

# CTERM

## CAN Terminal with Display and Keyboard



### CPU board CPC

- 68303 with 16 MHz clock frequency
- two serial interfaces
- up to two CAN interfaces

### Option CPC-24V included

- 24 VDC power supply
- 2 digital inputs and 4 outputs
- 'EMERGENCY STOP' input

### Front panel

- graphic LC display 128 x 240 pixels
- foil keyboard with 20 keys
- optical rotary switch
- MF2 keyboard connector

### Shielding case

- DSUB connector for interfaces
- screw terminal connectors for I/Os and power supply

### Application

- MMI (man machine interface) with integrated I/Os and CAN bus
- CAN monitor

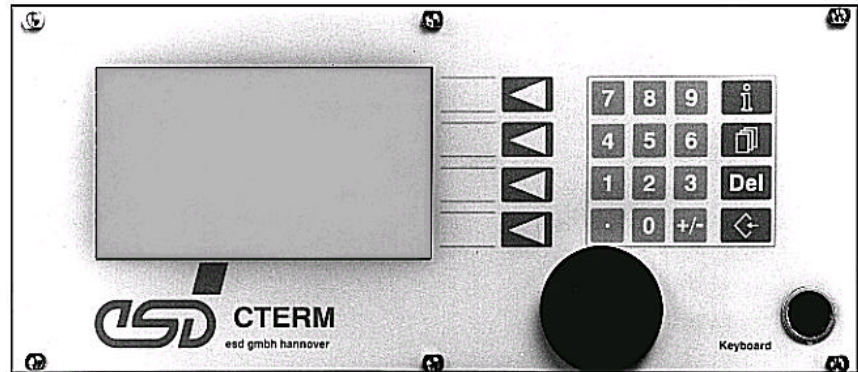
### Intelligent terminal with CAN connection

The CTERM from the kernel consists of the Xbus CPU board CPC in combination with the module CPC-24V.

The CPC is equipped with the microcontroller 68303 with 16 MHz clock frequency. As a standard it is equipped with 512 kbytes DRAM, 256 kbytes FLASH-EPROM, 256 kbytes EPROM and 256 kbytes SRAM. Interfaces for an LC display, keyboards and a rotary switch as well as for two serial interfaces and a CAN interface make the CPU board an ideal solution for this application. Additional details can be obtained from the CPC data sheet.

### Module CPC-24V included

The module CPC-24V contains a switching power supply, which is designed for the connection to independent supply systems or to PLC systems. It requires an input voltage of 24 VDC.



The module additionally includes an 'EMERGENCY STOP' input for 24 V, two digital inputs, which can be operated at 5 V...30 V and 4 digital outputs for 6 V...28 V.

### LC display

The LC display integrated into the front panel has a resolution of 128 x 240 pixels and is equipped with the display controller T6963C. In addition to graphical functions, 96 fixed characters and 128 user-definable characters can be displayed. The display is equipped with a CFL background illumination. The contrast voltage of the display can be programmed via the CPC.

### Matrix keyboard

At the front panel 20 keys are located behind a front foil. The keys confirm the pressure by a considerable click. The codes, which are generated by the keys when being pressed, can be programmed.

### Front panel and shielding case

By means of the aluminium front panel the CTERM can be mounted to 19" racks. The front panel is covered with a stable foil, which protects the display and the keys against soil. The foil is equipped with an esd

standard imprint. Customized imprints are possible as well.

Via a 5-pole DIN connector at the front panel, which can optionally be mounted to the rear panel, a IBM-compatible MF2 keyboard can be connected.

The shielding case is made from sheet steel. Beside the reception of connectors, the case serves for a better electro-magnetical shielding of the device. For each of the two serial interfaces a 9-pole DSUB connector is mounted at the rear panel. For each CAN interface each a 9-pole DSUB male and female connector are installed in order to avoid dead-end feeders.

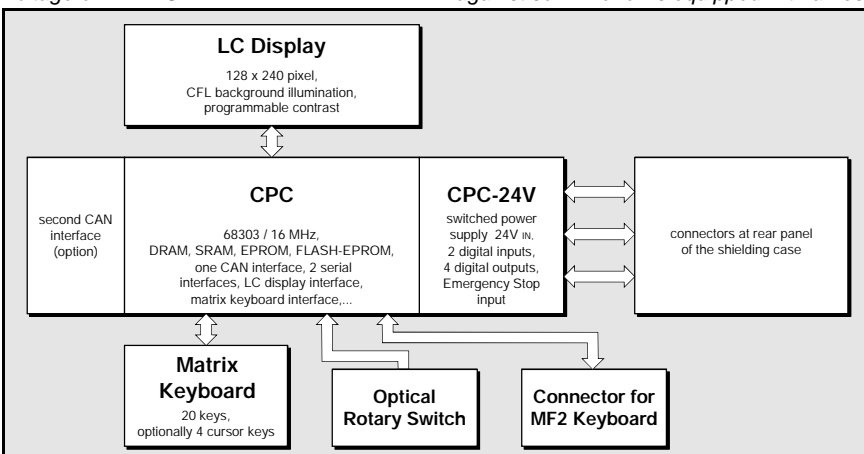
The digital inputs and outputs and the power supply are connected via plug-in screw connectors, which are located at the rear panel as well.

### Rotary switch

The rotary switch mounted at the frontpanel has an effective resolution of 32 pulses per revolution. Each step can be noticed by a slight engaging. The software counts the pulses in a counter ( $\pm 8190$ ). At a faster rotation, disproportionate more pulses are generated. The rotary switch can e.g. be evaluated as a cursor.

### Options

For the CTERM the same options are available as for the CPC (additional memory, second CAN interface). In addition, optionally four more cursor keys can be equipped, if the rotary switch is not equipped. For the additional cursor keys there is no corresponding imprint on the standard foil.



# CTERM

## CAN Terminal with Display and Keyboard



### Technical Specifications:

#### CPU board CPC:

Microcontroller:	TOSHIBA 68303 /16 MHz
Memory (maximum possible):	512 kbytes EPROM 1 Mbyte FLASH-EPROM 8 Mbytes DRAM 1 Mbyte SRAM (battery-backed) 2 kbytes I <sup>2</sup> C-EEPROM
CAN interfaces:	max. 2 CAN interfaces, CAN layer according to ISO 11898, electrical isolation
Serial interfaces:	2 x RS-232, optionally via piggy-backs: 1 x RS-422 / RS-485 / TTY
Keyboard interface:	8 x 8 matrix and MF2 keyboard
Display:	Interface for graphic LC display with contrast setting

#### Module CPC-24V:

Switching power supply:	$U_{IN} = 24 \text{ VDC}$ , $U_{OUT} = 5 \text{ VDC}$
Digital inputs:	2 inputs for 5...30 V, EMERGENCY STOP input 24 V
Digital outputs:	4 outputs for 6...28 V

#### LC display:

Resolution:	128 x 240 pixels
Contrast setting:	programmable
Illumination:	CFL lamp, voltage is generated locally
Character set:	96 fixed characters and 128 user-definable characters

#### Keyboard:

Matrix keyboard:	20 keys equipped, optionally four additional cursor keys can be inserted
Option MF2 keyboard:	5-pole DIN female connector at the front panel, optionally mounted to the rear panel

#### Front panel:

Material:	Sheet aluminium with foil cover
Dimensions:	128.2 mm x 319.7 mm (2.5 mm thick) 3 U width, 63 HP height
Foil:	printed foil with transparent window for display

#### Shielding case:

Material:	1 mm Sheet steel varnished and printed
Dimensions:	110.2 mm x 304.4 mm x 80 mm
Connectors:	2 x 9-pole DSUB female connector (serial interfaces), 2 x 9-pole DSUB male connector and 2 x 9-pole DSUB female connector (CAN), screw/ plug terminal connectors MCD1,5 power supply and I/Os)

#### General:

Operating voltage $U_s$ :	24 VDC $\pm 10 \%$
Current consumption:	typ. 350 mA
Temperature:	0...50 /C
Humidity:	max. 90 %, non-condensing
Weight:	1650 g

#### Order information:

Designation		order no.:
CTERM	CAN terminal with CPC equipped with 512 kbytes DRAM, 256 kbytes SRAM, 256 kbytes EPROM, 256 kbytes Flash-EPROM, 256 bytes I <sup>2</sup> C-EEPROM, 1 CAN interface, 2 dig. inputs, 4 outputs, 'EMERGENCY STOP' input, switching power supply incl. front panel (CTERM-FP1), incl. shielding case (CTERM-GEH)	C.2103.02
CTERM-FP1	Front panel with standard esd foil LC display (incl. background illumination), matrix keyboard, optical rotary switch, connection for MF2 keyboard at front panel, printed foil cover, cable for connection to PCB CPC (display, matrix keyboard, rotary switch, MF2 keyboard)	C.2103.03
CTERM-GEH	varnished shielding case with 2 DSUB9 female connectors for serial interfaces of the CPC, each one DSUB9 female and male connector for each CAN interface, mounting material for connection to front panel (screws, bolts etc.), without MF2 keyboard connector	C.2103.04

#### Options to be ordered additionally:

Designation		order no.:
CPC-D-8M	8 Mbytes DRAM instead standard DRAM	X.1106.06
CPC-S-1M	1 Mbyte SRAM instead standard SRAM	X.1106.08
CPC-E-4K	512 bytes I <sup>2</sup> C-EEPROM instead standard	X.1106.15
CPC-E-16K	2 kbytes I <sup>2</sup> C-EEPROM instead standard	X.1106.16
CPC-E-32K	4 kbytes I <sup>2</sup> C-EEPROM instead standard	X.1106.17
CPC-C-2	second CAN interface	X.1106.19
CPC-RS422	Add-on board for RS-422 interface	X.1930.02
CPC-RS485	Add-on board for RS-485 interface	X.1930.04
CPC-TTY	Add-on board for TTY interface	X.1930.06
CPC-Co	CANopen master/slave object licence	X.1106.50
CPC-CAL	CAL master slave object licence	X.1106.51
CPC-CAL/Co	CAL/CANopen master /slave object licence	X.1106.52
CPC-DVN	DeviceNet object licence	X.1106.53
CPC-VxW	Board support package VxWorks	X.1106.56
CPC-ME	English user's manual	X.1106.21