

Service Manual NG12 2008 - present



NAUTRONIC
SCOREBOARD SYSTEM

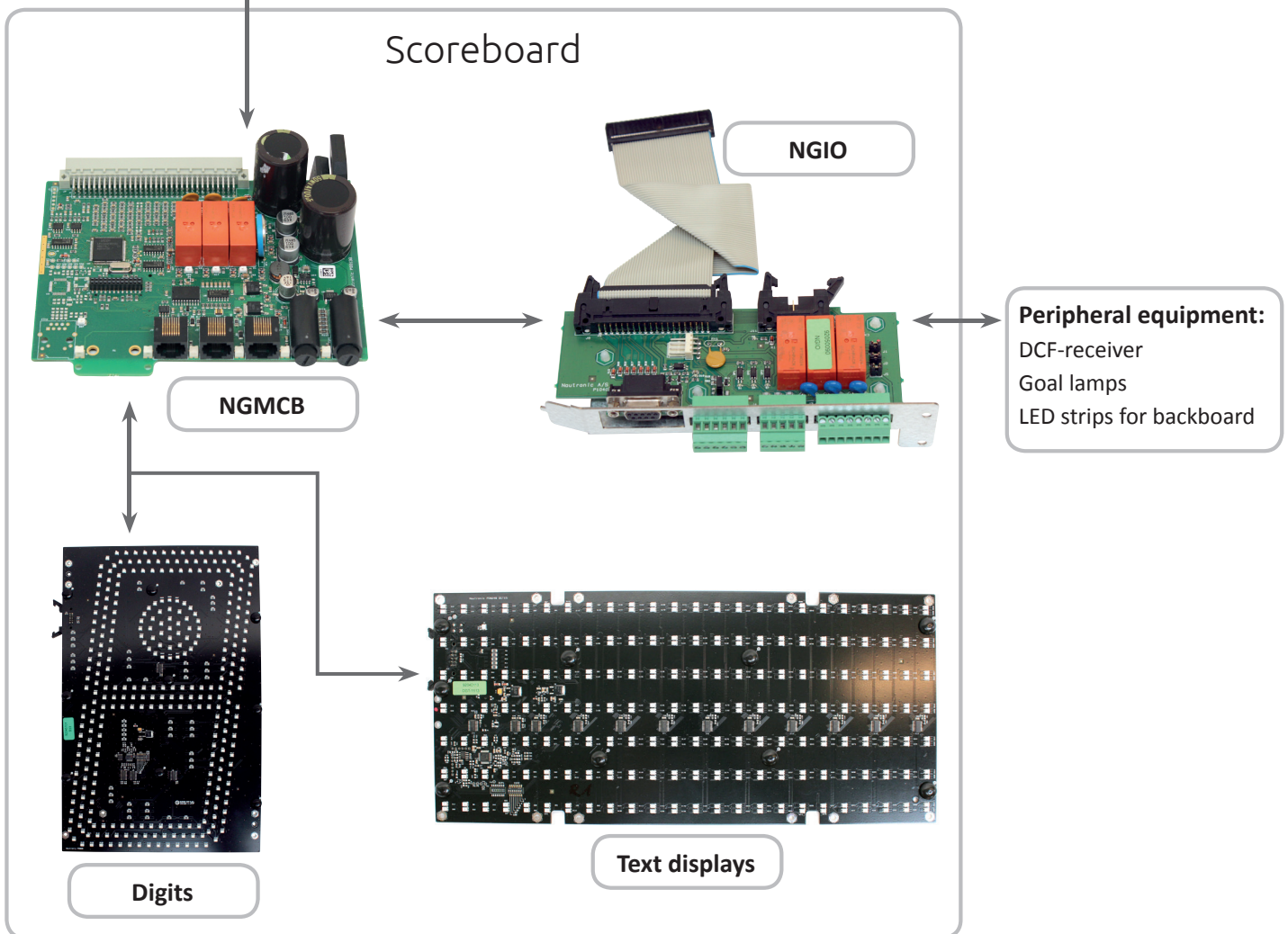
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2 Block diagram

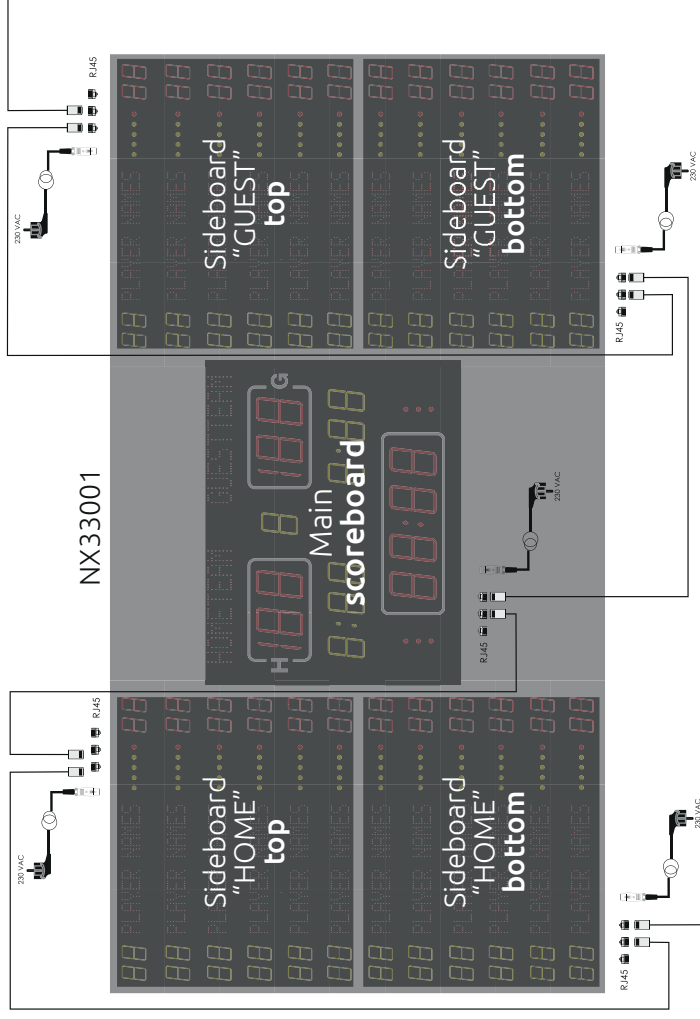


Naucon-1000

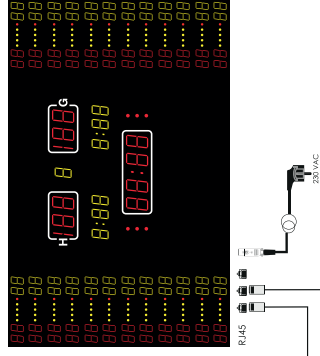


Installation instructions

Scoreboard connections



NA2164

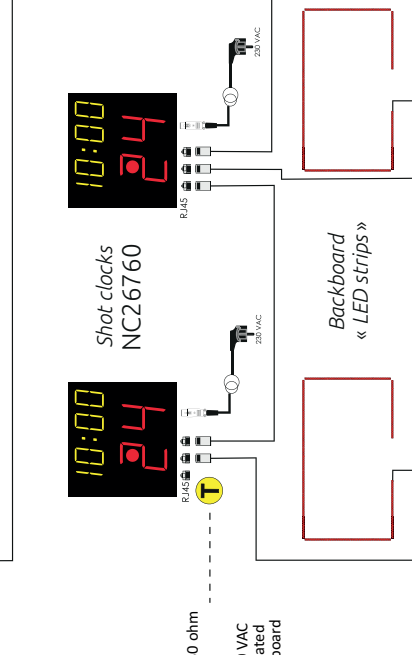


PLEASE NOTE ...

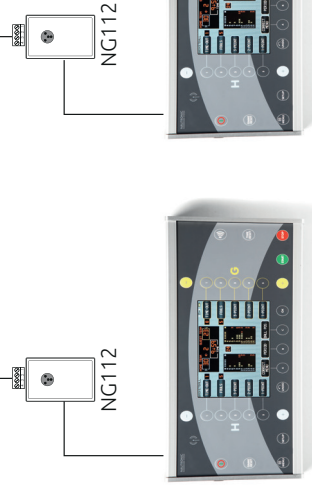
Cables between control units and scoreboards are not provided.

NauNetcable specifications: CAT5 cable with RJ45 connectors.

Maximum cable length 500 meters. If the cable length exceeds 500 meters, contact Nautronic for instructions.



Terminator resistor 330 ohm is standard mounted.
Please disconnect 230 VAC and switch the terminated connector to the last board of the entire net.



Naucon-1000 controlpanels

4 Troubleshooting

HARDWARE PROBLEMS: Locate the problem with a little help from the diodes and the illustration below, *Fig. 8*.

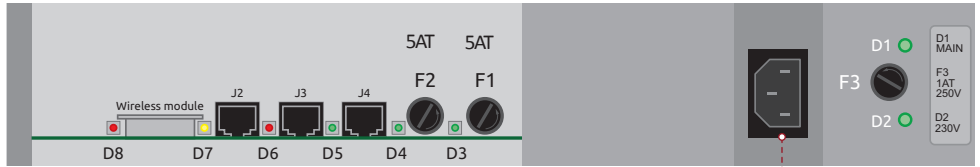


Fig. 8 – Normally placed at the bottom of the scoreboard

Power connection

- D1**
Power connection OK.
OFF, control power connection
- D2**
F3 230V fuse OK.
OFF, change* F3 (1AT)
- D3**
F1 12VDC horn OK.
OFF, change* F1 (5AT)
- D4**
F2 24VDC digits OK.
OFF, Change* F2 (5AT)
- D5**
24VDC for Naucon-1000.
Remove all plugs connected to J2, J3 and J4. If D5 light turns on, there might be a short circuit in the cables or in Naucon-1000.
- D6**
Naucon-1000: Flashing when data is received through cable or wireless.

Naucon 10, 20, 30, 40: Only a short flash when button is activated.

OFF, no data received.
- D7**
Always flashing. Internal operation
OFF, change NGMCB or call service.
- D8**
Naucon 1000:
Flashing when wireless data is received.
→ Wireless module must be installed for D8 to function.
→ Make sure Naucon-1000 is turned on.
Naucon 10, 20, 30, 40:
Only a short flash when button is activated.

*
Change of fuse. Press top of fuse holder and turn counter-clockwise.

Important notice

Before calling nautronic for service please go through the above instructions step by step and make notes.

4.2 NT Control Panel.

If the Power LED ON:

- If **wired** connect NT Control Panel to the Scoreboard.
- If **wireless**, turn the NT Control Panel ON.
- If the NT Control Panel dose not respond and the Displays do not show text, the NT Control Panel is damaged and must be sent to repair.



Power LED OFF:

NT Control Panel - Cabled:

- Check the Cable connected between the Scoreboard system and the NT Control Panel.
- Check the Wall connector.

NT Control Panel - Wireless:

- Exchange the battery charger. Let the wireless NT Control Panel charge for approximately 30 minutes.

Naucon-1000 test	NAUTRONIC SCOREBOARD SYSTEM	Description of Naucon-1000 test menus
Revision: 1		

Test Menus Naucon-1000

Board info

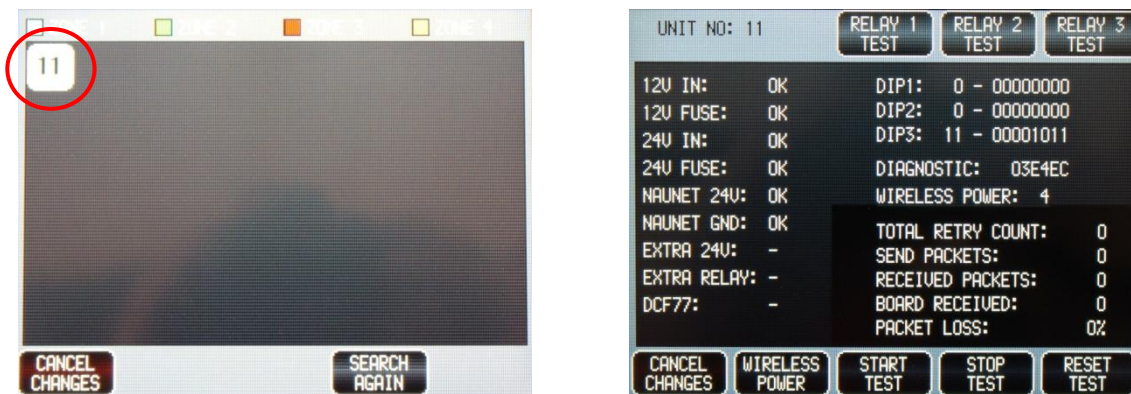
To enter the Board info menu press:

'Menu' -> 'Exit Sport' -> 'General Setup' -> 'Board Info'

Diagnostic menu.

The Diagnostics menu can be entered by pressing the desired address button in the Board info menu, example **11** on the display. The Naucon-1000 will enter a Diagnostic menu where all information of the Scoreboard is available.

When the Diagnostic menu is opened, the Scoreboards address will be shown in the Home score, Zone in the Guest score and the software version in the Game time/Day time clock digits.



Diagnostic menu explained:

Text	Description
12V In	12VAC supply for the NGMCB.
12V Fuse	12 VDC Fuse F1.
24V In	24VAC supply for the NGMCB
24V Fuse	24 VDC Fuse F2
Naunet 24V	24 VDC for the digits
Naunet GND	Ground/GND for the NGMCB
Extra 24V	NGP-85 24V supply. <i>NGP-85 is not mounted in all Scoreboards.</i>
Extra Relay	Relay mounted in the NGP-85. <i>NGP-85 is not mounted in all Scoreboards.</i>
DCF77	NG-DCF receiver. <i>DCF77 receiver is optional.</i>

Naucon-1000 test	NAUTRONIC SCOREBOARD SYSTEM	Description of Naucon-1000 test menus
Revision: 1		

Text	Description
DIP1	Dip setting of DIP1 in the NGI-85.
DIP2	Dip setting of DIP2 in the NGI-85.
DIP3	Dip setting of DIP3 in the NGI-85.
Diagnostic	Shows checksum of diagnostics information
Wireless Power	Wireless power, which can be adjusted from 0 to 17 for test purpose only.
Total retry count	Total retries of sent packets to the Scoreboard.
Send packets	Number of packets sent from the Naucon-1000 unit.
Receive packets	Number of packets the Naucon-1000 has received from the Scoreboard.
Board receives	Number of packets the NGMCB has received from the Naucon-1000 unit.
Packet loss	Lost packets.

Naucon-1000 test	NAUTRONIC SCOREBOARD SYSTEM	Description of Naucon-1000 test menus
Revision: 1		

Diagnostic troubleshooting guide.

This troubleshooting guide explains how the Diagnostic menu can be used.

Function	OK	Error	Fault
Relay 1	OK	Error	Cable or Horn connected to J7 faulty.
Relay 2	OK	Error	Cable or Horn connected to J8 faulty.
Relay 3	OK	Error	NG-Out or LED-Strip connected to J9 faulty.

12V In	OK	Error	No 12VAC supply.
12V Fuse	OK	Error	Fuse F1 blown.
24V In	OK	Error	No 24VAC supply.
24V Fuse	OK	Error	Fuse F2 blown.
Naunet 24V	OK	Error	Fuse F2 blown.
Naunet GND	OK	Error	Possible short circuit on equipment connected to the NGMCB.
Extra 24V	OK	Error	*Fuse F12 blown.
Extra Relay	OK	Error	*N/A
DCF77	OK	Error	**NG-DCF has bad reception or is not installed correct.

DIP1	Default is 0 – 00000000.
DIP2	Default is 0 – 00000000.
DIP3	Default is 11 – 00001011.

Diagnostic	Shows checksum.
Wireless Power	0-17. Can only be edited when test is started.

Press the Start test and thereafter the Reset test button at the bottom of the screen, for the Wireless-test to begin.

Description.	OK.	Error.	Fault.
Total retry count	0	Counting.	Error in communication, see below.
Send packets	***Counting.	0	If 0, the radio in the Naucon-1000 could be faulty.
Receive packets	***Counting	0	If 0, the radio on the NGMCB could be faulty.
Board receives	***Counting	0	If 0, the radio in the Naucon-1000 could be faulty.
Packet loss	0	Counting	Lost packets.

* Only displayed on Scoreboards with NGP's mounted.

** Only displayed on Scoreboards with NG-DCF module mounted.

***Should approximately show the same value.

Naucon-1000 test	NAUTRONIC SCOREBOARD SYSTEM	Description of Naucon-1000 test menus
Revision: 1		

Service Menu Tests

To enter the service menu press:

'Menu'->'Exit Sport'->'General Setup'->'Service Menu'->enter code:'1166'.

Browse to page 6/7.

Test menu: This function is used to test the Scoreboard digits, dots and Text displays.

Test 1: When selected, all digits and dots are turned on. If text displays are installed, they will show the address of each individual text board:

- Home team text display = 0 1 2 3 5
- Combined team text display = 0 1 2 4 5
- Guest team text display = 88 89 90 91 92
- Home Sideboard text displays line 1 = 8 9 10
- Home Sideboard text displays line 2 = 12 13 14
- ...
- Guest Sideboard text displays line 1 = 136 137 138
- Guest Sideboard text displays line 2 = 140 141 142
- ...

Test 2: When selected, all digits count from 0 to 9. Dots turn on and off, from the bottom up. The text displays will keep showing the addresses.

Test 3: When selected, groups of digits in the Main Scoreboard are turned on, from the top down. The text displays will keep showing the addresses.

Test4: When selected each text line at a time will turn all LEDs on for a few seconds followed by 'Done'. The digits and Dots will be off.

Test handles: This function is used to test if a control handle is functioning correct.

Test-sheet: When a button is pressed on the control handle, the following numbers appear in the Test handles box.

- Start Game time = 1
- Stop Game time = 2
- Start/Stop Shot clock time = 3.
- Reset Shot clock time = 4.
- Shotclock Time2 = 34
- Game Horn = 5

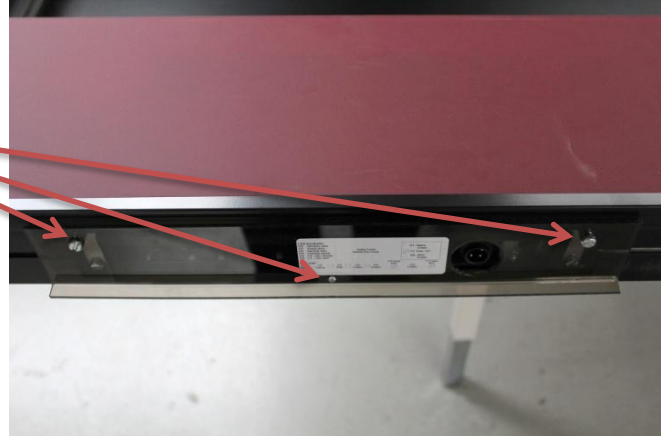
NGMCB in Outdoor scoreboards	NAUTRONIC SCOREBOARD SYSTEM	How to replace
Revision: 1		

Removing NGMCB in outdoor scoreboards

Remove the power cable from the scoreboard.

Remove the three screws holding the cover.

Remove the cover.

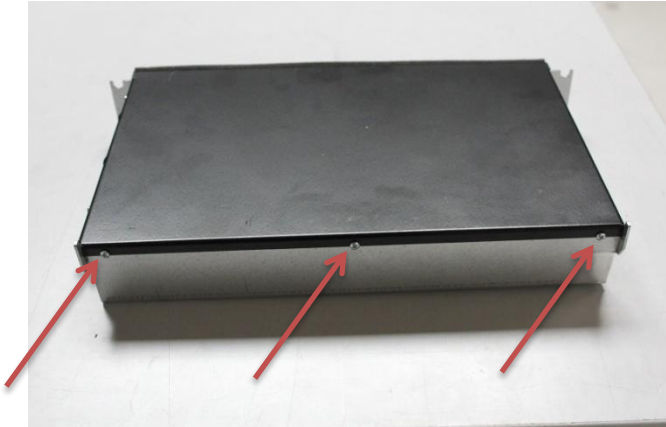


Remove the two screws holding the insert.

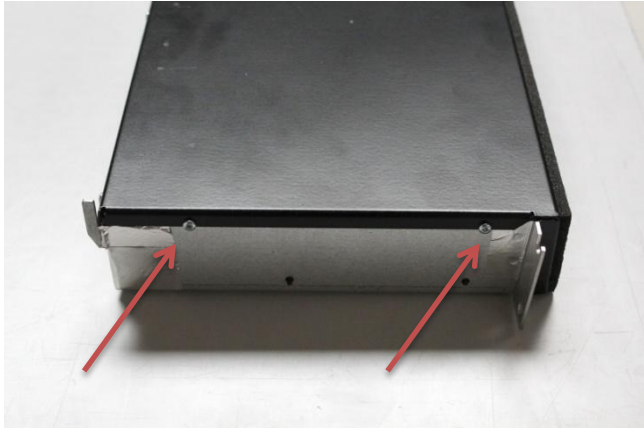
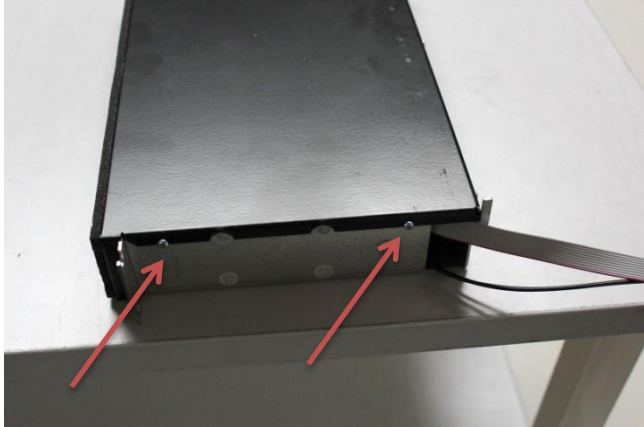


Carefully pull out the insert.





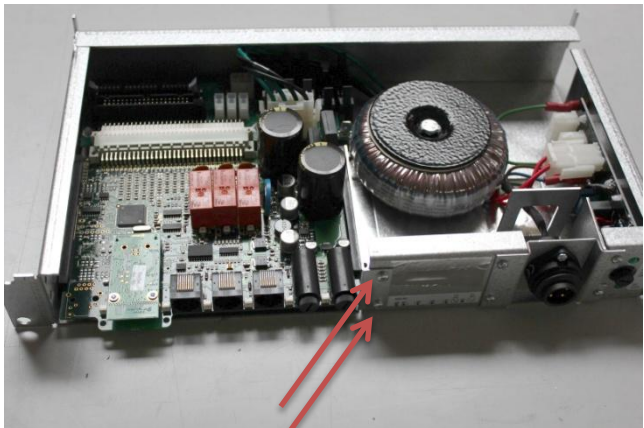
Remove the 7 screws holding the cover of the insert.



Remove the cover from the insert. Use a flat-tip screw driver to pry open the cover starting from the back. The cover is very tight.



Remove the two screws and the retaining plate holding the NGMCB board.

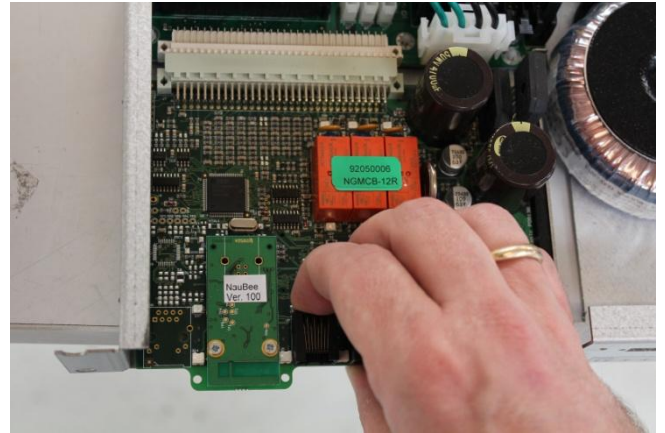


NGMCB in Outdoor scoreboards	NAUTRONIC SCOREBOARD SYSTEM	How to replace
Revision: 1		

Pull out the NGMCB by holding the three RJ45 connectors.

Push in the new NGMCB. Make sure the connectors are completely mated.

Reassemble the insert and scoreboard.



If the scoreboard is controlled by a Naucon-1000 the board zone setup has to be transmitted to the scoreboard.

Make sure the scoreboard is turned on and within range of the Naucon-1000.

1. Turn on the Naucon-1000.
2. Exit to the Select sport menu.
3. Enter the General Setup.
4. Enter the Service menu.
5. When prompted for a password, enter **1166**.
6. Select page 3.
7. Enter Board zones setup.
8. Press Accept to transmit the board zones to the scoreboard.

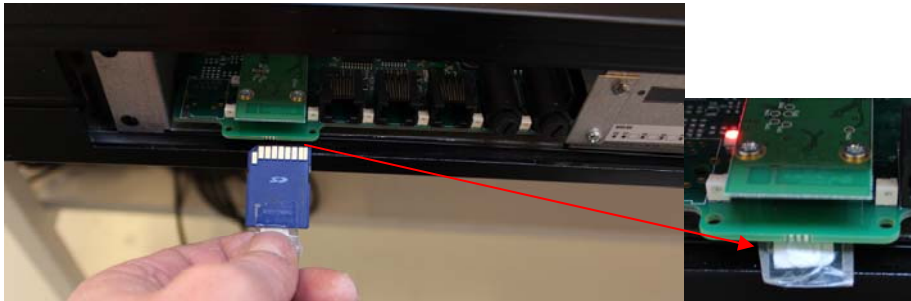
1. How to update software in scoreboard

The main board for the scoreboard is placed at the bottom of the scoreboard, where the power cable for the scoreboard is connected.

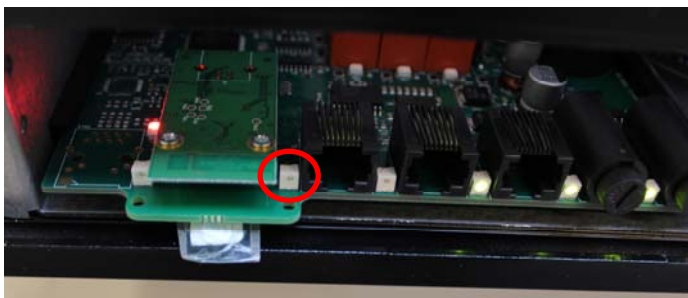
1. First remove power from scoreboard



2. Insert SD-card with ngmcb.bin file placed in the root



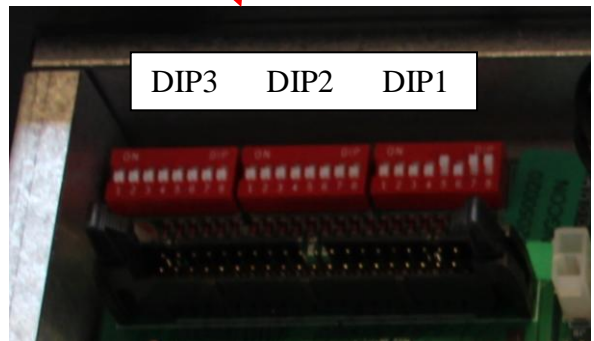
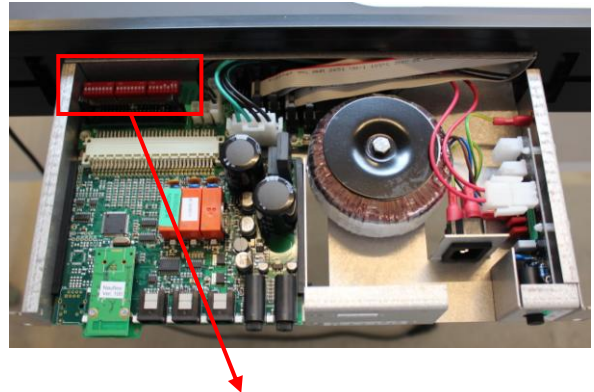
3. Reconnect power to scoreboard
4. During programming the yellow LED is lid constantly, when the programming is finished the yellow LED will start flashing



Programming is now finished, the scoreboard will display its software version in match time. The SD card can be removed.

1. How to find the DIP-switches.

1. Turn of the power of the Scoreboard.
2. Locate the NGI-85 power-box in the bottom of the Scoreboard.
3. Remove the four screws and the see-through plastic cover.
4. Pull the NGI-85 power-box gently out of the Scoreboard frame.
5. The DIP-Switches are located in the top left corner.



1. NG12 DIP-Setting information.

This document describes how to read, set and edit the functions of the NG12 generation Scoreboards via the DIP-Switches DIP1, DIP2 and DIP3.

2. How to read the DIP-Switch.

The **black square** indicates the position of the switch.

UP is ON and **DOWN is OFF**.

Example 1.



On this picture all 8 switches are set to **OFF**.

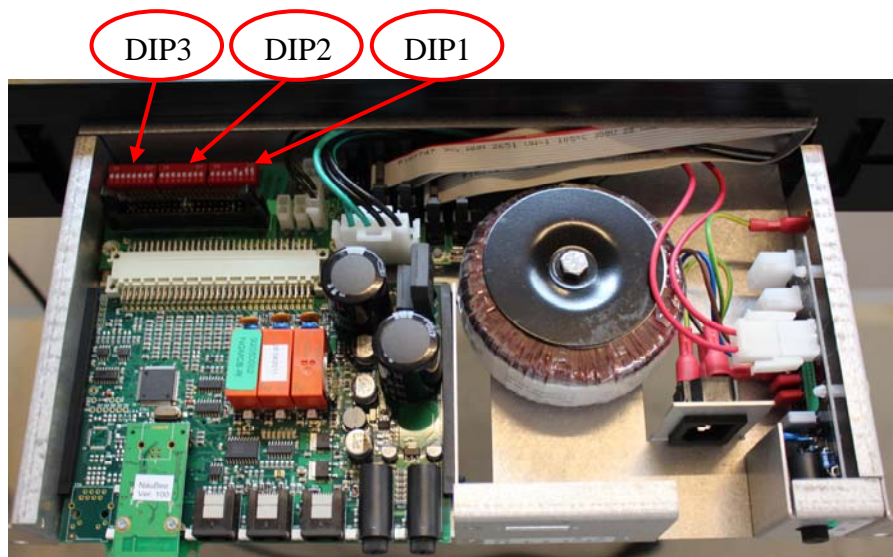
Example 2.



On this picture, switch **1** is set to **ON** and **2-8** is set to **OFF**.

3. DIP-Switch location.

The DIP-Switches DIP1, 2 and 3 are located in the upper left corner in the NGI-85, and sets the functions of the Scoreboard.



NG12	NAUTRONIC SCOREBOARD SYSTEM	DIP-Settings and Functions
Revision: 2		

4. DIP-Switch functions.

This sheet shows the functions off DIP-Switch 1, 2 and 3.

DIP	No.	Function (OFF)	Function (ON)
3	1	Master. <i>No function.</i>	Slave. <i>No function.</i>
3	2	Not used.	Not used.
3	3	Not used.	Light sensor connected
3	4	Not used.	Toggle between date and time
3	5	Handle Type bit 3 (App. selection)	<i>No function.</i>
3	6	Handle Type bit 2 (App. selection)	* App. Select.
3	7	Handle Type bit 1 (App. selection)	* App. Select.
3	8	Handle Type bit 0 (App. selection)	* App. Select.
2	1	Fixed Wireless Channel OFF (Scan)	Fixed Wireless Channel ON.
2	2	NauBee Fixed Wireless Channel bit 1	Fixed Wireless Channel bit 1 ON.
2	3	NauBee Fixed Wireless Channel bit 0	Fixed Wireless Channel bit 0 ON.
2	4	Not used.	Not used.
2	5	Not used.	Not used.
2	6	DCF77 GMT SIGNED BIT = PLUS	DCF77 GMT SIGNED BIT = MINUS.
2	7	DCF77 GMT BIT 1 = 0 HOURS	DCF77 GMT BIT 1 = 2 HOURS.
2	8	DCF77 GMT BIT 0 = 0 HOURS	DCF77 GMT BIT 0 = 1 HOURS.
1	1	Board Address bit 7 (MSB)	Scoreboard address 128.
1	2	Board Address bit 6	Scoreboard address 64.
1	3	Board Address bit 5	Scoreboard address 32.
1	4	Board Address bit 4	Scoreboard address 16.
1	5	Board Address / Handle ID bit 3	Scoreboard address /Naucon handle ID 8.
1	6	Board Address / Handle ID bit 2	Scoreboard address /Naucon handle ID 4.
1	7	Board Address / Handle ID bit 1	Scoreboard address /Naucon handle ID 2.
1	8	Board Address / Handle ID bit 0	Scoreboard address /Naucon handle ID 1.

4.1 Application select.

This sheet shows how the applications are selected via DIP-Switch 2 and 3.

*App. Select.	DIP2, No.	DIP3, No.
Default, controlled by Naucon-1000.	All OFF.	All OFF.
**Squash.	1, 2 and 3 ON.	8 ON.
**Tennis.	1, 2 and 3 ON.	7 ON.
**MultTimer.	1, 2 and 3 ON.	7 and 8 ON.
**Soccer.	1, 2 and 3 ON.	6 ON.
**Stand-alone Shot Clock.	1, 2 and 3 ON.	6 and 8 ON.

**Controlled by a Naucon-10/20/30/40.

4.2 Address offset for Scoreboard types.

The sheet shows how the Scoreboard addresses are grouped together.

Scoreboard addresses set on DIP1.	Function.	Offset.
Scoreboard addresses 10-39.	Main and Side Scoreboards.	0.
Scoreboard addresses 40-49.	Shot Clocks.	8.
Scoreboard addresses 50-69.	Dressing room Clocks.	16.

NG12		DIP-Settings and Functions
Revision: 2		

4.3 Channel Select.

This sheet shows how the channels are selected via DIP switch 2.

Channel select.	DIP2, No.	Naucon-1000 Wireless Channels.
Fixed channels.	1 ON.	
Channel 1.	1 ON.	1
Channel 2.	1 and 3 ON.	2
Channel 3.	1 and 2 ON.	3
Channel 4.	1, 2 and 3 ON.	4

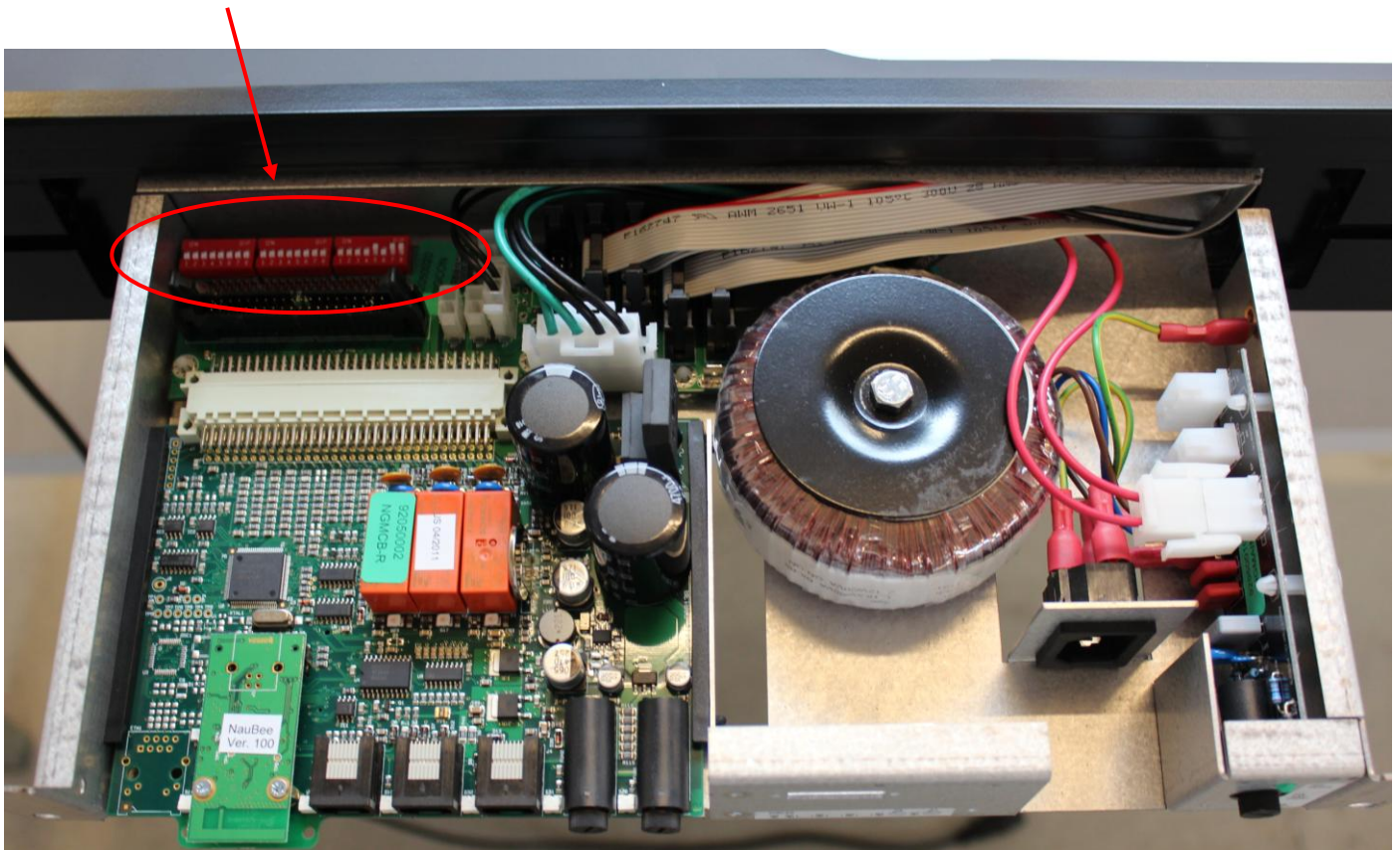
1. NG12 DIP Settings for Main Scoreboards.

This document describes how the default addresses for Main Scoreboards are set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Scoreboard has its own address.

The DIP-switches are located in the Power-box in the bottom of the Scoreboard, also called NGI-85.



1.1 Main Scoreboard.

Address	DIP3	DIP2	DIP1																		
11.	<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">ON</td> <td style="padding: 2px 5px;">DIP</td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> </tr> </table>	ON	DIP	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">ON</td> <td style="padding: 2px 5px;">DIP</td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> </tr> </table>	ON	DIP	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">ON</td> <td style="padding: 2px 5px;">DIP</td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> </td> <td style="text-align: center; padding: 2px 5px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> <td style="text-align: center; padding: 2px 5px;">1 2 3 4 5 6 7 8</td> </tr> </table>	ON	DIP	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
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1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8																				

Revision: 1

13.			
14.			
15.			
16.			
17.			
18.			
19.			

1. NG12 DIP Settings for Main and Side boards.

This document describes how the default addresses for Main and Side Scoreboards are set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Scoreboard has its own address.

1.1 Main Scoreboard.

Address	DIP3	DIP2	DIP1
11.	ON DIP 	ON DIP 	ON DIP
12.	ON DIP 	ON DIP 	ON DIP
13.	ON DIP 	ON DIP 	ON DIP
14.	ON DIP 	ON DIP 	ON DIP
15.	ON DIP 	ON DIP 	ON DIP
16.	ON DIP 	ON DIP 	ON DIP
17.	ON DIP 	ON DIP 	ON DIP

Revision: 1

18.



19.



Revision: 1

1.2 Home Sideboards.

Address	DIP3	DIP2	DIP1
21.			
22.			
23.			
24.			
25.			
26.			
27.			
28.			
29.			

1.3 Guest Sideboards.

Address	DIP3	DIP2	DIP1
31.			
32.			
33.			
34.			
35.			
36.			
37.			
38.			
39.			

1. NG12 DIP Settings for Synchronized Shot Clocks.

This document describes how the default addresses for Synchronized Shot Clocks are set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Shot Clock has its own address.

1.1 Synchronized Shot Clocks.

Address	DIP3	DIP2	DIP1
41.			
42.			
43.			
44.			
45.			
46.			
47.			

Revision: 1

48.



49.










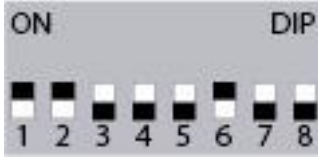


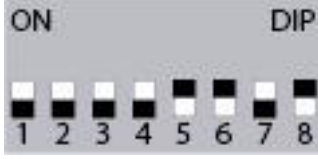

1. NG12 DIP Settings for Stand-alone Tennis.

This document describes how the default addresses for Stand-alone Tennis is set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Stand-alone Tennis Scoreboard has its own address.

1.1 Stand-alone Tennis

No.	Address	DIP3	DIP2	DIP1
1.	11.			 Naucon-30 
2.	12.			 Naucon-30 
3.	13.			 Naucon-30 

Revision: 2

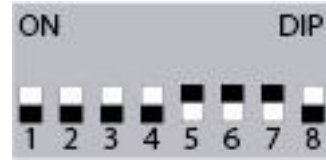
No. Address

DIP3

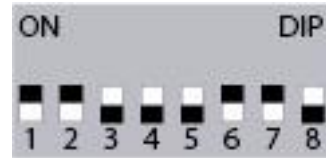
DIP2

DIP1

4. 14.



Naucon-30



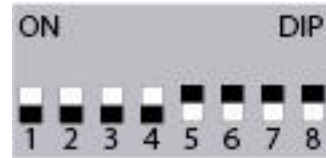
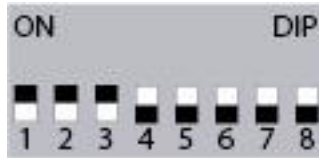
No. Address

DIP3

DIP2

DIP1

5. 15.



Naucon-30



No. Address

DIP3

DIP2

DIP1

6. 7.



Naucon-30



No. Address

DIP3

DIP2

DIP1

7. 18.



Naucon-30













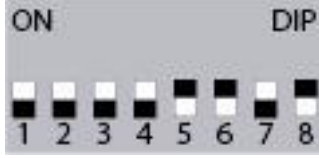

1. NG12 DIP Settings for Stand-alone Squash.

This document describes how the default addresses for Stand-alone Squash is set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Stand-alone Squash Scoreboard has its own address.

1.1 Stand-alone Squash.

No.	Address	DIP3	DIP2	DIP1
1.	11.			 Naucon-30 
2.	12.			 Naucon-30 
3.	13.			 Naucon-30 

Revision: 1

No. Address

DIP3

DIP2

DIP1

4. 14.



Naucon-30



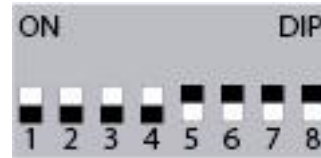
No. Address

DIP3

DIP2

DIP1

5. 15.



Naucon-30



No. Address

DIP3

DIP2

DIP1

6. 17.



Naucon-30



No. Address

DIP3

DIP2

DIP1

7. 18.



Naucon-30








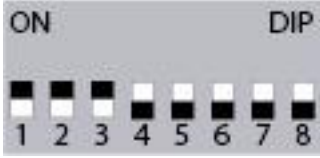






1. NG12 DIP Settings for Stand-alone Soccer. (Naucon-10B)

This document describes how the default addresses for Stand-alone Soccer is set.

The black square indicates that the DIP Switch is pushed up/set to ON.

Each Stand-alone Soccer Scoreboard has its own address.

1.1 Stand-alone Soccer.

No.	Address	DIP3	DIP2	DIP1
1.	17.			
				Naucon-10
				
2.	18.			
				Naucon-10
				
3.	19.			
				Naucon-10
				

Revision: 1

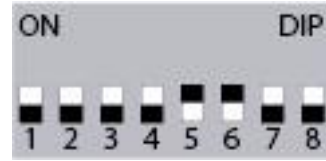
No. Address

DIP3

DIP2

DIP1

4. 12.



Naucon-10



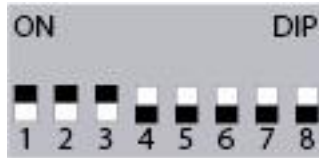
No. Address

DIP3

DIP2

DIP1

5. 13.



Naucon-10



No. Address

DIP3

DIP2

DIP1

6. 14.



Naucon-10



No. Address

DIP3

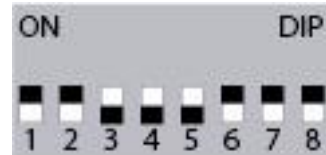
DIP2

DIP1

7. 15.



Naucon-10



NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

1. Description of Board zone for NG12 scoreboards

This document describes how the setup of multiple scoreboards works in NG12 scoreboard systems controlled by a Naucon-1000. For software version 2.15 and forward

Content

1.	Description of Board zone for NG12 scoreboards	1
2.	General Information	1
2.1	Standard Scoreboard addresses.	2
2.2	Checking the Scoreboard address.....	2
2.3	Board zone setup	2
2.4	Board zone selection.....	3
2.5	Wireless channel	4
2.6	Multiple side consoles.....	4
3.	Example.....	5
3.1	Setup of 4 scoreboards in one arena	6

2. General Information

- It is possible to have up to four independent Scoreboard Systems. Each with a Naucon-1000 Control panel in the same arena.
- The Naucon-1000 has 4 different zones that are used to control scoreboards independently.
- From the Naucon-1000 it can be setup which zone scoreboards belong to and it can be set which zones the Naucon-1000 transmits to.
- First step is board zone setup.
- If multiple wireless Scoreboard Systems are installed in the same arena, the following must be configured:
 - Board Zones Setup.
 - Board Zones Selection.
- If more than one Scoreboard is placed in the same arena, each have a unique address.

NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

2.1 Standard Scoreboard addresses.

Each Scoreboard type has an address.

- **10-19: Addresses Main Scoreboards.** Default is **11**.
- **20-29: Addresses Sideboard Home/Left side.** Default is **21**.
- **30-39: Addresses Sideboard Guest/Right side.** Default is **31**.
- **40-49: Addresses Shot Clocks.** Default is **41** and **42**, as Shot clocks come in sets of two.
- **50-59: Addresses Dressing-room.** Default is **51**.

2.2 Checking the Scoreboard address.

The address of the Scoreboard can be found in the bottom, besides the Power-connector. It is written on a silver-colored label, as shown on the picture.



The address of the scoreboard is displayed in the home score (if available), when the scoreboard is powered on. The address of the scoreboard can also be displayed through the board diagnostics menu on the Naucon-1000.

2.3 Board zone setup

To enter the Board zones setup, do the following:

1. Exit to the Select sport menu.
2. Enter the General Setup.
3. Enter the Service menu.
4. When prompted for a password, enter **1166**.
5. Select page 3.
6. Enter Board zones setup.

Each Zone has a color.

- Zone 1 is **Blue**.
- Zone 2 is **Green**.
- Zone 3 is **Red**.
- Zone 4 is **Yellow**.

The Board zone setup is configured with the addresses of the Scoreboards. Each scoreboard address is assigned to a zone by pressing the address number until the address number has the color of the desired zone. When pressing accept the new board zone information is transmitted to the highlighted scoreboard addresses.

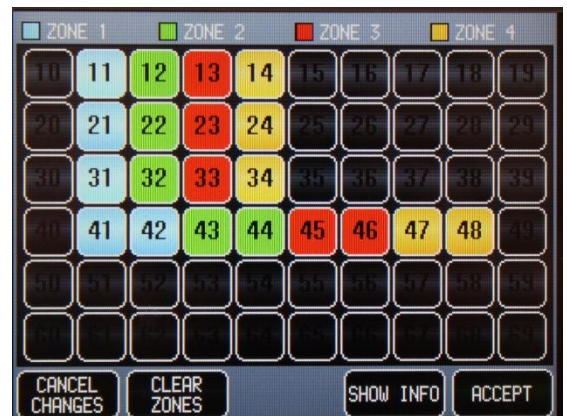
NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

It is important that the scoreboard is turned on and within range of the Naucon-1000 when pressing accept.

The addresses on the scoreboard are only used as identification of the scoreboard for diagnostics and for setting the zone for a scoreboard. It is the zone selection that determines which scoreboards are receiving communication. The zone selection is still required if you are using the system wired.

Note if an address of a scoreboard is not highlighted to one of the zones it will keep its current setting. By default scoreboard is set to zone 1.

- A Zone is a group of Scoreboards that are controlled by the same Naucon-1000.
- Picture of the default setting of the board zone setup, for software version 2.15



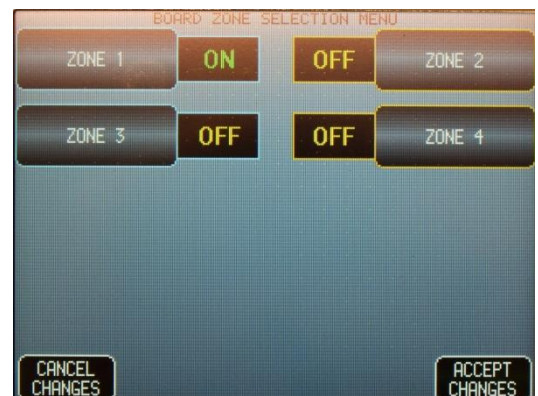
2.4 Board zone selection

To enter the Board zones selection, do the following:

1. Exit to the Select sport menu.
2. Enter the General Setup.
3. Enter the Board Zone Selection Menu.

The Board zone selection menu selects which Zone the Naucon-1000 must control.

- If **all Zones** are set to **On**, the Naucon-1000 unit will control all Scoreboard Systems that are within range.
- If for example **Zone 1** is selected, the Naucon-1000 unit **only** controls Scoreboard Systems in Zone 1.



NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

2.5 Wireless channel

If more than one Scoreboard System is placed in one arena or within 150 meters of each other, each Naucon-1000 unit must be configured to transmit on its own Wireless channel. This is obtained through the board zone selection, where the wireless channel is determined by the lowest zone ON. For example if Zone 1 is ON the wireless channel is automatically set to 1. If Zone 1 is OFF and Zone 2 is ON, the wireless channel is automatically set to 2. The table below shows the combinations.

Zone 1	Zone 2	Zone 3	Zone 4	Wireless channel
ON	X	X	X	1
OFF	ON	X	X	2
OFF	OFF	ON	X	3
OFF	OFF	OFF	ON	4

X: Don't care

2.6 Multiple side consoles

If a Naucon-1000 configured as a side console is to be used with the main Naucon-1000, they need to be on the same wireless channel, hence board zone selection must be identical for the two Naucon-1000s.

NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

3. Example

Shows an example of how to setup and control 4 scoreboard systems separately in the same arena.

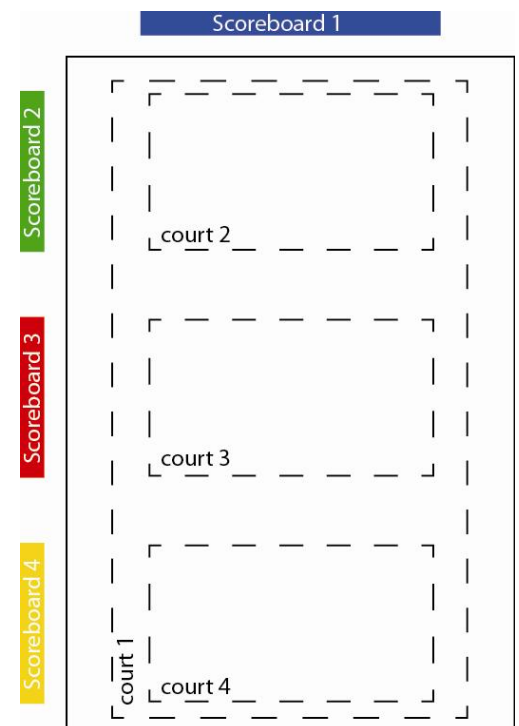
Example of how to setup Naucon-1000 to control 4 scoreboards at the same time

Show standard of setup with multiple Naucon-1000

The picture to the right shows an arena with four independent Main Scoreboard setups, each with its own Naucon-1000.

If Sideboards and Shot clocks are a part of the Scoreboard System, these addresses are just added to the desired Zone.

- **Scoreboard 1** with address **11** is configured to function in **Zone 1** on court **1**.
- **Scoreboard 2** with address **12** is configured to function in **Zone 2** on court **2**.
- **Scoreboard 3** with address **13** is configured to function in **Zone 3** on court **3**.
- **Scoreboard 4** with address **14** is configured to function in **Zone 4** on court **4**.



<p>NG12 Board Zone SW 2.15</p>	<p>NAUTRONIC SCOREBOARD SYSTEM</p>	<p>Documentation of How board zone works in NG12</p>
<p>Revision: 1</p>		

3.1 Setup of 4 scoreboards in one arena

Board zone setup

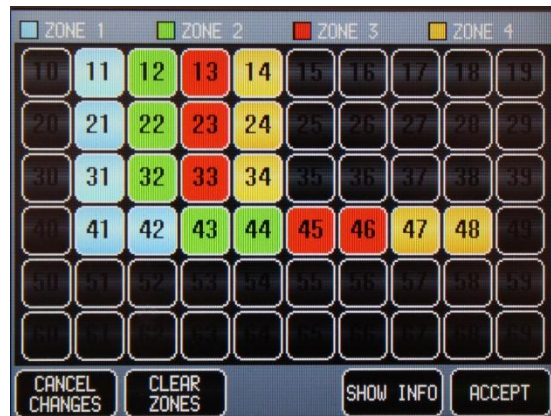
The following pictures show examples on how the four Naucon-1000 units could be configured for the four courts, all 4 Naucon-1000 should be setup identically in board zone setup. This board zone setup needs to be transmitted to the scoreboards, so make sure the scoreboards are on and within range.

Note: these are the standard settings for scoreboards.

Setup for 4 standard scoreboards



Setup for 4 scoreboard systems with sideboards and sh. clocks



NG12 Board Zone SW 2.15		Documentation of How board zone works in NG12
Revision: 1		

Board zone selection

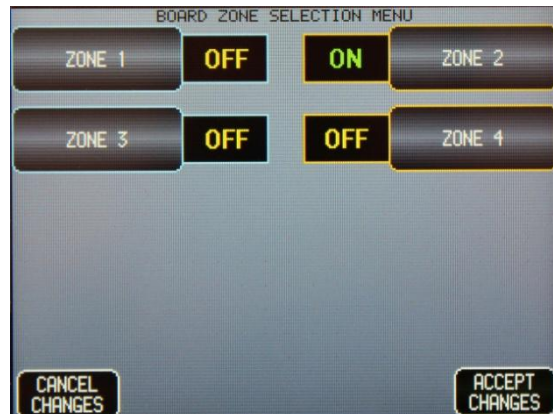
Next the board selection is set for each Naucon-1000.

- For **scoreboard 1** Zone 1 is ON.
- For **scoreboard 2** Zone 2 is ON.
- For **scoreboard 3** Zone 3 is ON.
- For **scoreboard 4** Zone 4 is ON.

Scoreboard 1 board selection



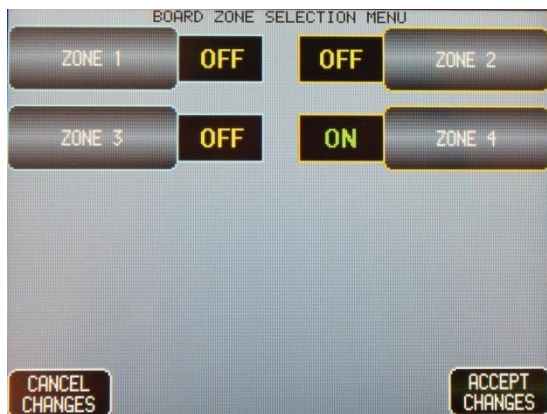
Scoreboard 2 selection



Scoreboard 3 board selection



Scoreboard 4 board selection

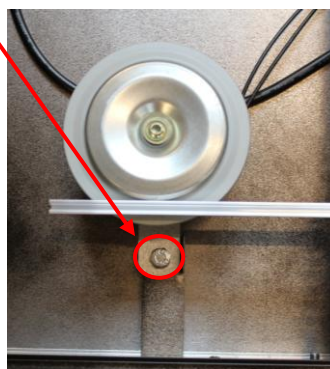


1. How to replace the Horn.

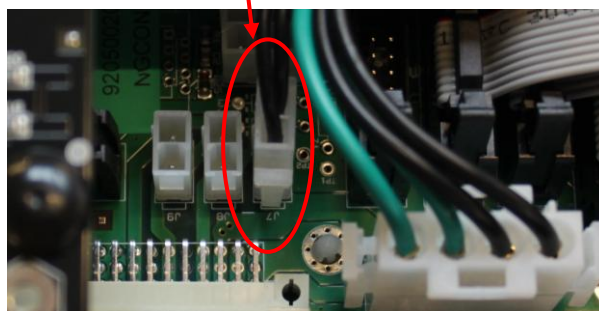
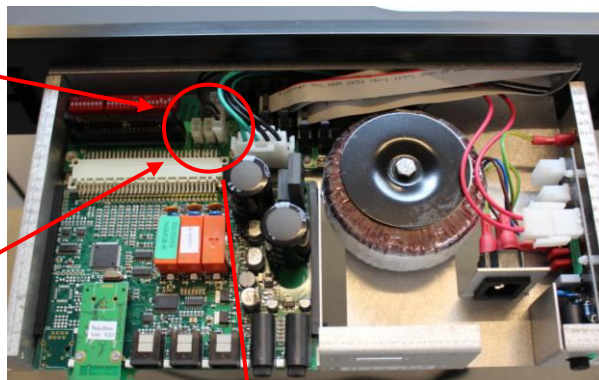
1. Turn off the power for the Scoreboard.
2. Dismount the screws on the right side of the Scoreboard, and remove the metal bracket.
3. Remove the Acryl covering the Horn.
4. Unscrew the bolt holding the Horn in place.



4. Unscrew the bolt holding the Horn in place.



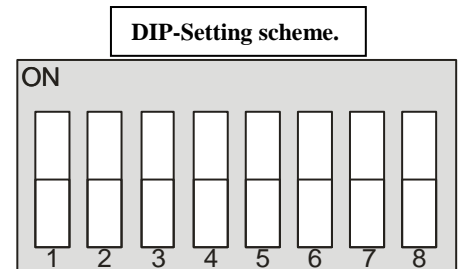
5. Remove the black cable from the old horn mounted on the NGI-85.
6. Mount the new Horn with the washer and bolt.
7. Reconnect the cable from the new Horn on J7.
8. Reassemble the Scoreboard
9. Done.



1. DIP Setting.

Before replacing the damaged Digit, locate the DIP-Switch on the Digit, and write the setting down on the DIP-Setting scheme.

- It is important that the new Digit has the same DIP-Setting as the one it is replacing.



2. How to replace digits.

1. Turn off the power for the Scoreboard.

2. Dismount the screws in one of the sides of the Scoreboard, and remove the metal bracket.

3. Remove the Acryl covering the Digit that must be replaced.



4. Dismount the Ribbon Cable mounted on the old Digit.

5. Unscrew the screws holding the Digit in place.

6. Dismount the old Digit.

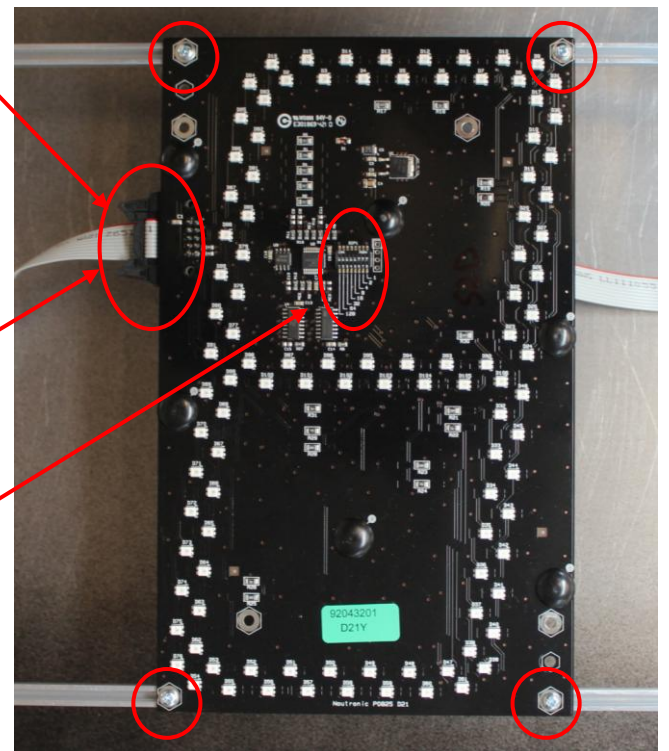
7. Mount the new Digit with the enclosed screws.

8. Reconnect the Ribbon Cable.

9. Set the DIP-Switch on the new Digit, according to the DIP-Setting scheme that was filled in the top.

10. Turn on the power for the Scoreboard, and check that new Digit is working.

11. Reassemble the Scoreboard.

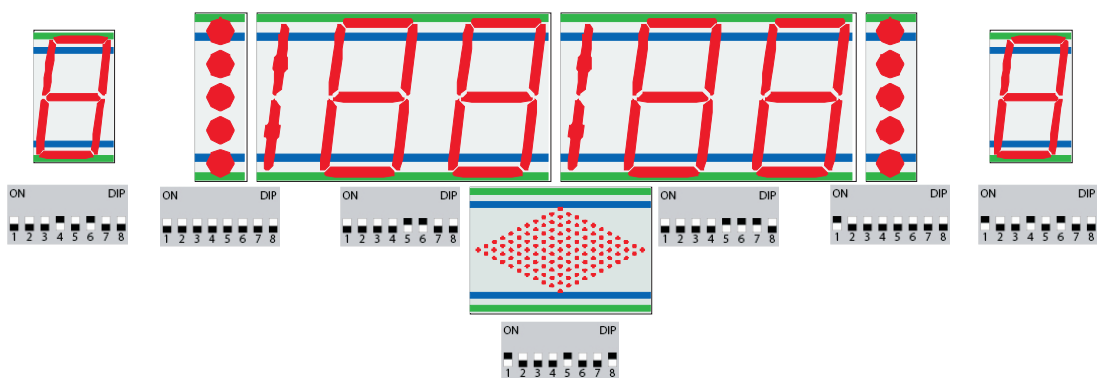
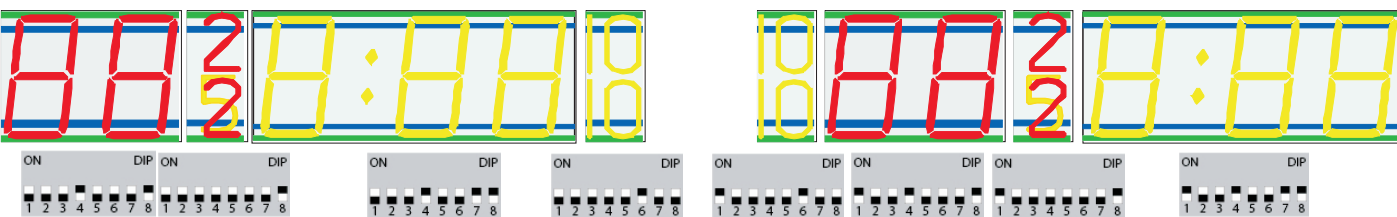
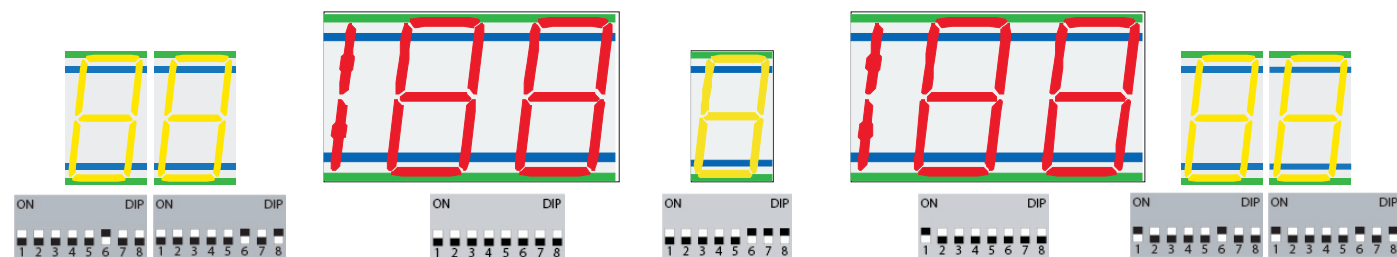
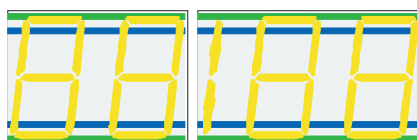


1.NG08 and NG12 DIP Settings.

This sheet is developed, to check all the DIP settings that are possible.

1.1Main Scoreboard (Middle section) with 21 cm digits and lower.

RTC - Time of Day Clock



1.2 Main Scoreboard (Middle section) with 21-33 cm digits.

The image displays 48 individual digit configurations for a scoreboard system. Each configuration consists of a digit or symbol and a corresponding 8-pin DIP switch diagram. The digits are arranged in four rows:

- Row 1:** Five configurations showing numbers 1, 0, 8, 1, 0 in red and yellow.
- Row 2:** Six configurations showing numbers 0, 8, 1, 0, 8, 1 in red and yellow.
- Row 3:** Six configurations showing numbers 0, 8, 1, 0, 8, 1 in red and yellow.
- Row 4:** Eight configurations showing smaller digits and symbols: 0, a vertical bar with four red circles, 0, 0, 1, 0, a vertical bar with four red circles, and 0.

Each digit configuration includes a diagram of the 8-pin DIP switch with 'ON' and 'DIP' labels above it. The pins are numbered 1 through 8. The 'ON' label is positioned above pins 1-4, and the 'DIP' label is positioned above pins 5-8. The switch settings are indicated by black squares above the pin numbers.

Revision: 2

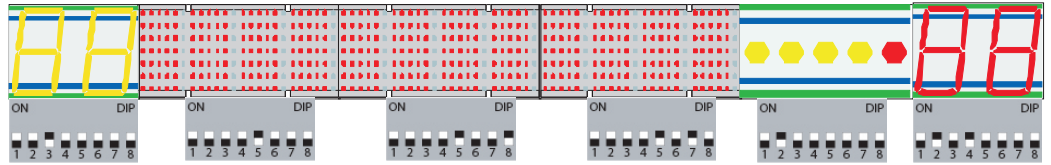
1. NG12 DIP Settings.

This sheet shows the addresses of the Sideboards

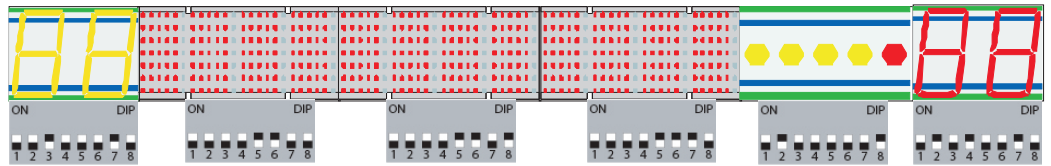
1.1 Sideboards.

