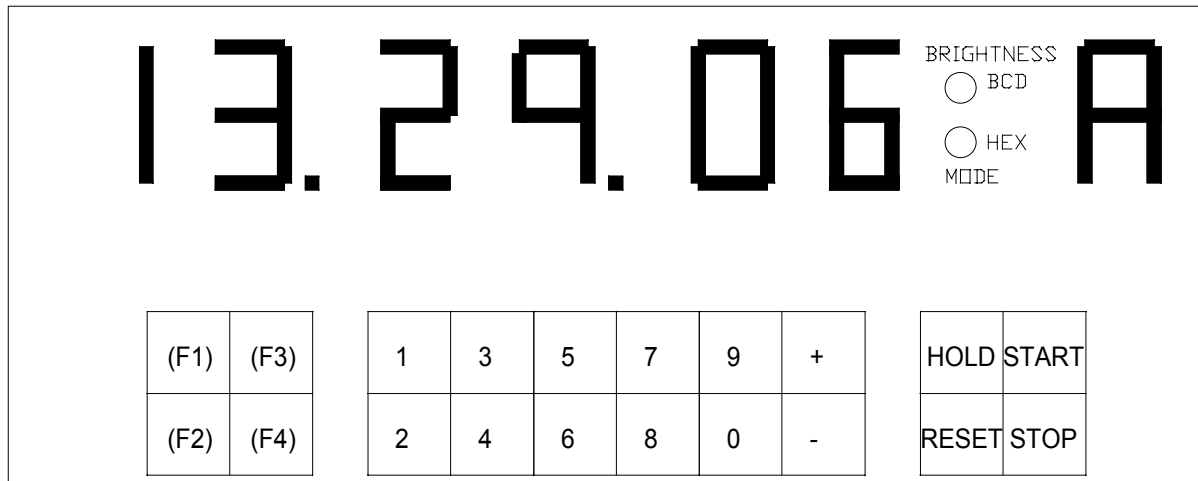


MTD BET

Operational units of the MTD Time Timer Timecode System



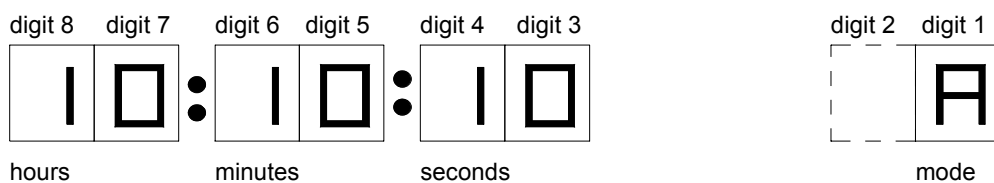
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Functions overview

The MTD studio timer system consists of:

- the central generator G 30 TTT. This unit generates a LTC which contains real time + date, five independent times A..E (e.g. stop timers) and the time of a readout LTC. Real time means the internal clock of G 30 TTT, which may be set via a DCF77 or GPS receiver or via MTD BET. All these data are packed in the user bits. The LTC provides the data for MTD BET and all digital displays.
- the digital displays MTD D.. (e.g. MTD D25R6). These displays are designed to display all data of the MTD LTC (= LTC generated by G 30 TTT) on LEDs.
- the analog clocks MTD AC.. (e.g. MTD AC230). These index clocks display all times continuously counting upward incl. automatic adjustment to daylight savings time for the real time.
- the operational panels MTD BET, MTD BE or MTD BTK. These panels permit central operation of all times. In addition, there are extensive installation facilities to adjust the timer system to a particular application. A RS485 serial interface enables the unit to communicate with the central generator G 30 TTT.

