NORMAL BEHAVIOUR

When power is applied, the Scoreboard will go through a sequence of initialisation. By carefully looking at the display, you will be presented the following data:

888888   all segments are on, then off to verify digit operation
08.28A   is the firmware version for the Scoreboard
A:00   address of the display (normally set to 00 if disabled)
C:9600   indicates the current baud rate setting
P:20   protocol number or other identification

After initialisation, the Readout will normally go blank with all decimal points activated. This is the default 'waiting screen' indicating that it is awaiting a valid message. Some protocols will display alternative behaviour

Refer to the User's Guide for details on the installed controller electronics. For ND5052 Serial Display Controller, Auto (default) or Manual operation is possible. The Readout could be switched to Manual mode after Auto mode has correctly detected the communication speed and protocol. The Readout will then store the operational parameters.

Note that reducing the voltage supplied to 8V-11V will turn off backlight and reduce current consumption. The operation will otherwise be as normal.

INSTALLATION NOTES

! To comply with various safety and conformance rulings, the system must be properly grounded. The metallic parts of the Readout needs to be connected to safety earth.

The product has a clear protective film on the stainless steel enclosure. Remove this film when installed.

When power is applied, the display should respond as described in „Normal Behaviour" above. In high ambient conditions, the backlight may be difficult to see, as the surrounding light will reflect in the displays and outshine the internal light.

SERVICE AND CONTACT INFORMATION

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ND2012Oct18

ND7036A   N5+1/1-100-BL Display

user's guide

QUICK DATA

Display	5 digits plus weight designator, positive transflective TN LCD 7 segments plus colons and decimal points
Backlight	White LED
Power Supply	24V dc typ 100mA-130mA, 9V dc typ 12mA (no backlight)
Interface	Field selectable RS-232, RS-485 and 20mA TTY current loop
Protocol	Auto detect baudrate and protocols or manual setup
Connection	Unterminated 4m cable
Baud Rate	[Default: 9600] 300… 38400 baud
Parity	[Default: Even] Set to even, odd or none
Databits	[Default: 7] 7 or 8 databits according to parity setting
Casing	IP-65 Stainless Steel 316L

Other configurations are available on request
Supplied with universal mounting bracket prepared for pole or wall mounting .
Options include: Pole mounting kit, Analog interface, Counter, IR remote controlz

DIMENSIONS AND MOUNTING in metric millimeters

(Dimensions: 169, 12, 84, 180, 35, 58, 540, 75, 75, 75, 75, ø6+, 12, 25, 550)

Pink	+V DC External Power
Grey	0 V for External Power
* Black	+A RS-485/422 tranceiver
* Violet	-B RS-485/422 tranceiver
White	+TTY Input (20 mA)
Brown	-TTY Input (20 mA)
Blue	RxD RS-232 input
Red/Blue	RxD 0V Input
Red	TxD RS-232 source
Green	+O Output
Yellow	-O Output
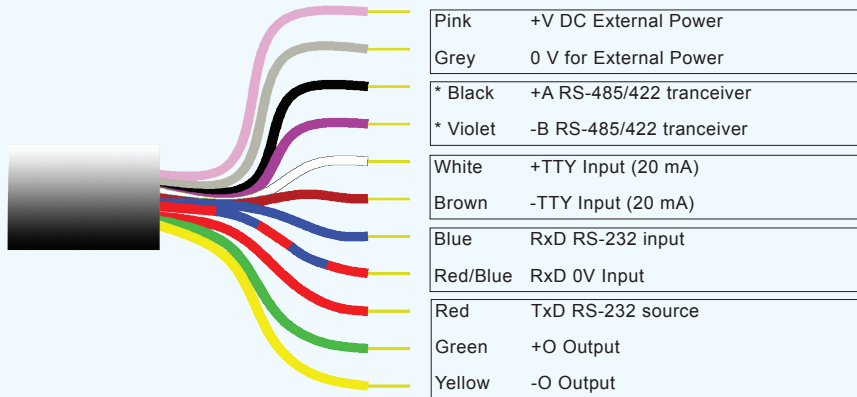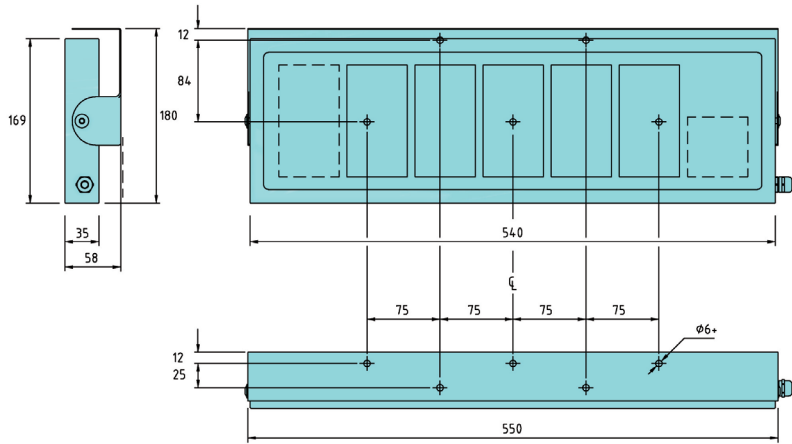
* Note that RS-485 signals are disconnected internally due to possible pickup of noise.