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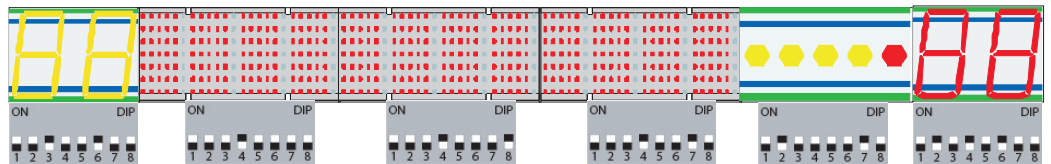
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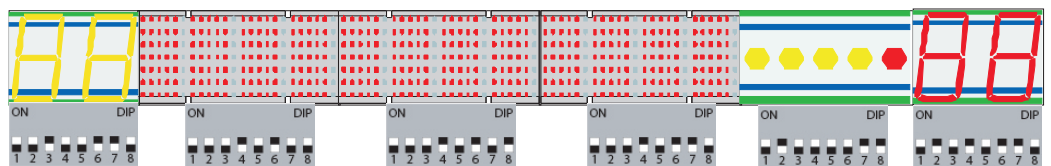
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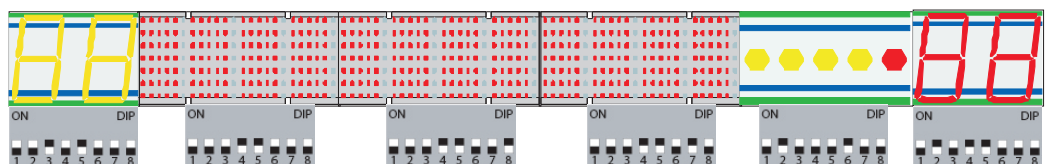
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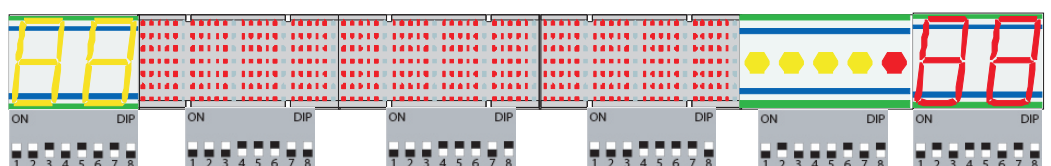
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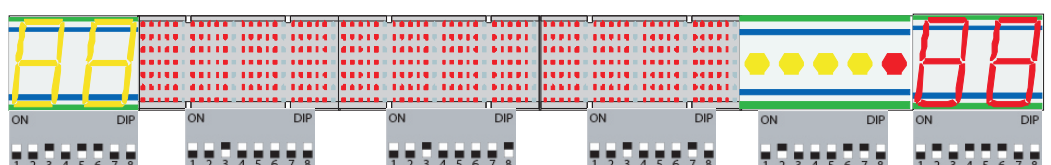
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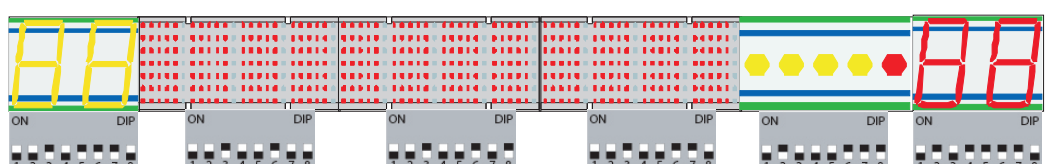
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7.



8.



NG12

Revision: 2

NG12 Sideboard and Text Display DIP Settings

Home (continued):

9.

10.

11.

12.

