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 correct operations
002.022 is the project and program version for the Scoreboard
022 repeats the S/W version number
C:9600 indicates the current baud rate setting
A:00 is the address of the display (normally set to 00 if disabled)

After initialisation, the Scoreboard will blank with all decimal points activated. This is the default 'waiting screen' indicating that it is awaiting a valid message.

If the set-up of the RS property holds a string, the Scoreboard will transmit characters to the host instrument requesting a message. This will be done repeatedly with intervals of 1 second if no valid message has been received.

Note that reducing the voltage supplied below 20V 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 Scoreboard itself needs to be connected to safety earth, and the connector should be firmly mated and fixed by use of fixing screws.

When power is applied, the display should respond by a sequence of control messages: Project number, version number, baud rate and address. After the short start-up formality, display is blanked. If this sequence is missing, check power source and connections. The voltage present at the pins on the Scoreboard D-sub should be stable between 8 and 28 Vdc.

SERVICE AND CONTACT INFORMATION

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This product is tested with our products and will comply to CE requirements. From Serial No 1000 and upward European RoHS is fulfilled.

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ND2005Oct07

ND7017 N6/1-45-BL Display

user's guide

QUICK DATA

Display	6 digits, positive transflective TN LCD 7 segments plus colons and decimal points; markers
Backlight	Amber
Power Supply	24V dc typ 60mA, 8-20V dc typ 4mA (no backlight)
Interface	Field selectable RS-232, RS-485 and 20mA current loop
Protocol	Programmable behaviour, software selectable
Connection	9 pin male d-sub, mates 9 pin female connector
Baud Rate	[Default: 9600] 1200… 19200 baud
Parity	[Default: Even] Set to even, odd or none
Databits	[Default: 7] 7 or 8 databits according to parity setting
Casing	Stainless Steel. Environmental sealing on request

Other configurations are available on request

Supplied with mounting u-bracket. -IP65 version comes with mating plug

norskdisplay

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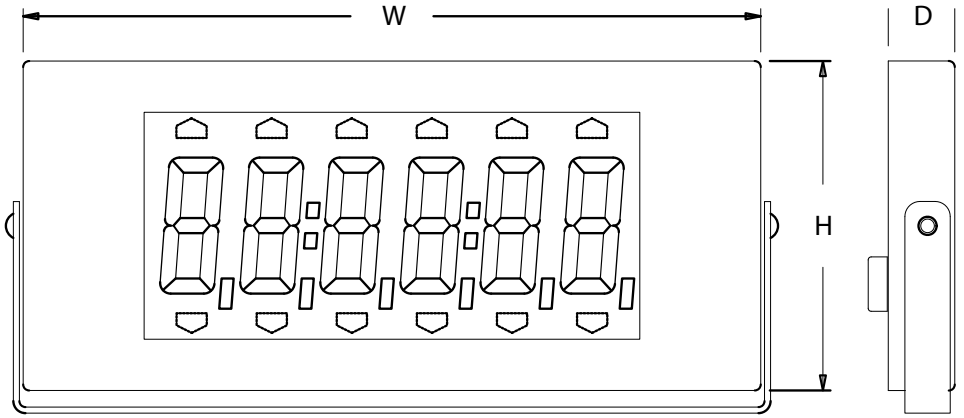
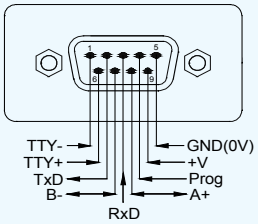
DIMENSIONS in metric millimeters (W=244 x H=109 x D=22)





Pin 1	TTY-	Input negative 20 mA
Pin 2	TxD	Output connects to RxD on RS-232 Host
Pin 3	RxD	Input connects to TxD on RS-232 Host
Pin 4	Prog	Input Programming pin
Pin 5	0 V	GND on External Power and RS-232 Host
Pin 6	TTY+	Input positive 20 mA
Pin 7	B-	I/O connects to RS-485/422 sender/receiver
Pin 8	A+	I/O connects to RS-485/422 sender/receiver
Pin 9	+V DC	Connects to External Power

STANDARD PROTOCOL DESCRIPTION

A lot of different protocol schemes may be programmed, and the following text only describes the factory default setup.
As a serial display, the message format handled is based on the parameter setting that defines valid and essential data. The data displayed is replaced each time a valid new message is received. Timeout function may auto blank the display after a preset number of seconds.

<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

<SOH> AA <STX> will select display AA (00 to 99). 00 will broadcast to all connected displays. Addressing is relatively seldom used.

PROGRAMMING OPERATIONAL PARAMETERS

The PROG Signal (pin 4) will force the display into Programming Mode when high. The display will show „Programming" and only simple configure commands will be accepted at 9600,8,N,1. Before and after programming sequence, communication is set to the selected speed Note that the PROG pin should remain low or unconnected (inactive) during normal operation. Do not allow unconnected leads to the Prog Pin during normal operations.

Available commands

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

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.

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