

Analogue Clocks of the MTD Time Timer Time Code System

AV-MTD AC 300 - Slave

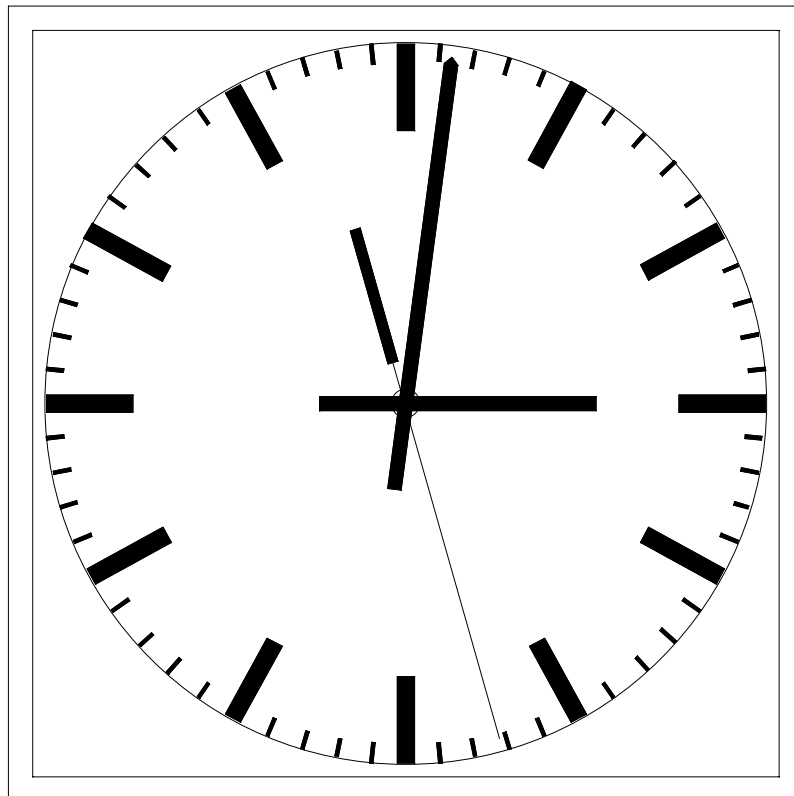


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A1 Safety Instructions

General rules:	Only use the device as directed in a dry atmosphere. Treat the AV-MTD AC 300 - Slave 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 AV-MTD AC 300 - Slave 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.

Battery Use Warnings



CAUTION: Danger of explosion if battery is incorrectly placed. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

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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For further information please contact your local dealer or:

Alpermann+Velte

Electronic Engineering GmbH

Otto-Hahn-Str. 42

D-42369 Wuppertal

Phone: ++49 - (0)202 – 244 111 0

Fax: ++49 - (0)202 – 244 111 5

E-Mail: info@alpermann-velte.com

Internet: <http://www.alpermann-velte.com>

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 AC 300 - Slave

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

Functions Overview

MTD AC 300 - Slave is an analogue clock in a square housing (300 x 300 mm approx.). The face is white, its markings of hours and minutes as well as the hands for the hours and minutes are black. The seconds hand is red.

The clock is for use in dry interior rooms only.

This clock operates as a slave clock which must be driven by any MTD master clock (e.g. MTD AC 300). The clock allows the display of a real time or time of a time code (LTC). It is completely self-setting with automatic change-over and change-back if time changes occur (e.g. switching to Daylight Saving Time). The power supply and the data line (telegram) coming from the master clock is connected at a DSUB9 male connector.

Description of the Analogue Clock

The three independent stepper motors of the clockwork drive the three hands. With delivery the hands as well as the clockwork are set to the 12 o'clock position. The two built-in sensors of the clockwork serve to detect this position enabling a check and correction of the hands.

Following a RESET (e.g. after power-on), the stepper motors start moving to reach the 12 o'clock position. First the hours and seconds hands are moved, and then the minutes hand. This process takes up to 3 minutes time. After this adjustment, all hands must exactly point at the 12 o'clock position. If not, the hands must be manually adjusted (by qualified personnel only).

After RESET the clock is immediately ready to receive the telegram. If a telegram is received, the seconds hand will move in sync with the data bits received (after the 12 o'clock position has been reached). If two valid telegrams are received, the clock adjusts to the time received, the internal reference is locked. This process normally takes up to 3 minutes time. If no telegram can be received, the hands will stand still.

The clock will execute a self-test to check the position of the hours and minute's stepper motors every 12:00:00 and 00:00:00 o'clock. The check regarding the seconds is made every minute. If necessary, the position of the hands will be corrected automatically to achieve precise sync to the internal reference. Every hour the clock will synchronise the internal reference by reading the telegram at every 59th minute. As a usual process, the minutes hand will take the last two seconds of every minute to move to the next marking. If no valid telegram can be received, the minutes hand will change to a quasi-continuous run, i.e. the minutes hand will take 30 positions every minute. This quasi-continuous run will automatically be changed to the stepping run only if at a following full hour a valid telegram can be received. This way, a continuous stepping run will indicate the presence of the time telegram.

Linking Master - Slave

Power supply as well as the data line will be supplied from the master clock. The data signals are similar to the German broadcast radio telegram DCF77 carrying data bits with pulses at each second. At a full minute one pulse will be suppressed.

Putting in a back-up battery will keep the clock running if power fails. As long as power from the master is present the battery automatically is disconnected. Please notice the battery use warnings.

Connector Slave
DSUB9M
1: V+
2: V-
7: Signal
8: Signal GND

The pins not specified should not be used. Use e.g. a two-paired, twisted cable, twist 1 with 2 and 7 with 8.

Technical Specifications

Dimensions:	307 (W) x 307 (H) x 63 (D) mm
Weight:	1.7 kg approx.
Operating temperature:	5°C to 40°C
Relative humidity:	35% to 85%, non-condensing
Operating voltage:	11 - 18 V DC
Current consumption:	16 mA (during hands adjustment), 9 mA typically
Technical data of the clockwork:	
Crystal time base:	32kHz (accuracy ± 0.5 s/day)
Clockwork:	Junghans W718
Type of battery:	2x round cell 1.5V IEC LR14 alkali-mangan (do not use zinc-carbon batteries)
Mean power consumption under battery operation:	1 mA