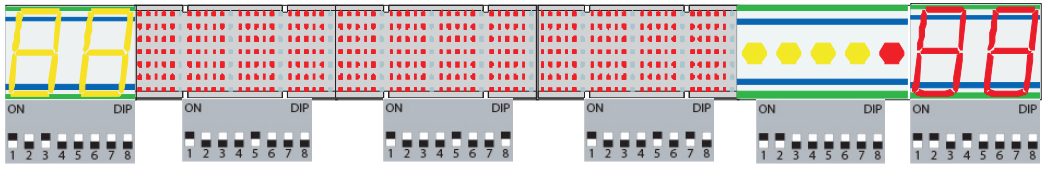
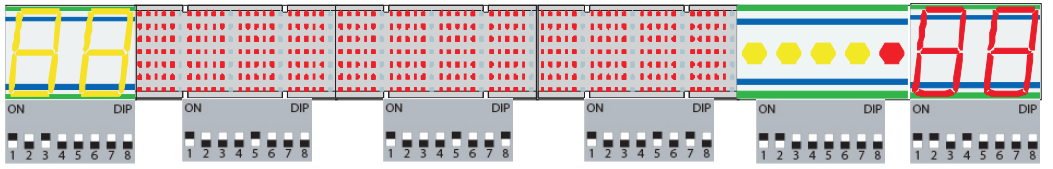
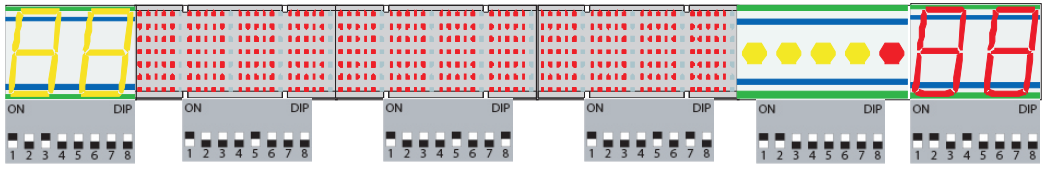
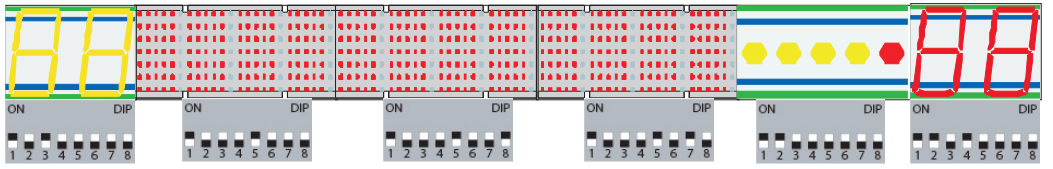
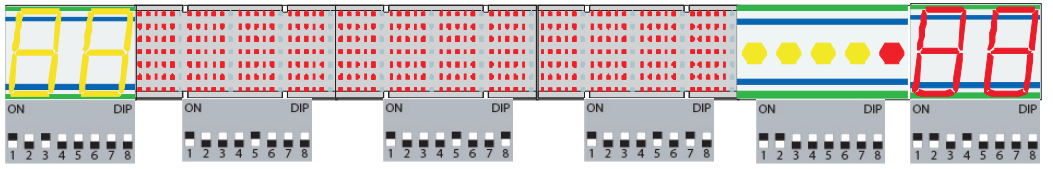
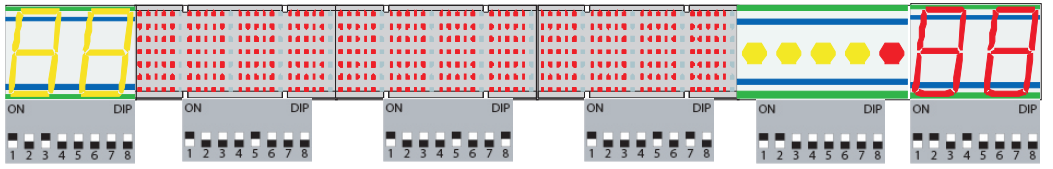
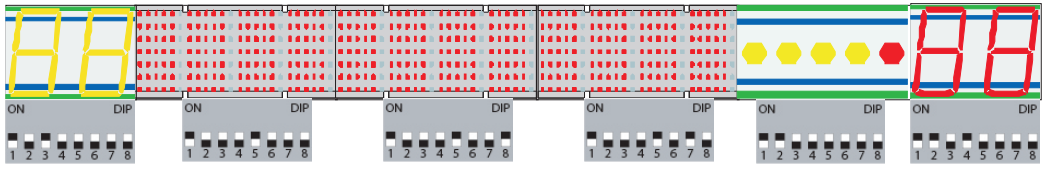
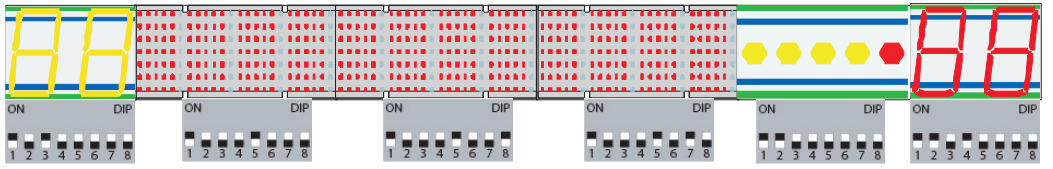
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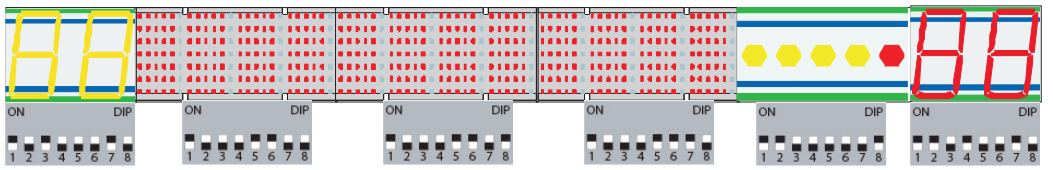
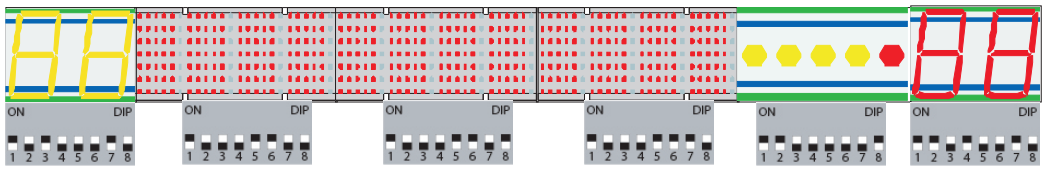
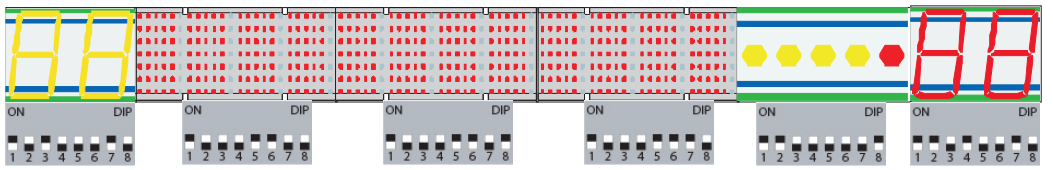
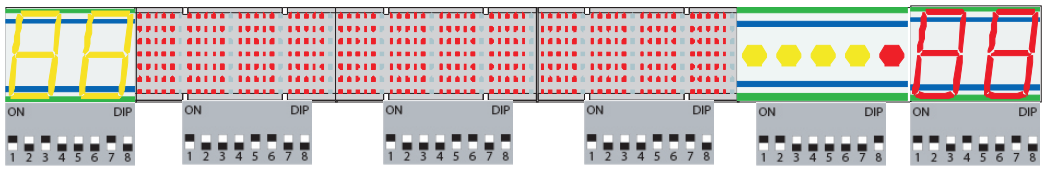
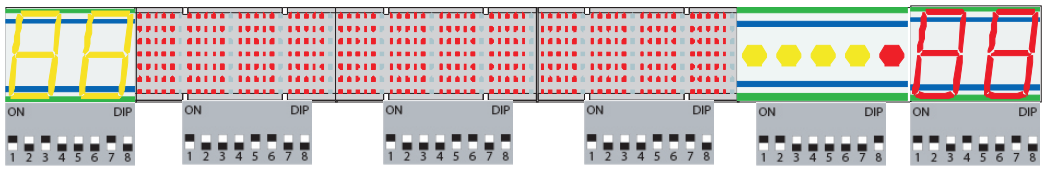
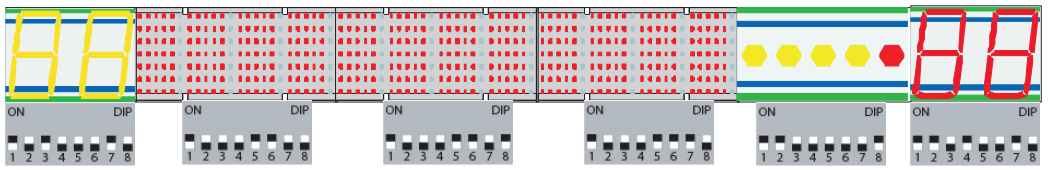
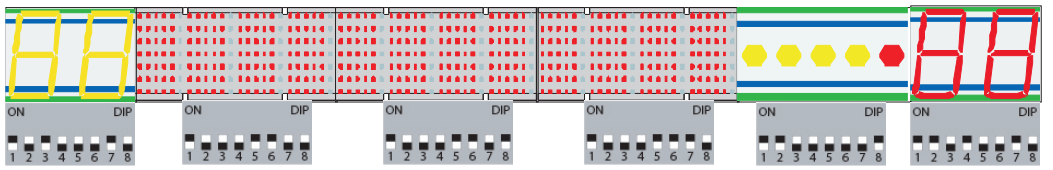
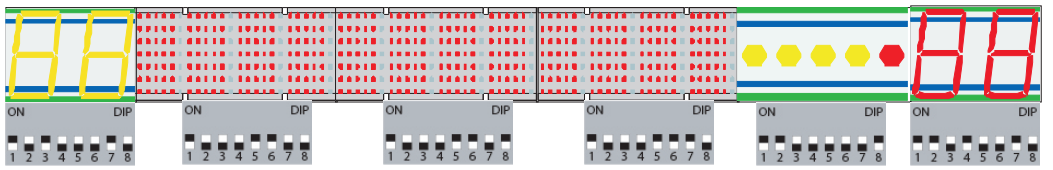
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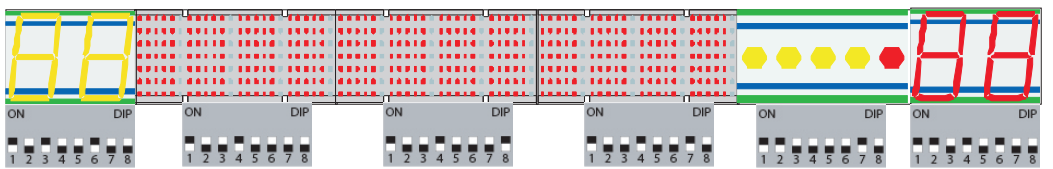
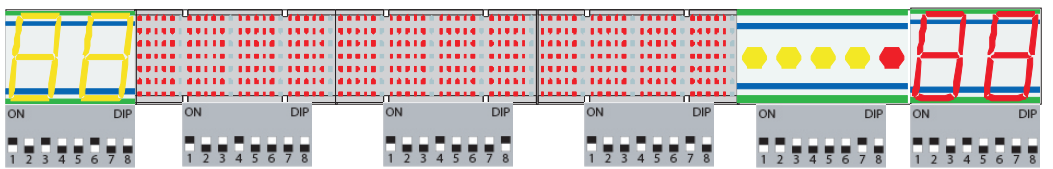
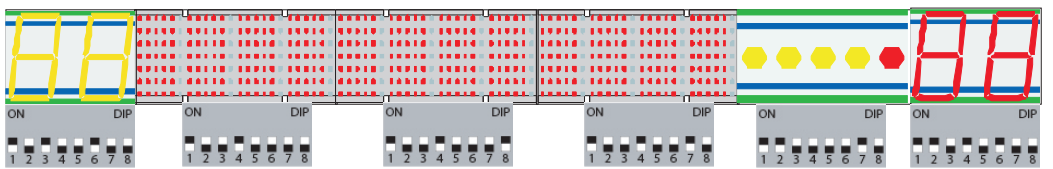
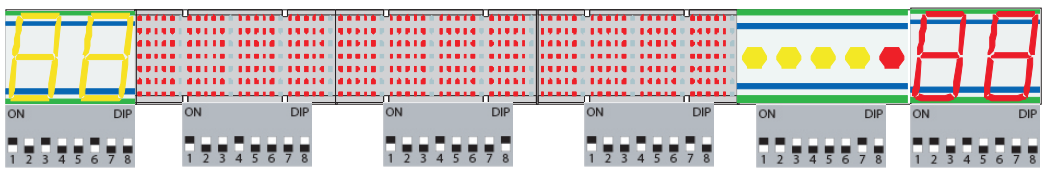
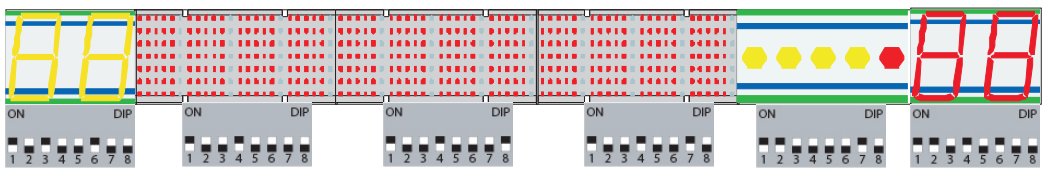
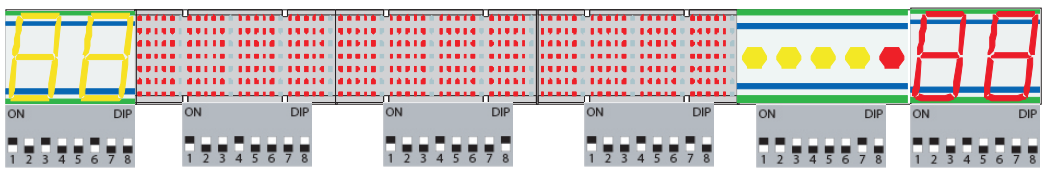
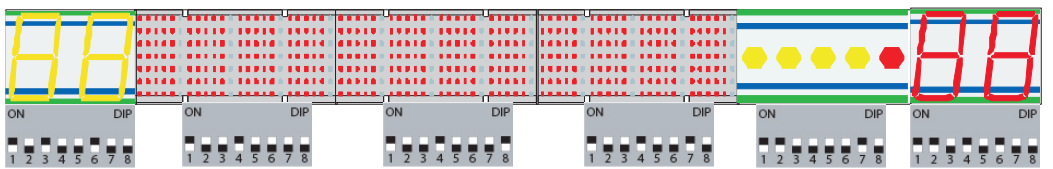
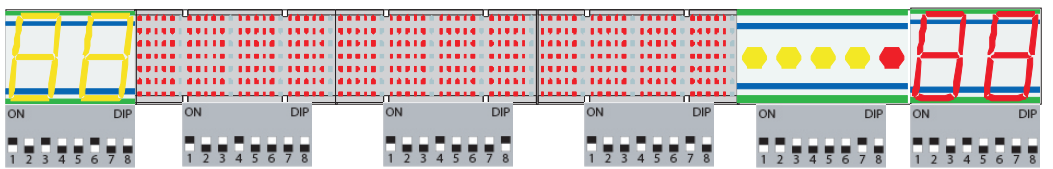
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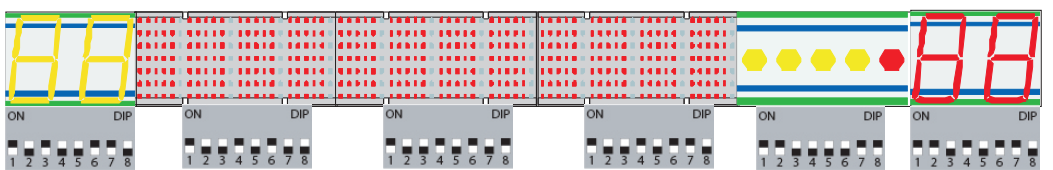
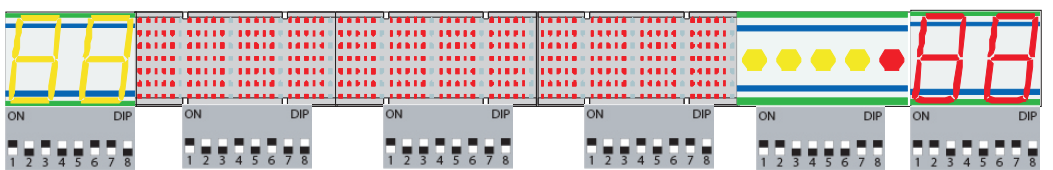
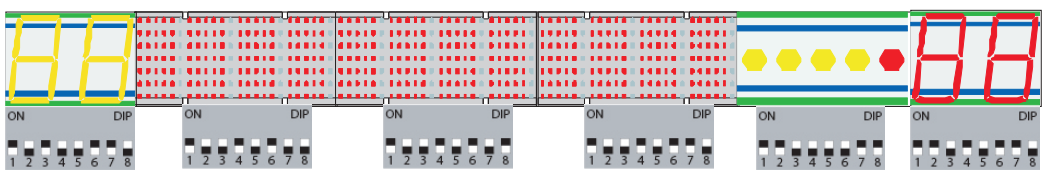
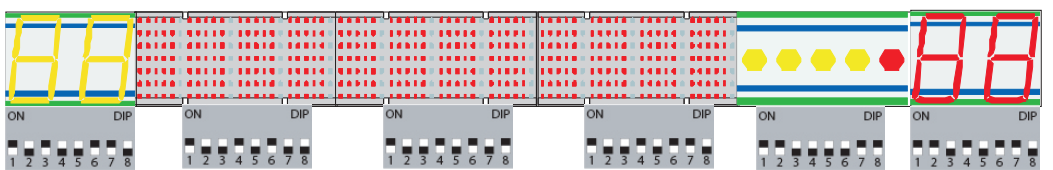
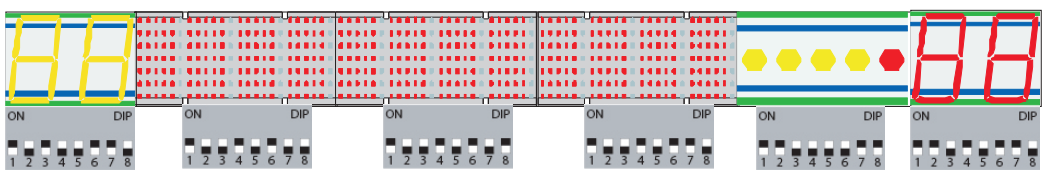
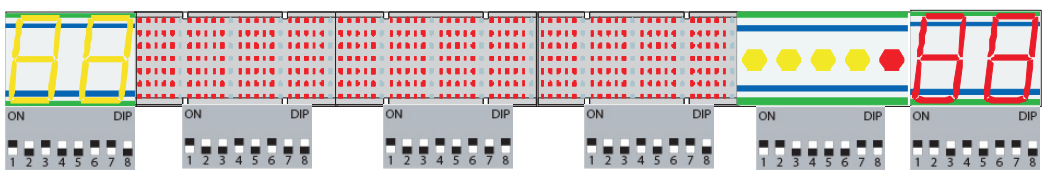
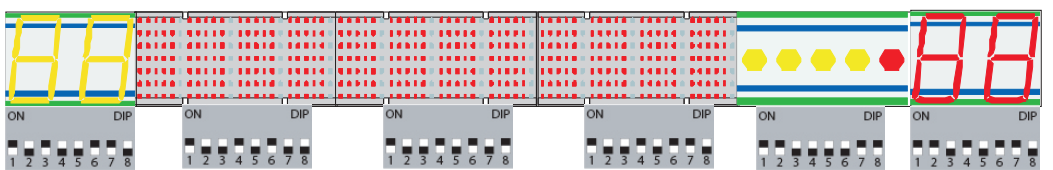
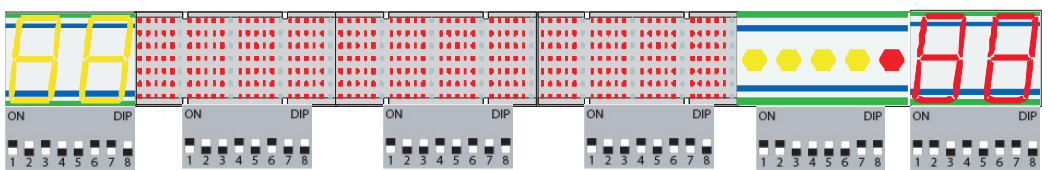
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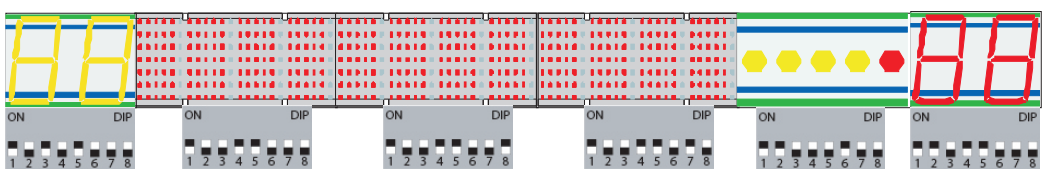
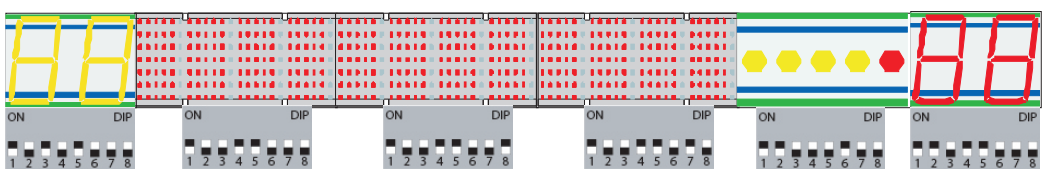
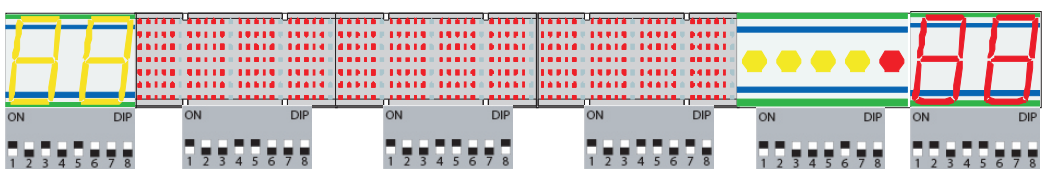
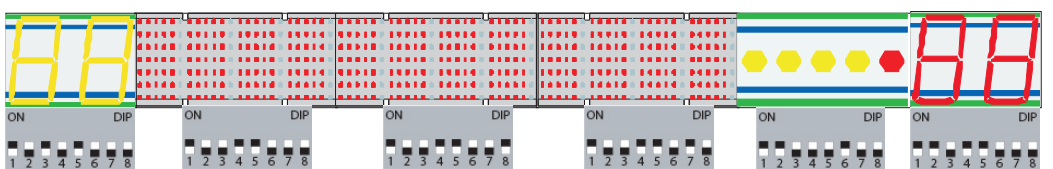
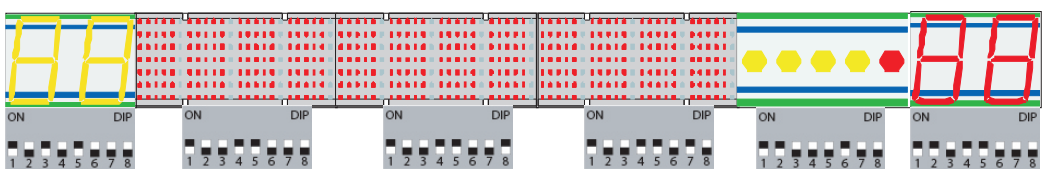
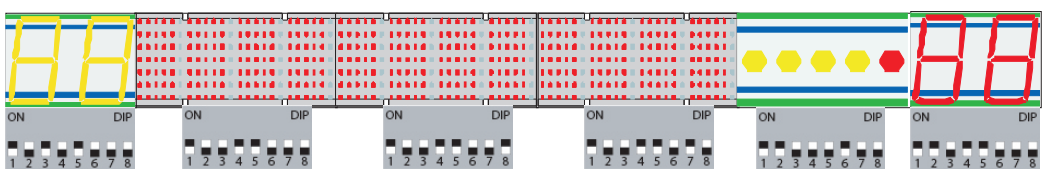
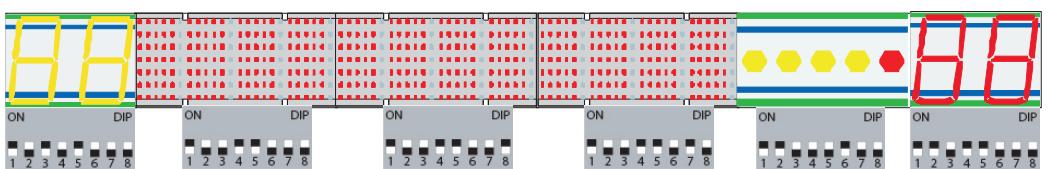
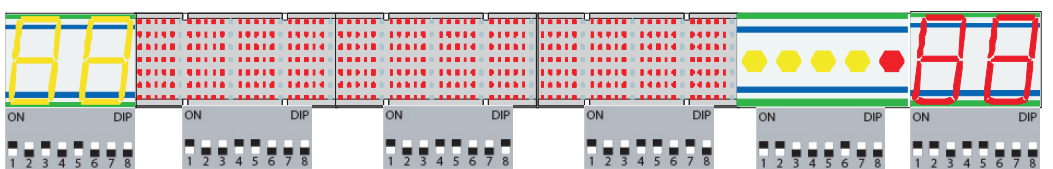
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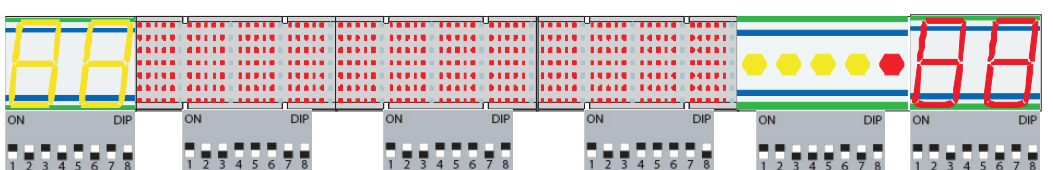
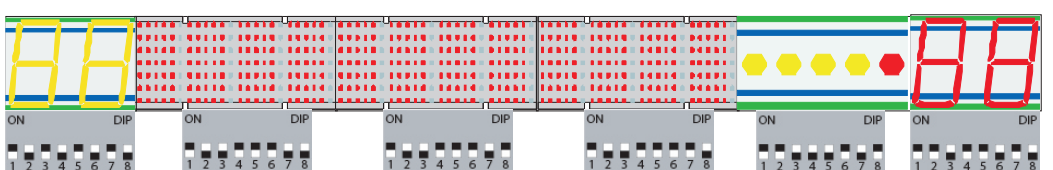
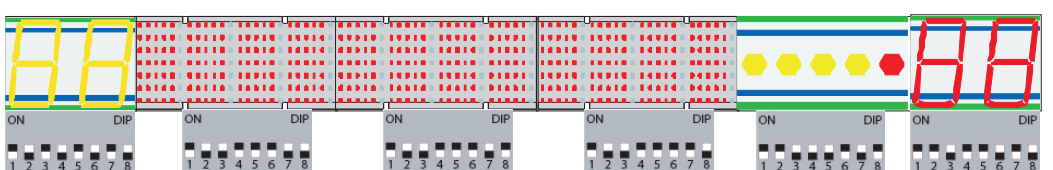
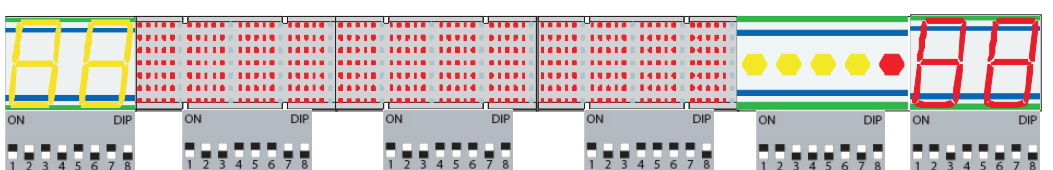
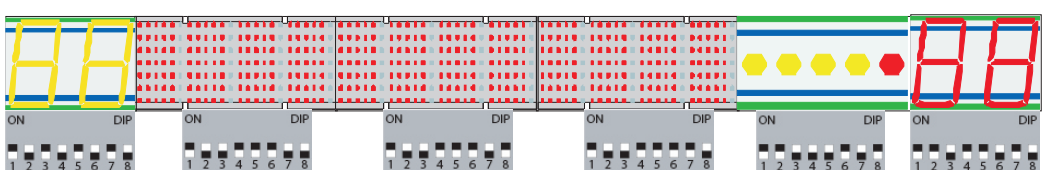
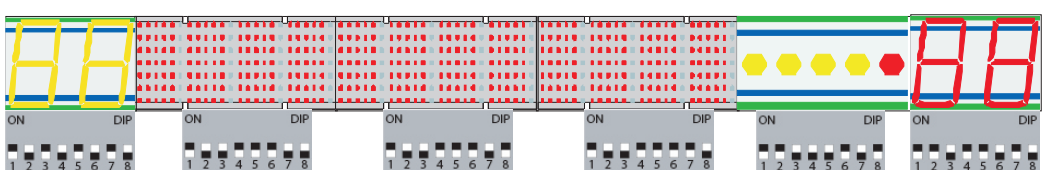
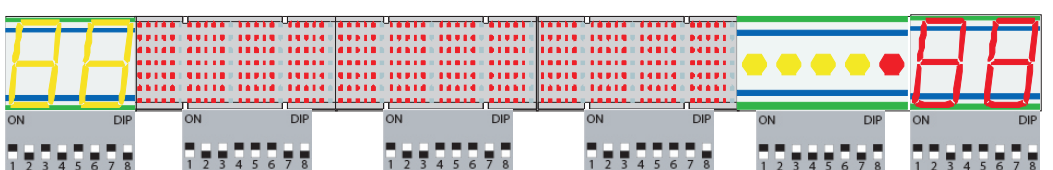
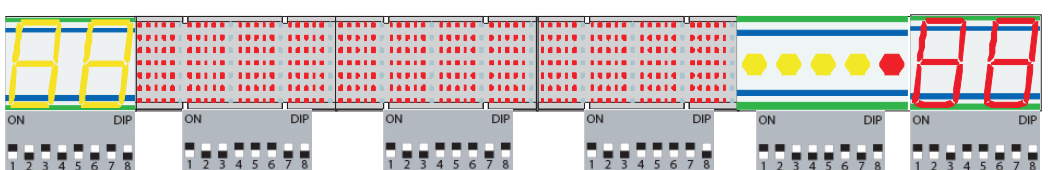
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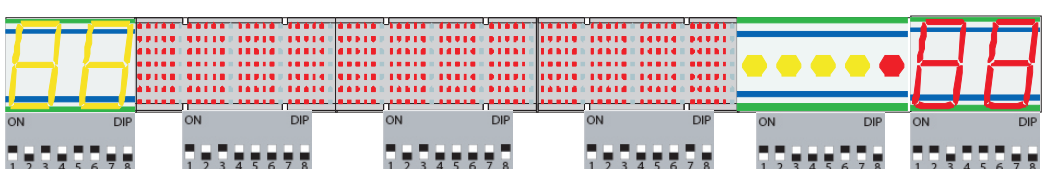
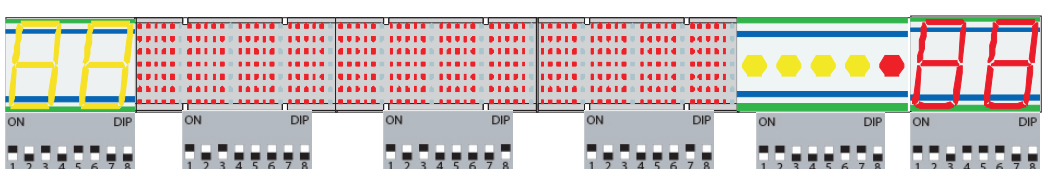
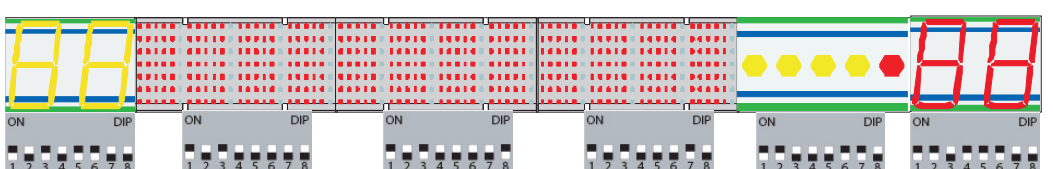
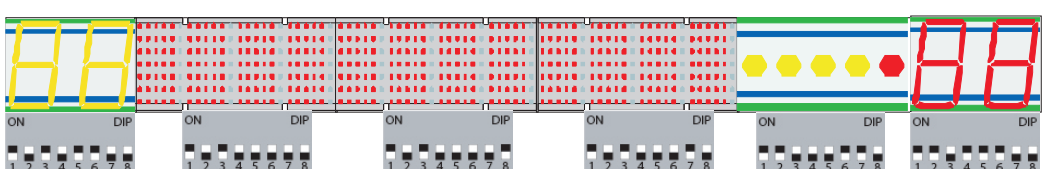
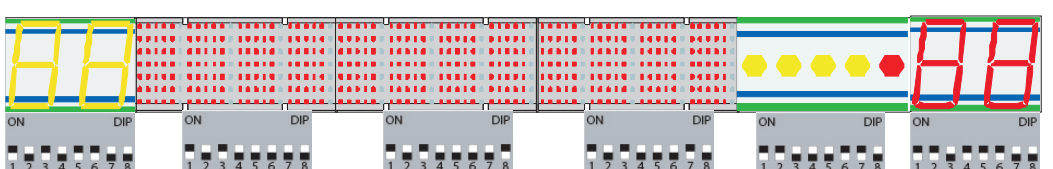
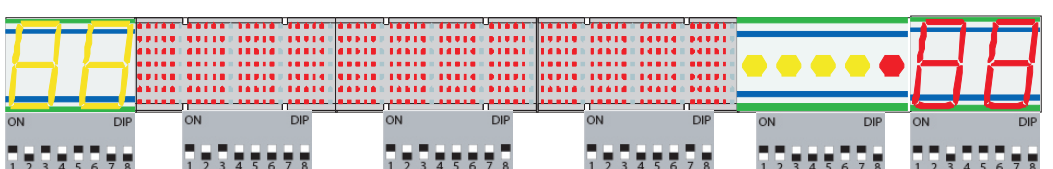
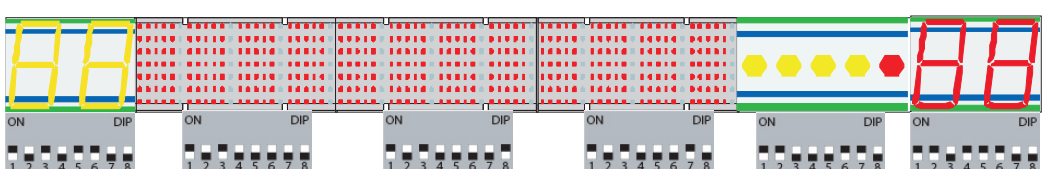
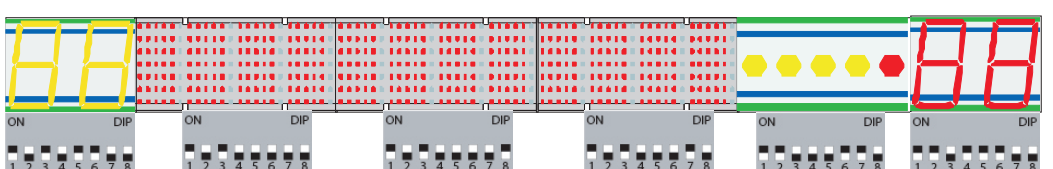
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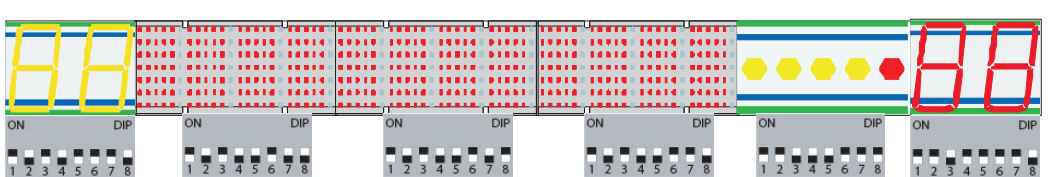
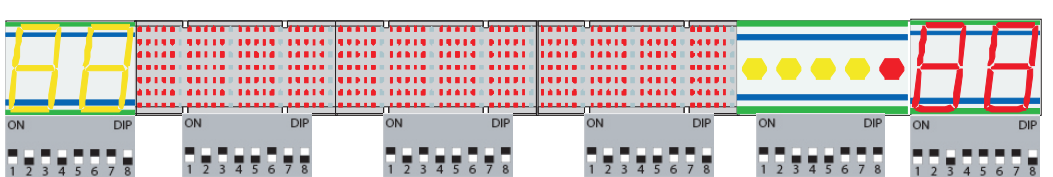
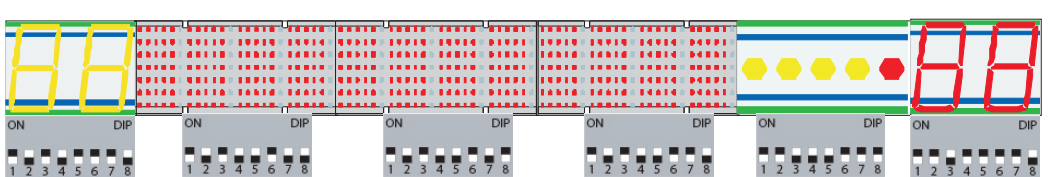
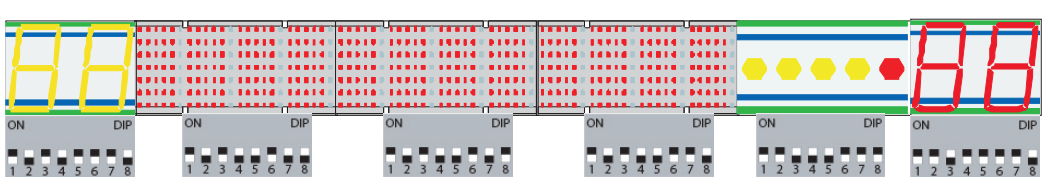
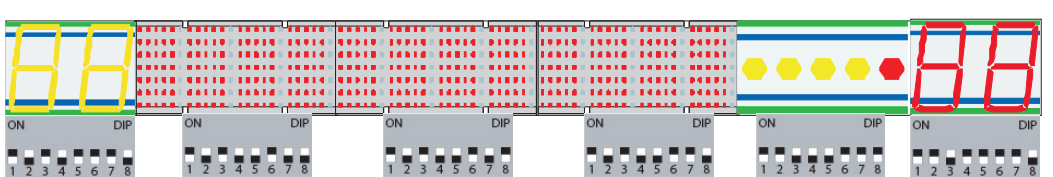
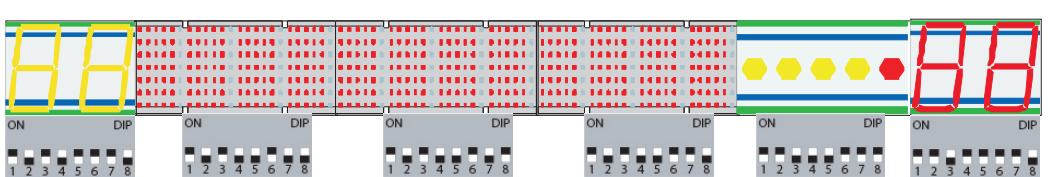
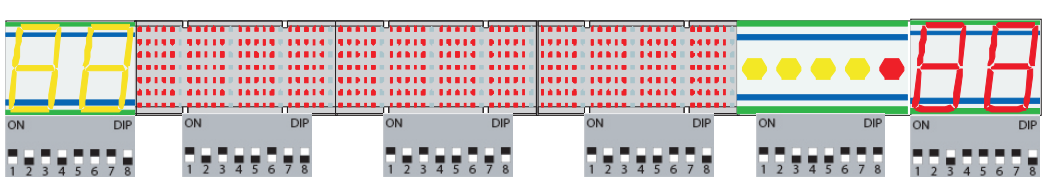
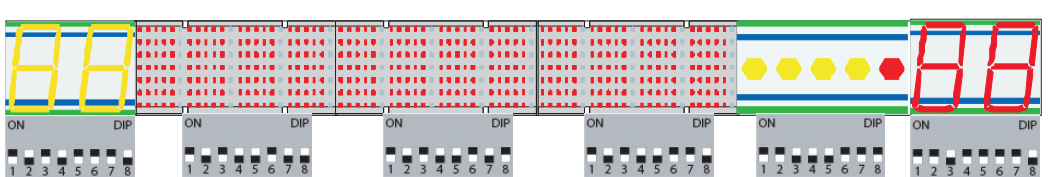
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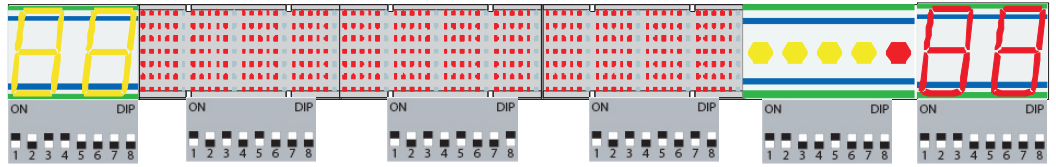
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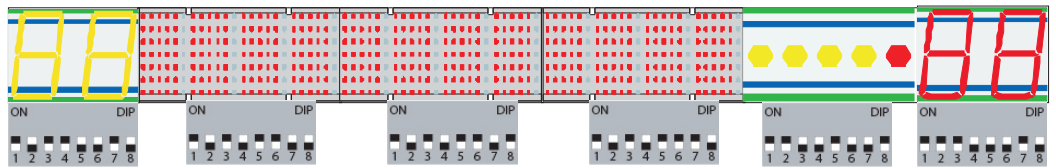
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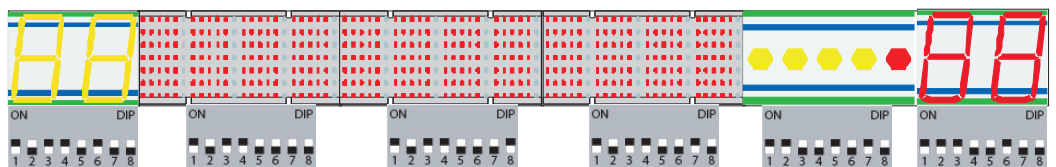
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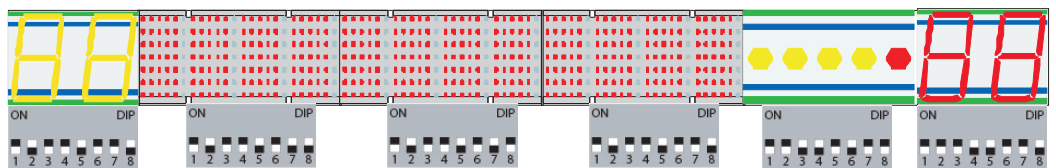
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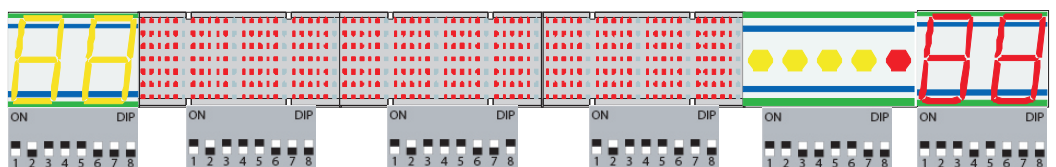
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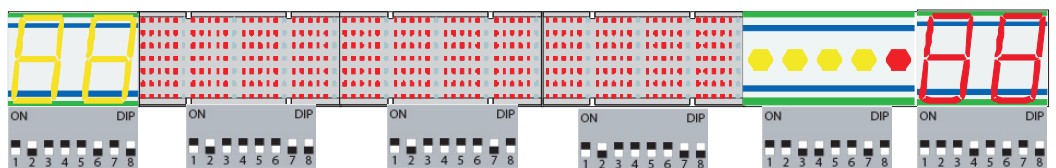
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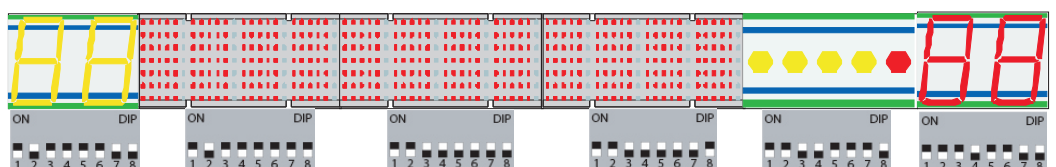
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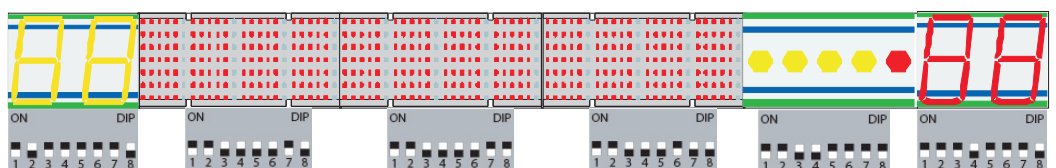
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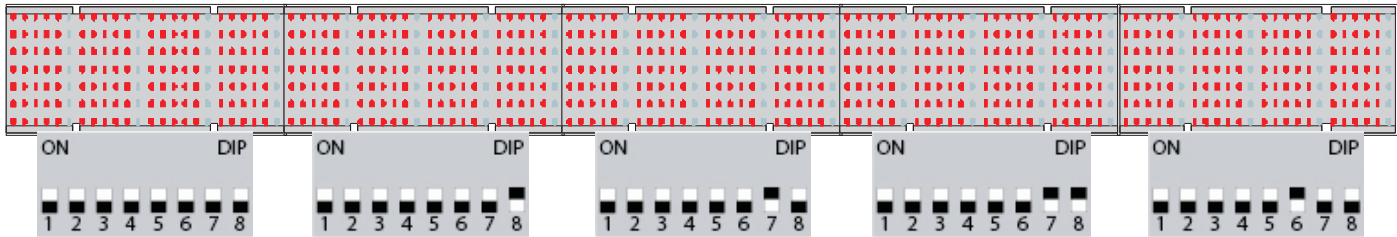
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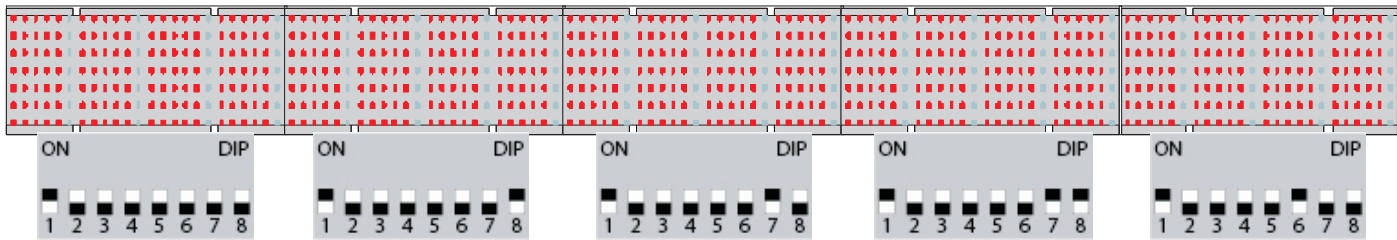
NG12	NAUTRONIC SCOREBOARD SYSTEM	NG12 Sideboard and Text Display DIP Settings
Revision: 2		

