ALGE-TIMING

Version- E240226

# D-LINE
# D-SAT


# Manual

# Important Information

## General

Before using your ALGE-TIMING device read the complete manual carefully. It is part of the device and contains important information about installation, safety and its intended use. This manual cannot cover all conceivable applications. For further information or in case of problems that are mentioned not at all or not sufficiently detailed, please contact your ALGE-TIMING representative. You can find contact details on our homepage www.alge-timing.com

## Safety

Apart from the information of this manual all general safety and accident prevention regulations of the legislator must be taken into account.
The device must only be used by trained persons. The setting-up and installation must only be executed according to the manufacturer's data.

## Intended Use

The device must only be used for its intended applications. Technical modifications and any misuse are prohibited because of the risks involved! ALGE-TIMING is not liable for damages that are caused by improper use or incorrect operation.

## Power supply

The stated voltage on the type plate must correspond to voltage of the power source. Check all connections and plugs before usage. Damaged connection wires must be replaced immediately by an authorized electrician. The device must only be connected to an electric supply that has been installed by an electrician according to IEC 60364-1. Never touch the mains plug with wet hands! Never touch live parts!

## Cleaning

Please clean the outside of the device only with a smooth cloth. Detergents can cause damage. Never submerge in water, never open or clean with wet cloth. The cleaning must not be carried out by hose or high-pressure (risk of short circuits or other damage).

## Liability Limitations

All technical information, data and information for installation and operation correspond to the latest status at time of printing and are made in all conscience considering our past experience and knowledge. Information, pictures and description do not entitle to base any claims. The manufacturer is not liable for damage due to failure to observe the manual, improper use, incorrect repairs, technical modifications, use of unauthorized spare parts. Translations are made in all conscience. We assume no liability for translation mistakes, even if the translation is carried out by us or on our behalf.

## Disposal

If a label is placed on the device showing a crossed out dustbin on wheels (see drawing), the European directive 2002/96/EG applies for this device.
Please get informed about the applicable regulations for separate collection of electrical and electronical waste in your country and do not dispose of the old devices as household waste.
Correct disposal of old equipment protects the environment and humans against negative consequences!

## Copyright by ALGE-TIMING GmbH

**Declaration of Conformity**

We declare that the following products comply with the requirements of the listed standards. Parts that we use in the product are CE certificated by the manufacturers and ALGE-TIMING GmbH does not change them.

We, ALGE-TIMING **GmbH**
**Rotkreuzstrasse 39**
**A-6890 Lustenau**

Declare under our sole responsibility, that the display board:

# D-LINE

and its models of the series 57, 100, 150, 250, 300, 450, 600, 1000, 1500, SDA1 produced from 01.01.2005 and later

is in conformity with the following standard(s) or other normative documents(s):

| | |
|---|---|
| Safety: | IEC 60950:1999 / EN 60950:2000<br>EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 |
| EMC: | EN55022:2006+A1:2007<br>EN55024:1998+A1:2001+A2:2003<br>EN61000 3-2:2006<br>EN61000 3-3:1995+A1:2001+A2:2005 |

**Additional Information:**
The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC, also the EMC Directive 2004/108EG and accordingly carries the CE-marking.

