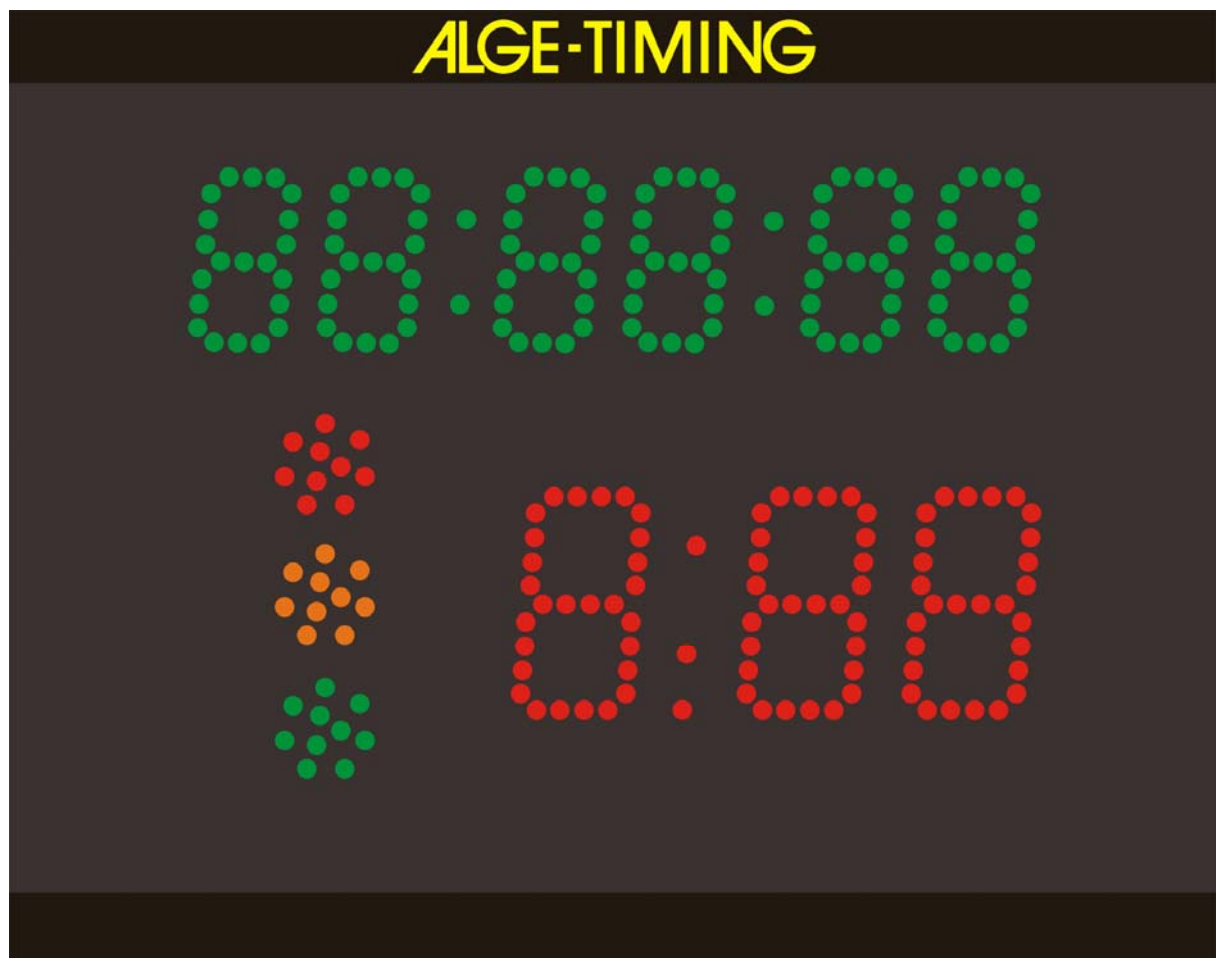


Startclock ASC2



English: 2007-07-20

ALGE
TIMING

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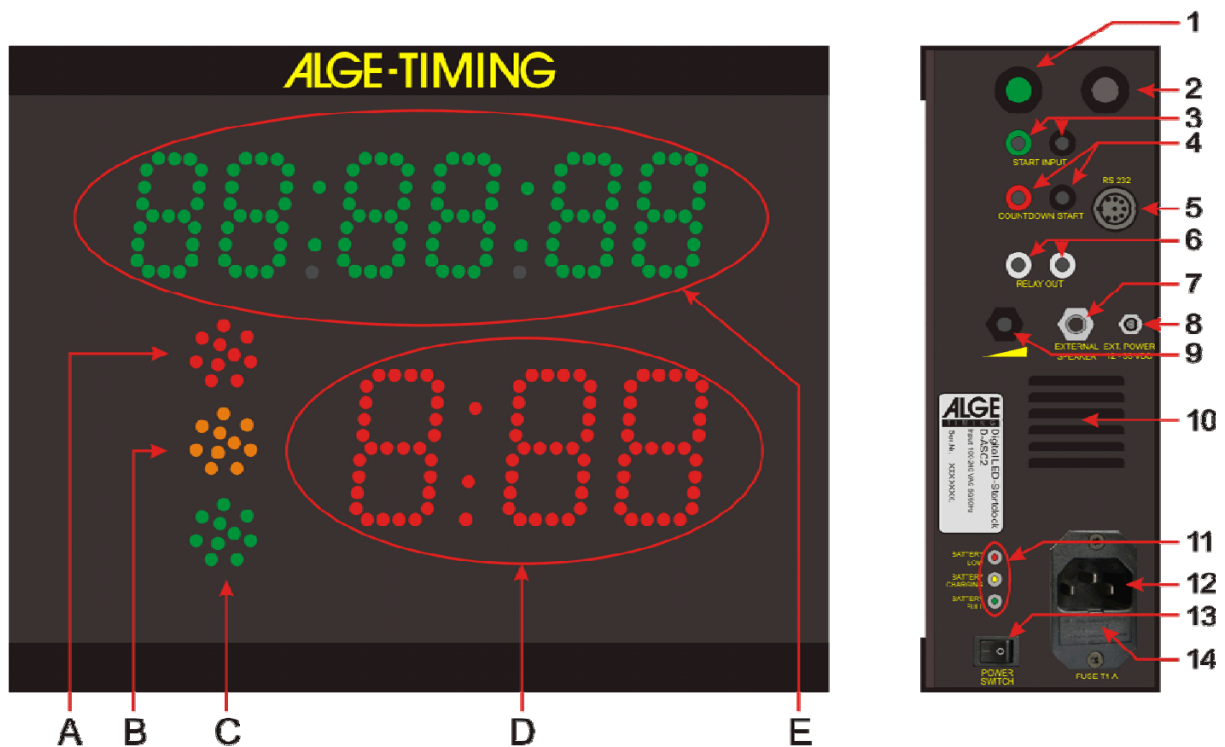
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Subject to technical alterations in terms of improvement!

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1 General



- A..... Red start light
 - B..... Yellow start light
 - C..... Green start light
 - D..... Countdown clock with adjustable start intervals
 - E..... Time of day clock with hours, minutes and seconds
-
- 1 Green push button
 - 2 Black push button
 - 3 Start input (e.g. startgate for skiing) with green and black banana socket
 - 4 Connector for push button to for start interval adjustment
 - 5 RS232 interface
 - 6 Start output with banana sockets
 - 7 Socket to connect an external speaker
 - 8 External 12V Power connection (12 – 35 VDC)
 - 9 Volume for speaker
 - 10 Horn for internal countdown speaker
 - 11 Battery condition and charging LEDs
 - 12 Mains connector to recharge internal battery of built in power pack (100-240VAC)
 - 13 On / Off – switch
 - 14 Fuse 1.0 A for power supply

1.1 Connections and instruments

1.1.1 *Green Push Button (1)*

The green push button (1) is in general a manual start button. If you press this button it will give start impulse (Same as getting a start impulse from start input (3)). Further the green push button is used for the adjustment. You can change the blinking parameter.

1.1.2 *Black Push Button (2)*

The black push button (2) is to select the countdown time. If you press the black push button during the standard operation it will allow you to change the interval time. Further the black push button is used to confirm parameters and move to other parameters.

1.1.3 *Start Input (3) - green-black banana socket*

At this input channel you can connect a start device (e.g. startgate or photocell). It will store the start time and the led/leg time for the start. This time you can show on the time of day display, print on a printer, or send to a PC by RS232.

Further this input channel is used to make the synchronic start with another device. It will take an external impulse for synchronization or if you press the green push button for synchronization it will also output an impulse through this socket to another device.

1.1.4 *Contact for Countdown Interval Adjustment (4)*

At this red and black banana socket (4) you can connect a push button. With this push button you can change the countdown interval. If you use the manual countdown, this push button will start the manual countdown.

