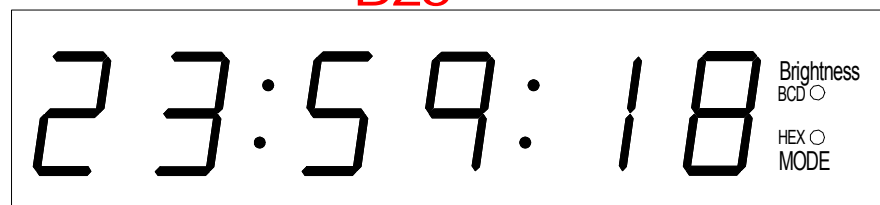


Displays of the MTD Time Timer Time Code System

AV-MTD D25/D56 R/G/Y 6

D25



D56



TABLE OF CONTENTS	Page
A1 SAFETY INSTRUCTIONS	
A2 COPYRIGHT	
A3 CE-DECLARATION	
FUNCTIONS OVERVIEW	4
OPERATING MODES	5
MODE 0 = LOCAL STOP TIMER	5
MODES 1, 8 AND 9: DISPLAY OF MAIN TIME	6
MODE 2 = DISPLAY OF THE REAL TIME	6
MODE 3 = DISPLAY OF THE DATE	6
MODE 6 = DISPLAY OF THE LTC TIME INFORMATION	7
MODE 7 = DISPLAY OF THE LTC BINARY GROUPS	7
MODES A, B, C, D, E, F = DISPLAY OF TIME A - F	8
LTC(MTD) FAILURE	8
CONNECTING, TECHNICAL DATA, MOUNTING	9
AV-MTD D25	9
AV-MTD D56	10
COMMON TECHNICAL DATA	11

A1 Safety Instructions

- General rules:** Only use the device as directed in a dry atmosphere. Treat the device with the same care as other studio devices. Please follow the advice in the following operator's 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 device does not require any extra maintenance. There are no user serviceable parts inside the device. Repairs should be sent to an authorized service partner.
- EMC:** The EMC regulations are observed only under the following condition: use high quality shielded cables at data inputs and outputs.

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

LED Display AV-MTD D25 R/G/Y 6

We,

Alpermann+Velte

Electronic Engineering GmbH

Otto-Hahn-Sr. 42

D-42369 Wuppertal

herewith declare under our sole responsibility that the

AV-MTD D25 R/G/Y 6

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

LED Display AV-MTD D56 R/G/Y 6

We,

Alpermann+Velte

Electronic Engineering GmbH

Otto-Hahn-Sr. 42

D-42369 Wuppertal

herewith declare under our sole responsibility that the

AV-MTD D25 R/G/Y 6

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

73/23/EEC Low Voltage Directive

- EN 60950 electrical and mechanical safety

89/336/EEC Electromagnetic Compatibility

EN 50081-1 Emissions

- EN 55022
- EN 55103-1

EN 50082-1 Immunity

- EN 55024
- EN 55103-2

Functions Overview

AV-MTD D25... are displays (7-segment LEDs) of 25 mm digit height.

AV-MTD D56... are displays (7-segment LEDs) of 56 mm digit height.

R or G or Y responds to the colour of the LEDs : R = red, G = green, Y = yellow.

Digit 6 stands for a 6-digit display.

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.

To select the **operating mode** use **HEX turn switch** at the rear or front panel. Mode "0" and the MTD BT keypad connected at the 9-pin KEY female connector (e.g. with its four keys START, STOP, HOLD, RESET) permits to operate the display as a local stop timer.

To use the unit simply as a 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 display will extract the data of the LTC(MTD). In case that a minus sign should be displayed it appears at the most significant digit (tens of hours). If this digit is not blank, it will be overwritten with the minus sign.

The **brightness** of the LED's is adjustable by using the **BCD turn switch** located on the front or 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. "9.5 Td"), any built-in options and the selected operating mode.

