# Instructions for the hand-held terminal of the fan motor control system, TBLZ-4-75 SILVER C/MIRUVENT

1. General

The hand-held terminal TBLZ-4-75 is a control panel with touch screen that is used to set motor parameters on SILVER C. The hand-held terminal is also used to set the motor parameters for the MIRUVENT power roof ventilator in instances where several power roof ventilators are controlled via a GOLD air handling unit. An address change is then made for MIRUVENT 2 and 3 via the control panel.

The hand-held terminal communicates with the motor control system via a Modbus interface.
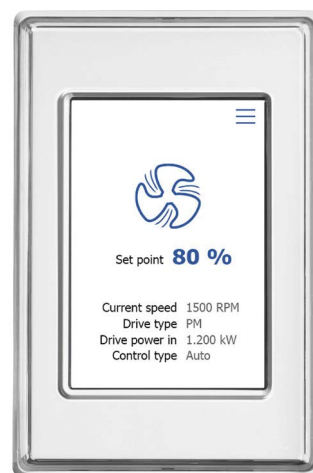

2. Installation

The hand-held terminal can be mounted on a flat surface using screws or magnets.

There is a keyhole slot at the rear of the hand-held terminal for mounting with a screw, which is inserted on a flat surface, see the diagram to the right. Use a screw with a maximum diameter of 3.5 mm and a max. length of 9 mm.

The black shock-absorbing casing comes with two magnets that make it possible to hang the hand-hand terminal on a vertical, flat and metallic surface.
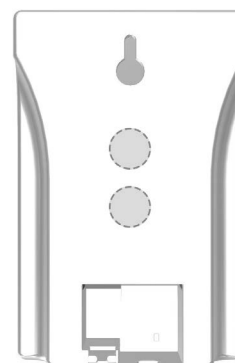
3. Technical data

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Supply voltage	From the motor control system's wiring terminal
Modbus RTU	1 x RJ12 (RS485)
Enclosure class	IP21
Relative humidity	0 – 95 % (non-condensing)
Ambient temperature	-10... +40 °C (in operation)
Dimensions without shock-absorbing casing	80 x 121 x 42 mm
Dimensions with shock-absorbing casing	86 x 127 x 51 mm
Max. power consumption	900 mW

4. Function

4.1 Start screen

The motor control system's function selector switch should normally be set to position 1 for control 0-10 V, but if the fan is to be controlled or settings are to be made via the hand-held terminal, the function selector switch should be set to position 0.

If the screen lock is enabled, press on the screen once to open the start screen.

The start screen provides access to basic functions, for example, fan speed, type of drive, supplied power and type of control. Enabled alarms and warnings are shown at the top of the screen. An alarm clock shows that an alarm is enabled. A warning sign shows if there is an active warning. Press the alarm clock or warning sign to navigate to the list of alarms/warnings.

To change set point values, press "Set point" on the start screen.

The fan icon shows if the fan is running or stopped. Press the fan icon to start or stop the fan.
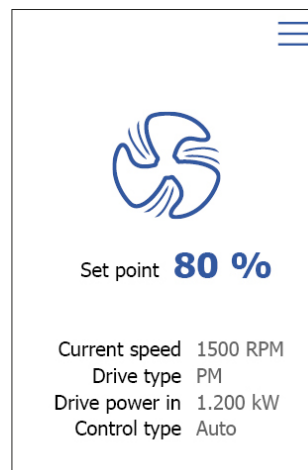
4.2 Menus

To access the settings menu, where you can read and change settings, press on the menu icon in the top right corner of the start screen.

The hand-held terminal's setting menu contains the following:

- Status:
  Motor control system's operating parameters can be read.
- Drive setup:
  Motor control system's operating parameters can be set.
- User settings:
  User specific settings can be changed.
- I/O:
  Digital inputs and outputs can be configured.
- Warnings and alarms:
  Active warnings and alarms can be read.
- Modbus:
  Modbus settings for motor control system
- Configuration:
  The motor control system can be configured.
- Software:
  The software version can be read.

Set point **80 %**

Current speed	1500 RPM
Drive type	PM
Drive power in	1.200 kW
Control type	Auto

< MENU

Status	>
Drive setup	>
User settings	>
I/O	>
Warnings & alarms	>
Modbus	>
Configuration	>
Software	>

4.3 Set point

The set point screen can be used to change set point values. Use the numerical keypad displayed to select set points and press OK to confirm the new set point.

Factory and user settings are stored in the motor control system. The settings are preserved in the memory even if the mains voltage is switched off or if the hand-held terminal is removed.