Countdown Interval Adjustment:

- Press the push button for 3 seconds the time of day will disappear in display (E).
- It will show Cd# (# = number from 0 to 9). The number is blinking.
- In the countdown display (D) it shows the adjusted countdown time.
- Press the pushbutton (short) and it will change the selected countdown time.
- To confirm the new countdown time press the push button for 3 seconds and the Startclock will go back in the countdown mode with the new start interval.

1.1.5 *Start Output (6)*

This contact gives at the zero signal of the start interval an output impulse. This impulse you can use e.g. to start another timing device (start impulse).

1.1.6 *ON-OFF Switch (13)*

It switches the startclock on or off.

1.1.7 *POWER-LED (11)*

The power LEDs are red, yellow and green. The LEDs show the following status:

- Yellow blinking.....charging
- Green.....battery full
- Yellow.....low battery
- Redvery low battery, device will switch of soon

1.2 Power Supply (8+12)

The power supply is built into the startclock. It has a input for 100-240V AC or 12 – 35 VDC. The start clock has an internal battery. Connected to the mains the battery will be loaded.

Working Time: approximately for 8 hours at 20°C or 5 hours at –20°C

Charging Time: about ??? hours with empty battery

1.3 Display

1.3.1 Time of Day (E)

- Figure height is 55 mm
- 6 green LED numbers, separated by a colon
- The display shows hours, minutes, and seconds2 digit for seconds



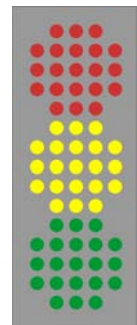
1.3.2 Countdown Time (D)

- Figure height is 80 mm
- 3 red LED numbers, separated by a colon
- 3 digit for countdown



1.4 Start Light (A+B+C)

The start light has red (A), yellow (B), and green (C) LED clusters. The start light is like a traffic light.



1.5 Horn (10+7)

The horn is used to have an acoustic signal of the countdown. This countdown lasts normally for the last 5 seconds. If the countdown is longer than 10 seconds there can be a warning tone at 10 seconds. For the countdown there are 2 frequencies. The lower frequency is for the warnings and the higher frequency for the start signal.

Alternative it is possible to connect an external horn at socket (7).

1.6 Mounting of the Startclock

The Startclock has two ways for mounting:

- 3/8 inch screw for tripod in the centre of bottom side
- Two straps to hang it at a wall

2 Operation

2.1 Parameters

diSStt display start times and led/leg-times
Print..... print memory
StorE select if you want to clear the memory
PrOGrA select the program (from 00 to 99)
Cd# countdown time - # = 1 to 9 (0 = break)
LigHt..... start light adjustment
Horn## speaker tone (# = Lo for low tone or Hi for high tone)
SEtUPto clear the adjusted setup and reset to the standard parameters

2.2 Starting up the Startclock

Switch the Startclock on with the On/Off-Switch (12).

2.2.1 *Memory*

After the Startclock is switched on you have the possibility to clear the memory.

- It shows <StorE> in the time of day display (E) and <YES> in the countdown display (D).
- With the green push button (1) you switch between <YES> and <nO>
 - YES.....save memory
 - nOclear memory
- With the black push button (2) you confirm the selection to clear or save the memory.

2.2.2 *Setting Time of Day*

After the memory is cleared or saved it will show the time of day in hours, minutes and seconds. Now you can adjust the time of day (see below).

- You can set the time of day only after you switch the Startclock on.
- When the Startclock is switch on it shows the time of day.
- The hours are blinking.
- With the green push button (1) you can set the hours (0 to 23 hours).
- With the black push button (2) you can switch from hours to minutes.
- With the green push button (1) you can set the minutes (0 to 59 hours).
- With the black push button (2) you can switch from minutes to seconds.
- With the green push button (1) you can set the seconds (0 to 59 hours).
- With the black push button (2) you can switch back to the hours, etc.
- If you keep the black push button (2) pressed for about 3 seconds the time of day will be set and it is ready for the synchronization. In the countdown clock field it will show SnC.
- The synchronization you make with an impulse on the start input banana sockets (3) or by pressing the green push button (1).

- When the time of day is started you can adjust the program that you want to use.

2.2.3 *Setting the Program*

- After the synchronization the time of day display (E) will show the running time of day for five seconds.
- After five seconds the time of day will disappear and it will show <ProgrA> in the time of day display (E).
- The countdown display (D) will show the last used program number (0 to 5).
- With the green push button (1) you can select the program number.
- With the black push button (2) you can confirm the selected program number.
- The Startclock is now running in the selected program with the countdown interval 1 of this program.

2.2.4 *Select the Countdown Interval*

The countdown time you can change at any time when the program is selected. When you change the countdown time it will recalculate the new countdown time. The zero point for the new countdown is always the zero tone of the last finished countdown.

If you select the countdown interval and do not change the interval time, than the active countdown will continue without showing the display. The previous countdown will only stop, when you select a new countdown.

The countdown interval you can select two ways:

a) Internal Black Push Button (2):

- Press the black push button (2) and it will show in the time of day display (E) Cd# (# = number from 0 to 9). The number is blinking.
- With the green push button you can select the countdown time.
Press the black push button again to confirm the new countdown time.
- In the display (E) it will show the time of day and in the display (D) the countdown time.
- If you select the manual countdown you need an external push button (see below).

b) External Push Button connected at red and black banana socket (4):

- Press the push button for 3 seconds the time of day will disappear in display (E).
- It will show Cd# (# = number from 0 to 9). The number is blinking.
- In the countdown display (D) it shows the adjusted countdown time.
- Press the pushbutton (short) and it will change the selected countdown time.
- To confirm the new countdown time press the push button for 3 seconds and the Startclock will go back in the countdown mode with the new start interval.
- If you select an external countdown the push button will start the countdown.

2.2.5 *Select the Brightness of the LED <brigt>*

The startclock has 10 brightness levels for the LED. During breaks (e.g. between two runs for Alpine Skiing) you should save the battery power by adjusting level 0.

- 0..... LED off (power safe)
- 1..... LED lowest level
- 5..... LED medium level
- 9..... LED highest level

If you select level 0 (power safe), the Startclock will not show anything on the front face and will also stop the acoustic output (sound off). As soon as you press the internal black push button (2) or the external push button connected at banana socket (4) it will go back in the brightness previous adjusted brightness mode.

a) Internal Push Buttons:

- Press the black push button (2) for six seconds until the display (E) shows <brIGHT> (it shows after 3 seconds <Cd#>).
- Adjust the brightness with the green push button (1).
- Confirm the selected brightness with the black push button (2).

b) External Push Button connected at red and black banana socket (4):

- Press the push button for six seconds until the display (E) shows <brigHT> (it shows after 3 seconds <Cd#>).
- Adjust the brightness by pushing the button.
- Confirm the selected brightness by pressing the button until the display (E) shows the time of day.

2.3 Programs

There are several programs available:

Program 1	P01	automatic countdown – Alpine Skiing
Program 2	P02	automatic countdown – Cross Country Skiing
Program 3	P03	automatic countdown – Car Racing
Program 4	P04	automatic countdown – Rally
Program 5	P05	manual countdown – Car Racing
Program 0	P00	manual horn

2.3.1 Program P01

The countdown starts to count automatic after the zero tone. The allowed start time is 5 seconds before or after the zero tone.

Sports: *Alpine Skiing*

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect a push button to adjust the countdown time

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals:

- CD1 = 0:30 min
- CD2 = 0:40 min
- CD3 = 0:45 min
- CD4 = 1:00 min
- CD5 = 1:15 min
- CD6 = 1:30 min
- CD7 = 1:40 min
- CD8 = 2:00 min
- CD9 = 2:30
- CD0 = Break

Sports: *Alpine Skiing*

Countdown	Display	Traffic Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Green	low
4	4	Green	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Red	off
-6	-6	Red	off
-7	-7	Red	off
-8	-8	Red	off
-9	-9	Red	off
-10	-10	Red	off

2.3.2 Program P02

The countdown starts to count automatic after the zero tone. The allowed start time is 3 seconds before or after the zero tone.

Sports: *Nordic Skiing – Cross Country*

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect a push button to adjust the countdown time

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals:

- CD1 = 0:30 min
- CD2 = 0:40 min
- CD3 = 0:45 min
- CD4 = 1:00 min
- CD5 = 1:15 min
- CD6 = 1:30 min
- CD7 = 1:40 min
- CD8 = 2:00 min
- CD9 = 2:30
- CD0 = Break

Countdown	Display	Traffic Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Red	off
-4	-4	Red	off
-5	-5	Red	off
-6	-6	Red	off
-7	-7	Red	off
-8	-8	Red	off
-9	-9	Red	off
-10	-10	Red	off

2.3.3 Program P03

The countdown starts to count automatic after the zero tone. The start light goes at zero on green.