1.1 Team Text-display.

Home:



Guest:



Naucon-1000 Cable Connection		Description of Cable connection for Naucon-1000 to scoreboards
Revision: 1		

1. Description

This document describes the important issues with a wired scoreboard system controlled from a Naucon-1000 and recommended cable setup for scoreboard system.

2. Connection

2.1 Recommended wiring

For correct wiring the standard RS-485 is used as the physical layer for communication. For more description of correct connection for RS-485 please refer to this document from Texas Instruments

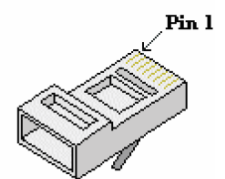
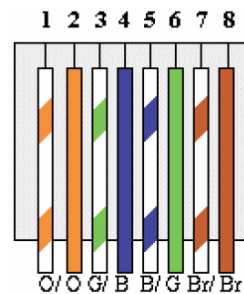
<http://www.ti.com/lit/an/slla272b/slla272b.pdf>. Below is some quick information for optimal signal on the bus.

2.1.1 Recommended cable

The best cable for RS-485 is with twisted pairs (UTP) and 24 AWG. Therefore CAT5e cable is the cable is recommended. Where a twisted pair is used for the 2 pins for communications and another twisted pair is used for supply.

Overview of the twisted pairs:

1. Orange and Orange/White
2. Blue and Blue/White
3. Green and Green/White
4. Brown and Brown/White



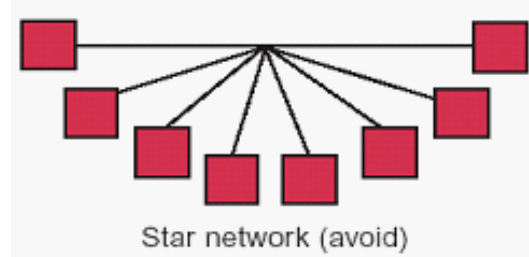
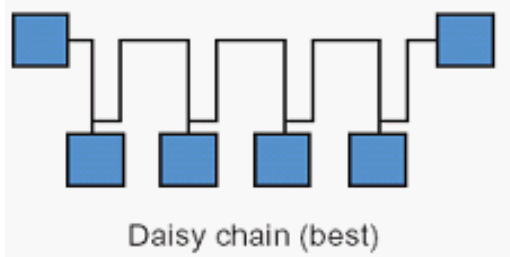
RJ-45 Plug

1. 24VDC.
2. GND.
3. NauNetGND.
4. NauNetPOS.
5. NauNetNEG.
6. NauNetGND.
7. GND.
8. 24V.

<p>Naucon-1000 Cable Connection</p>	<p>NAUTRONIC SCOREBOARD SYSTEM</p>	<p>Description of Cable connection for Naucon-1000 to scoreboards</p>
<p>Revision: 1</p>		

2.1.2 Scoreboard connection

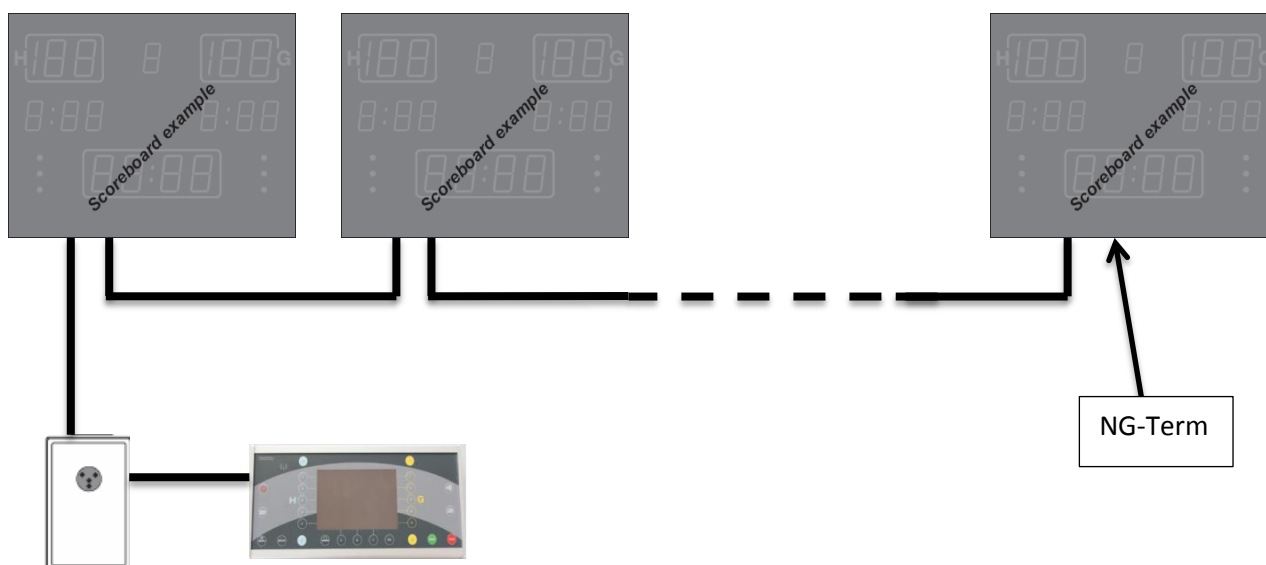
The best connection between the scoreboards is a daisy-chain as shown below. The star connection as shown below or other connections like this should be avoided. As this will effect the quality of the signal greatly.



The final scoreboard in the chain needs a termination resistor NG-term to avoid reflections which will affect the quality of the signal. The control panel should be connected as the start of the daisy-chain and it already has a termination resistor internal. If a Star network has been made somewhere in the installation, each node must be terminated and a repeater must be added to each node.

For a daisy-chain connection with cable length longer than **500** meters a repeater can be necessary.

Example of correct connection of several scoreboards



<p>Naucon-1000 Cable Connection</p>	<p>NAUTRONIC SCOREBOARD SYSTEM</p>	<p>Description of Cable connection for Naucon-1000 to scoreboards</p>
<p>Revision: 1</p>		

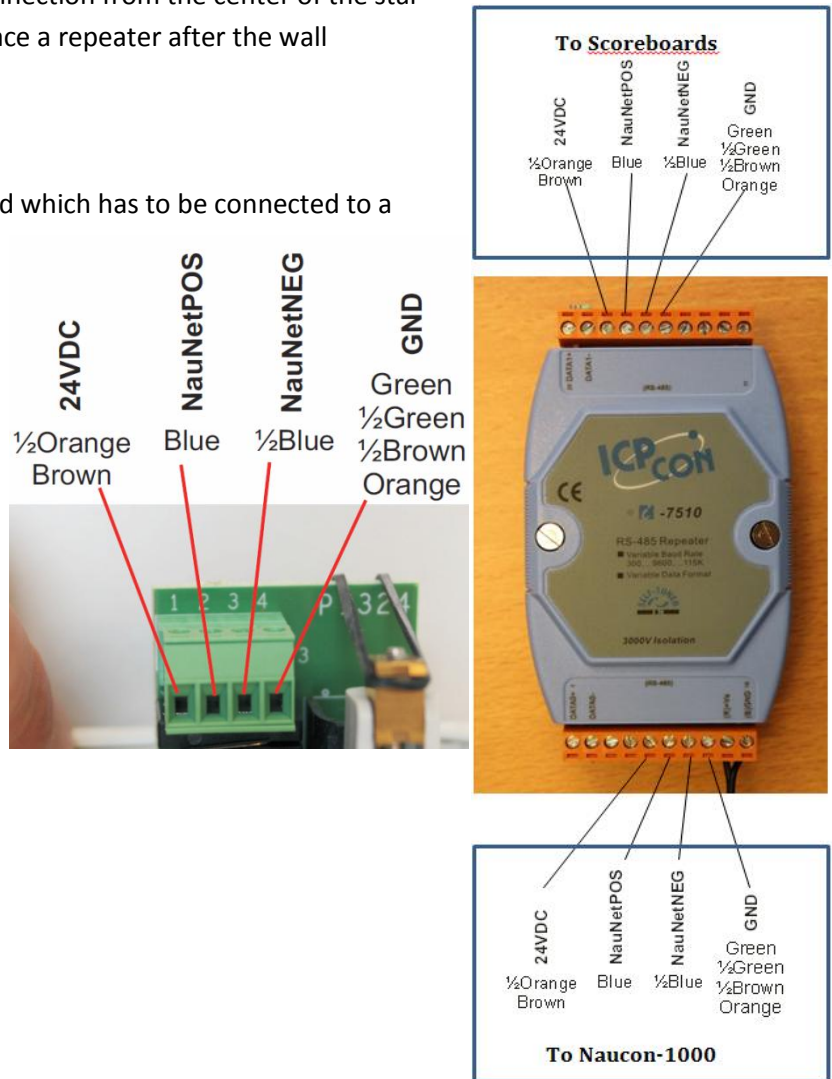
2.1.3 Solution with repeater

An option for improving the signal in an arena is to use a repeater attached to the cable between the scoreboards. It can be very useful for arenas with very long wires or many star configurations. Multiple repeaters can be used to further improve the signal.

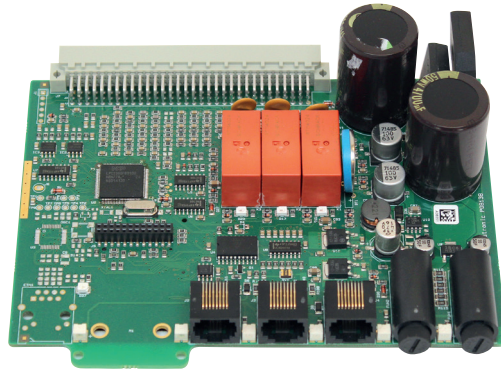
Ideally a repeater should be placed for every connection from the center of the star connection, however it might be sufficient to place a repeater after the wall connector (NT112).

2.1.4 Connection

The repeater box has an external supply attached which has to be connected to a 230V wall outlet. Attach the cable from NG112 to the Naucon-1000 side of the repeater.



Find spareparts for NGMCB



Delivered: 2010-2012

NQA2164	NQA2130	NC21750	NHA4619
<p>Sparepart: 92050000 (SW-T08-01)</p>	<p>Sparepart: 92050002 (SW-T08-01)</p>	<p>Sparepart: 92050002-10 (SW-T08-10)</p>	<p>Sparepart: 92050002-20 (SW-T08-20)</p>
<p>NT pult</p>	<p>NT pult</p>	<p>Naucon-20</p>	<p>Naucon-10</p>

Delivered: 2012 – present

NA2164	NA2130	NC21750	NHA4619
<p>Sparepart: 92050004 (SW-T12)</p> <p>Naucon-1000</p>	<p>Sparepart: 92050006 (SW-T12)</p> <p>Naucon-1000</p> <p>Naucon-10B</p> <p>Naucon-20B</p> <p>Naucon-30</p> <p>Naucon-40</p>		

Delivered: 2013-present

Naucon-10B

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051011

Delivered: 2010-2013

Naucon-10

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051010

Delivered: 2013-present

Naucon-20B

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051021

Delivered: 2010-2013

Naucon-20

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051020

Delivered: 2013 – present

Naucon-30

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051031



Delivered: 2013 – present

Naucon-40

Standard DIP settings

ON	DIP
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Sparepart:
92051041

A DIPs

B NG NauBee – radiomodule
sparepart: 92050950

C Transmit diode – flashes red when a button is pressed, and working

D Insert 2 standard AA Alkaline batteries

E Devcom – radiomodule
sparepart: 92031000

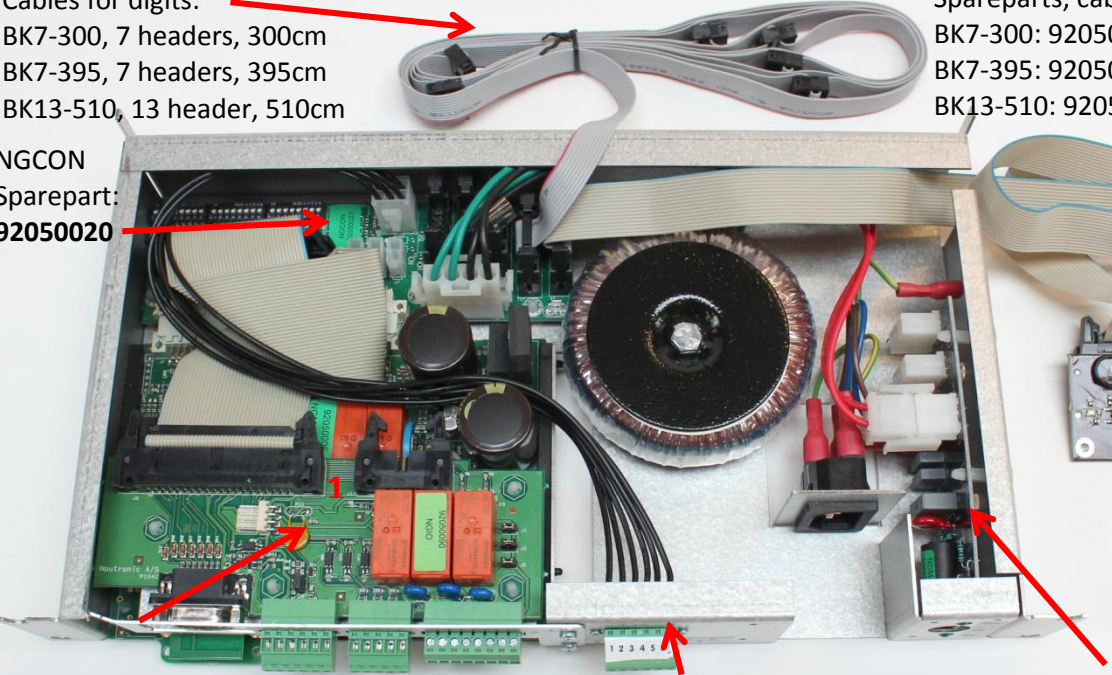
Find spareparts for NGI-85

NGI-85 spareparts

Cables for digits:
BK7-300, 7 headers, 300cm
BK7-395, 7 headers, 395cm
BK13-510, 13 header, 510cm

NGCON
Sparepart:
92050020

NGIO / NGIO-DCF
Spareparts:
92050090 / 92050092



NG-OUT
Sparepart
92050096

Fuse 2x20mm 5AF

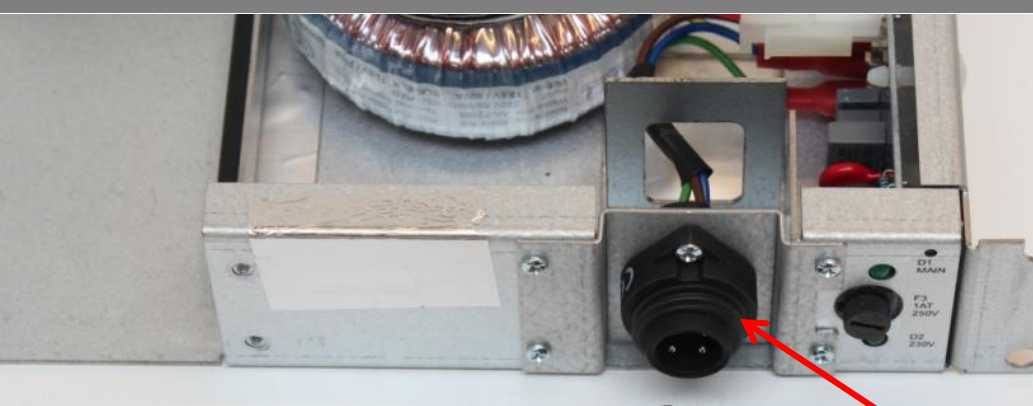
Spareparts, cables for digits:
BK7-300: 92050940
BK7-395: 92050941
BK13-510: 92050942