Operating Modes

Positions of the HEX turn switch:

Mode	Description	Remarks
0	local stop timer	no LTC required
1	1 st main time	LTC(MTD): display of one time unit out of A - F, 2, 3
2	MTD real time	LTC(MTD)
3	MTD date	LTC(MTD)
4,5	reserved	
6	LTC time information	LTC reader: display of time
7	LTC user bits	LTC reader: display of user bits (binary groups)
8	2 nd main time	LTC(MTD): display of one time unit out of A - F, 2, 3
9	3 rd main time	LTC(MTD): display of one time unit out of A - F, 2, 3
A	time A	LTC(MTD): display of time A (e.g. stop timer A)
B	time B	LTC(MTD): display of time B (e.g. stop timer B)
C	time C	LTC(MTD): display of time C (e.g. stop timer C)
D	time D	LTC(MTD): display of time D (e.g. stop timer D)
E	time E	LTC(MTD): display of time E (e.g. stop timer E)
F	time F	LTC(MTD): display of time F (e.g. stop timer F)

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.

Mode 0 = Local Stop Timer

The local stop timer runs internally, i.e. no LTC connection is required. The time of this stop timer will only be shown at this display.

To operate the local stop timer with the **BT option**, connect the **MTD BT** keypad with its START, STOP, HOLD, RESET keys (9-pin KEY female connector).

Functions:

START	Stop timer counts upward. Resets the HOLD function.
STOP	Stop timer stops. Resets the HOLD function.
HOLD	Current time display freezes, clock continues counting internally. Press HOLD again to refresh the time displayed.
RESET	Stop timer stops and is reset to zero.

The local stop timer always counts upwards (UP) and has the following fixed settings:

- Leading zeros will not be displayed
- Display format = HH:MM:SS
- Colons to separate hours, minutes, seconds

Modes 1, 8 and 9: Display of Main Time

With this function the **displays** of the MTD System can be operated by remote control. Within one system three groups of displays may be defined, each group may be remote controlled independently from the other groups, within one group all displays show the same time. The individual group is defined by the operating mode selection:

- displays of **mode 1** will show the **first** "Main Time"
- displays of **mode 8**, will show the **second** "Main Time"
- displays of **mode 9** will show the **third** "Main Time"

The "Main Time" shown at the displays may be one of the following time units:

A, B, C, D, E, F, real time or date.

An user console (e.g. MTD BE, MTD BTK, CP20, MTD BE19, ...) is used to select which time unit out of these eight is determined to serve as the "Main Time".

→ Please also refer to "LTC(MTD) failure" ←

Mode 2 = Display of the Real Time

In this mode, the time unit 2 (real time encoded in the LTC(MTD)) receives one additional frame and then this time is displayed.

The following formats may be selected via an user console (e.g. MTD BE, MTD BTK, CP20, MTD BE19, ...) to display the real time:

- Leading zeros (of the hours) on/off.
- Three user selectable symbols to separate hours/minutes/seconds: colon, decimal point or without any.
- Display formats: 7 = 24-hour format
 8 = 12-hour format

→ Please also refer to "LTC(MTD) failure " ←

Mode 3 = Display of the Date

In this mode, the time unit 3 (date encoded in the LTC(MTD)) is displayed.

The following formats may be selected via an user console (e.g. MTD BE, MTD BTK, CP20, MTD BE19, ...) to display the date:

- Leading zeros (i.e. leading zero at highest position) on/off
- Three user selectable symbols to separate day/month/year: colon, decimal point or without any
- Display formats: 1 = DD/MM/YY
 2 = MM/DD/YY
 3 = YY/MM/DD

Mode 6 = Display of the LTC Time Information

The time of the LTC (according to SMPTE/EBU specification) is displayed. The LTC is read forward or reverse, within a range of 20-34 frames/second. One frame is added to the readout time when moving in the forward direction, subtracted when moving in the reverse direction.

Reading LTC which is not of LTC(MTD) format, the time is displayed as HH:MM:SS, i.e. a 6-digit format, separating symbols are set to colon, leading zeros will be displayed.

Reading the LTC(MTD) the following formats may be selected via an user console (e.g. MTD BE, MTD BTK, CP20, MTD BE19, ...) to display the LTC time:

- Leading zeros on/off
- Three user selectable symbols to separate hours/minutes/seconds/frames: colon, decimal point or without any
- Display formats: 1 = hours/minutes/seconds
 4 = minutes/seconds/frames

Mode 7 = Display of the LTC Binary Groups

The user bits of the LTC (according to SMPTE/EBU specification) are displayed. LTC is read "forward" or "reverse", within a range of 20-34 frames/second.

The display shows the six user digits of higher significance in hexadecimal format. Leading zeros will be displayed, but no decimal point or colon.

Modes A, B, C, D, E, F = Display of Time A - F

The times A, B, C, D, E, F are encoded in the user bits of the LTC(MTD). The function of each time can be individually selected by an user console, e.g. as a stop timer, or a difference time, or a VTR time ...

To display these times the following display formats may be selected via an user console (e.g. MTD BE, MTD BTK, CP20, MTD BE19, ...):

- Leading zeros on/off
- Flashing in case of negative values on/off
- Three user selectable symbols to separate hours/minutes/seconds: colon, decimal point or without any
- Display formats:
 - 1 = HH:MM:SS (stop timer)
 - 2 = MM MM:SS
 - 3 = SS SS SS
 - 4 = MM:SS:FF
 - 5 = MM:SS.T
 - 6 = SS SS.T
 - 7 = HH:MM:SS (24-hour format "real time")
 - 8 = HH:MM:SS (12-hour format "real time")

→ Please also refer to "LTC(MTD) failure " ←

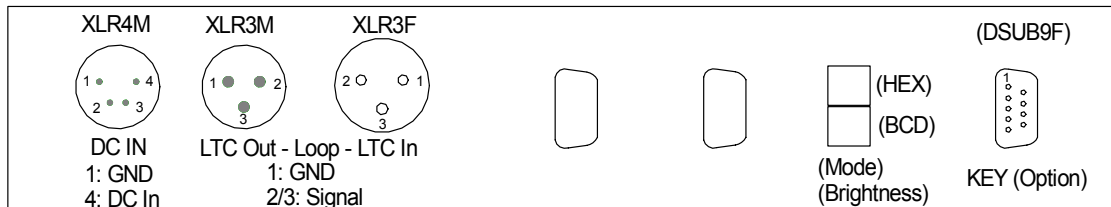
LTC(MTD) Failure

In case of a dropout of the LTC(MTD) during the current operation a display set to mode 1, 8 or 9 (main time), 2 (real time), A, B, C, D, E or F will keep on with the actual function using its internal clock, i.e. an up-counting or down-counting time will continue counting, a still time will not change.

A dropout has occurred when both decimal points and colons are simultaneously lit up.

Connecting, Technical Data, Mounting

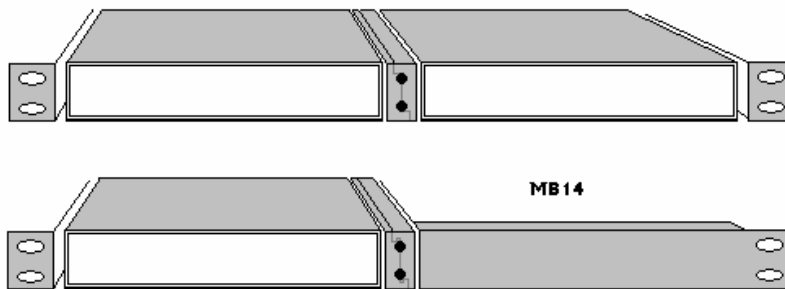
AV-MTD D25



DC power supply: 10.5 - 16.5 VDC, maximum 600 mA, typical 350 mA
 Weight: 1 kg approx.

