

programmer's guide

A family of text readouts, designed for industrial use showing messages and simple graphics.

Valid for:

ND7069: 650 x 365 x 80 mm / P10 64 x 32 pixels

ND7070: 1040 x 400 x 100 mm / P10 96 x 32 pix

ND7071: 1360 x 400 x 100 mm / P10 128 x 32 pix

ND7072: 1280 x 560 x 100 mm / P10 128 x 48 pix

Communication over Ethernet TCP / JSON

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OVERVIEW

This family of displays are controlled by a small Linux controller and made to present ASCII characters in the ISO/IEC 8859-1 table plus simple graphics.

With the standard Ethernet interface and web server installed, it will interface with JSON protocols carrying HTTP requests.

Alternative interfaces, protocols and power options are available on request.

When designing the communication behaviour of your equipment, please consider using power-saving techniques, like erasing messages when obsolete.

For best performance, update the display on a regular basis (e.g. each minute) and read back status to handle exceptions.

Smart use will increase expected life length and user experience.

Norsk Display AS
Drammen, Norway
Tel: +47 32887000
sales@norskdisplay.com



SETUP AND ALTERNATIVES

The graphical layout of the sign allows a dynamically changeable sign. One line of large characters or 3-4 lines of smaller text is up to you. Predefined setup is loaded at power-up. Apply power to display and you should see the preset IP address 192.168.1.100

Use a browser to access the web interface: <http://192.168.1.101> or change the IP address by typing <http://192.168.1.101/admin.php> . Note that **you may have to change your PC/Mac IP address range** to allow it to reach the display (eg set 192.168.1.80) and connect it point to point.

Comms documentation and examples are available to help you evaluate the communication and result:

<https://displaysimulator2.azurewebsites.net/simulator.php>

Text and simple graphics may be displayed in any color, but we recommend white text on black background as default.

COMMUNICATION

Standard communication interface is Ethernet with JSON containing HTTP/HTTPS over TCP. This allows the widespread use of well tested APIs in PLS / PC or instruments.

For more information on JSON:

<https://displaysimulator2.azurewebsites.net/simulator.php>

TASK	COMMAND	PARAMETERS	DESCRIPTION
Set Text	settext	text =txt col =position row =line	Set new text. Will clear existing display content if col and row is not defined. If col or row is defined, the text will be updated at given col and row . Both defaults to 0. 0,0 is the upper left position.
Get Text	gettext	col =position row =line count =chars	Returns the displayed text. Without parameters, it will return full display text. Lines (row) are separated by «\» and «n». With parameters, it will return count characters starting at given row and col . If count is not given, the rest of the line will be returned.

