**" - Chassis grounding, M4 thread. Enhances the immunity of the equipment against conducted and radiated RF disturbances. Please contact a professional electrician before connecting it.

11. "**GNSS**" - A hole for mounting GNSS antenna. Antennas are purchased separately from VT335i and separately from VT740. Read more at GPS location, and GPS Service API.

12a. "**Restart**" - the button restarts the appliance. Hold the button for 2 seconds and then let go, the system will restart.

12b. "**Reset settings**" - reset smoke sensors. Read more at Operation of smoke detectors in dusty conditions.

12c. "**Factory reset**" - reset settings to default factory settings.

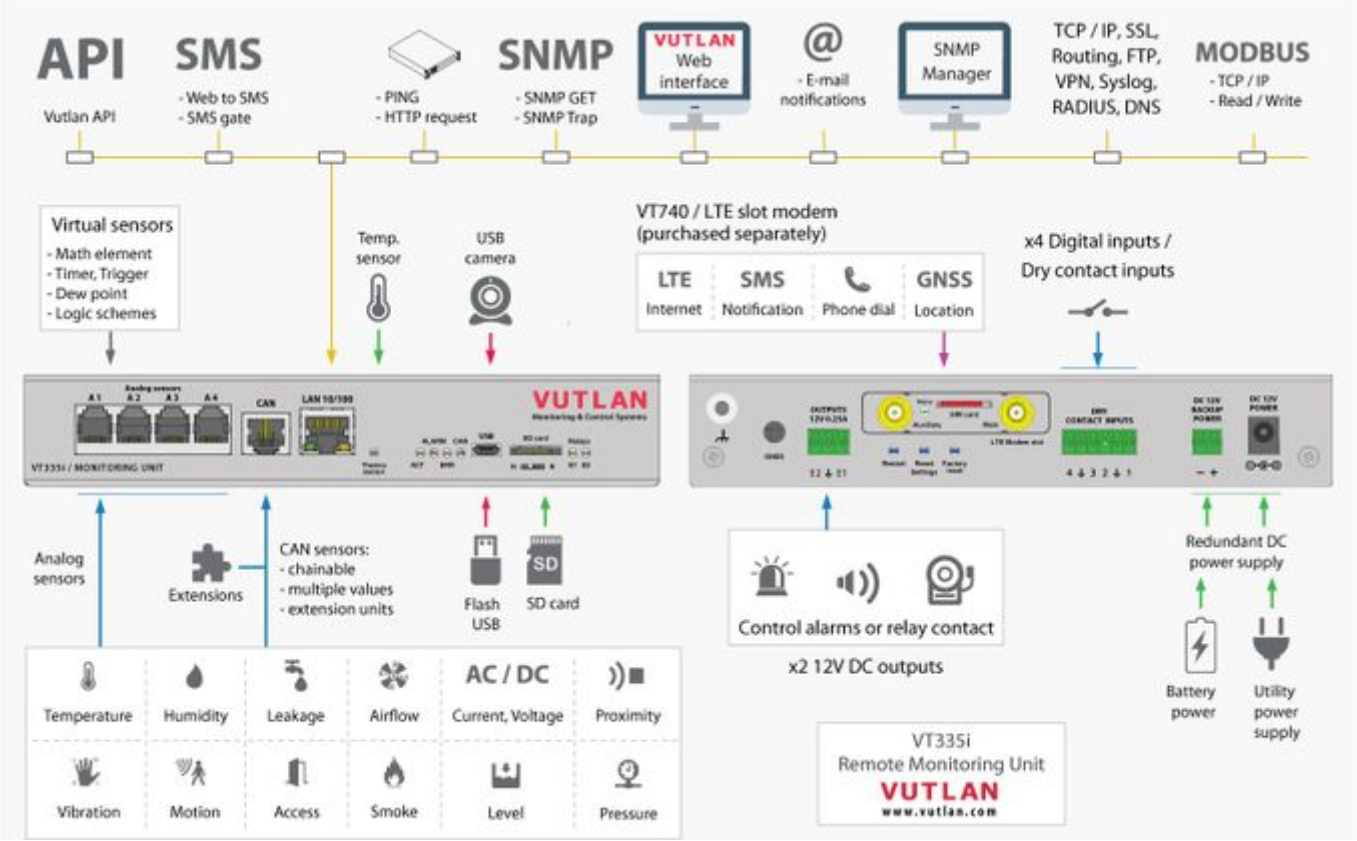
13. "**Modem slot**" - "VT790 / LTE slot modem" can be installed in this slot. ***This modem is ordered separately.*** *Read instructions at "VT790 / LTE slot modem", "LAN, GSM, LTE, RADIUS, DNS, SSL, VPN".*

14. "**DRY CONTACT INPUTS 1...4**" - Digital inputs (Type IN). Pitch 3.5mm, 6P. Read instructions at "Connecting dry contacts", " Dry contacts settings".