NG-LS
Sparepart:
9205094

NGMAIN
Sparepart:
92050010

Fuse 5x20mm 1AT

NGI-85-U



NETIP67-M
Spareparts:
92050271

NETIP67-F-KIT
Sparepart:
92050270

Find spareparts for Naucon-1000

Naucon-1000 accessories



NG112 Wall box
Sparepart:
92050916

Cable KNGM50
Sparepart:
92050915

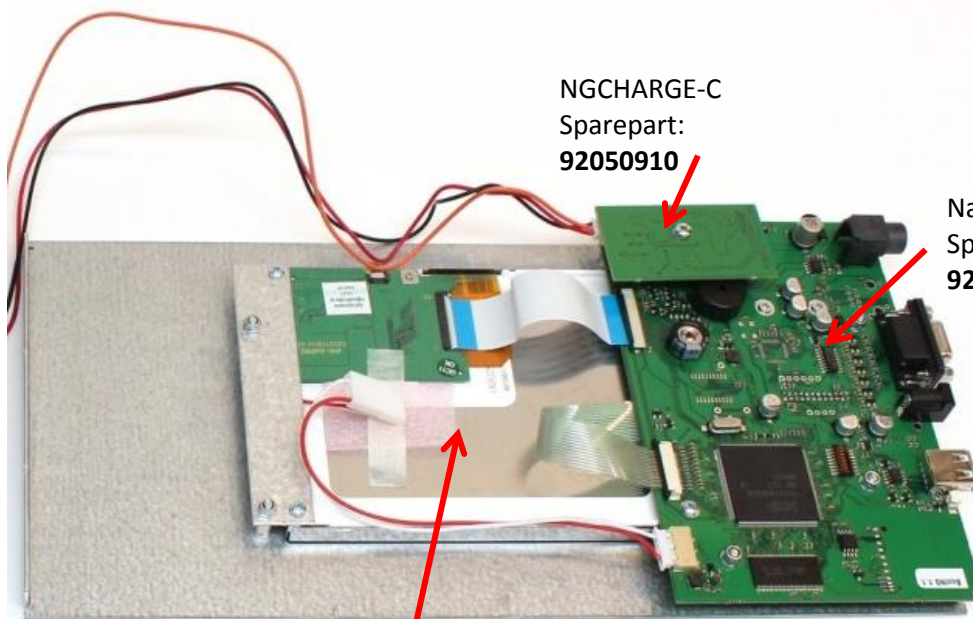
Naucon-1000
Sparepart:
92051000

Power suply
Sparepart:
92050080

Naucon-1000 Internal Spareparts



Battery 12v Li
Spareparts:
92050912



NGCHARGE-C
Sparepart:
92050910

Naucon-1000UPC
Sparepart:
92050900

NGNaabee Radio
(on backside of baord)
Sparepart:
920509500

3:Display TFT5,7T
Sparepart:
92050913

1. Main spareparts

Sparepart number	Name
92050000	NGMCB, SW-T08-01 sc. Board
92050002	NGMCB-R SW-T08-01 sc. Board
92050002-10	NGMCB-R SW-T08-10 shot clock
92050002-20	NGMCB-R SW-T08-20 football
92050004	NGMCB-12 SW-T12 sc. Board, no radio
92050006	NGMCB-12R SW-T12 sc. Board w/ radio
92050010	NGMAIN, sparepart
92050020	NGCON, sparepart
92050030	NGPW, sparepart
92050040	NGPWCON, sparepart
92050050	NGCBUS-SPLIT, sparepart
92050070	NGCPS03,3-12, sparepart
92050072	NGCPS05-12, sparepart
92050074	NGCPS09-12, sparepart
92050076	NGCPS15-10 sparepart
92050080	Power supply for NAUCON-1000
92050090	NGIO sparepart
92050092	NGIO-DCF sparepart
92050094	NG-LS sparepart
92050096	NG-OUT sparepart
92050200	NGI-85 sparepart
92050230	NGP-85 sparepart
92050250	NGI-85-Usparepart
92050270	NETIP67-F-KIT sparepart
92050271	NETIP67-M sparepart
92050900	NAUCON-1000UPC sparepart
92050910	NGCHARGE-C sparepart
92050912	BATT7,4-Li sparepart
92050913	TFT5,7T sparepart
92050915	Naucon-1000 kabel 5,0 m.
92050916	NG112 sparepart
92050940	Cable BK7-300
92050941	Cable BK7-395
92050942	Cable BK13-510
92050950	NGNAUBEE radio modul
92050960	NGNAUBEEUSB radio modul
92051000	NAUCON-1000 sparepart
92051010	Naucon 10 Blue sparepart
92051011	Naucon 10B Blue sparepart
92051020	Naucon 20 Green sparepart
92051021	Naucon 20B Green sparepart
92051031	Naucon 30 Red sparepart
92051041	Naucon 40 Yellow sparepart
92051081	NGSSRT green handle
92055000	NG266-E, LED STRIP for
92060000	BOSCHA12V, Horn for main scoreboard
92060002	BOSCH12V, Horn for scoreboard

NG12 Spareparts	NAUTRONIC SCOREBOARD SYSTEM	Spareparts list
Revision: 1		

2. Digits and text displays

Sparepartnumber	Name	Description	Inddor/Outdoor	textline sw version
92040108	DG-PKT, sparepart	15cm 1 Rows Fouls dots big	Indoor	
92040109	DG-2PKT, sparepart	12cm 2 Rows. Fouls dots small	Indoor	
92040110	DG-4PKT, sparepart	4 Rows. Fouls dots small	Indoor	
92040111	DGUDV2-5, sparepart	Penalty 2/2/5	Indoor	
92040113	DGT15, sparepart	Text 4 characters 15 cm.	Indoor	
92040114	DG-ARROW, sparepart	DG arrow	Indoor	
92040117	DGT9, sparepart	Text 4 characters 9 cm.	Indoor	sw:1.xx
92040118	DGT21, sparepart	Text 4 characters 21 cm.	Indoor	sw:1.xx
92040119	DG-4PKT-2, sparepart	#I/T	Indoor	
92040158	DGT21-12, sparepart	Text 4 characters 21 cm.	Indoor	sw:v2.1
92040159	DGT21-13, sparepart	Text 4 characters 21 cm.	Indoor	sw:v2.2+
92040163	DGT15, sparepart NAUCON	Text 4 characters 15 cm.	Indoor	sw:1.xx
92040164	DGT15-13, sparepart NAUC	Text 4 characters 15 cm.	Indoor	sw:v2.2+
92040167	DGT9, sparepart NAUCON	Text 4 characters 9 cm.	Indoor	sw:1.xx
92040168	DGT9-13, sparepart NAUCO	Text 4 characters 9 cm.	Indoor	sw:v2.2+
92040212	DGUDV10, sparepart	Penalty 10/10	Indoor	
92040296	DGT30-13, sparepart	Text 4 characters 30 cm.	Indoor	
92040311	DGUDV2-5H, sparepart	PenaltyH 2/2/5	Outdoor	
92040312	DGUDV10H, sparepart	PenaltyH 10/10	Outdoor	
92040313	DGT15H, sparepart	Text 4 characters 15 cm.	Outdoor	sw:1.xx
92040314	DGT21H, sparepart	Text 4 characters 21 cm.	Outdoor	sw:1.xx
92040315	DGT30H, sparepart	Text 2 characters 30 cm.	Outdoor	sw:1.xx
92040316	DGT30H-13, sparepart	Text 2 characters 30 cm.	Outdoor	sw:v2.2+
92040324	DG-ARROWH, sparepart	DG arrowH red arrow	Outdoor	
92040363	DGT15H-12, sparepart	Text 4 characters 15 cm.	Outdoor	sw:v2.1
92040364	DGT15H-13, sparepart	Text 4 characters 15 cm.	Outdoor	sw:v2.2+
92040365	DGT21H-13, sparepart	Text 4 characters 21 cm.	Outdoor	sw:v2.2+
92040367	DGT9H, sparepart	Text 4 characters 9 cm.	Outdoor	sw:1.xx
92040368	DGT9H-13, sparepart	Text 4 characters 9 cm.	Outdoor	sw:v2.2+
92042101	D16, sparepart	Display 16 cm. red	Indoor	
92042103	DG16-99, sparepart	Display 16 cm. 99 red	Indoor	
92042104	DG16-X99, sparepart	Display 16 cm. red :99/199*	Indoor	
92042105	DG16-9:99, sparepart	Display 16 cm. red 9:99	Indoor	
92042201	D16Y, sparepart	Display 16cm. Yellow	Indoor	
92042203	DG16-99Y, sparepart	Display 16 cm. 99 yellow	Indoor	
92042205	DG16-9:99Y, sparepart	Display 16 cm. yellow 9:99	Indoor	
92042301	D16H, sparepart	DisplayH 16cm. Red	Outdoor	
92042304	DG16-X99H, sparepart	DisplayH 16 cm. red :99/199*	Outdoor	
92042305	DG16-9:99H, sparepart	DisplayH 16 cm. red 9:99 H	Outdoor	
92042315	DG16-99BH, sparepart	DisplayH 16 cm. 19 red	Outdoor	
92043101	D21, sparepart	Display 21cm. Red	Indoor	
92043103	DG21-99, sparepart	Display 21cm. red 99	Indoor	
92043104	DG21-X99, sparepart	Display 21cm. red :99/199	Indoor	
92043107	D21T, sparepart	Display 21cm timeout Red	Indoor	
92043201	D21Y, sparepart	Display 21cm. Yellow	Indoor	
92043204	DG21-X99Y, sparepart	Display 21cm. yellow :99/199	Indoor	
92043301	D21H, sparepart	DisplayH 21cm. Red	Outdoor	
92043303	DG21-99H, sparepart	DisplayH 21cm. red 99 w. DOT	Outdoor	
92043304	DG21-X99H, sparepart	DisplayH 21cm. red :99/199	Outdoor	
92043307	D21TH, sparepart	DisplayH 21cm timeout Red	Outdoor	

**NG12
Spareparts**

**NAUTRONIC
SCOREBOARD SYSTEM**

Spareparts list

57

Revision: 1

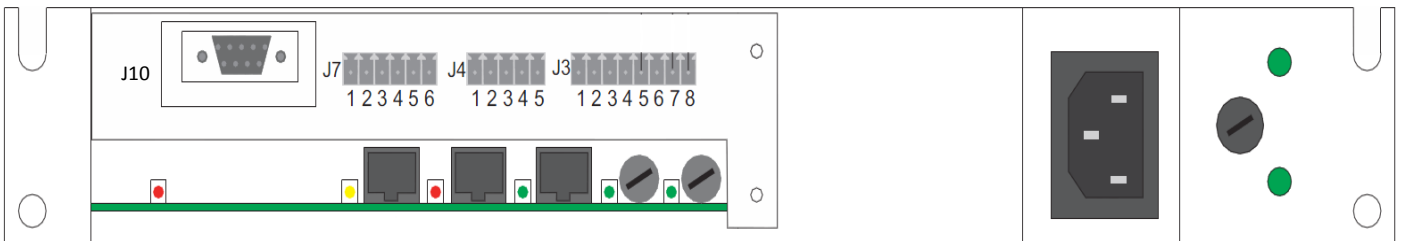
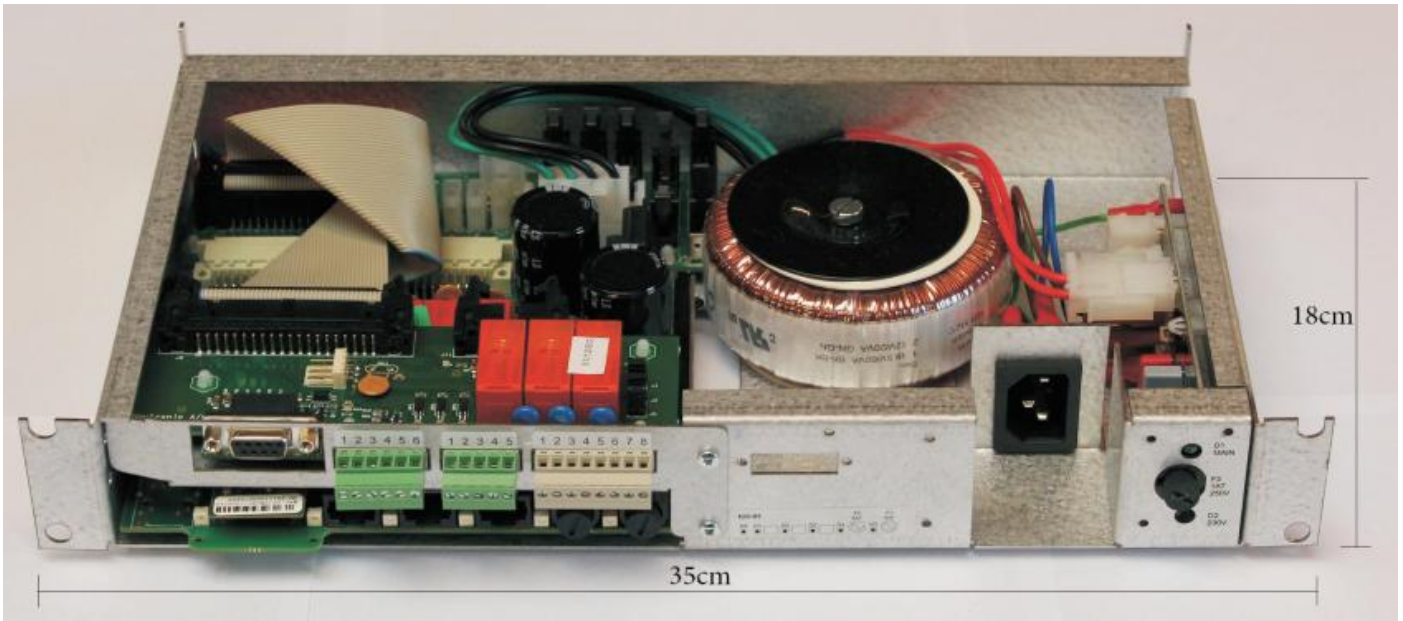
92043315	DG21-99BH, sparepart	DisplayH 21cm. red 99	Outdoor	
92044101	D26, sparepart	Display 26cm. Red	Indoor	
92044103	DG26-99, sparepart	Display 26cm. red :99#	Indoor	
92044104	DG26-X99, sparepart	Display 26cm. red :99/199	Indoor	
92044107	D26T, sparepart	Display 26cm timeout Red	Indoor	
92044201	D26Y, sparepart	Display 26cm. Yellow	Indoor	
92044204	DG26-X99Y, sparepart	Display 26cm. red :99/199 yellow	Indoor	
92044301	D26H, sparepart	DisplayH 26cm. Red	Outdoor	
92044304	DG26-X99H, sparepart	DisplayH 26cm. red :99/199 H	Outdoor	
92044307	D26TH, sparepart	DisplayH 26cm timeout Red	Outdoor	
92045101	D33, sparepart	Display 33cm. Red w/dot	Indoor	
92045102	DG33-X9, sparepart	Display 33 cm. red :9 / 19	Indoor	
92045119	D33S, sparepart	Display 33cm. Red w/o dot	Indoor	
92045301	D33H, red sparepart	DisplayH 33cm.	Outdoor	
92045302	DG33-X9H, sparepart	DisplayH 33 cm. red :9 / 19	Outdoor	
92046101	D46, sparepart	Display 46 cm. red 9	Indoor	
92046116	D46-X, sparepart	Display 46 cm red 1/colon/dot	Indoor	
92046301	D46H, sparepart	DisplayH 46 cm. red 9	Outdoor	
92046316	D46-XH, sparepart	DisplayH 46 cm red 1/colon/dot	Outdoor	

NGIO	NAUTRONIC SCOREBOARD SYSTEM	Description of connections for NGIO
Revision: 3		

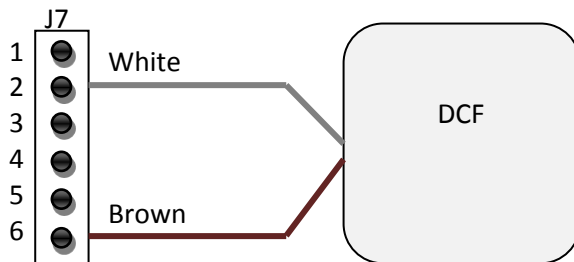
1. Description

This document describes the connection possibilities for NGIO extension board for a MCB

2. Connections



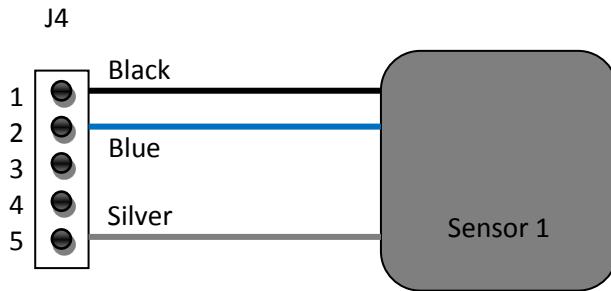
2.1 NG-DCF Connection



NGIO J7	Wire	Function
2	White	Signal
6	Brown	Ground

2.2 Temperature sensors (3 possible)

Three temperature sensor can be connected to the NGIO. 24VDC and ground are common for all three sensor. The number of sensors is detected automatically.

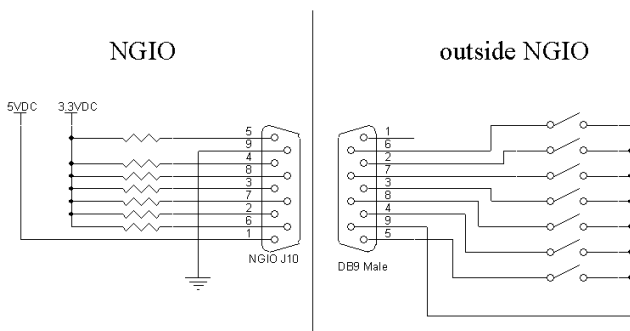


J4 NGIO	Wire	Temp. Sensor
1	Black	+24VDC
2	Blue	Temp. sensor 1
3	Blue	Temp. sensor 2
4	Blue	Temp. sensor 3
5	Silver	GND

2.3 Multitimer

When the Multitimer is in program 2 (Timer) the DSUB9 input can control start, stop and reset. In program 3 (Counter) the input controls count up, count down and reset.

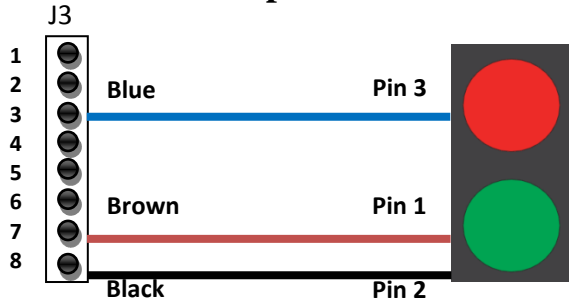
Inputs are triggered on falling edge. When an input port is pulled low it will register as one key press, for another key press, the input port needs to be pulled low again.



J10 – D-Sub 9	Function
Pin 1	+5VDC max 50mA
Pin 2	Start
Pin 3	N/C
Pin 4	Count down
Pin 5	Reset
Pin 6	Count Up
Pin 7	Stop
Pin 8	N/C
Pin 9	Ground

NGIO	NAUTRONIC SCOREBOARD SYSTEM	Description of connections for NGIO
Revision: 3		

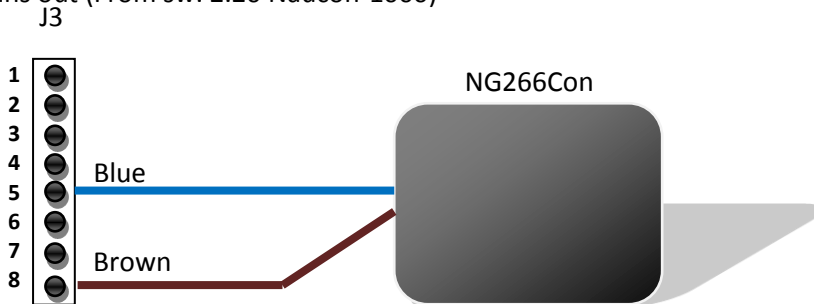
2.4 NS255 Goal lamp connection



Goal lamp	J3 NGIO	Wire	Function
1	7	Brown	Red lamp 24VDC
2	8	Black	Ground
3	3	Blue	Green lamp 24VDC

2.5 Shot Clock yellow LED strip (NG270)

When the NGI DIP settings is set as a synchronized shot clock (DIP address 4x), Relay 2 is activated when shot clock time runs out (From sw. 2.20 Naucon-1000)

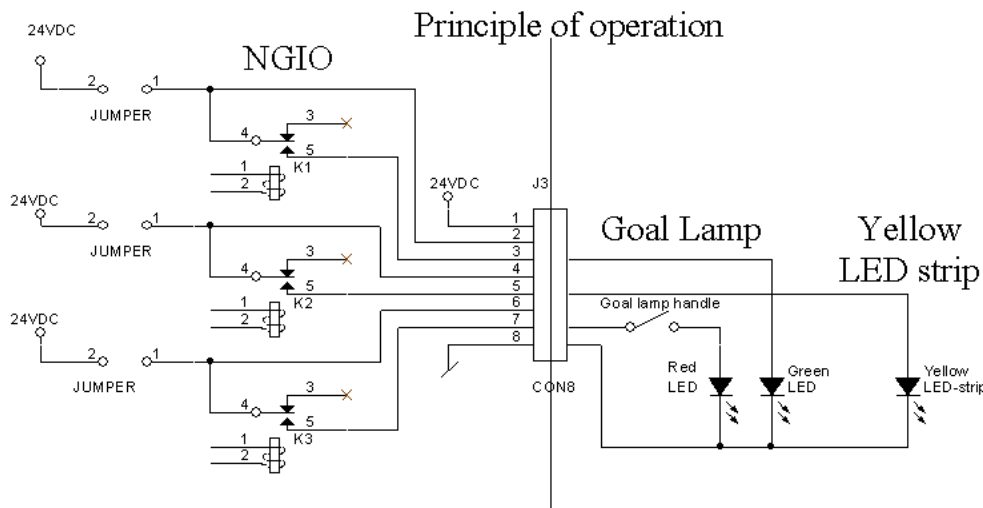


NGIO J3	Wire	Function
5	Blue	+24VDC
8	Brown	Ground

2.6 Internal connection of J3

J3 has three relay outputs. The relays are by default connected to 24vd through jumpers. Maximum output current for 24VDC is 1.35A.

By removing the jumpers the relays can be used as switches. Maximum 50VAC / 5A.



Relay	Sport	Function	Description
K1	Icehockey	Goal lamp. Red lamp	On when gametime is running.
K2	Basketball	Yellow LED strip	Turns on at end of shotclock time.
K3	Icehockey	Goal lamp. Green lamp	On when gametime is stopped.

1. How to change Addresses.

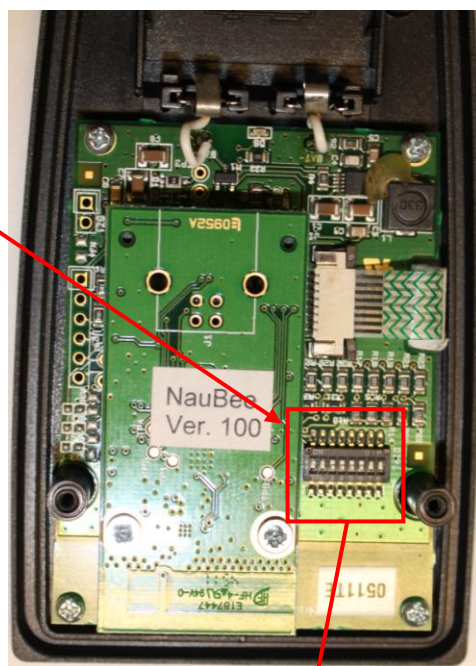
The Handle ID of the Scoreboard and Naucon handle must be changed, if more than one Scoreboard is placed within 150 meters, to avoid any interfere with each other.

