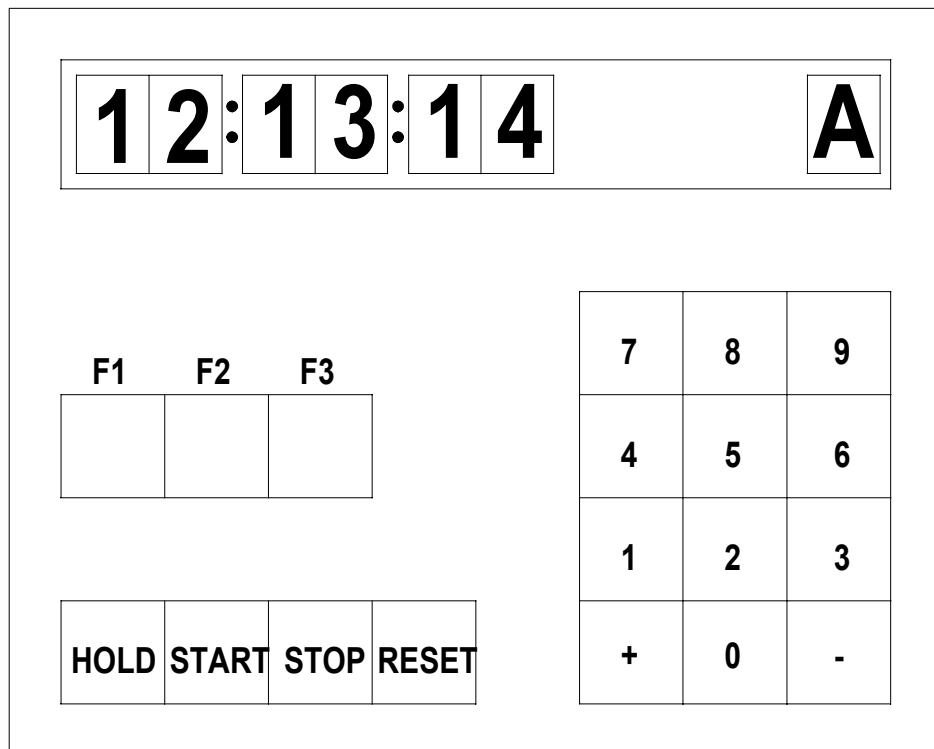


User console of the MTD Time Timer Time Code System

# AV-MTD BE



Supplement to  
*MTD Time Timer Time Code System*  
*Instruction Manual*



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## A1 Safety Instructions

- General rules:** Only use the device as directed in a dry atmosphere. Treat the AV-MTD BE with the same care as other studio devices. Please follow the advice in the following operators manual.
- Damages in transit:** If the device shows obvious damages from transit the shipper in question must be notified and the dealer must be informed.
- Positioning:** Position device only where sufficient air circulation can be maintained. Extreme temperatures, dust, humidity, shocks and strong electromagnetic fields must be avoided.
- Maintenance:** Use a moist soft textured fabric cloth when cleaning the housing. Do not use polish or any other cleaning agents.
- Repairs:** The AV-MTD BE does not require any extra maintenance. There are no user serviceable parts inside the device. Repairs should be sent to an authorized service partner.

## A2 Copyright

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Information in this publication replaces all previously published information. Alpermann+Velte Electronic Engineering GmbH assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Whenever it is likely that safe operation is impaired, the instrument must be made inoperative and secured against unintended operation. The appropriate service authority must then be informed.

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## **A3 CE declaration of conformity**

We,

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herewith declare under our sole responsibility that the

### **AV-MTD BE**

meets the intent of the following directives, standards and specifications:

89/336/EEC Electromagnetic Compatibility

EN 50081-1 Emissions

- EN 55022
- EN 55103-1

EN 50082-1 Immunity

- EN 55024
- EN 55103-2

The following preconditions have to be fulfilled:

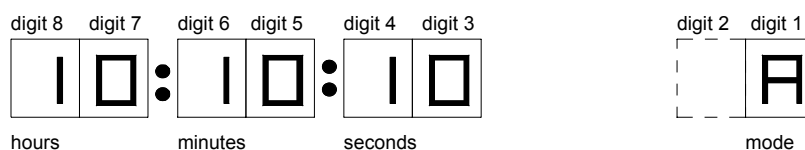
- Only high-quality shielded cables have been used to connect data inputs/outputs.



## Introduction

Alpermann+Velte has developed a system for Multiple Time Displays (MTD). A MTD system consists of a central generator unit, digital displays and/or analogue clocks, and user console(s). The central generator unit outputs a special LTC format. This LTC will henceforth denoted as LTC(MTD). The LTC(MTD) represents the data link to all the digital displays, and it contains real time, date and user selectable timers. User consoles communicate via a serial interface (RS485) with the central generator unit.

MTD BE is an user console of the MTD system with a display (7-segment LEDs) of 15mm digit height. The colour of the LEDs can be ordered to red, green or yellow. The 7-digit display provides a time display (hours:minutes:seconds) and an indication of the operating mode, e.g.:



The **brightness** of the LED's are adjustable by using the **BCD turn switch** located on the rear panel:

Stage	Function
0	The display becomes inactive, only a decimal point in the lowest possible brightness is lit up.
1 - 7	Adjusts the brightness (1 = lowest, 7 = highest).
8	Reserved.
9	Test mode, where all LED's are lit up with maximum brightness.