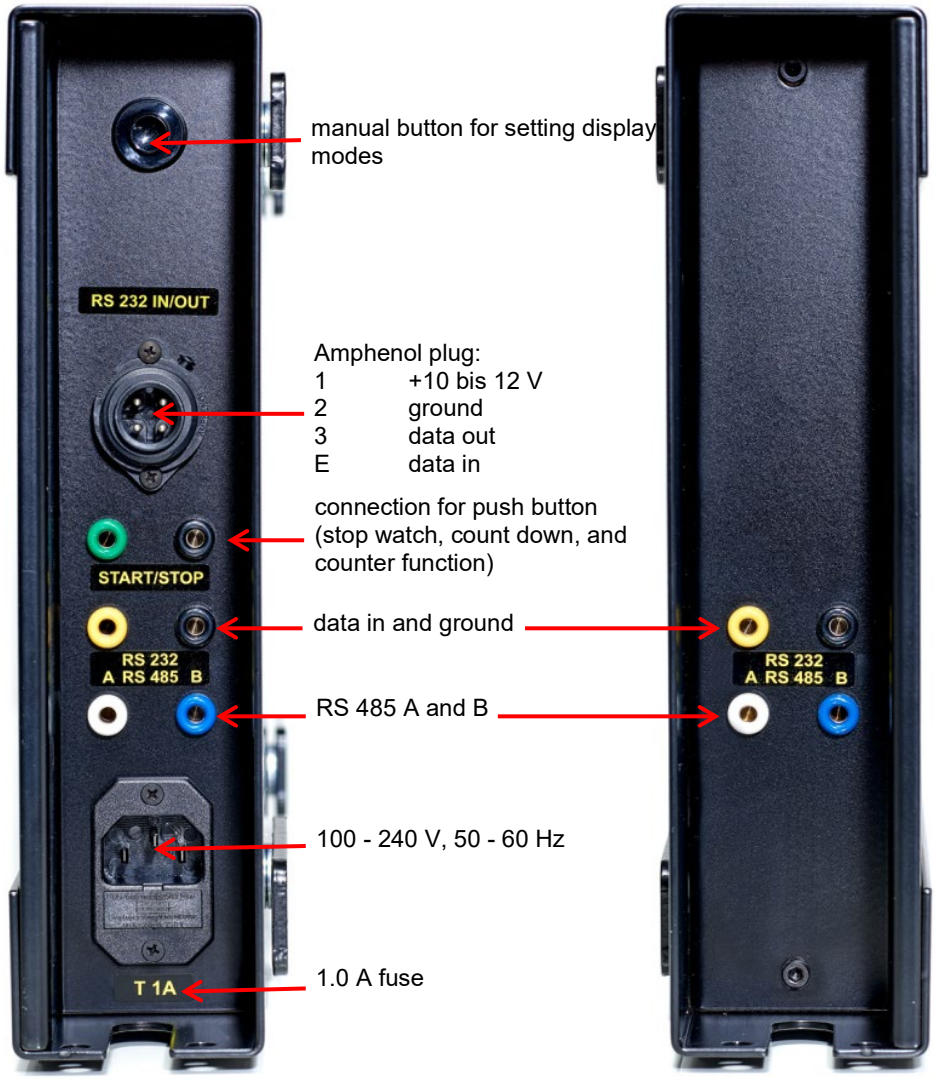
Lustenau, 30.11.2010 ALGE-TIMING GmbH

Albert Vetter
(General Manager)

# Table of Contents

# 1 Connections

## *1.1 D-LINE*




**right side** **left side**

## *1.2 D-SAT*

The D-SAT has all connections on feeder clamps.

# 2 Operation

## *2.1 Change of Display Mode*

You can change the display mode with the manual button at the display or with the PC software and the cable 145-05.
To change the parameters with the manual button, press the button until the first parameter appears on the display. If you wait for a few seconds the value of the parameter starts blinking. You can now change the parameter or value that is blinking. To save the changes you need to pass through all parameters until leaving the menu.

## *2.2 Standard Settings*

The D-LINE display boards are delivered with a standard setting optimized for timing purposes. To reset the factory settings, keep the internal button pressed until the software version appears on the display.
ATTENTION: Only display boards built after 2005-06 are equipped with this function.

## *2.3 Parameter List*

The parameter list is designed in such a way that the user recognizes the required parameter by its name.

ATTENTION: Older D-LINE models have different parameter names. These old parameter names are stated in square brackets [xx]. Some of the settings are identical and some are not available at all with older models.

ATTENTION: 3-digit displays are not equipped with many of the below stated parameters or the parameters have to be displayed differently due to lack of space. The parameter names for 3-digit displays are stated in round brackets. (xx)

### 2.3.1 HH Set Time of Day Hours [P0]

### 2.3.2 EE Set Time of Day Minutes [P1]

### 2.3.3 SS Set Time of Day Seconds [P2]

### 2.3.4 dd Set the Day of the Date [P3]

### 2.3.5 dE Set the Month of the Date [P4]

### 2.3.6 dY Set the Year of the Date [P5]

### 2.3.7 tH Display Time for Time of Day [P6]

Duration in seconds during which the time of day is displayed; parameter ‘0’ = no time of day displayed

### 2.3.8 td Display Time for Date [P7]

Duration in seconds during which the date is displayed; parameter ‘0’ = no date displayed

### 2.3.9 tt Display Time for Temperature [P8]

Duration in seconds during which the temperature is displayed; only available with temperature sensor

### 2.3.10 AC Calibration of Temperature

This parameter is only displayed if the temperature is on (e.g. tt 05). The shown temperature can be adjusted by up to +/-9 degrees.

### 2.3.11 PC Calibration of Water Temperature

This parameter is only displayed if the temperature is on (e.g. tt 05). The shown temperature can be adjusted by up to +/-9 degrees.

### 2.3.12 tH Display Time for Relative Humidity

Duration in seconds during which the relative humidity is displayed; only available with sensor

### 2.3.13 HC Calibration of Relative Humidity

This parameter is only displayed if the sensor adjustment is on (e.g. tH 05). The shown relative humidity can be adjusted by up to +/-9 percent.

### 2.3.14 Oh GPS Offset Hours to UTC

This parameter is only displayed if there is a connection for a GPS. With this parameter you can adjust the offset to UTC in hours.

### 2.3.15 OE GPS Offset Minutes UTC

This parameter is only displayed if there is a connection for a GPS. With this parameter you can adjust the offset to UTC in minutes.

### 2.3.16 Ar Area Settings for Temperature and Time

This area parameter is for setting the display mode for time and temperature. The first digit in the setting is for automatically changing the clock to daylight saving time, the second one is for the display mode. The following settings are possible:

#### 2.3.16.1 Daylight Saving Time Switching [P9]

The first digit of the area setting is responsible for internally changing the clock to daylight saving time and standard time.

##### 2.3.16.1.1 Ar 0 Daylight Saving Time Switching [0x]

No internal changing, used for DCF-controlled clocks

##### 2.3.16.1.2 Ar E European Daylight Saving Time [1x]

Change to daylight saving time for Europe, used with internal clock, GPS and NTP-synchronization

##### 2.3.16.1.3 Ar U USA Daylight Saving Time [2x]

Change to daylight saving time for USA, used with internal clock, GPS and NTP-synchronization.