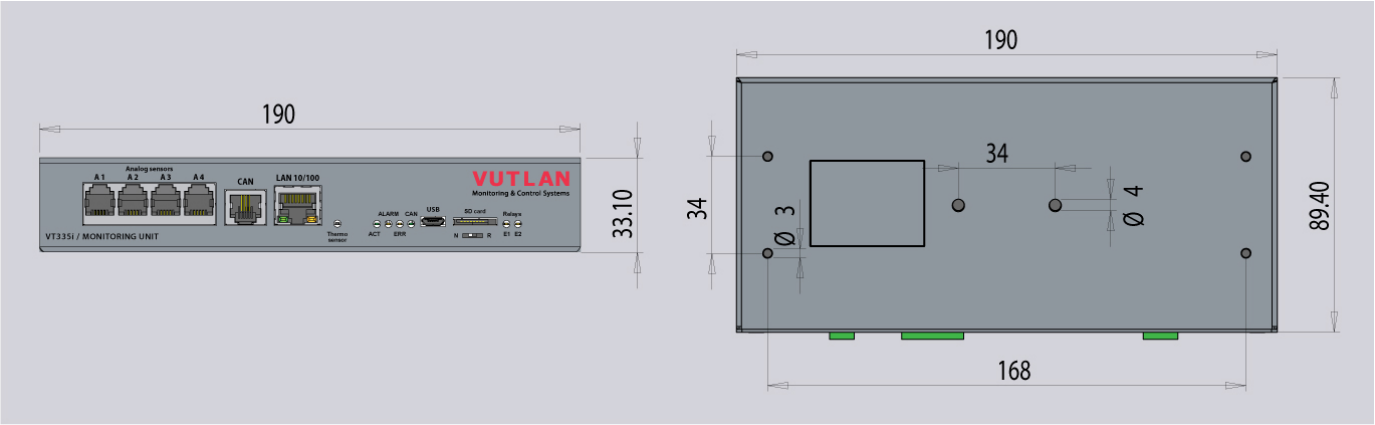
15. "**DC 12V BACKUP POWER**" - 12V DC 2A alternative power input. Pitch 3.81mm, 2P.

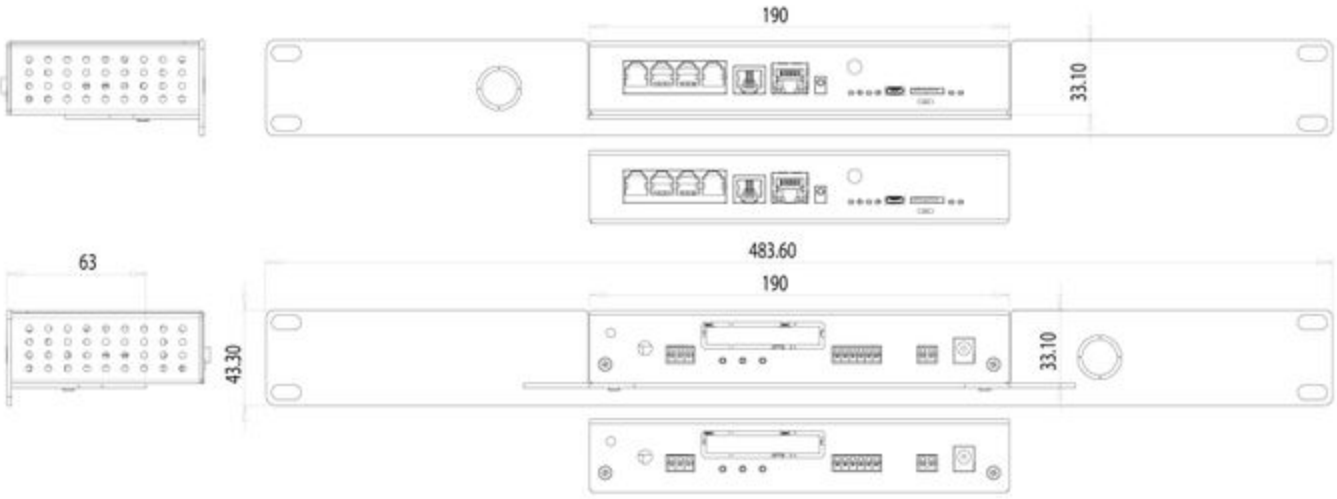
16. "**DC 12V POWER**"- 12V DC 2A main power input.