1.1 How to get to the DIP-Switch in the Naucon Remote.

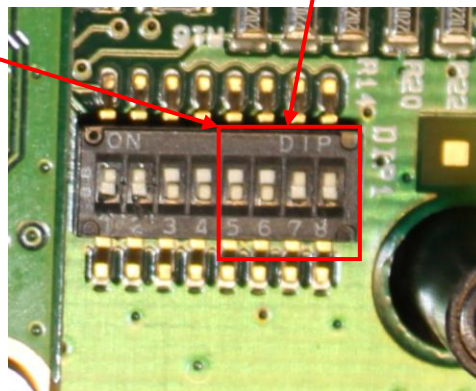
1. Remove the battery-cover.
2. Remove the batteries.
3. Unscrew the four screws.
4. Gently remove the back-cover.



5. Place the Naucon remote as shown on the picture, with the DIP-Switch pointing towards the right and the battery-holder pointing upwards.

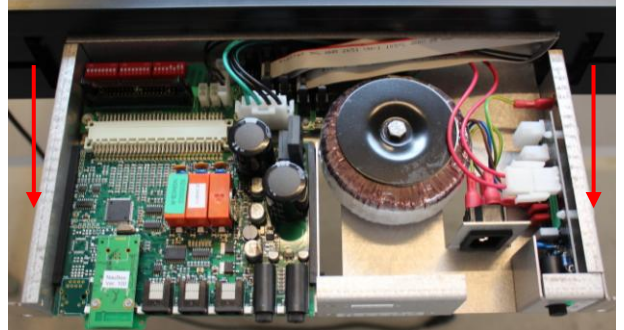


6. The switches 5, 6, 7 and 8 sets the Naucon handle ID.
7. Do not set other switches than the above mentioned!



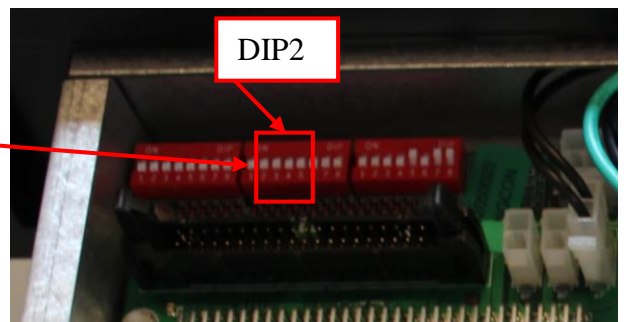
1.2 How to get to the DIP-Switch in the Scoreboard.

1. Unscrew the two upper screws holding the See-through Acryl plate, in front of the NGI-85 power module.
2. Remove the See-through Acryl plate.
3. Unscrew the two bottom screws holding the NGI-85 power module en place.
4. Gently pull the NGI-85 power module out of the frame, like shown on the picture.
5. If the Scoreboard is an outdoor model, example NHA3306, a metal cover will be mounted on the NGI-85 power module.



If this is the case, do the following:

- Gently pull the NGI-85 power module fully out of the frame.
 - Unscrew the 7 screws holding the metal cover in place and remove it.
6. The DIP-switches are now accessible in the top left corner.
 7. **DIP2, switch 2, 3 and 4 sets the Naucom handle ID that is received of the from the Naucom handle.**
 8. **Do not set other switches than the above mentioned!**

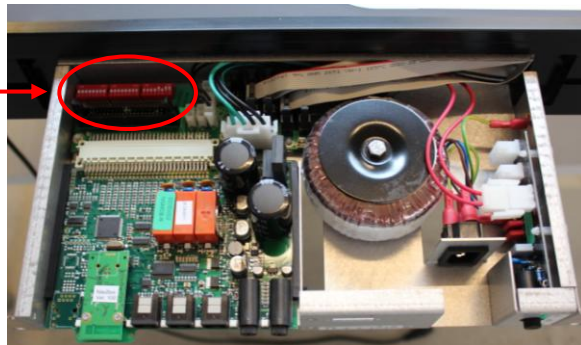


1. NG08 Standalone Shot Clocks PAN ID.

This instruction describes how the DIP-switches are accessed and set in the Shot Clocks and Naucom-20 to edit the PAN ID, if multiple Standalone Shot Clocks must function in one arena, without disturbing each other.

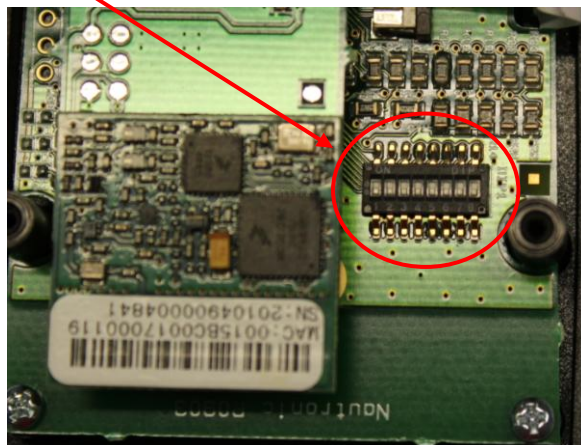
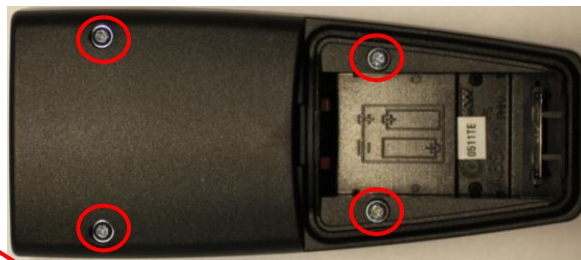
1.1 How to locate the DIP-Switches in the Shot Clock.

1. Remove the AFDL see-through Cover plate.
2. Unscrew the two screws in the bottom of the NGI-85.
3. Pull out the NGI-85.
4. Locate the 3 DIP-Switches in the top left corner of the NGI-85.



1.2 How to locate the DIP-Switch in the Naucon-20.

1. Remove the battery cover.
2. Unscrew the four screws on the back of the Naucon-20.
3. Remove the Back cover.
4. Locate the DIP-Switch in the top left corner of the Naucon-20.



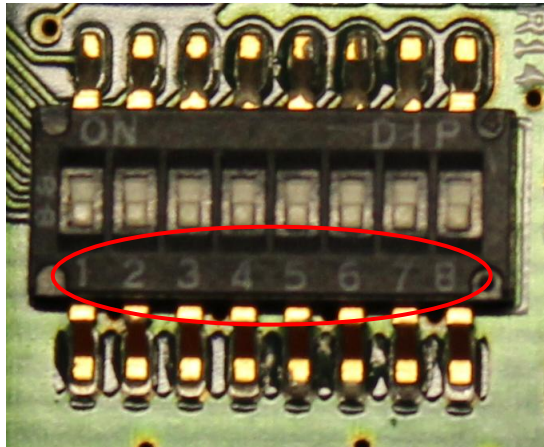
NG08 Standalone Shot Clocks PAN ID

Revision: 1

NAUTRONIC SCOREBOARD SYSTEM

DIP-Switch settings.

5. Orient the Naucon-20 like shown on the picture, with the numbers readable in the bottom of the DIP-Switch.



2. How to read the DIP-Switch.

If a black square is shown at the top, it indicates that the switch is ON. *In this case, switch 2.*



3. How to set the DIP-Switches.

In order for the Shot Clock sets to work separately, the PAN ID must be set via the DIP-Switches in each Shot Clock and Naucon-20 handle. *Default is PAN ID 8.*

NGI-85 NOTE: It is only **DIP2, Switch 2, 3 and 4** that must be changed. *Marked with RED.*

3.1.1 PAN ID 8.

NGI-85 DIP-Switch.

Primary.



Secondary.



Naucon-20 DIP-Switch:



Revision: 1

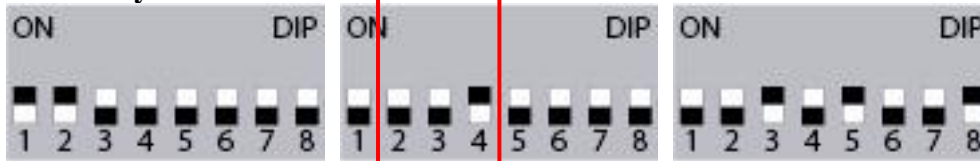
3.1.2 PAN ID 9.

NGI-85 DIP-Switch.

Primary.



Secondary.



Naucon-20 DIP-Switch:



3.1.3 PAN ID 10.

NGI-85 DIP-Switch.

Primary.



Secondary.



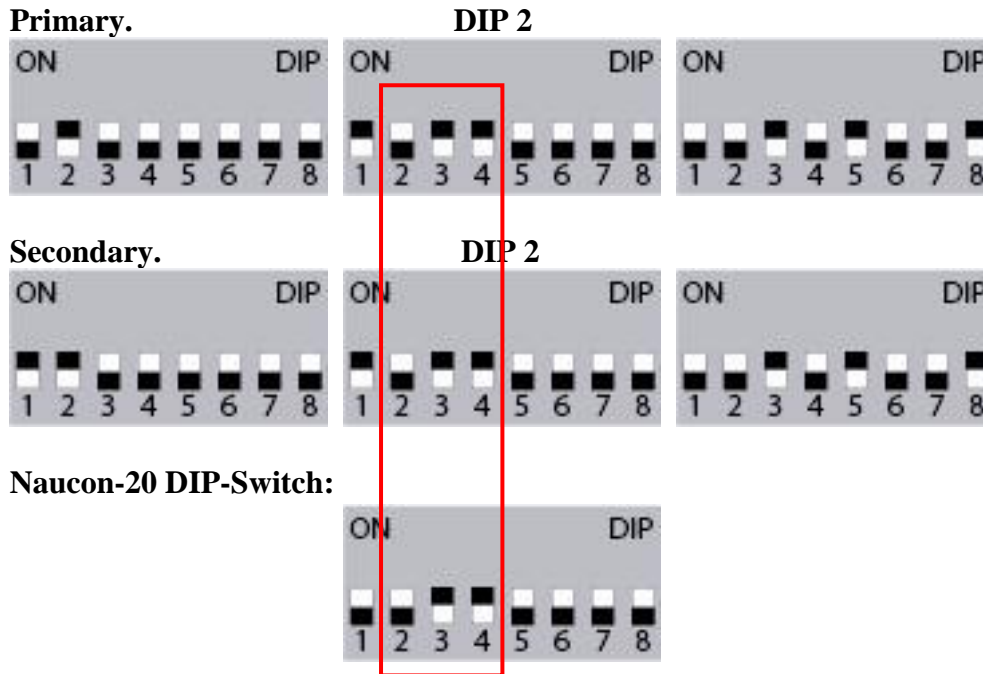
Naucon-20 DIP-Switch:



NG08 Standalone Shot Clocks PAN ID		DIP-Switch settings.
Revision: 1		

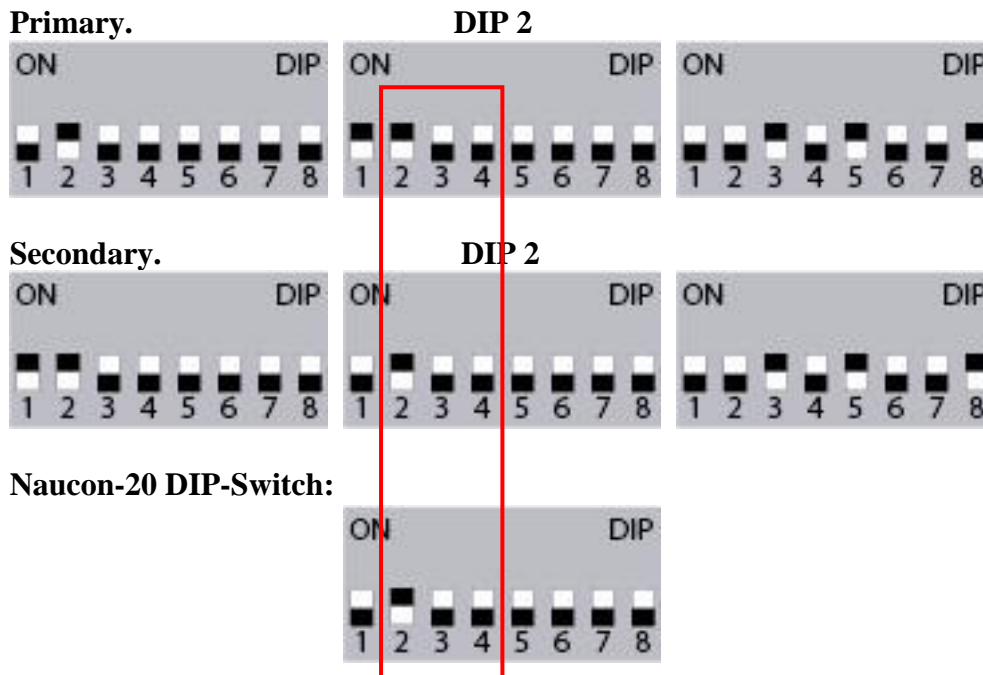
3.1.4 PAN ID 11.

NGI-85 DIP-Switch.



3.1.5 PAN ID 12.

NGI-85 DIP-Switch.



Revision: 1

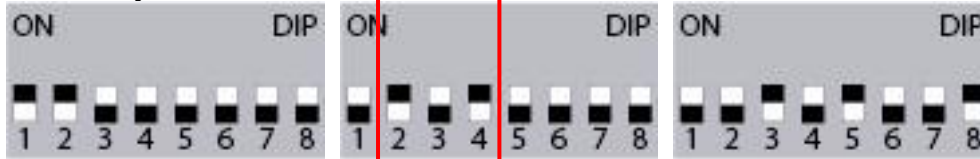
3.1.6 PAN ID 13.

NGI-85 DIP-Switch.

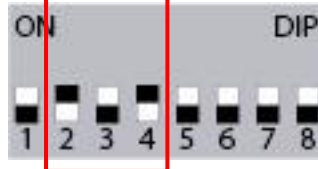
Primary.



Secondary.



Naucon-20 DIP-Switch:



3.1.7 PAN ID 14.

NGI-85 DIP-Switch.

Primary.



Secondary.



Naucon-20 DIP-Switch:



NG08 Standalone Shot Clocks PAN ID		<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">DIP-Switch settings.</div>
Revision: 1		

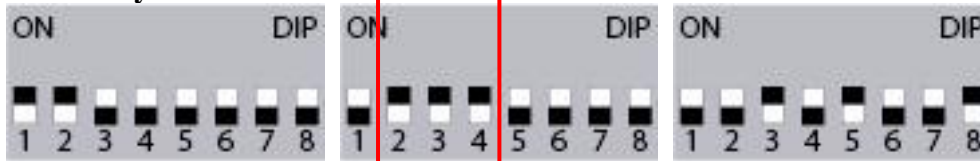
3.1.8 PAN ID 15.

NGI-85 DIP-Switch.

Primary.

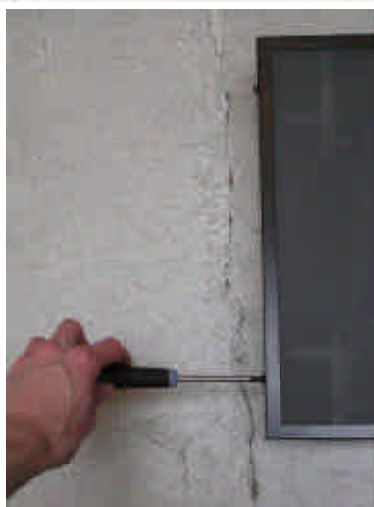


Secondary.

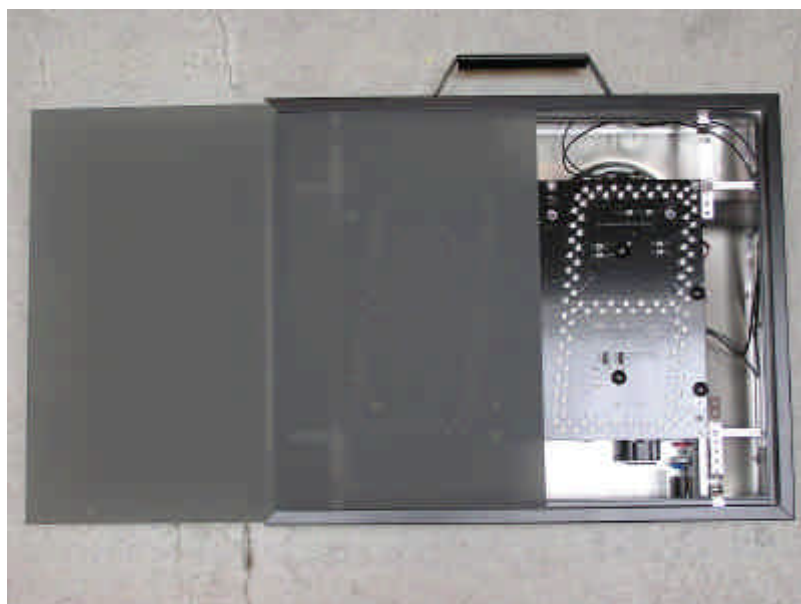


Naucon-20 DIP-Switch:





1: Remove the screws in the side of the scoreboard.



2: Slide the coverplate to the side.

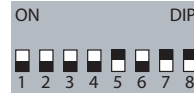
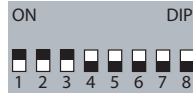
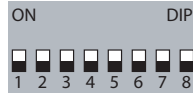
Important, When you slide the coverplate back in place, be careful not to hit any electronics in the scoreboard. This can destroy or shorten the lifetime of the scoreboard.

Tip: Push the electronics into the scoreboard when sliding the coverplates into place.

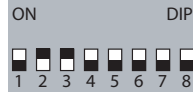
NG08 DIP SETTINGS - standard

MAIN BOARD ADDR. (PAN ID = 14)

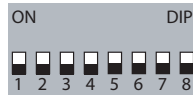
11



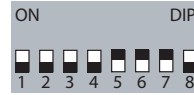
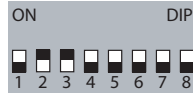
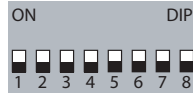
12



13

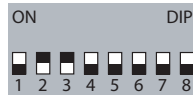
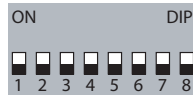


14



HOME SIDE BOARD ADDR. (PAN ID = 14)

21

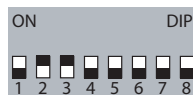
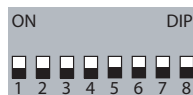


22

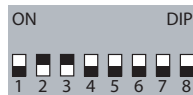


GUEST SIDE BOARD ADDR. (PAN ID = 14)

31



32



SOFTWARE (SW-T08-01)

NG08 DIP SETTINGS - football etc.

Standalone soccer controlled by Naucon-10

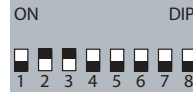
2 TIME DIGITS

BOARD ADDR. (PAN ID = 14)



PRIMARY

11



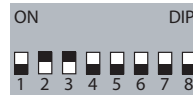
4 TIME DIGITS

BOARD ADDR. (PAN ID = 14)



PRIMARY

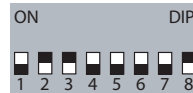
11



Control - NAUCON-10

HANDLE ID = 1

PAN ID = 14

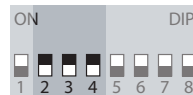


SOFTWARE (SW-T08-20)

BOARD ADDR. (PAN ID = 15)

PRIMARY

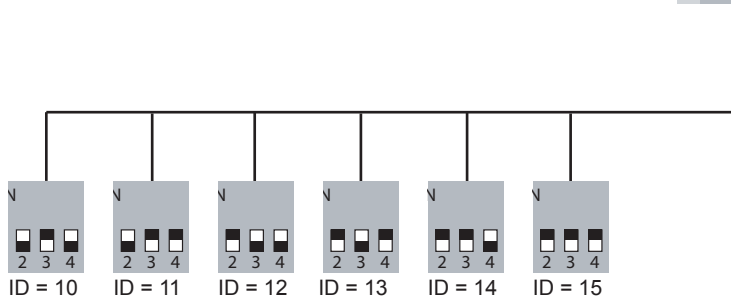
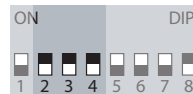
11



Control - NAUCON-10

HANDLE ID = 1

PAN ID = 15



NG08 DIP SETTINGS - shot clocks

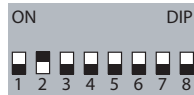
Standalone shot clocks controlled by Naucon-20

NC21750, NC26750

BOARD ADDR. (PAN ID = 8)

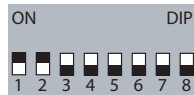
PRIMARY

41



SECONDARY

41



Control - NAUCON-20

HANDLE ID = 0

PAN ID = 8



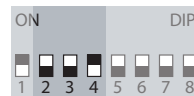
SOFTWARE (SW-T08-10)

EXTRA SHOT CLOCKS FOR SAME SPORTS ARENA

BOARD ADDR. (PAN ID = 9)

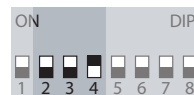
PRIMARY

41



SECONDARY

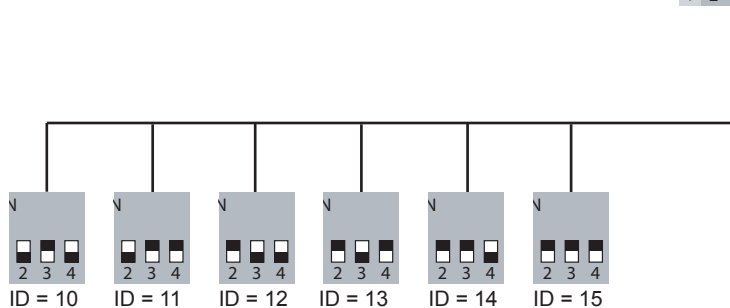
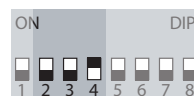
41



Control - NAUCON-20

HANDLE ID = 0

PAN ID = 9



Synchronized shot clocks

DIP SETTINGS (SW-T08-01) Controlled by NT-pult

NC21755

41



NC26755

NC21755-C

42



NC26755-C

NAUTRONIC

SCOREBOARD SYSTEM