*Thank you for choosing a NIVELCO instrument!*

# 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

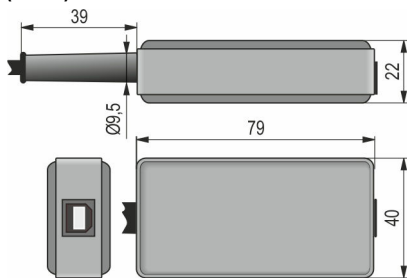| | |
|---|---|
| Power Supply | USB port or USB power bank |
| HART current loop power supply | 24 V DC ±5% max. 22 mA |
| HART terminal resistor | 250 Ω switchable |
| Bluetooth version | 2.1 |
| Bluetooth name, Pairing code | SAT504-BT, 1234 |
| Current consumption from USB | <150 mA |
| Power consumption 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 **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-504-2

POWER BANK
USB / 5 V
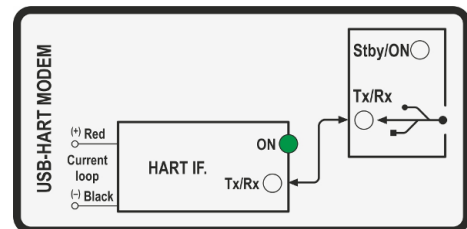
# UNICOMM
SAT-504
HART®-USB/BLUETOOTH® MODEM

## USER'S MANUAL

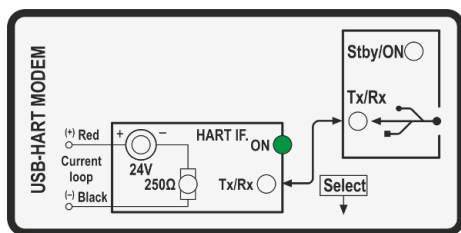## 4.1 HART®/USB INTERFACE FUNCTION (FOR ALL TYPES: SAT–504–0, 1, 2)

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 | LED | | |
|---|---|---|---|
| | Name | 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).
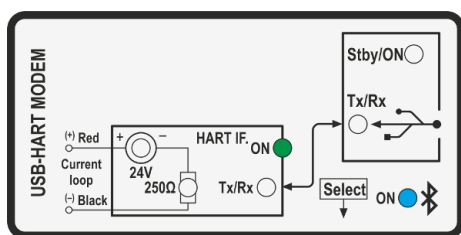
| Number of short (<1 s) button press | LED | | |
|---|---|---|---|
| | Name | State | |
| 1st | 250 Ω | yellow | HART® resistor ON |
| | 24 V | not lit | Power supply OFF |
| 2nd | 250 Ω | yellow | HART resistor ON |
| | 24 V | yellow | Power supply ON |
| 3rd | 250 Ω | * not lit | HART® resistor OFF |
| | 24 V | * not lit | Power supply OFF |
| 4th | Same as in 1st 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 | |
| 1st | Every LED | not lit | Modem OFF |
| 2nd | LEDs according type | Basic state according type | Modem ON |
| 3rd | Same as in 1st 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 | 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 | |
| 1st | ON | * not lit | turned off (inactive mode) |
| | USB Stby/ON | * green | turned on (active mode) |
| 2nd | ON | flashing blue | Waiting for Bluetooth® connect |
| | USB Stby/ON | not lit | turned off (inactive mode) |
| 3rd | Same as in 1st 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. 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%