Connection overview diagram

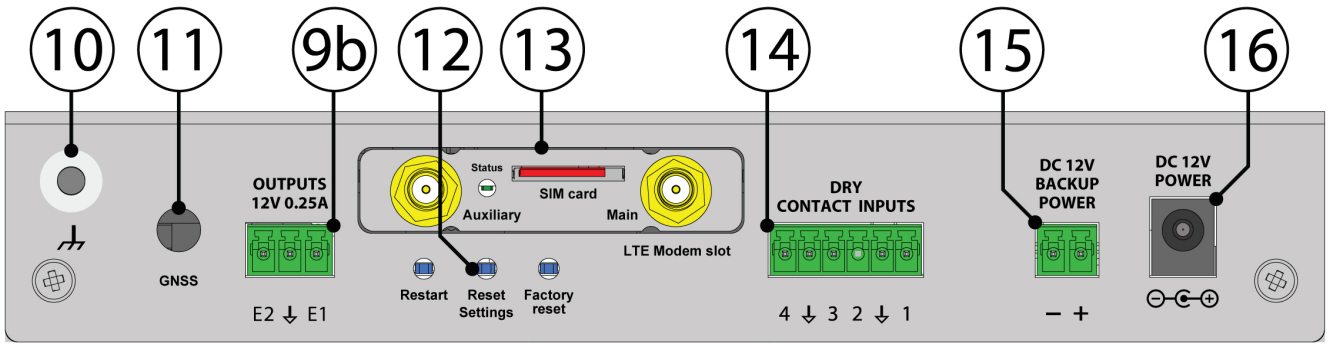


Drawing dimensions



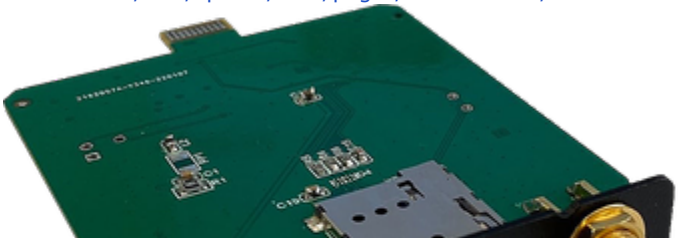


Installing LTE slot modem



Product page: https://vutlan.atlassian.net/l/c/17p817yG

Datasheet page: https://vutlan.atlassian.net/wiki/spaces/DEN/pages/2309947438/VT790+LTE+modem



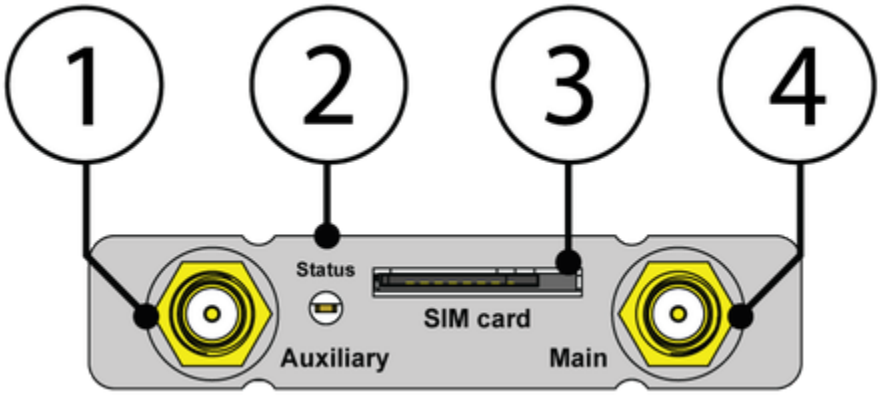
Usage

Can be installed in VT960i v3, VT960ii v3, VT855i v2.6, VT855ii v2.6, VT825i v2.6, VT825ii v2.6, VT335i monitoring systems.

Description

4G LTE slot modem for Vutlan monitoring units. Allows to receive and send SMS messages. Provides Ethernet over 4G LTE. Power-cycling is an embedded function.