After power-on, all of the LED's will light up shortly and then the display will show the revision number (e.g. „7.3 Tb“), any built-in options and the selected operating mode.

Using the key pad control is given over the whole MTD system. There are various installations and configurations to set up the MTD system according to your best needs. A serial RS485 interface connects the user console to the central generator unit. The HEX turn switch **Mode** at the rear panel defines the basic operation mode of the user console. Mode „0“ permits to operate the unit as a local stop timer. To use the unit as an LTC reader display, mode „6“ (= LTC time display) or mode „7“ (= LTC user display) should be selected. All other modes are provided for being used in a MTD system, and the unit will extract the data of the LTC(MTD).

## Operating modes

Positions of the HEX turn switch **Mode**:

Mode	Description	Remarks
0	local stop timer	no LTC or RS485 required
1	1 <sup>st</sup> main time	display and/or select one time unit out of A - F, 2, 3
2	real time	display and/or set
3	date	display and/or set
4,5	not used	
6	LTC time information	LTC reader: display of time
7	LTC user bits	LTC reader: display of user bits
8	installation mode	display and operation of all time units
9	general operating mode	display and operation of all time units
A	time A	display and operation of time A (e.g. stop timer A)
B	time B	display and operation of time B (e.g. stop timer B)
C	time C	display and operation of time C (e.g. stop timer C)
D	time D	display and operation of time D (e.g. stop timer D)
E	time E	display and operation of time E (e.g. stop timer E)
F	time F	= time of the LTC read by the MTD central generator

After a change of mode with the HEX turn switch the display indicates the new mode for a moment (e.g.: „mode b“). As soon as new LTC data are read, the selected time can be displayed.

## Short description

Please refer to "MTD Time Timer Time Code System, Instruction Manual" for a description which is complete and with all details.

For displaying and/or operating only a particular time please select the required time (mode) using the turn switch **Mode**, e.g. "A". With mode switch at stage **8** or **9** it is possible to display and operate all time units (the whole MTD system), simply press key **+** or **-** to select the next time unit (next operating mode). The digit 1 of the display indicates the selected time (mode). With mode 8 it is in particular possible to do the following installations:

- **Access rights**, enter and quit this installation by pressing keys **9** and **1** simultaneously.
- **Programmable function keys**, enter and quit this installation by pressing keys **9** and **2** simultaneously.
- **Configuration of the display and of the DOWN counting**, enter and quit this installation by pressing keys **9** and **3** simultaneously.

**Access rights** means: using mode 8 or 9 it is defined which time unit (mode) can be operated and displayed, or only displayed, or neither operated nor displayed.

F1 ... F3 are **programmable function keys**. A function for example will be UP or DOWN for a stop timer, A or B for selecting an operating mode (time) directly. Each function key will light up if the programmed function is selected. As an accessory key labels will be included to give each key the name of the programmed function.

The functions of all further keys are fixed:

- Keys 0 ... 9 to enter a start/offset/compare time value.
- Keys **+** and **-** to select the next operating mode (next time) - on condition that HEX turn switch is at stage 8 or 9.
- Keys **START**, **HOLD**, **RESET**, **STOP** for stop timer operation.

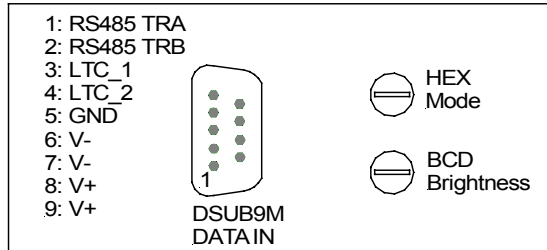
F1	F2	F3	7	8	9	
			4	5	6	
			1	2	3	
HOLD	START	STOP	RESET	+	0	-

The installation of access rights and function keys will be stored at MTD BE, so it is still available next time the unit is being switched on.

**Configuration of the display and of the DOWN counting** defines the separating sign of a time display (HH:MM:SS or HH.MM.SS), the leading zeros, the flashing in case of negative values, DOWN counting with or without overflow, ... This installation will in fact be transferred to the central generator via RS485 interface, and there will be the storage of the parameters. Anything altered at this installation will affect the whole MTD system.

## Rear connections and specifications

Housing: metal, 215 (W) x 87 (H) x 169 (D) mm  
 Weight: 1.5kg approx.  
 Operating temperature: 5°C to 40°C  
 Admissible humidity of air: 35% to 85%, non-condensing



LTC Input: balanced, 60mV - 5V, 47kΩ, <40 frames/second  
 Operating voltage: V+ = 10,5 - 16,5V DC  
 V- = GND  
 Current consumption: 490mA max., 350mA typ.  
 MODE: HEX turn switch, stages 0..9, A..F  
 BRIGHTNESS: BCD turn switch, stages 0..9  
 Connecting DATA IN: e.g.: cable of type KDB

KDB	DSUB9M	DSUB9F
TRA	1	1
TRB	2	2
LTC_1	3	3
LTC_2	4	4
GND	5	5
V-	6	6
V-	7	7
V+	8	8
V+	9	9

Connecting the unit MTD BE	Twist signals TRA/TRB and LTC_1/LTC_2 (if possible). Length of cable ≤ 10m. Example: four pairs, shielded, shield at pin 5, or nine wires straight, or 8 wires shielded (shield = pin 5).
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