Sports: Car Racing

Cycling: Individual Time Trial

Green/Black Banana Socket (3): start input from external start trigger device
(e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect a push button to adjust the countdown time

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals:

- CD1 = 0:30 min
- CD2 = 0:40 min
- CD3 = 0:45 min
- CD4 = 1:00 min
- CD5 = 1:15 min
- CD6 = 1:30 min
- CD7 = 1:40 min
- CD8 = 2:00 min
- CD9 = 2:30
- CD0 = Break

Countdown	Display	Traffic Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.4 Program P04

The countdown starts to count automatic after the zero tone. The start light goes at zero on green.

The countdown does have to go all the way to – 20 seconds. This is not the case yet.

Sports: Rally

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect a push button to adjust the countdown time

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals:
 CD1 = 0:30 min
 CD2 = 0:40 min
 CD3 = 0:45 min
 CD4 = 0:50 min
 CD5 = 1:00 min
 CD6 = 1:15 min
 CD7 = 1:30 min
 CD8 = 1:45 min
 CD9 = 2:00 min
 CD0 = Break

Countdown	Display	Traffic Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Yellow	low
4	4	Yellow	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Green	off
-11	-11	Green	off
-12	-12	Green	off
-13	-13	Green	off
-14	-14	Green	off
-15	-15	Green	off
-16	-16	Green	off
-17	-17	Green	off
-18	-18	Green	off
-19	-19	Green	off
-20	-20	Green	off
-21	-21	Red	off

2.3.5 Program P05

The countdown starts to countdown from 10 seconds after pressing the push button (external connected to red/black banana socket (4)). The start light goes at zero on green. After the countdown is on -10 it will show no light and no countdown time (only time of day).

Sports: *Mass Start with Countdown for any Sport*

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect push button to activate start

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals: manual mode

Countdown	Display	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.6 Program P06 (not available yet)

This is a simple countdown program that has an acoustic countdown from to zero and shows red before zero and green at zero for two seconds. The minimum countdown time is 5 seconds.

Sports: Individual start with short countdown times

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect a push button to adjust the countdown time

White Banana Socket (6): Output of start impulse (zero impulse)

Countdown Intervals:

CD1 = 0:05 min	CD6 = 0:40 min
CD2 = 0:10 min	CD7 = 0:45 min
CD3 = 0:15 min	CD8 = 1:00 min
CD4 = 0:20 min	CD9 = 1:30 min
CD5 = 0:30 min	CD0 = Break

Intervals between 3 and 6 seconds:

Countdown	Display	Start Light	Horn
3	3	Red	off
2	2	Red	off
1	1	Red	off
0	0	Green	high
next interval	next interval	Green	off

Intervals between 7 and 11 seconds:

Countdown	Display	Start Light	Horn
5	5	Red	low
4	4	Red	low
3	3	Red	low
2	2	Red	low
1	1	Red	low
0	0	Green	high
next interval	next interval	Green	off

Intervals over 12 seconds:

Countdown	Display	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Red	low
2	2	Red	low
1	1	Red	low
0	0	Green	high
next interval	next interval	Green	off

2.3.7 Program P00

The countdown starts to countdown shows the time of day and a red light. When you press the push button (external connected to red/black banana socket (4)) it will go on green for 5 seconds and give the high tone (for one second).

Sports: Mass Start for any Sport

Countdown Intervals: manual mode

Green/Black Banana Socket (3): start input from external start trigger device (e.g. startgate, photocell)

Red/Black Banana Socket (4): to connect push button to activate start

Push Button	Display	Start Light	Horn
off	---	Red	off
on	GO	Green	high
off	GO	Green	off
off	GO	Green	off
off	GO	Green	off
off	GO	Green	off
off	---	Red	off

3 Parameter adjustment

To adjust the parameters you have two possibilities:

- Parameter adjustment in the Startclock
- Parameter adjustment from a PC

3.1 Parameter Adjustment in the Startclock

To get in the parameter adjustment menu press the black push button (2) for about 9 seconds until the time of day display (E) shows <diSStF>.

By pressing the black push button (2) you will switch between the different parameters. With the green push button (1) you can change the parameters. To confirm the changed parameters press the black push button (2) until the display (E) shows the time of day.

diSStt display start time of first competitor
PrInt print memory
PrOGrA select the program (from 00 to 99)
StOrE select if you want to clear the memory
Cd# countdown time #
LIGht..... start light adjustment
tOnE#..... speaker tone (# = L for low tone or H for high tone)
SEtUP to change all parameters to standard (company setup)

If you enter to the parameter adjustment menu, one of the parameter is blinking (E). Pressing green button you can switch between parameters. Pressing black push button will enter to change this parameter.