Panel

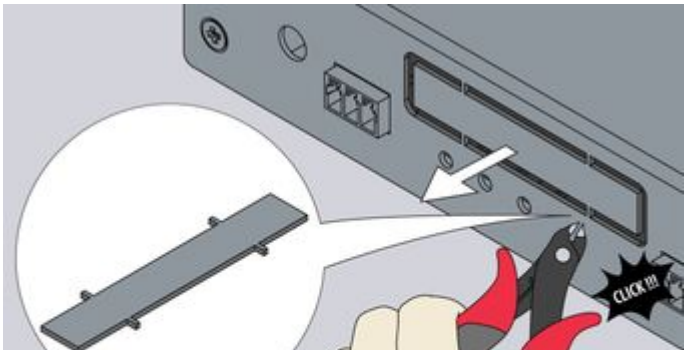


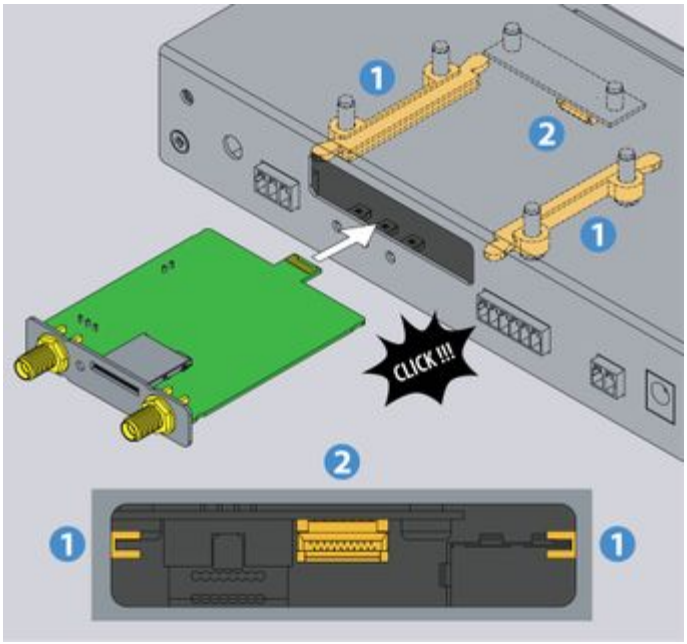
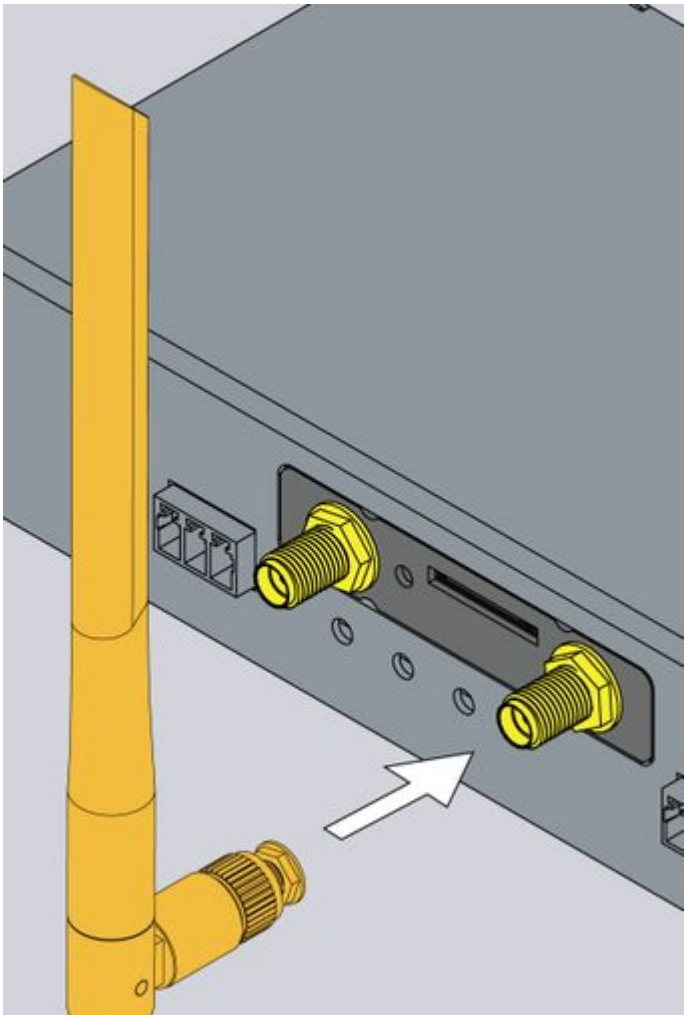
1. "**Auxiliary**" - Connector, used when the modem is installed inside of the appliance to connect LTE auxiliary antenna. The additional antenna helps to strengthen the signal level. (Auxiliary LTE antenna and antenna output are ordered separately from the modem).
2. "**Status**" - displays modems status. Blinking = working.
3. **"SIM card"** - SIM card slot with an injector.
4. "**Main antenna**" - Connector, used when the modem is installed inside of the appliance to connect GSM or LTE main antenna. (The main antenna is supplied together with the modem).

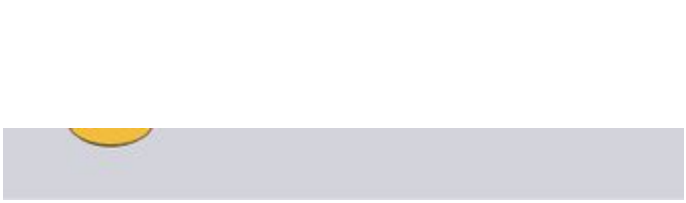
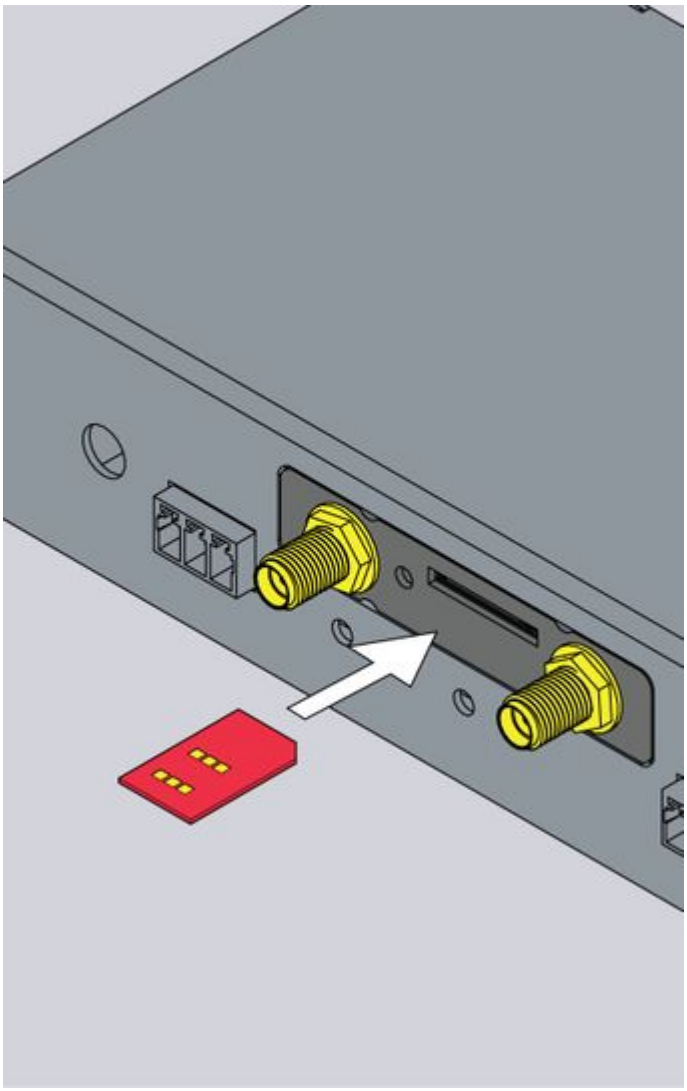
VT740 has a miniature RF connector on the board for connecting GNSS antenna. GNSS antenna is not sold together with VT740.