The display of MTD BE is a 7-segment LED of 25mm digit height. The brightness of the LED's is adjustable by turning the **BRIGHTNESS** switch (at the front): stages 1 - 7. Stage = 0: the display becomes inactive, only one decimal point in the lowest possible brightness is lit up. Stage = 8: reserved. Stage = 9: test mode, where all LED's are lit up with maximum brightness. Normally a time is displayed as hours:minutes:seconds with the right display panel (digit 1) indicating the time mode (e.g. **A**):



MTD BET receives all data (times) to be displayed from a LTC (apart from mode 0 = local stop timer). With modes 6 = „LTC time information“ and 7 = „LTC user bits“, MTD BET operates as a normal LTC reader. With all other modes, the data are read out from the specially encoded LTC generated by G 30 TTT. The data consist of different, independent times A, B, C, D, E, F, H, I, and of status information.

A turn switch **MODE** with its positions 0..9, A..F permits a basic selection of display and operational facilities:

Position	Description	Remark
0	local stop timer	no LTC or RS485 required
1	status information	internal use
2	real time	= time H
3	date	= time I
4,5	not used	
6	LTC time information	LTC reader: display of time
7	LTC user bits	LTC reader: display of user bits
8	operating mode with installation	display and operation of all times
9	operating mode without installation	display and operation of all times
A	time A	display and operation of time A only
B	time B	display and operation of time B only
C	time C	display and operation of time C only
D	time D	display and operation of time D only
E	time E	display and operation of time E only
F	time F	= LTC time read by G 30 TTT

Installation survey

- Turn mode switch to position **8**.
- Pressing keys **9** and **1** simultaneously: installation of **access rights**. The **+** and **-** keys permit selection of any time. Execute programming step by step for every time:

Display	Description	selected via key
dISP	display only, no operation	HOLD
on	display and operation	START
off	neither display nor operation	STOP

Simultaneous pressing of keys **9** and **1** again ends this installation.

- Pressing keys **9** and **2** simultaneously: installation of **function keys**. Select function key (e.g. press F1), then press one of the digits 0..8 to execute programming. To be repeated for every function key:

No. of program	Label	Function
0		function key switched off
1	UP	stop timer function, counting upward
2	DOWN	stop timer function, counting downward
3	DUE	stop timer combination = Down/Up/End
4	ALL	all times to be operated are operated simultaneously
5	OFFSET TIME	offset + real time
6	OFFSET TC	offset + time F (= readout LTC)
7	DIFF TIME	difference to real time
8	DIFF TC	difference to time F (= readout LTC)

Simultaneous pressing of keys **9** and **2** again ends this installation.

- Pressing keys **9** and **3** simultaneously: installation of **display and stop timer functions**. Pressing the **+** and **-** keys permits to select any time. Execute programming step by step for every time:

Key	Function	available for modes
HOLD	leading zeros on (=1) or off (=0)	2, 3, 6, A..F
START	leading zeros at zero transition on (=1) or off (=0)	A, B, C, D, E
0	separation: DP=colon / DZ=dec.point / without	2, 3, 6, A..F
STOP	overflow at DOWN on (=1) or off (=0)	A, B, C, D, E
RESET	flashing in case of negative values on (=1) or off (=0)	A, B, C, D, E
1	display format = 1: HH:MM:SS resp. DD.MM.YY	3, 6, A..F
2	display format = 2: MM MM:SS resp. MM.DD.YY	3, A..E
3	display format = 3: SS SS SS resp. YY.MM.DD	3, A..E
4	display format = 4: MM:SS:FF	6, A..F
5	display format = 5: MM:SS.T	A..E
6	display format = 6: SS SS.T	A..E
7	display format = 7: HH:MM:SS	2, A..E
8	display format = 8: HH:MM:SS	2, A..E

Simultaneous pressing of keys **9** and **3** again ends this installation.