4.4 Modbus communication

The hand-held terminal communicates with the motor control system via Modbus RTU, with the following Modbus settings:

- Autodetect = Autoscanning to find the address, must be set to On.
- Address = Modbus address.
- Baud rate = 38.4
- Parity = None.
- Stop bits = 1/2.

The motor control system has two Modbus settings, one preset and one alternative.

Preset Modbus setting:

- Address = 54.
- Baud rate = 38.4
- Parity = Even.
- Stop bits = 2.

Alternative Modbus setting. Set at the from the factory:

- Address = 0.
- Baud rate = 115.2 kbps.
- Parity = Even.
- Stop bits = 2.

It is possible to change the alternative Modbus setting with the help of a Modbus register.

The motor control system automatically detects whether communications occur via the preset or alternative Modbus setting. If no communications occur via the preset Modbus setting after 10 seconds the motor control system searches for the alternative Modbus setting and vice versa.

4.5 Change Modbus address

Wait 10 seconds so that settings can be saved before the hand-held terminal is switched off.

The motor control system will search for the preset Modbus setting for 10 seconds before searching for the alternative Modbus setting.
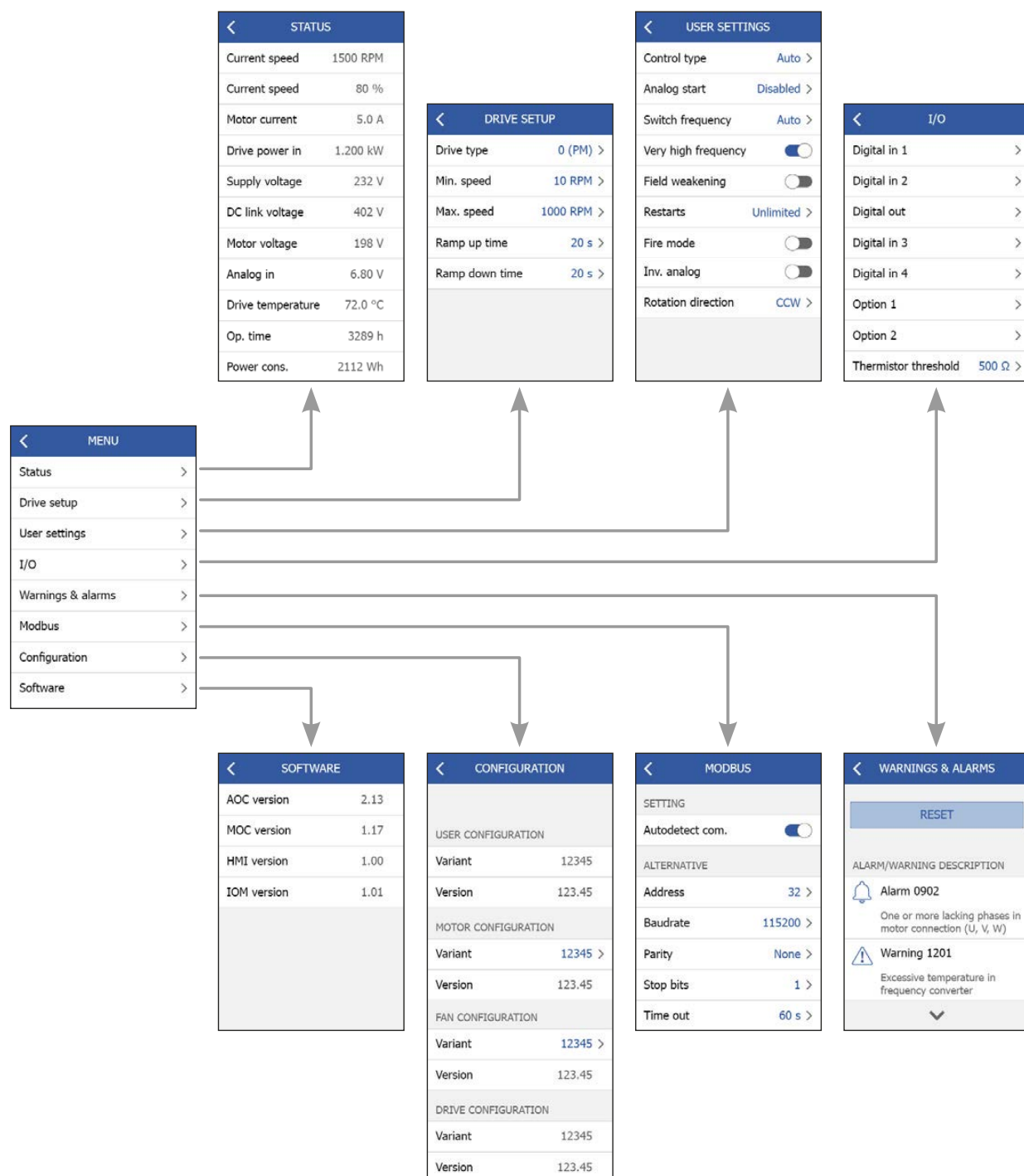
4.6 Shock-absorbing casing

The hand-held terminal is equipped with a silicone casing that protects against shocks, oils and dirt.