##### 2.3.16.1.4 Ar A Australian Daylight Saving Time [3x]

Change to daylight saving time for Australia, used with internal clock, GPS and NTP-synchronization.

#### 2.3.16.2 Time and Temperature Setting

The second digit of the area setting is used for the display mode of the time and temperature; 12 h, 24 h, Celsius or Fahrenheit.

#### 2.3.16.2.1 Ar C Celsius and 24 h [x0]

Time in 24 h mode and temperature in Celsius

#### 2.3.16.2.2 Ar c Celsius and 12 h [x1]

Time in 12 h mode and temperature in Celsius

#### 2.3.16.2.3 Ar F Fahrenheit and 24 h [x2]

Time in 24 h mode and temperature in Fahrenheit

#### 2.3.16.2.4 Ar h Fahrenheit and 12 h

Time in 12 h mode and temperature in Fahrenheit

#### 2.3.16.2.5 Ar 1 Celsius and 24 h

Time in 24 h mode and temperature in Celsius but on 6-digit D-LINE time is centred and without running seconds.

#### 2.3.16.2.6 Ar 2 Celsius and 12 h

Time in 12h mode and temperature in Celsius, but on 6-digit D-LINE time is centred and without running seconds.

#### 2.3.16.2.7 Ar 3 Fahrenheit and 24 h

Time in 24 h mode and temperature in Fahrenheit but on 6-digit D-LINE time is centred and without running seconds.

#### 2.3.16.2.8 Ar 4 Fahrenheit and 12 h

Time in 12 h mode and temperature in Fahrenheit but on 6-digit D-LINE time is centred and without running seconds.

## 2.3.17 br Brightness [A0] (b)

With this parameter brightness settings and effects can be set. The first digit is for the appearance, the second one for the brightness.

#### 2.3.17.1 First digit of setting

The first digit defines the type of changing between time and temperature. Fade-in changes over with brightness effect from time to temperature.

#### 2.3.17.1.1 br 0 Fade-in off

Fading is not activated.

#### 2.3.17.1.2 br 1 Fade-in on

Fading is activated.

#### 2.3.17.2 Second Digit of Setting

This setting defines the brightness mode of the display.

#### 2.3.17.2.1 br 8 Manual setting

The second digit of the brightness settings can be adjusted manually from 0 to 9. Value 0 is minimum brightness and value 9 maximum. This adjustment can also be affected by using the menu of TdC8001 or TIMY.

#### 2.3.17.2.2 br d Time of Day Dependent Brightness [x3]

Brightness is set automatically, depending on the time of day.

#### 2.3.17.2.3 brA Light Sensor Dependent Brightness [x4]

With this setting, the brightness depends on the light sensor. If no light sensor is connected, maximum brightness is set.

## 2.3.18 SE Display Mode and Serial Interface [A1], (S)

This setting is for the interface parameters. The first digit in the setting is for the display mode, the second one for the interface speed.

### 2.3.18.1 Display Mode

Here, the different display modes for your display board can be adjusted.

#### 2.3.18.1.1 SES hh:mm:ss [0x] (1sec)

#### 2.3.18.1.2 SEt h:mm:ss.z (1/10sec) and speed with 1/10

#### 2.3.18.1.3 SEh mm:ss:zh [1x] (1/100sec)

#### 2.3.18.1.4 SE3 m:ss.zht (1/1000sec)

#### 2.3.18.1.5 SEr Bib, Rank [2x]

#### 2.3.18.1.6 SEE extended Mode [4x]

This advanced mode serves for configuring the complete display yourself. You can define which byte is shown at which position on the display board.
If the serial setting is in this mode, you have some more parameters for adjusting the mode: 1,1:,2,2:,… [A5, A6,…B0, B1,…]. For a detailed description how to adjust these parameters, see point 2.4

#### 2.3.18.1.7 SEn Slave/Master Communication (RS485 or RS232, master=TX, slave=RX) [5x] and also for GPS operation (set 4800 baud = Sen4)

#### 2.3.18.1.8 SEH mm:ss.zh [1x] (1/100sec.)

Identical to SEh but in the stopwatch mode the time is shown in seconds: 60 seconds instead of 1:00 minute (also see page 17).

#### 2.3.18.1.9 SEc Game Terminal CKN Playing Time (mm:ss, central) must be 9600 Baud.

D-LINE is connected with RS232 to the CKN terminal (Pin5=GND, PIN2=data).
Works from CKN software 11-2006 (wireless protocol) – wired no longer exists.

#### 2.3.18.1.10 SEA Freeze Time of Day [3x]

With this function the time of day can be frozen with a manual button on the green/black banana socket for the duration of the time-out time. The time of day continues internally.

#### 2.3.18.2 Transfer Speed/Protocol

The second digit of the setting is responsible for the transfer speed of the serial interface.

**2.3.18.2.1 SE 2 2400, N, 8, 1 ALGE-Timing standard [x0]**

**2.3.18.2.2 SE 4 4800, N, 8, 1 ALGE-TIMING [x1]**

**2.3.18.2.3 SE 9 9600, N8, 1 ALGE-TIMING [x2]**

**2.3.18.2.4 SE 19 19200, N, 8, 1 ALGE-TIMING [x3]**

**2.3.18.2.5 SE L special Format**

**2.3.18.2.6 SE 5 old devices like the S3, Selftimer SF2 [x4]**

**2.3.18.2.7 SE d countdown mode see point 3.1.2 Countdown (from Version 4.5)**

### 2.3.19 t0 Time-Out Time-Temperature-Date [A2]

This setting defines the time after which the display board switches from serial display mode back to time-temp mode. If it is set to 00, the parameters described from point 2.3.1 to point 2.3.16 are no longer visible. The display modes for time of day, temperature and date are thus deactivated. Up to version 3.7 the specifications are in seconds and from version 3.8 the value is multiplied by 10, so an adjustment of 24 is 240 seconds.

### 2.3.20 Ad Address Setting [A3] (A)

To use more than one D-LINE on an addressed protocol, you have to define the addresses of every single display board. Normally, the first line is address 1 Ad 01, second line address 2 Ad 02, etc.

Depending on the sport, this setting can be important to display the serial data of your timing device correctly. Please also refer to the manual of the corresponding timing device. The sport specific instructions for controlling the display board can be found there.

## *2.4 Extended Data Mode*

In this mode, one byte of the data string can be assigned to each digit. For example, it is possible to display on a 6-digit display board the bib on the first 2 digits and the time in m:ss on the last 3 digits. For some sports like equestrian (with Timer S4), you have to program the display for the presentation of the points in this mode. It is not possible to show datasets of differently addressed data strings.

### 2.4.1 Timer S4, Points Show Jumping

Below, a configuration of a 6-digit display for showing the points by Timer S4 (equestrian) in the middle of the display is described.

The data package of the Timer S4 looks as follows:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PZ | PE | | . | | | | | H | H | : | M | M | : | S | S | . | z | | | Pz | Pe | CR | |
| PZ | PE | | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Pz | Pe | CR | |

The parameters have to be set as follows:

### 2.4.1.1 Display Board D-LINE for Points

Extended protocol, 2400 bps [A1-40] (S-E2)
Device address 00 [A3 00] (A-00)
First digit is always inactive [A5-00]
Dot or colon after first digit is always inactive [A6-00]
Second digit is to display points PZ [A7-01]
Dot or colon after second digit is always inactive [A8-00]
Third digit is to display points PE [A9-02]
Show the dot which is sent after the full second [B0-17]

Fourth digit is to show points (PZ) [B1-21]
Dot or colon after fourth digit is always inactive [B2-00]
Fifth digit is to show points [B3-22]
Dot or colon after fifth digit is always inactive [B4-00]
Sixth digit is always inactive [B5-00]

### 2.4.1.2 Display Board D-LINE for Time

Extended protocol, 2400 bps [A1-40] (S-E2)
Device address 00 [A3 00] (A-00)
First digit shows thousands of seconds [A5-09]
Dot or colon after first digit is always inactive [A6-00]
Second digit shows hundreds of seconds [A7-10]
Dot or colon after second digit is always inactive [A8-00]
Third digit shows tenth seconds [A9-12]
Dot or colon after third digit is always inactive [B0-00]
Fourth digit shows units seconds [B1-13]
Fourth digit shows a point (PZ) [B2-21]
First digit shows 1/10th seconds [B3-15]
Dot or colon after fifth digit is always inactive [B4-00]
Sixth digit shows 1/100th seconds [B5-16]

## 2.4.2 TdC8001, Points Show Jumping

Following, the configuration of a 6-digit display for showing the points by TdC8001 (equestrian) in the middle of the display is described.

**The parameters have to be set as follows:**


Extended protocol, 2400 bps [A1-40] (S-E2)


Device address 00 [A3 00] (A-00)


First digit is always inactive [A5-00]


Dot or colon after first digit is always inactive [A6-00]


Second digit is to display points (PZ) [A7-02]


Dot or colon after second digit is always inactive [A8-00]


Third digit is to display points (PZ) [A9-02]


Shows the dot which is sent after the full second [B0-17]


Fourth digit is to show points (PZ) [B1-21]


Dot or colon after fourth digit is always inactive [B2-00]


Fifth digit is to show points [B3-22]


Dot or colon after fifth digit is always inactive [B4-00]


Sixth digit is always inactive [B5-00]

The other two display boards are to be adjusted as shown below:

**Display Board Time:**

**Display Board Bib - Rank:**

### 2.4.3 8-digit Display Board for Swimming

Following, the configuration of an 8-digit display board to show rank, lane and time is described. This display board for swimming has a special layout with an empty space between first and second and between second and third digit.

**The parameters have to be set as follows:**

extended Protocol, 2400 bps [A1-40]
device address 01 [A3 01], for TM-SWIM
device address 00 [A3 00], for Timy Tracktimer

first digit shows the rank [A5-11]
point or colon after first digit is always inactive [A6-00]
second digit shows the lane [A7-21]
point or colon after second digit is always inactive [A8-00]
third digit shows the minute tens [A9-13]
point or colon after third digit is always inactive [B0-00]
fourth digit shows the minutes [B1-14]
point or colon after fourth digit is active [B2-15]
fifth digit shows the second tens [B3-16]
point or colon after fifth digit is always inactive [B4-00]
sixth digit shows the seconds [B5-17]
seventh digit shows the tenth of a second [B6-19]
point or colon after seventh digit is always inactive [B7-00]
eighth digit shows the hundredth of a second [B8-19]

## 2.4.4 Track&Field Concentration clock, wind and performance

For Track&Field you can use 3-5 digit D-LINE displays to show the concentration time, the Windspeed and the performance on the same display

### 2.4.4.1 3-digit D-LINE

Settings:

Extended protocol, 2400 bps
Device address 03
First digit Byte 13
First comma Byte 14
Second digit Byte 15
Second comma Byte 16
Third digit Byte 17

### 2.4.4.2 4 digit D-LINE

Settings:

Extended protocol, 2400 bps
Device address 03
First digit Byte 11
First comma Byte 12
Second digit Byte 13
Second comma Byte 14
Third digit Byte 15
Third comma Byte 16
Fourth digit Byte 17

## 2.4.5 Fixed Comma or Colon

Comma or colon may not be included in the protocol of some older ALGE-TIMING devices. They can be permanently programmed on the D-LINE.

| | |
|---|---|
| Comma | 98 |
| Colon | 99 |

# 3 Special Functions

D-LINE display boards can be used as stand-alone stopwatch, countdown clock or counter.

## *3.1 Stopwatch, Countdown and Counter*

To use one of these modes, please to connect a manual button 023-xx at the green and red banana socket of the D-LINE. By pressing the manual button, the mode is started. For setting the different modes change the parameter  [A1] as described below.

### 3.1.1 Stopwatch (from Version 4.5)

Starting with version 4.5 we offer a stopwatch function that allows inputting a time from which the stopwatch starts to run. The delay time of the stopwatch is 1 second; i. e. after each impulse no further impulse can be triggered for the period of one second (to avoid incorrect photocell impulses). The parameters are used to set different formats for the stopwatch.

| | | |
|---|---|---|
|  | Stopwatch | format: hh:mm:ss (hours, minutes, seconds) |
|  | Stopwatch | format: mm:ss:zh (minutes, seconds, 1/100) |
|  | Stopwatch | format: ssss:zh (seconds mode with 1/100) |

The stopwatch can be started from zero (standard) or any other time that is set. For setting this time use the push button 023-xx and press it for about 10 seconds until the first digit starts blinking. If the button continues to be pressed, the blinking setting is saved and the cursor moves to the next digit. In case this digit is already set correctly, continue to press the button until in the end the start time is displayed without blinking. Pressing the manual button again starts the stopwatch.
The stopwatch can be stopped or re-started any time by pressing (intermediate or end time). If the button is pressed for about 5 seconds the display is reset to zero or after 10 seconds the time can be reset as required.

### 3.1.2 Countdown (from Version 4.5)

Starting with version 4.5 we offer a countdown function that allows setting the countdown time. The parameters are used to set different formats for the countdown.

| | | |
|---|---|---|
|  | Countdown | format: hh:mm:ss (hours, minutes, seconds) |
|  | Countdown | format: mm:ss:zh (minutes, seconds, 1/100) |
|  | Countdown | format: ssss:zh (seconds mode with 1/100) |

The standard start time for the countdown is one minute. For setting this time use the push button 023-xx and press it for about 10 seconds until the first digit starts blinking. If the button continues to be pressed, the blinking setting is saved and the cursor moves to the next digit. In case this digit is already set correctly, continue to press the button until in the end the start time is displayed without blinking. Pressing the manual button again starts the countdown.
The countdown can be stopped or re-started any time by pressing (time-out). If the button is pressed for about 5 seconds the display is reset to zero or after 10 seconds the time can be reset as required.

### 3.1.3 Counter (from Version 4.5)

Starting with version 4.5 we offer a counter function that allows setting any number you like and count up or down from this number with each button push (manual button 023-xx at green and black banana socket).

Count up

Count down

Switch on the counter mode. Depending on the direction of counting, the push button has different functions. Pressing the button for about 2 seconds counts in the opposite direction. If the first digit of the display blinks you entered the mode for setting the starting number. If the button continues to be pressed, the blinking setting is saved and the cursor moves to the next digit. In case this digit is already set correctly, continue to press the button until in the end the starting number is displayed without blinking. Pressing the manual button again counts one down. In case the button is pressed for about 2 seconds it counts one up. If pressed for about 10 seconds the display is reset to the initial value.

### 3.1.4 Stopwatch-Countdown (Version 4.3.and 4.4)

This function is available from version 4.3 with fixed start and stop delay time of 4 seconds to eliminate incorrect photocell impulses. Switching between stopwatch and countdown is affected by continued pressing of the manual button for about 20 seconds. Displaying 00:00.00 indicates the stopwatch mode, blinking of the first digit the countdown mode. If the button continues to be pressed, the blinking setting is saved and the cursor moves to the next digit. In case this digit is already set correctly, continue to press the button until in the end the starting value is displayed without blinking. Pressing the button again starts the countdown. If pressed for about 10 seconds the display is reset to the initial value.