Installation

You can install the modem while the system is turned On. You may wait up to 3 minutes until the Telecom operator information is renewed.

Step 1		1.1 Use the **wire cutter tool** to cut off the **metal panel** labeled "**LTE Modem slot**". You can dispose of the metal panel after.

		
Step 2		Plug the **VT740 slot modem** as shown on the picture into the opening. The board should slide into the guide rails (marked as "1") and plug into the jack (marked as "2").
Step 3		3.1 Screw the main LTE antenna into "**Main" antenna**" jack. 3.2 If you want to strengthen the signal, you can screw in the second auxiliary antenna into "**Auxiliary**" jack.

		
Step 4		Plug in the **SIM card**. The SIM card slot has an **injector**.
Step 5		You are ready to go! Turn on the system. You can install the modem while the system is turned On. You may wait up to 3 minutes until the Telecom operator information is renewed.

Configuring the modem

Please read the following section for the configuration instructions:

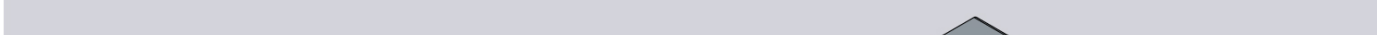
Online documentation page link: Setting up a modem

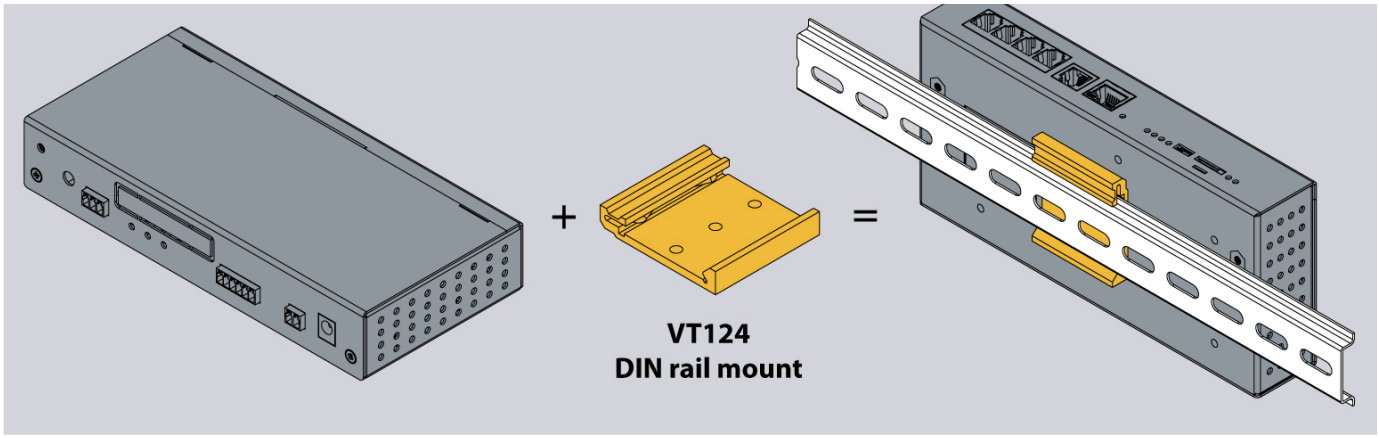
The direct page link for users with paper documentation:

https://vutlan.atlassian.net/wiki/spaces/DEN/pages/1016347/Setting+up+a+modem

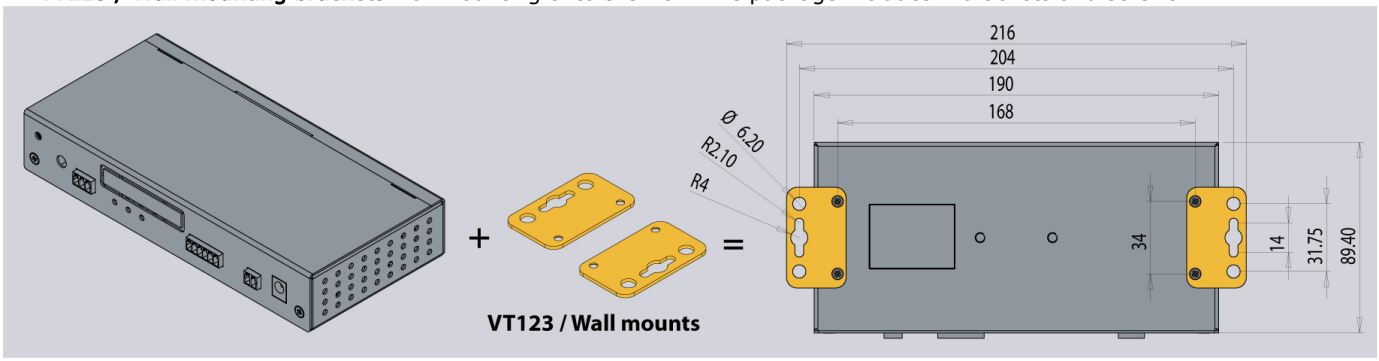
Accessories

1. "**VT124 / DIN rail holder**" for mounting on DIN rail. VT124 is ordered separately. The package includes a holder and screws.

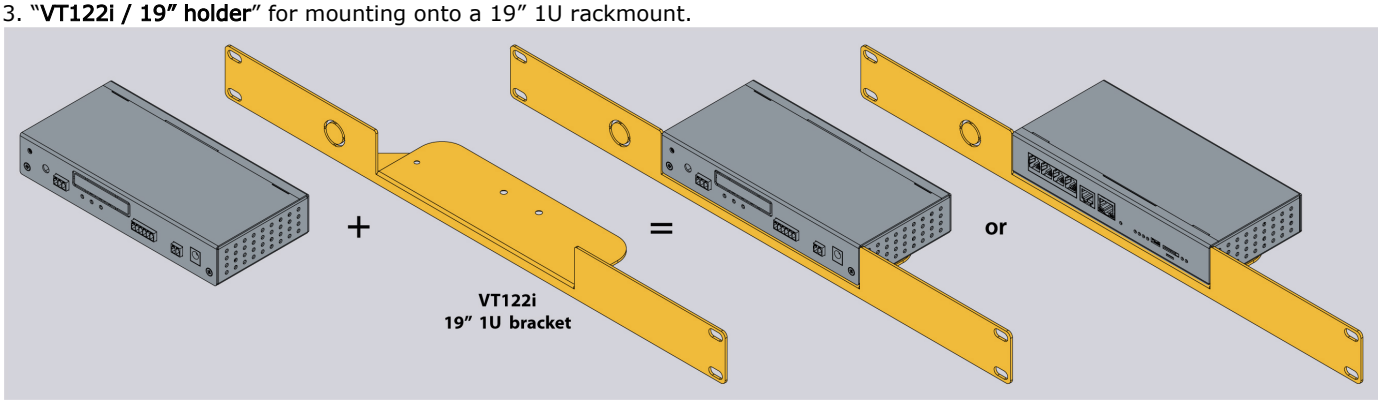


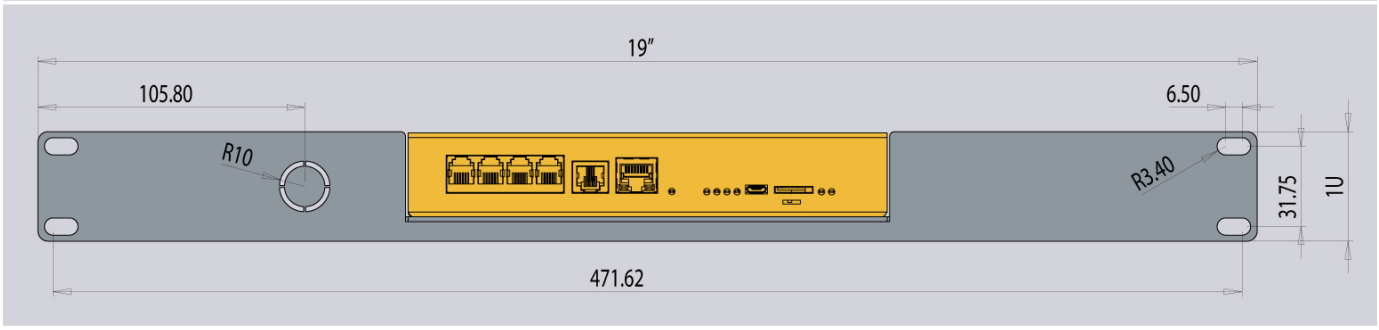


2. "**VT123 / Wall mounting brackets**" for mounting onto the wall. The package includes 2 brackets and screws.



3. "**VT122i / 19" holder**" for mounting onto a 19" 1U rackmount.