CONNECTION DESCRIPTION
Field selection of RS-232, RS-485/422 or 20mA TTY is done by using the corresponding leads on the 4m cable attached to the Readout. For RS-485/422 you need to open the compartment on the back using Torx TX-25 for the M4x10 screws, connect the Black and the Violet leads to terminals A+ and B- respectively.

STANDARD PROTOCOL DESCRIPTION
A lot of different protocol schemes may be programmed, and the following text only describes the Norsk Display factory default setup used on most products.
A timeout function may auto blank the display after a preset number of seconds.

<STX>*data*<CR> where <STX>=ASCII 02d, <CR>=ASCII 13d, while data includes minus sign (-), decimal point (represented by '.' or','), leading blanks or zeros.

ADDRESSING CONTROL
Including the leading string <SOH> AA will select display AA ('00' to '99'). '00' will broadcast to all connected displays. Addressing is relatively seldom used.

PROGRAMMING OPERATIONAL PARAMETERS
The ND5052 Display Controller has a host of predefined message formats (called protocols) that could be automatically detected or manually selected. A list of protocols is available on the Norsk Display website.

To set the parameters, please refer to the User's Guide for details. Depending on what parameters to change, the Test Button, IR Remote Control (option) or Terminal Hookup could be used. Terminal hookup will give you full control over operational parameters.

Use either a terminal program or the free Windows™ utility program to set the parameters. To enter programming mode, repeat '<Esc>+P' 16 times. The display will then respond with informational text, while the Readout will display „Prog". Only simple configure commands will be accepted at 9600,8,N,1. After programming sequence, communication is set to the selected speed

Available commands are

Command	Description
S [enter]	Status - list all parameter settings
? [enter]	Help - list all available commands
V [enter]	list software number and version
C=1200 [enter]	set communication speed1200-19200
P=N [enter]	set parity N,E,O
A=01 [enter]	set address 00-99. (00 means inactive)
PS=02 [enter]	set Protocol Start character (0=not used)
PE=13 [enter]	set Protocol End character
TO=05 [enter]	set TimeOut seconds (0 means not used)
TI=03 [enter]	set Ignore Characters after start
TL=07 [enter]	set Text Length = number of valid characters
RS=send [enter]	set Request String (^A for sending ASCII 01)
SP=02 [enter]	set Sign Byte Position (0 for not used)
SB=02 [enter]	set Sign Bit position in Sign Byte (0 to 8)
FT=kg [enter]	set max 3 character trailing text
BP=5 [enter]	set Control Byte Position (0=not used)
BM=07 [enter]	set Control Byte Bit Mask (0/255=not used)
BB=06 [enter]	set Control Byte Compare Byte
PP=0 [enter]	Particular Protocol (0=normal)
DL=6 [enter]	set Physical Display Length (6=normal)
DJ=R [enter]	set Justification R=Right / L=Left
DP=2 [enter]	set number of Decimals (place fixed dp)

EXAMPLE

To set the baudrate to 4800, issue the command:
Cmd[S=Status]>*C=4800[Enter]*

The PC/terminal will reply with an "OK" if accepted, else "* ERR". Use the „S"-command frequently. The Readout will not start using the parameters before leaving the programming mode and a restart is done.

Programming utilities with predefined setups are available online at http://www.norskdisplay.com.