#### 3.1.4.1  hh:mm:ss [A1-0x]

Time format for stopwatch and countdown

#### 3.1.4.2  mm:ss:zh [A1-1x]

Time format for stopwatch and countdown

#### 3.1.4.3  ssss:zh

Time format for stopwatch and countdown in second's mode; for driving (equestrian) or other sports where time is shown 60 seconds instead of 1:00 minutes; available from version 4.3.

### 3.1.5 Counter (Version 4.3.and 4.4)

Switching between counting up and counting down is adjusted by continuously pressing the manual button for about 20 seconds. Display of 0 indicates the count up mode, first digit blinking the countdown mode.

#### 3.1.5.1  Counter

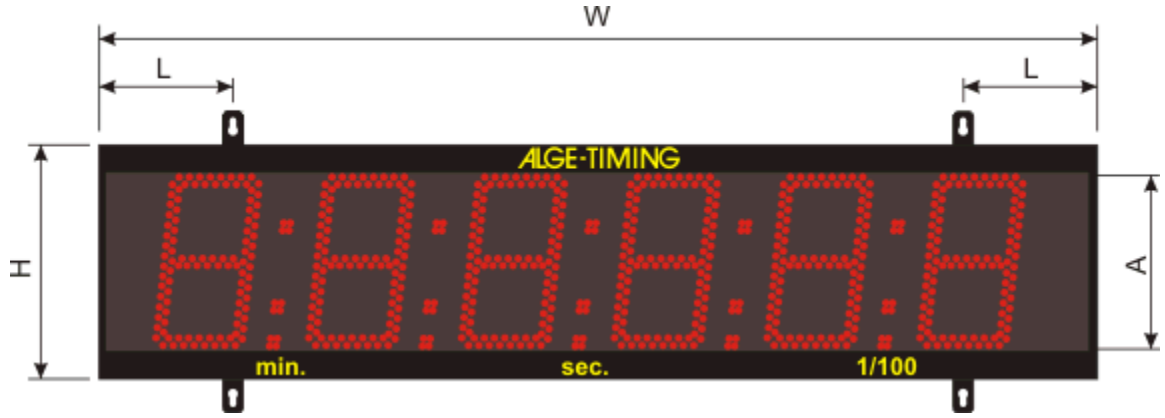
This parameter enables the counter mode. Depending on the counting direction, the function of the manual button is different. Pressing shortly the button counts up (down) and continued pressing for about 2 seconds counts down (up).

#### 3.1.5.2 Adjusting the start value

If the first digit of the display blinks you entered the mode for setting the start value. Keeping the button pressed for a while, the blinking value is saved and the cursor moves to the next digit. In case this digit is set correctly, keep the button pressed until in the end the start value is shown without blinking. Pressing the button again counts down by one. If the button is pressed for 2 seconds, it counts up. Continue to press for as long as 10 seconds resets the display to the start value.

# 4 Technical Data

## *4.1 Dimensions*




| Type | Number of digits | Figure Height A [mm] | Width W [mm] | Hight H [mm] | Depth [mm] | Suspension Brackets L [mm] | Bottom Brackets | Middle Brackets | Max. Reading Distance [m] | Power Input [W] |
|---|---|---|---|---|---|---|---|---|---|---|
| D-LINE57-I-3-E1 | 3 | 57 | 400 | 130 | 60 | 100 | no | no | 25 | 6 |
| D-LINE57-I-4-E0 | 4 | 57 | 400 | 130 | 60 | 100 | no | no | 25 | 8 |
| D-LINE57-I-6-E0 | 6 | 57 | 500 | 130 | 60 | 150 | no | no | 25 | 13 |
| D-LINE100-I-4-E0 | 4 | 100 | 650 | 180 | 80 | 100 | no | no | 50 | 8 |
| D-LINE100-I-6-E0 | 6 | 100 | 800 | 180 | 80 | 150 | yes | no | 50 | 13 |
| D-LINE80-O-3-E0 | 3 | 80 | 450 | 150 | 60 | 100 | no | no | 40 | 6 |
| D-LINE80-O-4-E0 | 4 | 80 | 450 | 150 | 60 | 100 | no | no | 40 | 8 |
| D-LINE80-O-6-E0 | 6 | 80 | 600 | 150 | 60 | 150 | no | no | 40 | 13 |
| D-LINE150-O-3-E0 | 3 | 150 | 600 | 250 | 60 | 150 | yes | no | 75 | 6 |
| D-LINE150-O-4-E0 | 4 | 150 | 730 | 250 | 60 | 150 | yes | no | 75 | 9 |
| D-LINE150-O-5-E1 | 5 | 150 | 956 | 250 | 60 | 200 | yes | no | 75 | 11 |
| D-LINE150-O-6-E0 | 6 | 150 | 956 | 250 | 60 | 200 | yes | no | 75 | 14 |
| D-LINE250-O-3-E0 | 3 | 250 | 850 | 350 | 60 | 200 | yes | no | 125 | 17 |
| D-LINE250-O-4-E0 | 4 | 250 | 1100 | 350 | 80 | 200 | yes | no | 125 | 22 |
| D-LINE250-O-5-E1 | 5 | 250 | 1493 | 350 | 60 | 200 | yes | no | 125 | 28 |
| D-LINE250-O-6-E0 | 6 | 250 | 1493 | 350 | 60 | 200 | yes | no | 125 | 34 |
| D-LINE450-O-4-E0 | 4 | 450 | 1900 | 600 | 80 | 200 | yes | no | 225 | 58 |
| D-LINE450-O-6-E0 | 6 | 450 | 2490 | 600 | 80 | 200 | yes | yes | 225 | 88 |
| D-LINE600-O-4-E0 | 4 | 600 | 2490 | 800 | 70 | 200 | yes | yes | 300 | 87 |
| D-LINE600-O-6-E0 | 6 | 600 | 3400 | 800 | 70 | 200 | yes | yes | 300 | 133 |
| D-LINE800-O-4-E0 | 4 | 800 | 3300 | 1000 | 70 | 200 | yes | yes | 400 | 120 |
| D-LINE800-O-6-E0 | 6 | 800 | 4800 | 1000 | 70 | 200 | yes | yes | 400 | 180 |
| D-LINE1000-O-4-E0 | 4 | 1000 | 3900 | 1400 | 70 | 200 | yes | yes | 500 | 180 |
| D-LINE1000-O-6-E0 | 6 | 1000 | 5700 | 1400 | 70 | 200 | yes | yes | 500 | 270 |
| D-LINE1500-O-4-E0 | 4 | 1500 | 5800 | 2000 | 70 | 200 | yes | yes | 750 | 340 |
| D-LINE1500-O-6-E0 | 6 | 1500 | 8500 | 2000 | 70 | 200 | yes | yes | 750 | 510 |