If you do not press any button for 6 sec, you will leave the parameter adjustment mode.

3.1.1 *Display the Start Times <diSStt>*

The display (E) shows blinking <diSStt> (**D**isplay **S**tart **T**ime).

- Press the BLACK push button (1) and the display (E) will show the number of the last starter.
- Release the BLACK push button (1) and the display (E) will show the time of the start time of the last starter
- In the display (D) you will see the lead/leg time.
- If the traffic light is yellow the start was after the zero impulse.
- If the traffic light shows green the start tolerance was OK.
- If the traffic light shows red the start was outside the start tolerance
- If you press the green button (1) it will show the start time of the starter before, etc.
- If you press the black push button (2) the display will show the previous time again, etc.
- If you want to show e.g. the first time, press the black push button (1) when the display shows the last start number.
- To leave the menu you have to press the black push button (2) as long until the display (E) shows again blinking < diSStt >.

- Now, pressing green button you can switch between parameters. Pressing black push button will enter to change blinking parameter

3.1.2 *Print the Memory <PrInt>*

The display (E) shows <PrInt> and the display (D) shows <onL>or <oFF> depends of current mode. If you activate the print mode, it output for each start the continuous number, start time and led/leg time.

```
0001 ST 10:00:00.1431
          +0.1431
0002 ST 10:00:59.3844
          -0.6156
0003 ST 10:02:01.3217
          +1.3217
```

- Press black push button (1) and the display (D) will blink <oFF> or <onL>.
- Press the green push button (1) and the display (D) will show blinking <onL>. This means the Startclock will print online the official start time and the led/leg time.
- If you want to activate the online mode press the black push button (2).
- Now, after any start impulse on start gate (green/black banana) ASC will send on serial port (2400 b/s) the continuous number, start time and led/leg time.
- If you do not want the online mode press again black push button (2). Press the green push button (1) again. The display (D) will show <oFF>.
- If you want to deactivate the online mode press the black push button (2).
- If you want to print complete memory press again black push button (2). Pressing the green push button (1) adjust to display (D) show <ALL>.
- If you confirm now with the black push button (2) it will send on serial port the complete memory.
- Now, pressing green push button (1) can switch between parameters.

3.1.3 *Select the Program <ProgrA>*

The display (E) shows <ProgrA> and the display (D) shows the actual selected program number. Here you can change to another program.

- The countdown display (D) will show the actual program number (0 to 5).
- With the green push button (1) you can select the program number.
- With the black push button (2) you can confirm the selected program number.
- Now, pressing green push button (1) can switch between parameters.

3.1.4 *Delete the Memory <StorE>*

The display (E) shows <StorE>. Now you can delete the memory.

- It shows <StorE> in the time of day display (E) and in the display (D) <YES>.
- With the green push button (1) you switch between <YES> and <nO>
 - YES.....save memory
 - no.....clear memory
- With the black push button (2) you confirm the selection to clear or save the memory.

3.1.5 *Adjust the Countdown Time <Cd#>*

For each program you have 9 different countdown times (Cd1 to Cd9). Additionally you have Cd0 that is always the break (no countdown). If the time of day display (E) shows <Cd#> if you select the menu to adjust the countdown times, then you adjust the countdown times of the actual program.

- **The shortest allowed countdown time is 20 seconds, the longest 9:59 minutes.**
- **You cannot change a countdown in program 5 and 0.**
- **You can never change the set countdown time and the Cd0 (manual countdown time or break).**
- The display (E) shows <Cd#> (# = number of 0 to 9) and the countdown display (D) shows the adjusted countdown time.
- Press the black push button (2) to select the countdown time that you change.
- Now the first digit of the countdown times blinks.
- Press the green push button (1) to change the digit.
- Press the black push button (2) to change to the next digit.
- Press the green push button (1) to change the digit.
- Press the black push button (2) to change to the last digit.
- Press the green push button (1) to change the digit.
- Press the black push button (2) to change to the first digit, etc.
- To leave the selected countdown you have to press the black push (2) button until the display (E) shows again <Cd#>. No digit blinks any more.
- To leave the countdown menu you have to press the black push (2) button until the display (E) shows again <LIGth>.

3.1.6 Adjust the Start Light <LigHt>

The start light has three colors (red, yellow and green). You can adjust the start light for each countdown. The adjusted values are always valid for all countdowns in this program (not Cd 0).

The display (E) shows <LigHt> (light) and the display (D) shows <10>. The start light will show the adjusted color of this time.

- The display (E) shows blinking <LigHt> and the display (D) shows <10>.
- Press black push button and the display (E) shows <LigHt> and the countdown display (D) shows blinking 10. Further the start light shows red, yellow or green or all (light is off).
- Press green push button to adjust time, incrementing seconds.
- Press the black push button (2) and the traffic light blinks.
- Press the green push button (1) to change the light color.
- Press the black push button (2) to save the light color and change to the <LigHt> blinking.
- Repeat previous steps or pressing green push button until <LigHt> blink - go to the next parameter.

Example:

Start Light = red	Countdown Time = 10
Start Light = yellow	Countdown Time = 5
Start Light = green	Countdown Time = 3
Start Light = red	Countdown Time = -3
Start Light = black	Countdown Time = -10

Countdown	Display	Traffic Light
11	11	no
10	10	Red
9	9	Red
8	8	Red
7	7	Red
6	6	Red
5	5	Yellow
4	4	Yellow
3	3	Green
2	2	Green
1	1	Green
0	0	Green
-1	-1	Green
-2	-2	Green
-3	-3	Red
-4	-4	Red
-5	-5	Red
-6	-6	Red
-7	-7	Red
-8	-8	Red
-9	-9	Red
-10	-10	Red
-11	-11	no

3.1.7 Adjust the Tone of the Speaker <Horn>

The tone of the speaker can be off, with a high tone or a low tone. Most sports want a pre-warning at 10 seconds and a countdown from 5 seconds to 0.

The adjusted values are always valid for all countdowns in this program (not Cd 0).

- The display (E) shows blinking <Horn##> (## = Lo(low) or Hi (high) or oF(off)). The display (D) shows <10>.
- Press black push button and the display (E) shows <Horn> and the countdown display (D) blinks and shows 10. Further the start light shows red, yellow or green or all (light is off).
- Press green push button to adjust time, incrementing seconds.
- Press the black push button (2) and the tone (Lo, Hi, oF) blinks.
- Press the green push button (1) to change the tone.
- Press the black push button (2) to save the tone and change to the <Horn> blinking.
- Repeat previous steps or pressing green push button until <Horn> blink - go to the next parameter.

Example:

Horn Low	Countdown Time = 10
Horn Low	Countdown Time = 5
Horn Low	Countdown Time = 4
Horn Low	Countdown Time = 3
Horn Low	Countdown Time = 2
Horn Low	Countdown Time = 1
Horn High	Countdown Time = 0

Countdown	Horn
10	low
9	off
8	off
7	off
6	off
5	low
4	low
3	low
2	low
1	low
0	high
-1	off
-2	off
-3	off
-4	off
-5	off
-6	off
-7	off
-8	off
-9	off
-10	off

3.1.8 Standard Setup <SEtUP>

It is possible to change the parameters of the ASC2. If you have troubles with the ASC2 we recommend loading the standard setting that you had when the ASC2 was delivered. This means, that all your special adjustments in the startclock will be replaced by standard values.

The display (E) shows blinking <SEtUP> (SETUP).

- The display (D) shows <CUS>. This means custom adjustments will be kept after switching on and off.
- Press the black push button (2) and the display (D) will blink.
- Press the green push button (1) and you can change between <CUS> (= customer) and <STA> (= standard).
- If the display shows <STA> and you press the black push button (2) it will set all the parameters to the standard values (original adjustment).

Attention: The startclock will keep automatically the customer values that you adjust. To reset this values to the standard values (setting as ASC2 was delivered) you have to reset as above described.

3.2 Parameter adjustment from a PC

We can offer software to make the parameter adjustment from a PC. This is much faster and easier. You can download software from our homepage www.alge-timing.com free of charge.

4 RS 232 Interface

The RS232 interface has different functions:

- Remote control connection (e.g. device to control the Startclock)
- Output of time difference of all start times (times from start input (3) (green and black banana socket), and lead leg times)
- RS 232 interface to control the startclock from a PC (time of day display, countdown display, horn, traffic light)
- Connection for the printer P5 to print all times online or offline.

