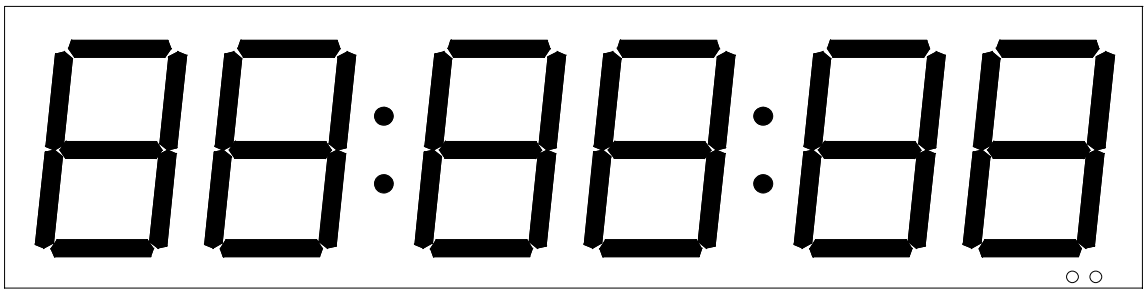
Operating Manual

Version: 2.7

November 8, 2000

Displays of the MTD Time Timer Time Code System

# AV-MTD D126 R/G/Y 6




Alpermann+Velte

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# A1 Safety Instructions

**General rules:** Only use the device as directed in a dry atmosphere. Treat the AV-MTD D126 R/G/Y 6 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 D126 R/G/Y 6 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



For further information please contact your local dealer or:

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# A3 CE declaration of conformity

We,

***Alpermann+Velte***
Electronic Engineering GmbH
Otto-Hahn-Sr. 42
D-42369 Wuppertal

herewith declare under our sole responsibility that the

## AV-MTD D126 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

The following preconditions have to be fulfilled:
- Only high-quality shielded cables have been used to connect data inputs/outputs.
- Housing has been connected to ground.

# Functions overview

MTD D126 are displays (7-segment LEDs) of 126mm 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 (with its four keys START, STOP, HOLD, RESET) permits to operate the display 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 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 are 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. „7.0 TG"), any built-in options and the selected operating mode.

# Operating modes

Positions of the HEX turn switch:

| Modes | Description | Remarks |
|---|---|---|
| 0 | local stop timer | no LTC required |
| 1 | 1st main time | display of one time unit out of A - F, 2, 3 |
| 2 | real time | |
| 3 | date | |
| 4,5 | not used | |
| 6 | LTC time information | LTC reader: display of time |
| 7 | LTC user bits | LTC reader: display of user bits |
| 8 | 2nd main time | display of one time unit out of A - F, 2, 3 |
| 9 | 3rd main time | display of one time unit out of A - F, 2, 3 |
| A | time A | display of time A (e.g. stop timer A) |
| B | time B | display of time B (e.g. stop timer B) |
| C | time C | display of time C (e.g. stop timer C) |
| D | time D | display of time D (e.g. stop timer D) |
| E | time E | display of time E (e.g. stop timer E) |
| F | time F | = time of the LTC read by the MTD 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.

## Mode 0 = local stop timer

The local stop timer is run 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: 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, 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 dropout“ ←

# Mode 2 = 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, 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 dropout“ ←

# Mode 3 = 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, 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 = LTC time

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, 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 = LTC user

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 = stop timer or difference time or offset time

The times A, B, C, D, E are encoded in the user bits of the LTC(MTD).

To display these times the following display formats may be selected via an user console (e.g. MTD BE, MTD BTK, 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 dropout" ←

# Mode F = time of the LTC read by the MTD generator

The time F is encoded in the user bits of the LTC(MTD).

The time F contains the time information of an LTC read from the special MTD generator. The reading range comprises „normal play speed“, i.e. 20-30 frames/second, forward and reverse. The displayed data are frame accurate unless there is a change of direction. It is not possible to realise dynamic changes of direction frame accurate because of a delayed status transmission.

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

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

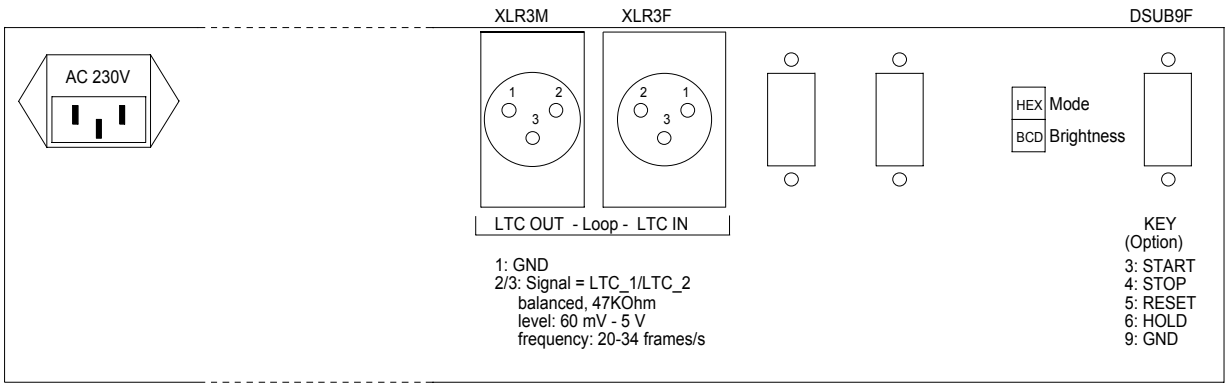
→ Please also refer to „LTC dropout“ ←

# LTC dropout

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.**

# Rear panel and specifications




| | |
|---|---|
| Dimensions: | 81 (W) x 25 (H) x 11 (D) cm |
| Weight: | 9.5kg approx. |
| Power supply: | 100-240 VAC, 50-60 Hz |
| Power consumption: | max. 56W, typical 30W |
| Operating temperature: | 5°C to 40°C |
| Relative humidity: | 35% to 85%, non-condensing |