## *4.2 Power Supply*

### 4.2.1 Supply from Mains

**Display Board up to 250 cm Figure Height:**
100 – 240VAC / 50-60 Hz, automatic switching

**Display Board with a Figure Height of 450 cm or Higher:**
230 VAC / 50 Hz or 110 VAC / 60 Hz (factory setting as ordered); manual setup at integrated power supply possible

### 4.2.2 Supply from External Battery

10 – 12.5 VDC, connection at Amphenol socket

| | |
|---|---|
| D-LINE80-O-6-E0 | maximum current of 700mA, average about 350mA |
| D-LINE150-O-6-E0 | maximum current of 900mA, average about 450mA |
| D-LINE250-O-6-E0 | maximum current of 1800mA, average about 900mA |

- To conect the power bank PS-KP you need cable 323-1.5.
- To conect the power bank PS-KP and a further device at the Amphenol plug (e.g. WTN-DB, WTN-WS, D-RAD) you need cable 324-1.5.
- For the connection to a BB1 you need a cable 161-10.
- For the connection to an external 12V battery you need a cable 032-05.
- For the connection of an external battery plus an additional device on the Amphenol connector you need the cable 299.

**Attention:**
If the display board D-LINE is connected to a car battery, it is not allowed to start the car. If the car battery is charged by the generator the battery voltage is over 12.5 VDC and might destroy the display board.

### 4.2.3 DCF Antenna (D-SAT)

#### 4.2.3.1 Antenna alignment

In the case of stationary installation, the antenna should be aligned according to the specifications (transverse side towards Frankfurt am Main). In the normal application, an assembly is with some Clearance from metal and from television or computer monitors is advisable. In the case of assembly close to metal, a decrease in reception power (attenuation) is to be expected. Due to the field distortion the all-round characteristics of the antenna are improved. In this special case a test is always required. The antenna is aligned using the field strength and modulation LEDs easy to implement. A bright field strength display alone does not say anything about the reception quality, since any interference signals are also included in the reception bandwidth of the receiver would be evaluated. Rather, a modulation LED that flashes every second (in conjunction with a field strength display that is as bright as possible) testifies to good reception conditions.

## *4.3 Interface Formats*

### 4.3.1 Serial Interface:

Signal compatible with RS232C interface, serial, no handshake operation.

#### 4.3.1.1 Standard Settings

2400 baud
1 start bit
8 data ASCII-bit
1 stop bit
no parity bit

#### 4.3.1.2 Transmission Protocol

On the following page the protocols are indicated, which can be sent by ALGE-TIMING timing devices to the display boards.