Interface parameter:

- RS 232
- 1 start bit, 8 data bit, 1 stop bit, no parity bit
- 2400 baud rate (for printer 2400)

4.1 Commands for reading data from device:

4.1.1 Read memory: *implemented*

PC to ASC2:

?M**CR**

ACS2 to PC:

M? XXXX ST HH:MM:SS.zht LT -SS.zht**CR**

M? EMPTY**CR**

XXXX – start number

ST

HH:MM:SS.zht -start time

L T

– sign

SS.zht - lead or leg time

EMPTY – memory is empty

4.1.2 Clear memory: *implemented*

PC to ASC2:

?C**CR**

ACS2 to PC:

C?**CR**

4.1.3 Get current values on-line: *implemented*

PC to ASC2 to start:

?D**CR**

PC to ASC2 to stop send again:

?D**CR**

ACS2 to PC:

D? HH:MM:SS m:ss C H**CR**

HH- hours

MM-minutes
SS- seconds
m- current countdown time minutes
ss- current countdown time seconds
C color (B=0, R=1, Y=2, G=3)

4.1.4 *Get current values:* *implemented*

PC to ASC2:
?SCR one time

ACS2 to PC:
D? HH:MM:SS m:ss C XX m:ss bCR
HH- hours
MM-minutes
SS- seconds
m- current countdown time minutes
ss- current countdown time seconds
C color (B=0, R=1, Y=2, G=3)

XX – program
m – CDT minutes
ss – CDT seconds
b - brightness

Commands for setting data:

4.1.5 *SET PROGRAM* *implemented*

PC to ASC2:
=PXXCR
XX program (0-19)

ACS2 to PC:
P=CR

4.1.6 *SET COUNTDOWN TIME* *implemented*

PC to ASC2:
=C SS CR
M minutes (0-9)
SS seconds (0-59)

ACS2 to PC:
C=CR

4.1.7 *SET CLOCK TIME* *implemented*

PC to ASC2:
=T HHMMSS CR

ACS2 to PC:
T=CR

4.1.8 SET TRAFFIC LIGHT *implemented***PC to ASC2:****=LXXSSTHCR**

XX program (0-19)

SS seconds (0-20, 0=-10, 20=10)

T color (0-off, 1-red, 2-yellow, 3-green)

H sound (0-off, 1-high, 2-low)

ACS2 to PC:**L=CR****4.1.9 SET DISPLAY** *implemented*

Has effect only if device is in slave mode

PC to ASC2:**=DHHtpMMtpSSmtpssTHCR**

HH- hours

MM-minutes

SS- seconds

m- countdown time minutes

ss- countdown time seconds

T color (0-off, 1-red, 2-yellow, 3-green)

H sound (0-off, 1-high, 2-low)

tp- two points

ACS2 to PC:**D=CR****4.1.10 GOTO SLAVE MODE** *implemented***PC to ASC2:****=SLAVECR****ACS2 to PC:****S=CR****4.1.11 GOTO MASTER MODE** *implemented***PC to ASC2:****=MASTERCR****ACS2 to PC:****S=CR****4.1.12 SET BRIGHTNESS** *implemented***PC to ASC2:****=BXCRCR**

X- brightness (0-9)

ACS2 to PC:**B=CR**

5 Technical Data

<i>Timing range:</i>	23 hours, 59 minutes, 59,999 seconds
<i>Accuracy:</i>	+/- 0,0002 sec/h at 20°C (68 K) +/- 0,009 sec/h at -15 to 50 °C (5 to 122 K)
<i>Precision:</i>	1/1000 seconds
<i>Time Base:</i>	temperature compensated real time clock
<i>Time of Day LED-Field:</i>	Six 7-segment LED figures with a figure height of 55 mm, separated after every second figure with three dots
<i>Countdown LED-Field:</i>	Three 7-segment LED figures with a figure height of 70 mm, separated between the first and second figure with three dots
<i>Start Light:</i>	Start light consisting of 3 LED clusters (red, yellow, green)
<i>Extern Speaker:</i>	8 Ohm
<i>Operative temperature range:</i>	-25 to 60°C (-13 to 140 F)
<i>Memory:</i>	about 2560 start times
<i>RS232 Interface:</i>	PC: 2400 Baud, 1 start bit, 8 data bit, 1 stop bit, no parity bit Printer: 2400 Baud, 1 start bit, 8 data bit, 1 stop bit, no parity bit



- 1..... Data TXD (transmit)
- 2..... Common Ground
- 3..... Data RXD (receive)
- 4..... CTS
- 5..... RTS
- 6..... empty
- 7..... Output external supply (printer)
- 8..... empty

<i>Battery:</i>	12 VDC, 7.2 Ah
<i>Ext. Power Supply:</i>	AC-Power: 100 – 240 VAC DC-Power: 12 – 36 VDC
<i>Case:</i>	Aluminum case for outdoor use
<i>Measurements:</i>	380 x 310 x 110 mm (18.4 x 13.5 x 4.5 in.)
<i>Weight:</i>	6.4 kg (14.1 lbs.)