Mechanical

Dimensions: 214 (W) x 43 (H) x 140 (D) mm (½ 19", 1RU)
 19" rack mounting

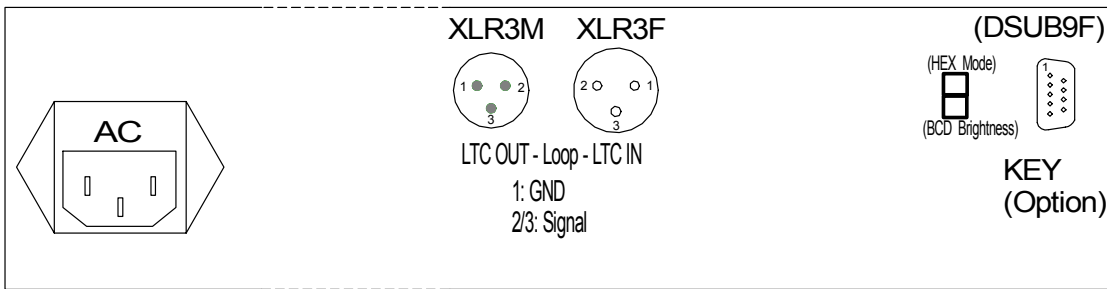


Two units can be mounted together in one 19", 1RU space. There are gliding rails between the units and mounting brackets at the outside. All components are part of the delivery.

A single unit gets the 19" mounting bracket and one part of the gliding rail. You can mount this unit at an existing unit. To mount a single unit in one 19", 1RU space, you have to order the **MB14** mounting kit. MB14 consists of the 19" mounting bracket and one part of the gliding rail.

Please order a "table top" unit if you don't want to mount it. Instead of the 19" mounting bracket and the gliding rail the unit gets feet with tip-up.

AV-MTD D56

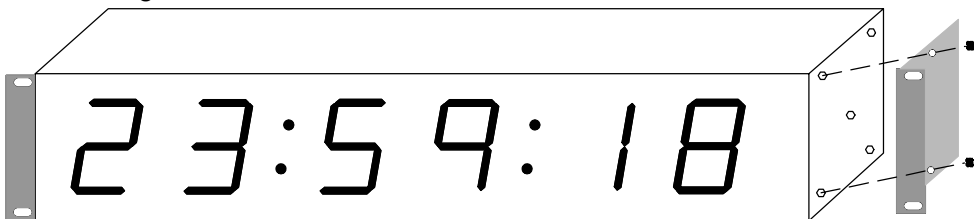


Operating voltage: 100 - 240 VAC, 50 - 60 Hz
Power consumption: maximum 16 W, typical 11 W
Weight: 3.5 kg approx.

Mechanical

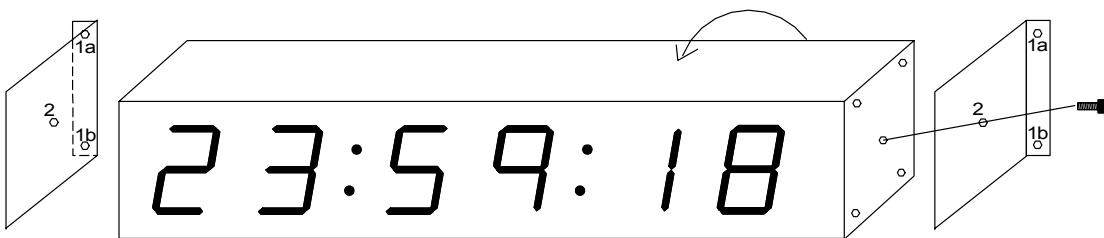
Dimensions: 441 (W) x 88 (H) x 140 (D) mm (19", 2RU)

19" mounting:



Two mounting brackets and four screws are part of the delivery.

Wall mount: please order separately!



Two holding brackets and two knurled screws are part of the delivery.

1. Mount the holding brackets at the wall using the 1a and 1b drilled holes.
2. Fasten the display at the holding brackets using two knurled screws.
3. Before tighten the knurled screws adjust the inclination of the display.