Horizontal or vertical keypad MTD BTK

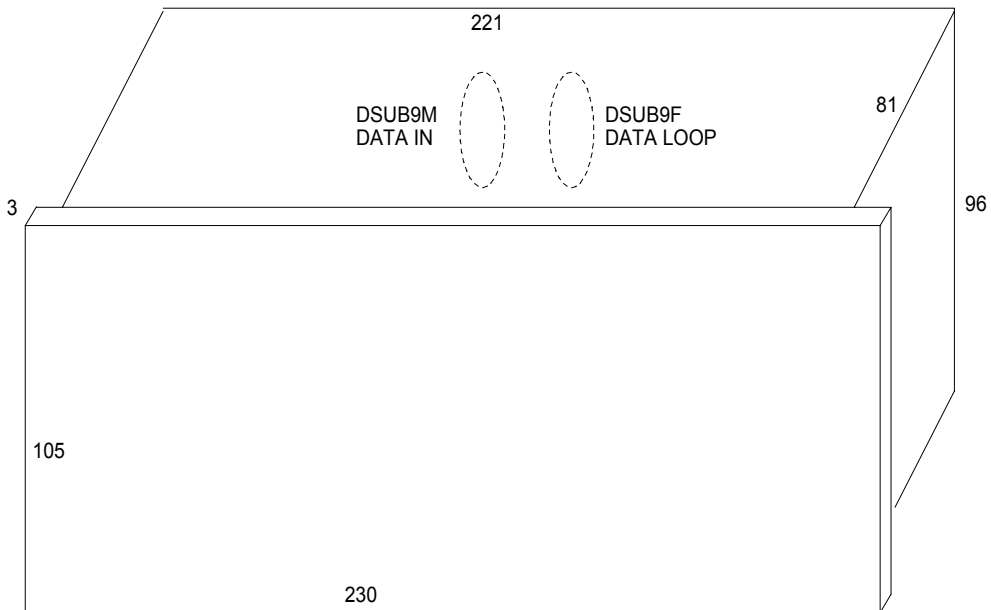
MTD BET is a display and a keypad MTD BTK in one housing for being built in. The twenty keys are designed to be built in separately in horizontal array, e.g. in a 19" rack or in vertical array, e.g. in a Danner cassette. These versions are distinguished by lines of keys with changed places, i.e. key 1 corresponds to key 2 of the other version, key START to key STOP, etc.

In case these keys are not programmed to the required functions and the changes are as described above, it is possible to reprogram these keys. The following instructions refer to the present key labeling:

- press keys **0+1** simultaneously.
- press **START** key.
- press keys **9+2** simultaneously.

Rear connections and specification

Housing: metal, dimensions in mm



9-pin DATA IN plug

9-pin DATA LOOP socket:

1 ----	RS485 TRA	---- 1
2 ----	RS485 TRB	---- 2
3 ----	LTC_1	---- 3
4 ----	LTC_2	---- 4
5 ----	shield/GND	---- 5
6 ----	V- In	
7 ----	V- In	
8 ----	V+ In	
9 ----	V+ In	

LTC In: balanced, 60mV - 5V, 47kOhm, <40 frames/secnd

Power In: V+ = 10.5 - 16.5V DC
V- = GND

Power consumption: max. 490mA, typ. 350mA

MODE switch: turn switch, positions 0..9, A..F

BRIGHTNESS switch: turn switch, positions 0..9 (0=1, 7=8=9)

Weight: 1.5kg approx.

Operating temperature: 5°C to 40°C

Admiss. humidity of air: 35% to 85%

General remarks

We reserve the right to modify specifications without notice.

This unit contains maintenance-free parts only. Any intervention must be made by qualified personnel only. Ensure that the equipment is not used in extremely hot, cold or humid locations, nor exposed to heavy vibrations or electromagnetic fields.

In case of obvious damage caused during transportation please immediately inform the responsible forwarding agent and your dealer.

CE declaration of conformity

We,

Alpermann+Velte

Electronic Engineering GmbH
Otto-Hahn-Str. 42
D-42369 Wuppertal

herewith declare under our sole responsibility that the

MTD BET

to which this declaration relates is in conformity with the following standards:

1. EN 55022, class B
2. IEC 801-2
3. IEC 801-3/ENV 50140

The following preconditions have to be fulfilled:

- Only shielded cables have been connected.
- The housing has been connected to ground.