

Distribution Amplifier for MTD Analogue Clocks

AC Master Distribution

AC MASTER DISTRIBUTION

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Alpermann+Velte

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Operating Manual AC Master Distribution

A1 Safety Instructions

General rules:	Only use the device as directed in a dry atmosphere. Treat the AC Master Distribution 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 AC Master Distribution 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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A3 CE declaration of conformity

We,

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herewith declare under our sole responsibility that the

AC Master Distribution

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

This distribution amplifier supplies the analogue clocks of the *Alpermann+Velte* MTD system with power as well as with time data. The time data forms a telegram similar to the German radio time telegram DCF77. The data bits are transmitted every second except at seconds = 59. The data input signal should be connected at the 9-pins female DSUB (pin 1 = P_SEC). Optionally the input signal can be a LTC time code signal, then the unit reads LTC and converts the time and - if selected - date information to the telegram signal.

There are three output drivers, each driver supplies two outputs (two 9-pins female DSUB). Below the pin assignment and a wiring example:

from AC Master Distribution	to Analogue Clocks
DSUB9F	open ends (to screwing posts)
1: V+ Out	Vdd (1)
2: V- Out	GND (2)
7: Signal Out	Signal (3)
8: GND	GND (4)

The pins not specified should not be used. Use e.g. a two-paired, shielded cable with pairs twisted(1 with 2, 7 with 8).

Every slave clock requires $\leq 11\text{mA}$ at $\geq 6\text{V}$. To calculate the maximum cable length the output voltage, cross section, specific resistance and number of clocks have to be involved. For radial arrangement of copper cables with a cross section of $0,22\text{mm}^2$ and a output voltage of 12V , the following cable lengths are possible for every driver:

no. of clocks	1	2	5	10	20	30
length (m)	3500	1750	700	350	175	117

The maximum count of clocks is limited by a 300mA fuse to 30 clocks each driver. Three control LED's at the front are directly connected to the signal output.

Option: LTC input signal

With this option the unit reads LTC and converts the time and -if selected - date information to the telegram signal. LTC input uses the 3-pins female XLR connector, a wired looped-through output is provided with the 3-pins male XLR connector. Dip switches at the LTC reader board inside of the unit select the operating mode of the converter:

SW1	SW2	type of LTC
off	off	time = time information of the LTC, no information of a date available, converter sets the date to 01/01/01.
on	off	time = time information of the LTC, date = user information of the LTC, with day = user 6/5 ("minutes"), month = user 4/3 ("seconds"), year = user 2/1 ("frames").
off	on	LTC(MTD): time and date as multiplexed user bits data.
on	on	LTC(MTD): time = time information of the LTC, date = multiplexed user bits data.

Dip switches SW3 ... SW8 should be set to:

SW3	SW4	SW5	SW6	SW7	SW8
off	off	off	off	on	off

The converter outputs the telegram signal only if once the internal clock has been set. Setting of the internal clock occurs if once a valid time code has been read. Valid time code means: the time and user bits of the incoming LTC conforms to the type of LTC selected by the dip switches. The internal clock then synchronizes to the LTC, and switches to free running mode if the LTC input fails.

Option: Serial data output

Serial data output is available together with the option "LTC input signal" or as a loop-through of a serial data input. The serial interface meets the RS232 or the RS422 specification.

In case of option "LTC input signal": time and date, read from the LTC input, will be converted into a serial data string. The output takes place every second. The dip switches SW3 ... SW8 (inside the unit) should be set according to the table below - not as described in the chapter "LTC input signal":

SW3	SW4	SW5	SW6	SW7	SW8
off	off	on	on	off	off

The data output is provided at the 9-pins female connector DATA OUT. The data format is fixed and selected in a way, that the Alpermann+Velte Time Code Generators (Master Time Code System, MTD central generator) can directly use this output as the reference time input. Use a straight line to connect DATA OUT (from AC Master Distribution) with DATA IN (of time code generator).

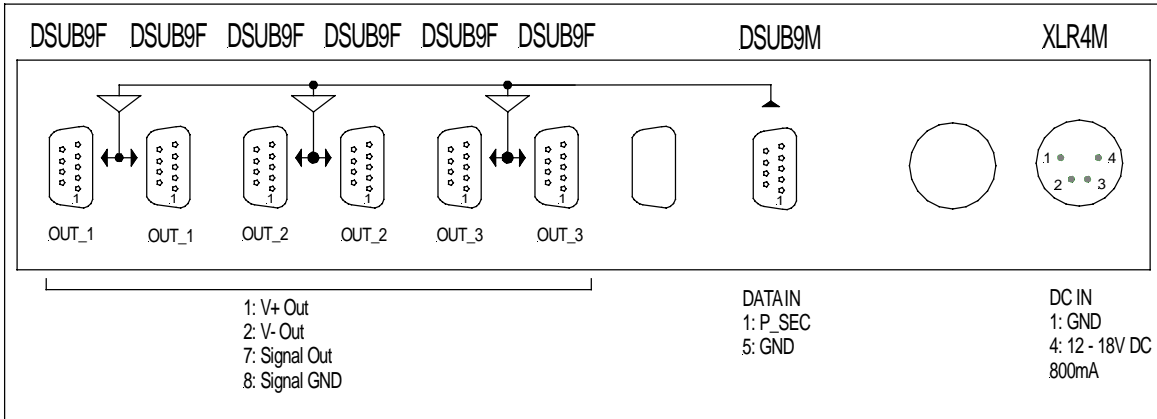
In a configuration that uses a serial data input, this signal can get a loop-through at different outputs - according to customers specification.

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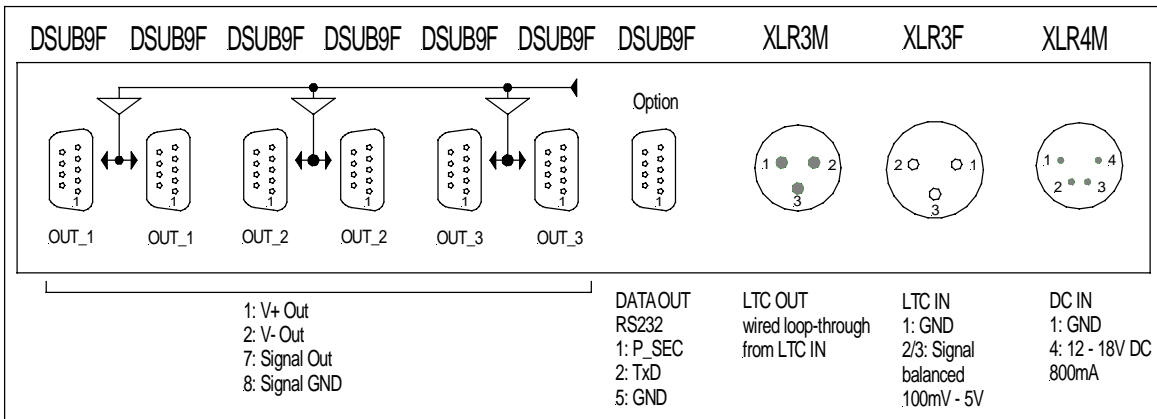
Rear panel and specifications

Dimensions: 214 (W) x 43 (H) x 140 (D) mm (1/2 19", 1U)
 Weight: 1.5kg approx.
 Operating temperature: 5°C to 40°C
 Relative humidity: 35% to 85%, non-condensing

Input signal = P_SEC at DSUB9F:



Input signal = LTC at XLR3F:



Connecting GPS CR at DSUB9F: DC output, input = serial data + P_SEC:

