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## 1. APPLICATION

The UNICOMM SAT-504 modem establishes communication between HART®-capable field devices and a process controller computer. The UNICOMM HART® modems are applicable for all HART®-capable transmitters that use standard HART® communication.

Depending on the design the following versions can be ordered:

- HART®/USB modem, normal type;
- HART®/USB modem with power supply for transmitter and switchable HART® terminal resistor;
- HART®/USB modem with power supply for transmitter, switchable HART® terminal resistor and Bluetooth® interface.

The modem ensures galvanic isolation for the transmitter from the process controller system and it is powered by a USB interface or a USB power bank.

## 2. TECHNICAL DATA

### 2.1 GENERAL DATA

Power Supply	USB port or USB power bank
HART current loop power supply	24 V DC $\pm 5\%$ max. 22 mA
HART terminal resistor	250 $\Omega$ switchable
Bluetooth version	2.1
Bluetooth name, Pairing code	SAT504-BT, 1234
Current consumption from USB	<150 mA
Power consumption from USB	<1 W
Ambient temperature	-25...+55 °C (-13...+131 °F)
Housing material	Polystyrene
Connection to PC	USB 1.1 "B" socket
Cable to PC	USB "A-B" 1.8 m (71")
Connection to HART line	KLEPS2 spiral 1.1 m (43.3")
Ingress protection	IP20
Electrical protection	Class III 1 kV galvanic isolation
Mass	0.1 kg (0.22 lbs)

### 2.1 ACCESSORIES

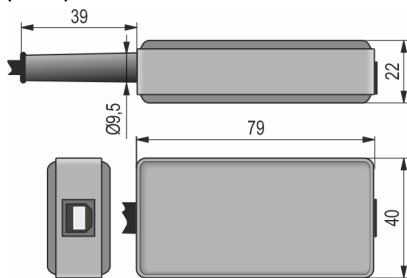
- User's Manual
- Warranty Card
- EU Declaration of Conformity
- USB "A-B" cable 1.8 m (71")

### 2.2 ORDER CODE

UNICOMM SAT - 504 -

FUNCTION	CODE
HART® normal type	0
HART® + transmitter power supply	1
HART® + transmitter power supply + Bluetooth®	2

### 2.4 DIMENSIONS (IN MM)



## 3. COMMUNICATION OPTIONS

The modem meets the HART® communication standards and applicable for all HART®-capable transmitters that use standard HART® communication. To enable communication through the USB 1.1. or USB 2.0. port of the PC a driver program (FT 232 RL) is needed, which can be downloaded from [www.nivelco.com](http://www.nivelco.com) EView2 product page.

## 4. WIRING, OPERATION

The modem should be connected to a HART® field device by 2 pieces of KLEPS2 measuring clamps. The SAT-504 does not have surge protection, thus use of an adequate lightning protection that does not affect standard HART® signal transmission is advised.



# UNICOMM

SAT-504  
HART®-USB/BLUETOOTH® MODEM

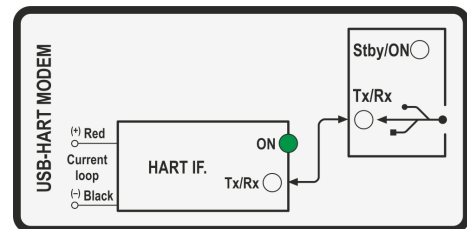
USER'S MANUAL



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Phone: (36-1) 889-0100  
E-mail: [sales@nivelco.com](mailto:sales@nivelco.com) ■ [www.nivelco.com](http://www.nivelco.com)

### 4.1 HART®/USB INTERFACE FUNCTION (FOR ALL TYPES: SAT-504-0, 1, 2)

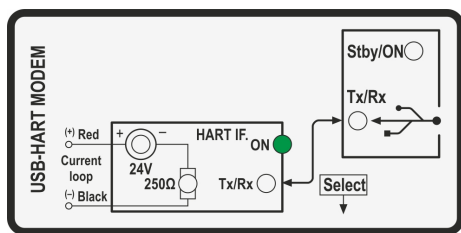
The clips should be positioned in accordance with polarity. When the USB cable and the clips are connected to the PC, the modem turns on, and switches to the basic state marked with an asterisk (\*). The following states are displayed during operation:



Interface	Name	LED	
		State	
USB		not lit	turned off (inactive mode)
	Stby/ON	yellow	turned on (standby mode)
		* green	turned on (active mode)
	TX/RX	red	PC send
		green	PC receive
* not lit		no data transfer	
HART®	ON	not lit	turned off (inactive mode)
		* green	turned on (active mode)
	TX/RX	red	transmission to HART®
		green	reception from HART®
		* not lit	no data transfer

#### 4.2 CURRENT LOOP POWER SUPPLY 24 V, ADDITIONAL FUNCTION

(ONLY AT SAT-504-1, 2 TYPE)



After turning on, the modem starts working in basic mode (marked with an asterisk (\*)). Then, in addition to the states described in 4.1, the following modes can be set by pressing the “Select” button for a short time (<1 s).

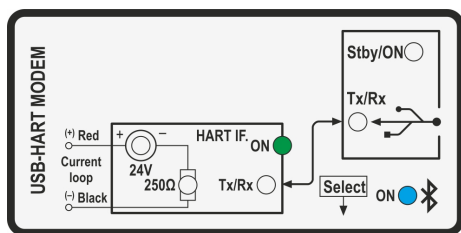
Number of short (<1 s) button press	LED		
	Name	State	
1 <sup>st</sup>	250 Ω	yellow	HART® resistor ON
	24 V	not lit	Power supply OFF
2 <sup>nd</sup>	250 Ω	yellow	HART resistor ON
	24 V	yellow	Power supply ON
3 <sup>rd</sup>	250 Ω	* not lit	HART® resistor OFF
	24 V	* not lit	Power supply OFF
4 <sup>th</sup>	Same as in 1 <sup>st</sup> row above		

Turning on/off the modem by pressing the “Select” button for a long time (>5 s).

Number of long (>5 s) button press	LED		
	Name	State	
1 <sup>st</sup>	Every LED	not lit	Modem OFF
2 <sup>nd</sup>	LEDs according type	Basic state according type	Modem ON
3 <sup>rd</sup>	Same as in 1 <sup>st</sup> row above		

#### 4.3 BLUETOOTH® CONNECTION, ADDITIONAL FUNCTION

(ONLY AT SAT-504-2 TYPE)



##### 4.3.1 POWER SUPPLY FROM USB POWER BANK

The clips should be positioned in accordance with polarity. Connecting the USB cable to an external 5V power bank, results entering to the basic state marked with \*. The following indications can be displayed during operation.

Interface	Name	LED	
		Name	State
Bluetooth®	* ON	* flashing blue	Waiting to Bluetooth® connect
		blue	Bluetooth® connection established

##### 4.3.2 POWER SUPPLY FROM MOBILE DEVICE USB OTG PORT

The following modes can be set by a medium (2...5 s) press of the “Select” button.

Number of medium (2...5 s) button press	LED		
	Name	State	
1 <sup>st</sup>	* ON	* not lit	turned off (inactive mode)
	USB Stby/ON	* green	turned on (active mode)
2 <sup>nd</sup>	* ON	flashin g blue	Waiting for Bluetooth® connect
	USB Stby/ON	not lit	turned off (inactive mode)
3 <sup>rd</sup>	Same as in 1 <sup>st</sup> row above		

#### 5. MAINTENANCE AND REPAIR

The device does not require regular maintenance. The warranty card contains the terms and conditions. Before returning the device for repairs, it must be cleaned thoroughly. The parts in contact with the medium may contain harmful substances; therefore, they must be decontaminated. Our official form ([Returned Equipment Handling Form](#)) must be filled and enclosed in the parcel. Download it from our website [www.nivelco.com](http://www.nivelco.com). The device must be sent back with a declaration of decontamination. A statement must be provided in the declaration that the decontamination process was successfully completed and that the device is clean from any hazardous substances.

#### 6. STORAGE CONDITIONS

Ambient temperature: -25...+55 °C (-13...+131 °F)  
Relative humidity: max. 98%

sat5040a0600h\_01  
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NIVELCO reserves the right to change anything in this manual without notice!