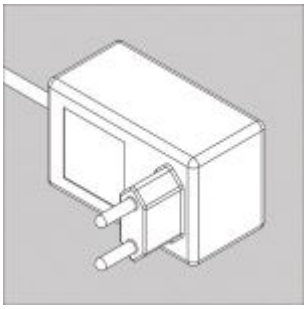
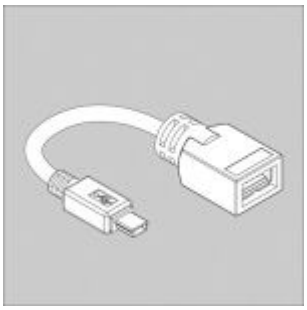
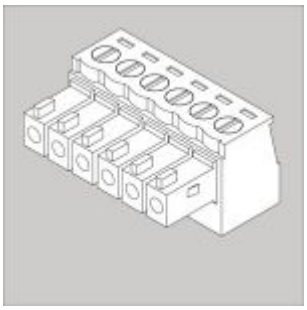


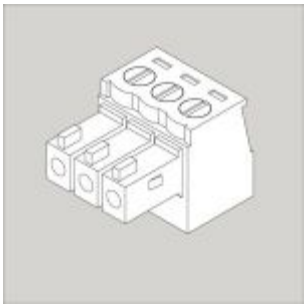
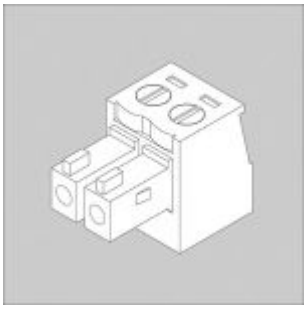
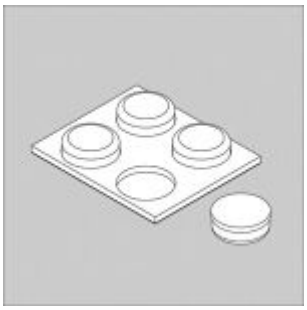


Inventory

Make sure that the contents of the delivery meet the following configuration. Report a missing or damaged component to your supplier. If damage occurred during transportation, contact the appropriate delivery service.

	Package content	Description

1		Monitoring unit VT335i.
2		12V adapter.
3		RJ-45 3m patch cable
4		OTG Micro USB cable adater
5		Terminal plug 6 pins, 3.5 mm - 1 pc
6		Terminal plug 3 pins, 3.81 mm - 1 pc

		
7		Terminal plug 2 pins, 3.81 mm -1pc
8		Self-adhesive rubber foot - 4 pcs
9		Configuration manual
10		Warranty card

Technical details

VT325, VT335i, VT336, VT825i, VT825ii, VT855i, VT855ii, VT960i, VT960ii are the monitoring units and can not connect to each other. For scalability please use extension units and embedded boards. All units except produced in DC / DC version.

• Built-in □ None Extension possible ◇ Not extendable

Versions	VT960i / VT960ii DC/DC; AC/DC	VT855i / VT855ii DC/DC; AC/DC	VT825i / VT825ii DC/DC; AC/DC	VT335i	VT336	VT325
Device Management: Web, SNMP, manually via SMS	•	•	•	•	•	•
Interface	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
LAN: Ethernet 10/100 Mbit	•	•	•	•	•	•
OS: Linux	v.5.10	v.5.40	v.5.40	v.5.40	v.3.10	v.3.10
RAM:	1Gb	128Mb	128Mb	64Mb	64Mb	64Mb
CPU speed:	720mHz	600mHz	600mHz	600mHz	300mHz	300mHz
Clock: Built-in clock **Watchdog:** Built-in watchdog timer	•	•	•	•	•	•
Max. amount of sensors: physical sensors, dry contacts, relays	400	150	150	100	30	6
Max. amount of elements: notifications, triggers, timers, logic, sensors, dry contacts, SNMP Get, SNMP Trap, Dial task and other elements	2000	1000	1000	700	500	500
Protocol support	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
Network protocols: DHCP; HTTP; HTTPS; DynDNS; SSL/TLS; SNMP v1, v2c, v3; SMTP; FTP; Syslog; RADIUS; Modbus RTU; OpenVPN	•	•	•	•	•	•
VPN: secure data communications; secure change of connection between LTE and LAN	•	•	•	•	•	•
SSH: Provided as a separate patch.					□	□
Alerts / Notifications	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
Alert types: E-mail, FTP log, Syslog, SMTP, SNMP Traps, SMS (Modem is ordered separately), Web-to-SMS,	•	•	•	•	•	•
A maximum number of "mail to" recipients in an E-mail notification:	50	20	20	20	10	10
A maximum number of "SMS to" recipients in an SMS notification: also the maximum amount of phone numbers	50	20	20	20	10	10
Virtual sensors	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**

Pings: Built-in function for server pinging. Test the reach-ability of a host in a network.	•	•	•	•	•	•
IP cameras: Connect the IP MJPEG camera with a proxy via the master module. Only view, no record.	4	4	4	4	4	4
Get SNMP: Read data from external equipment via SNMP PDU GET (v1 /2c)	•	•	•	•	•	•
User keys: Add users who have access using RFID reader.	•	•	•	•	•	•
Logic schemes: Used to specify auto matic actions to events that occur in the system.	•	•	•	•	•	•
Timers: Allows you to plan the events in the system.	•	•	•	•	•	•
Triggers: Generate events in the system if logic is triggered.	•	•	•	•	•	•
Push notifications	•	•	•	•	•	•
SNMP traps	•	•	•	•	•	•
Virtual Math element (combine several sensor data and calculate new data)	•	•	•	•	•	•
Logic schemes	•	•	•	•	•	•
Modbus TCP/IP: read / write	•	•	•	•	•	•