PICTURE

http://192.168.1.101/api/settext.php?
&x=10&y=10&image=iVBORw0KGgoAAAANSUHEUgAAABAAAAAQCAMAAAAAoLQ9T
AAAABGdBTUEAALGPC/
xhBQAAACBjSFJNAAB6JgAAglQAAAPoAAACA6AAAdTAAAOpgAAA6mAAAF3CculE
8AAAC91BMVEUyLyw2MCw1LiszLio6Ni5IQDChQzfsQD + qPyyNPSuqQDNWODMnLi
tQOzlsW4laXWltLS0tKiksKSwuLCs2Ly07NC9mOS + wQjWTPix/
NCeYZVdValUiJSM0MDGckZF2j3k5OTM8NjM1Ly02MzBFOTBBNjJaNjKJQDWIPjSDR
jqdcGKajHZTPzo0LCZykl1wkWs5OTRNSUBKQTs7MyY/
PS1YPDSyPzKxPzHaNTHHST3VQOL/
O1T7R3CnbWvJz8ysrqg3NCtOSEKZm9ZdX31WSU6dRkLGOcN XOzLtMSncOi/
BQDLeSkr/TW/jd4D////
58OtSSDpPRTmUneGgktPcREvWQDrQOS7bNivbNCzeOTLTQDe0QzP4ZGy/
eXPb69729eRcTT1aSTRmY3zIVHDAODHEQDTaNir6KTjiNz3POjDMPDHIOi/
2ZW29bmV7rXKsvJdeTDhdTj94epjidXfLNy/
QPzPuNzXyO0beSE3QR0HgODbqMizyV2SaYVVtpFx/
oWZeUDtIYYOhp + Crm5LUUk7UQTbZOC7YS0j1O0TuNzrlNjHoNSrsRVlkTT5mk01hg
UY7Oy9ra6aPjOVsZnLHW0/YPC/
IOyzMOSvyMzvqMzneNzHcPi + 7N0xgc01wk1BmiUIKRzRrZGtuaXxwXkvIOy/
ONiXBPS/
jOTXYQDjvOzrMOTKnPzWLZE9RaERifkVyn1FrYVNtYVBXVj5YRTbhSEDKPjDLQDivPT
aWOirGPDKOOSqGRDh6Zk40PCxnhklwnVNqYIJqYFJ2bmN1a1yHPjfYPj7jRUOPPjF5O
i55Oi9tMyiDSUBbW0NgekdKjU1qZIVhWUimpKLs7 + FqdWTiqafNOTObPTN5OjBuNy9
sNS5bQjgvOC4xNy5RZ0JZeUdqZ1hiXU/
Hy8r19uXh3NTdrqSLOCxsOTJpODFkTTtCSTosMSosMiw3QzJJWUFpaFdiYFLHz8rs6
Nn69vf + /fzf0MR0W0ZQSDJSWTpGSDc3PjY0OTMyPDA8SzcUduU/
AAAAAWJLR0ROGWfX3wAAAAAd0SU1FB + MJGgkUCq8aE8IAAAEbSURBVBjTARAB
7/4AAAECAwQFBgcICQoLDA0ODwAQERITFBUWFxgZGhscHR4fACAhliMkJSYnKCK
qKywtLi8AMDEyMzQ1Njc4OT07PD0 + PwBAQUJDREVGR0hJSktMTU5PAFBRUINUV
VZXWFlaW1xdXI8AYGFiy2RIZmdoaWprbG1ubwBwcXJzdHV2d3h5ent8fX5/
AICBgoOEhYaHilmKi4yNjo8AkJGsk5SVIpeYmZqbnJ2enwCgoaKjpKWmp6ipqqusra6v
ALCxsrO0tba3uLm6u7y9vr8AwMHCw8TFxsflycrLzL3NzgDP0NHS09TV1tfY2drb3N3
eAN/g4eLjTuTI5ufo6err7O0A7u/w8fLzTvT19vf4 + fr7/
PVZfeCgINSOAAAAAJXRFWHRkYXRIOmNyZWFOZQAyMDE5LTA5LTI2VDA4OjU4OjA
4KzAwOjAwAhpAITQAAACV0RVh0ZGF0ZTptb2RpZnkAMjAxOS0wOS0yNIQwODo1O
DowOCswMDowMPfNsPEAAAAASUVORK5CYII =

This is a 16x16 pix PNG base64 coded picture placed at (10,10) from the upper left corner. It will overwrite any text.

SIMULATOR

A web simulator is available with some simple description on how to use it:

<https://displaysimulator2.azurewebsites.net/simulator.php>

FINDING HELP

When connecting to a network, addresses may be unknown. In Windows, use
>**ipconfig -all** to list important info of connected devices.

>**arp -a** list all serial devices

For advanced users, the Linux based controller can be reached by SSH with user name and password obtained from the factory.

>ifconfig

>sdr -a

>

SD cards may have to be wiped clean before cloned for use with Linux:

C:\>diskpart

DISKPART>list disk

lists all your disks, including your harddrive/SSD

DISKPART>select disk n

This selects the disk to handle. Make sure it is the right one!

DISKPART>list disk

Check the currently selected disk will have an asterix in front

DISKPART>clean

Wipes the selected disk

UPDATING SOFTWARE

The Linux based software on the Raspberry Pi 3B+ could be updated by patch files available from factory or Github.

NOTE:

Before putting too much time into forming your application, contact factory for support. We believe we will learn to make better products by being confronted with your challenges.

Contact factory for updates and requests!

OPTIONS		GIVE US FEEDBACK	LIFETIME SUPPORT
Interfaces: Ethernet WiFi Sub-1GHz RF Fieldbus	Power: 100-240VAC DC/DC	We appreciate any feedback – good or bad – as it will help us make better products. Suggestions or critical remarks are best sent to the support email.	* Help during installations * Free adaption for interfacing your equipment support email: sales@norskdisplay.com Tel: +47 3288 7000