Description

Simple parameter controlled display interface.

Screwless termination of cables.

Standard Norsk Display clocked serial interface to LCD or LED screens.

Programming of parameters through RS-232 bidirectional plus DTR signal. Use a simple terminal or a free Windows utility program.++
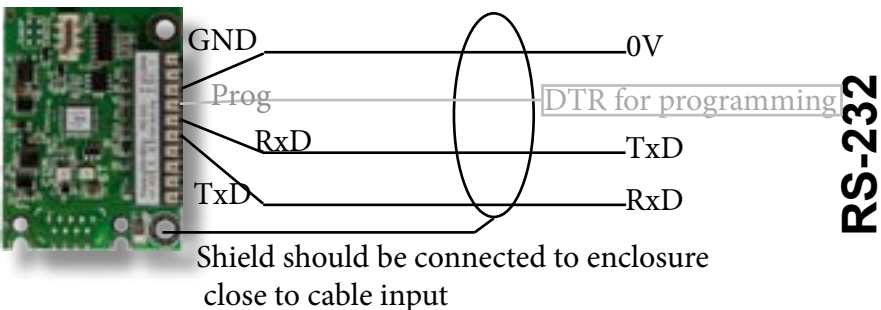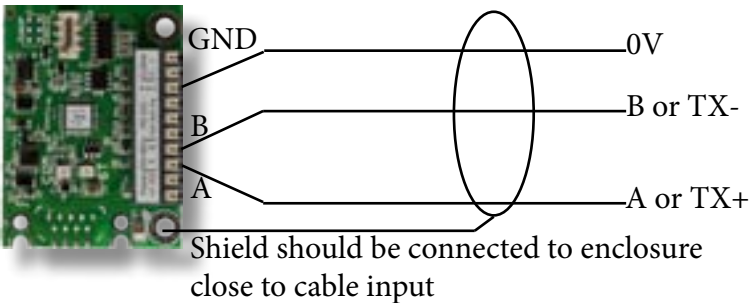
Quick Data

DISPLAY CHARACTERISTICS

Function	Serial display controller / Option: Analog converter
Number of digits	Parameter controlled 1 to 9 plus a designator display
Resolution	Able to support all ND types
Technology	16k AVR Flash microcontroller
Firware upgrade	Factory or through PC controlled HW, KeyFOB field unit
Backlight/Intensity	No special support other than intensity control
Power	Max. 25mA

MECHANICAL

Size board	60 mm x 40 mm x 16 mm (l x h x h)
Mounting	2 x 4,1mm holes c-c 50mm
Materials	RoHS
Protection	None
Operating temp.	-35°C to +75°C (intermittent up to +80°C)
Weight	5 g net, 0,3 kg shipping

RS-422/485

GND ———— 0V

B ———— B or TX-

A ———— A or TX+

Shield should be connected to enclosure close to cable input

RS-232

GND ———— 0V

Prog ———— DTR for programming

RxD ———— TxD

TxD ———— RxD

Shield should be connected to enclosure close to cable input

ND5101 Display Controller

- *RS-232, RS-485/422 and TTY20mA*
- *PWM intensity control and sensor*
- *Small format*
- *8-28VDC input max 25mA*

Data+User's Guide

Ordering

ND5101 and you have to specify display type plus default setup.

Standard configuration is:
- Serial data controller (RS-232, RS-485 and TTY20mA)
- For 45mm OR 67mm OR 75mm OR 100mm OR 140mm OR 200mm OR 225mm
- 2 x M4 mounting holes c-c=50mm

Variants	Interface Options	Shortform Data
• Specifiy display type • Custom firmware	• 4-20 mA analog input • Temperature (digital)	• Industrial temp • VDR on inputs • RS-232 programming • PWM dimmer control

Fulfills CE and RoHS requirements

norskdisplay

A — Mechanical Mounting

Prepared for use with M4 screws.
When factory mounted, two Torx 20 screws are normally installed.

NOTE: Grounding is assured by using the two mounting holes. Make sure the screws are directly connected to protective earth for CE/FCC/EMC conformity.

Tools	Dismantling	
• Torx 20	• single or multicord • 7mm dismantling	

4 — Adressed protocols

STANDARD PROTOCOL DESCRIPTION

We have defined a standard protocol to be used where the connected instrument is fully programmable. This message format is known as „Norsk Display Standard Protocol" and has two operating modes; non-addressed and addressed. These are used throughout the range of different products.

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

Addressing Control

By including a leading string **<STX><SOH> AA** will select display 'AA' ('00' to '99').
Full message string will be **<STX><SOH> AA<STX>data<CR>**
Address '00' will broadcast to all connected displays.
Addressing is relatively seldom used.

? — Help

Programming utilities with predefined setups and contact information is available online at http://www.norskdisplay.com
Use RS-232 for programming, regardless of the interface to be used later.

All interfaces are active at all times. No programming is necessary to activate them.

Support: Tel: +47 3288 700 or sales@norskdisplay.com

1 — Programming

Make a cable like this:

controller name	PC 9 pin (female)
TxD	Pin 2 (RxD)
RxD	Pin 3 (TxD)
Prog	Pin 4 (DTR)
GND	Pin 5 (GND)

! Use a female plug to mate the male PC receptacle

2 — Parameter settings

When DTR signal is activated, the ND5101 card will reply with copyright and version number. If connected to a display, it should write „Prog" on the screen.

Commands are input as CAPITAL letters and executed by a carriage return [enter]. For true terminals, the „>" signifies ready for new command.

Commands must be executed one at a time and response must be controlled. An accepted command will yield „OK" back.

3 — Command overview

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 speed 300-19200
P=N [enter]	set Parity N,E,O
D=8 [enter]	set Databits to 7 or 8
A=01 [enter]	set Address 00-99. (default=00 means addressing inactive)
PS=02 [enter]	set Protocol Start character (0=not used, else use decimal ASCII)
PE=13 [enter]	set Protocol End character (Example show '13' -i.e. Carriage Return)
TO=05 [enter]	set TimeOut seconds (0 means no timeout 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). For specific protocols/customers.
DL=5 [enter]	set Physical Display Length, i.e. number of digits
DJ=R [enter]	set Justification R=Right / L=Left
DP=2 [enter]	set number of Decimals (place fixed dp). 0 means no 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".