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4.7 Menu tree

The highest level for the hand-held terminal's menu tree is shown below. The settings menu contains eight sub-menus, some of these submenus in turn have their own submenus.

STATUS

Current speed	1500 RPM
Current speed	80 %
Motor current	5.0 A
Drive power in	1.200 kW
Supply voltage	232 V
DC link voltage	402 V
Motor voltage	198 V
Analog in	6.80 V
Drive temperature	72.0 °C
Op. time	3289 h
Power cons.	2112 Wh

DRIVE SETUP

Drive type	0 (PM) >
Min. speed	10 RPM >
Max. speed	1000 RPM >
Ramp up time	20 s >
Ramp down time	20 s >

USER SETTINGS

Control type	Auto >
Analog start	Disabled >
Switch frequency	Auto >
Very high frequency	
Field weakening	
Restarts	Unlimited >
Fire mode	
Inv. analog	
Rotation direction	CCW >

I/O

Digital in 1	>
Digital in 2	>
Digital out	>
Digital in 3	>
Digital in 4	>
Option 1	>
Option 2	>
Thermistor threshold	500 Ω >

MENU

Status	>
Drive setup	>
User settings	>
I/O	>
Warnings & alarms	>
Modbus	>
Configuration	>
Software	>

SOFTWARE

AOC version	2.13
MOC version	1.17
HMI version	1.00
IOM version	1.01

CONFIGURATION

USER CONFIGURATION	
Variant	12345
Version	123.45
MOTOR CONFIGURATION	
Variant	12345 >
Version	123.45
FAN CONFIGURATION	
Variant	12345 >
Version	123.45
DRIVE CONFIGURATION	
Variant	12345
Version	123.45

MODBUS

SETTING	
Autodetect com.	
ALTERNATIVE	
Address	32 >
Baudrate	115200 >
Parity	None >
Stop bits	1 >
Time out	60 s >

WARNINGS & ALARMS

RESET

ALARM/WARNING DESCRIPTION

Alarm 0902
One or more lacking phases in motor connection (U, V, W)

Warning 1201
Excessive temperature in frequency converter

5. Electrical connections

5.1 Fan motor control system with integrated wiring terminals

For access, unscrew the bolts that secure the blue cover on the motor control system casing. Connect the hand-held terminal to the motor control system's integrated wiring terminals, in Port "**A**". Use the supplied bus cable.
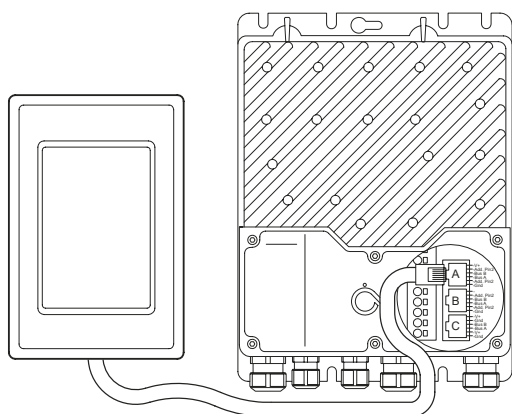
5.2 Fan motor control system without integrated wiring terminals

Connect the hand-held terminal to contact "**C**" in the junction box (installed on the side of the fan mounting frame). Use the supplied bus cable.
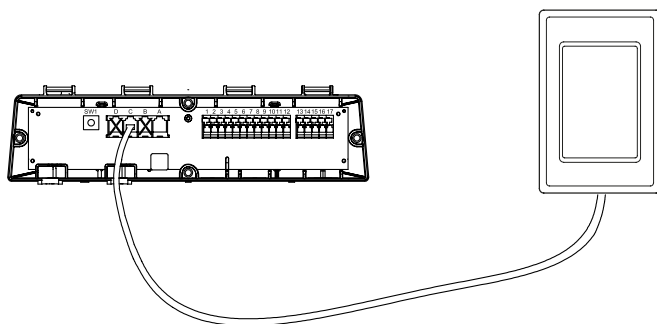
6. Trouble shooting

Symptoms	Cause	Action
No values in the hand-held terminal – Display window off	The motor control system is switched off	Start the motor control system
	Modbus cable is defective	Replace the Modbus cable
	The RJ12 connector is not correctly connected	Check the contact connections in both the hand-held terminal and the motor control system. Connect the RJ12 cable to Port "A" in the motor control system.