



1 Abstract

TD30 Keyboard-Display was designed especially for operation in an industrial environment. Mostly used as standbysystem for barcode scanners or as a user interface and display for an SPS. Normal function of TD30 is receiving barcodes from a scanner and enabling manual text input and forward it to the host-system. It allows input of strings with up to 60 digits length and is visualized with a high contrast backlighted graphical LCD-display

1.1 Interfaces

Interfaces are galvanically isolated from supply voltage. The scanner is connected to a DSUB-9 connector (RS 232) and from there supplied with DC-Voltage (5.2V). The host can selectively receive data from a DSUB-9 connector (RS232 and RS422) or by an A-coded M12 plug (RS422). Power supply is also supplied through a M12 plug.

At a glance

- Standby-System for barcode scanner when it gives no results
- User interface with display for PLC
- Input of alphanumeric strings with up to 60 digits via 30 buttons
- Graphical LCD-Display with 192 x 32 dots, with backlight
- Output in ASCII-format, STXETX framing
- RS232/RS422 DSUB-9 interface for host, RS232 interface for scanner
- RS422 interface to host via M12
- Rugged housing for operation at mounting site
- Galvanic isolation between power supply and interfaces
- Barcode scanner: No separate power supply needed - supply of 5VDC via DSUB

2 Functional description

- In the upper half of the display the last scanned code is shown, or if input was made by keyboard, the last code which was sent to the host system
- The lower half of the display works as keyboard buffer: it shows all code which was typed in. Here the user can check the code and change it if necessary before it is sent the host system by pressing the 'Enter' key.
- Single digits can be selected by arrow keys and are deleted by pressing DEL.

With ESC-button the whole text gets deleted.



- The left shift key is toggled and thus works as NUMLOCK.
- The button LOWER generates lower case letters
- After sending the input text the lower half of the display gets deleted, the sent text is shown in the upper half. Then the device is ready for new input.

3 Application

- Parallel operation of TD30 and scanner on host-system. If the scanner is defective or a barcode is not scanable it is possible to input it manually by using TD30.
- As rugged user interface with display for a PLC.

4 Interfaces

The connectors are located on the bottom of the device



4.1 Scanner

The barcode scanner gets connected to 'Scanner' plug on the left. From the right gets supplied with a voltage of 5.2 VDC over PIN9. The levels are RS232.





- 1. 5.2V 500mA max
- 2. RXD
- 3. TXD
- 4. DTR
- 5. GND power supply and RS232
- 6. N.C.
- 7. RTS
- 8. N.C.
- 9. 5.2V 500mA max

4.2 Host RS232/RS422

One host with PC standard pin configuration can be connected with a 1:1 cable.





5. GND

6. DSR

7. N.C.

8. CTS

9. RS422 TXD+

4.3 Power supply/RS422

The power supply may be 18...36 volts DC, the power consumption is up to 6 watts. Three pins in the connector are connected to the RS422 output of the host connector.



4.4 RS422

The serial output is available both as RS232 as well as RS422 at the connectors HOST and POWER. The RS232 ports may be up to 15 m long. The RS244 output can be up to 1000m, provided the TXD- and TXD+ are twisted pair.



5 Keyboard

The keyboard is designed that most keys have three alphanumeric symbols. The input mode is changed using the shift keys. The current mode is displayed on the right in the status bar.

G
#
\$

5.0.1 Shift Left

This key selects digits, special characters on the left side of the keys, and also the spacebar and the symbol 'delete'.

123

The key remains locked as long as digits, DEL, SPACE or the cursor keys are used.

5.0.2 Shift Right

This key selects the special characters on the right side of the keys and also ESC (clear all entered characters).

The key remains locked as long as the cursor keys are used. The ESC function must be pressed for at least one second.

@#

5.0.3 Lowercase Letters

This key selects the lowercase letters.

The button remains locked until it is pressed again. When you press a SHIFT key, the LOWER state remains after the shift functions have ended.

abc



6 Technical data

- Power supply: 18-36VDC / 5W max.
- US-ASCII character set is used
- Serial interfaces RS232 scanner, host RS232/RS422, RS422 power
- Parameters: 9600 baud fixed, 8 data bits, no parity
- Protocol: STX-ETX framing (0x02/0x03)
- Power supply of barcode scanner 5V / 500mA max.
- Housing
 - Aluminum profile with end attachment flanges
 - L195mm x B145mm x H55mm
 - Spacing of the fastening holes: 180mm x 88mm
 - Diameter of the mounting holes: 4mm
- Housing protection: IP 54 Technical changes reserved