Power	VT960i	VT855i	VT825i	VT335i	VT336	VT325
Power input:	90-230V	90-230V	90-230V	12V	12V	12V
Power input DC:	24 ÷ 48V	24 ÷ 48V	24 ÷ 48V	12V	□	□
Fuse: Fuse at the inlet	1A	1A	1A	1A	□	□
Max. power consumption:	30W	30W	10W	10W	12W	6W
The maximum current load on the relay:	10A	10A	250mA	250mA	250mA	250mA
Redundant power supply: built-in voltage monitor, voltage range 9-12.6V.	Yes AC/DC DC/DC	Yes AC/DC DC/DC	Yes AC/DC DC/DC	Yes DC 12V	□	□

Outputs	VT960i	VT855ii	VT825i	VT335i	VT336	VT325
Relay outputs: latching relays 240V*10A	2	2	□	□	□	□
Relays outputs: 12V 0.25A	2	2	2	2	2	2
Max. dry contact outputs (contact closures/digital outputs)	**8**	**8**	□	□	□	□
Audio output: AV OUT	1	□	□	□	□	□
Video output: AV OUT	1	□	□	□	□	□

Inputs	VT960i	VT855i	VT825i	VT335i	VT336	VT325
Analog port: 6P6C for connection of any analog sensor.	8	8	8	4	6	2
CAN port: Max number of sensors	32	32	32	32	20	□

Use CAN-12V-1A for connecting more than 12 devices.						
Dry contact inputs:	32	32	16	4	4	2
Modbus: (Max. 32 sensors, Max. line length 1000m)	1	1	□	□	●	
Reader 1-Wire	1	1	□	□	□	Extension possible

Video	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
Video cameras:	AV, USB, x4 IP	USB, x1 IP	USB, x1 IP	USB, x1 IP	USB, x1 IP	USB, x1 IP
Video power supply: DC 12V 0,25A for analog camera	●	□	□	□	□	□

Other connectors	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
Ethernet port: 10/100Mbit	●	●	●	●	●	●
USB 2.0 Type A	1	1	1	□	□	□
USB 2.0 micro	1	1	1	1	1	1
Switch Normal / Recovery: returns the device to factory settings	□	□	□	□	●	●
FEL button: softly restarts SATA drive	●	□	□	□	□	□
Shutdown button: Softly shuts down the device.	●	□	□	□	□	□

External Memory	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
SD card slot	●	●	●	●	□	□
SATA Drive: 2.5" HDD or SSD (ordered separately)		◇	◇	◇	◇	◇

Extensions (modules are ordered separately)	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
SATA: 2.5" HDD or SSD (ordered separately)		◇	◇	◇	◇	◇

Modem (extensions)	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
4G LTE modem: ordered separately.	VT790	VT790	VT740	VT740	VT770	□
GSM modem: ordered separately	□	□	□	□	□	□
Modem modes: • Gateway: Internet access • Access: Internet access over LTE • SMS: SMS notifications	**Gateway** / Access / SMS	**Gateway** / Access / SMS	**Gateway** / Access / SMS	**Gateway** / Access / SMS	Access / SMS	SMS (external modem)

Embedded sensors	**VT960i**	**VT855i**	**VT825i**	**VT335i**	**VT336**	**VT325**
Temperature sensor: +/- 1 °C Case temperature.	●	●	●	●	●	●
Power supply voltage sensor: Accuracy (1%)	2	2	2	2	1	1

Environmental characteristics	VT960i	VT855i	VT825i	VT335i	VT336	VT325
Operating temperature: -10 to 80 °C	•	•	•	•	•	•
Storage temperature: –25 to 85 °C	•	•	•	•	•	•
Operating humidity: 0 to 90 %, non-condensing	•	•	•	•	•	•
Storage humidity: 0 to 95 %, non-condensing	•	•	•	•	•	•

Other Features	VT960i	VT855i	VT825i	VT335i	VT336	VT325
Installation:	19” 1U	19” 1U	19” 1U	Desktop	DIN rail	Desktop
Dimensions (L x W x H) in mm:	440*44*120	440*44*90	440*44*90	180*35*80	160*90*58	95*35*80
Weight:	2 kg	1,5 kg	1,5 kg	0,7 kg	0,4 kg	0,4 kg
External chassis grounding: M4 thread	•	•	•	•	□	•

Web interface (panels)	VT960i	VT960ii	VT855i	VT335i	VT336	VT325
Dashboard panel:	•	•	•	•	•	•
System tree panel: sensors and devices displayed in a hierarchy	•	•	•	•	•	•
Event log panel:	**500 logs**	**300**	300	300	200	200
List of latest sent SMS messages:	500	200	200	150	100	100
Supported Vutlan environmental sensors						
Temperature, Outdoor Temperature, Humidity, Water leakage, Wind speed meter, Access sensor, Door sensor, Water Level, AC / DC current meters, AC voltage monitor, Smoke detector, Vibration, Motion / PIR, Converter	•	•	•	•	•	•

• Built-in □ None Extension possible ◇ Not extendable

Remote Infrastructure Monitoring and Control

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