J..... Identifier for interconnected display board A to J (A = board 1, B = board 2, C = board 3..., J = board 10)
Nt..... Start number (thousandth-digit)
Nh..... Start number (hundredth-digit)
Nz..... Start number (tenth-digit)
Ne..... Start number (1-digit)
H..... Hours
M ..... Minutes
S ..... Seconds
z..... 1/10 Seconds
h ..... 1/100 Seconds
t ..... 1/1000 Seconds
Rz..... Rank (tenth-digit)
Re..... Rank (1-digit)
X..... Carriage Return (0D Hex. ('\r'))
. ..... Identifier for running time if dot on fourth digit.
A..... ALGE TdC 4000: Identifier for intermediate time 1 (at fourth digit)
B..... ALGE TdC 4000: Identifier for intermediate time 2 (at fourth digit)
C..... ALGE TdC 4000: Identifier for ending time (at fourth digit)
D..... ALGE TdC 4000: Identifier for total time (at fourth digit)
K..... Comet: 1 = Start channel, 2 = Start channel, 4 = Stop channel or 8 = Stop channel
Tc ..... Timer identification at the Comet (Timer A or B)
Tt ..... Timer S4 Split and 3-Parcours: Identification Parcour A, B or C
Pr..... Identification for Timer S4 Parcour
PZ..... Timer S4 Show Jumping: fault points (tenth-digit)
PE..... Timer S4 Show Jumping: fault points (1-digit)
Pz ..... Timer S4 Show Jumping: fault points (1/10 points)
Ph ..... Timer S4 Show Jumping: fault points (1/100 points)
#h ..... Timer S4 18-Channel-Timer: consecutive number (hundredth-digit)
#z..... Timer S4 18-Channel-Timer: consecutive number (tenth-digit)
#e ..... Timer S4 18-Channel-Timer: consecutive number (1-digit)
Pp ..... Timer S4 Parallel slalom: Identification for show jumping
r ..... Timer S4 Parallel slalom: Identification for red parcour (ASCII r)
b ..... Timer S4 Parallel slalom: Identification for blue parcour (ASCII b)
S ..... Timer S4 Speed: Identification for speed measurement
§ ..... Timer S4 Speed: Identifier for measurement (01Hex=km/h, 02Hex=m/s or 03Hex=mph)
Z ..... Timer S4 Speed: Speed
F ..... Timer S4 Swimming: Identifier for interconnected display board A to H (A=Tafel1, B=Tafel2..., H=Tafel8)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J | Nh | Nz | Ne | | | | | | H | H | : | M | : | : | S | S | . | z | h | t | Rz | Re | X | time for board 1 | ranking board |
| J | Nh | Nz | Ne | | | | | | H | H | : | M | : | M | S | S | S | | | | | | X | running time board 10 | ranking board |
| Nh | Nz | Ne | . | | | | | H | H | : | M | M | : | S | S | | | | | | | X | | running time | TDC 4000 |
| Nh | Nz | Ne | A | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Rz | Re | X | | intermediate 1 | TDC 4000 |
| Nh | Nz | Ne | B | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Rz | Re | X | | intermediate 2 | TDC 4000 |
| Nh | Nz | Ne | C | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Rz | Re | X | | run time | TDC 4000 |
| Nh | Nz | Ne | D | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Rz | Re | X | | total time | TDC 4000 |
| Nh | Nz | Ne | K | Tc | | | Nt | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time | Comet Stopwatch |
| | | Tt | . | | | | | H | H | : | M | M | : | S | S | | | | | X | | | | running time | Timer S4 / Split |
| | | Tt | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time | Timer S4 / Split |
| | Pr | Tt | . | | | | | H | H | : | M | M | : | S | S | | | | | X | | | | running time | Timer S4 / 3-Parcours |
| | Pr | Tt | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time | Timer S4 / 3-Parcours |
| Pz | PE | | . | | | | | H | H | : | M | M | : | S | S | . | z | | | Pz | Ph | X | | running time | Timer S4 / Show Jumping |
| Pz | PE | | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | Pz | Ph | X | | run time | Timer S4 / Show Jumping |
| #h | #z | #e | . | | | | | H | H | : | M | M | : | S | S | . | z | | | X | | | | running time | Timer S4 / 18-Channel |
| #h | #z | #e | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time | Timer S4 / 18-Channel |
| | | | Pp | | | | | | | | | r | : | S | z | | h | t | X | | | | | run time "red wins" | Timer S4 / Parallel Slalom 1 |
| | | | Pp | | | | | | | | | b | : | S | z | | h | t | X | X | | | | run time "blue wins" | Timer S4 / Parallel Slalom 1 |
| Pp | r | | . | | | | | H | H | : | M | M | : | S | S | . | z | | | X | | | | running time "red" | Timer S4 / Parallel Slalom 2 |
| Pp | b | | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time "blue" | Timer S4 / Parallel Slalom 2 |
| Pp | r | | | | | | | | | | | r | : | S | S | . | z | h | t | h | | | | difference time red winns | Timer S4 / Parallel Slalom 3 |
| | | | | S | | | § | | | | | Z | | Z | Z | . | Z | Z | X | | | | | speed | Timer S4 / Speed |
| F | | | | . | | | | | | | | | M | : | S | S | . | z | | | | X | | running time (ranking) | Timer S4 / Swimming |
| F | | | | | | | | | | | | | M | : | S | S | . | z | h | | | X | | run time (ranking) | Timer S4 / Swimming |
| | | | | . | | | | | | | | | M | : | S | S | . | z | | | | X | | running time (board 1) | Timer S4 / Swimming |
| | | | | | | | | | | | | | M | : | S | S | . | z | h | Re | X | | | run time (board 1) | Timer S4 / Swimming |
| #h | #z | #e | . | | | | | H | H | : | M | M | : | S | S | . | z | | | X | | | | running time | Timer S4 / Automatic |
| #h | #z | #e | | | | | | H | H | : | M | M | : | S | S | . | z | h | t | X | | | | run time | Timer S4 / Automatic |

### 4.3.2 Ethernet

This interface is optional available with customized UTP-Protocol.

Subject to changes

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