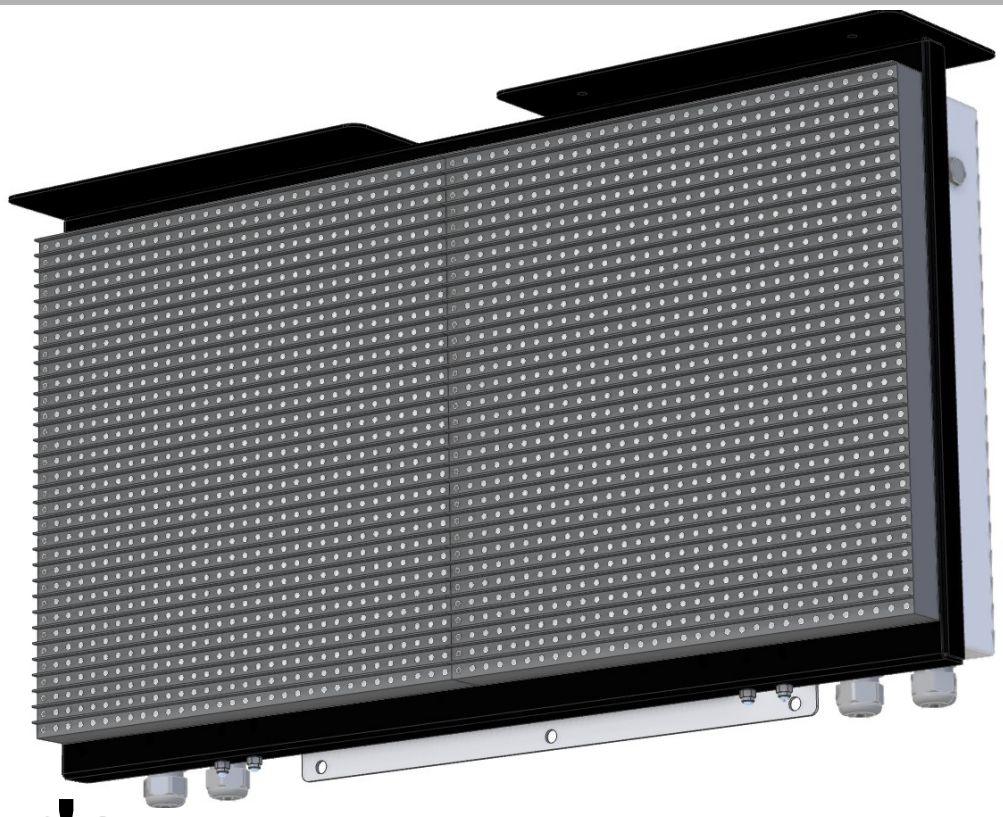
ND7069 RGB Graphic Screen Family P10mm



user's guide

Quick Data

A text and graphics readout for hash environments, designed for industrial use. Several signs may be interconnected to form a larger sign.

Size: ND7069: 648 x 382 x 107mm; 9kg/11kg for 64 x 32 pixels

Materials:	Laquered Aluminium
Mounting:	Wall bracket; options available
Technology:	LED RGB separate DIL
Power:	100-240VAC/20-100W
Temp range:	-30°C to +55°C

Control card with Ethernet

Table of Contents

WARNING

Electronic cards are sensitive to electrostatic discharge. Use proper grounding when handling!

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CE

norskdisplay

Overview

An outdoor display for many applications, primary for text messages and static pictures. RGB LEDs are capable of displaying vibrant colors outdoors as well as indoors.

On the technical side, ASCII characters in the ISO/IEC 8859-1 table plus UTF-8 and simple PNG graphic files are default.

Note that the best reading distance is from 6 meter and up due to a dot pitch of 10mm. Mounting flexibility allows landscape (default) or portrait arrangement.

With the standard Ethernet interface and web server controller installed, it will easily interface with JSON protocols carrying HTTP requests.
A webserver allows flexible use. Simple setup and test is available using your favourite web browser.

The display will adapt to ambient lighting to increases legibility and life expectancy.
A larger sunshade helps protect heating and moisture build-up and further enhances life.
Smart use will increase expected life length and user experience.

Online documentation is available from https://github.com/norskdisplay/doc
and you may use our simulator with examples :
https://displaysimulator2.azurewebsites.net/simulator.php

Options and Variants

Standard version:

ND7069	64 x 32 pixels example: 1 line of ca 3 characters or 2 lines of 6 characters. Ethernet, Custom functions are available on request. To customise or maximise reading distance, contact factory for suggestions!

Alternative interfaces, protocols and power options are available. Contact factory to present your requirements.
This product relies on a public software library:
The LED-matrix library is (c) Henner Zeller h.zeller@acm.org, licensed with GNU General Public License Version 2.0

Two or more ND7069 could be mounted adjacent to each other to form a longer line. Note that interconnection requires two hardware adjustments:

1: USB-to-Ethernet dongle added to the first (Master) sign/display.

2: Removal or disabling the light sensor on subsequent interconnected displays.

Setup

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 normally see the preset IP address 192.168.1.100

Use a browser to access the web interface: **http://192.168.1.100** or change the IP address and other parameters by typing **http://192.168.1.100/admin.php** .

Note that you may have to change your PC/Mac IP address range to allow it to reach the display (eg set to 192.168.1.80)

To help you evaluate the communication and result, use the online and built-in simulator at

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

It also contains comms doc and examples.

Text and simple graphics may be displayed in color, white text on black background is default.

Communication

Standard communication interface is Ethernet with HTTP request and JSON response codes. This allows the widespread use of well tested APIs in PLS / PC or instruments. For more information or examples, contact factory.

More details : https://github.com/norskdisplay/doc

For WiFi communication, use an external access point or switch.

Set display text

```
http://192.168.1.100/api/settext.php?&text=Hello%20World!
```

Set two lines of text

```
http://192.168.1.100/api/settext.php?&text=Hello%20World!\nHello%20Sign!
```

Set font, color and size

```
http://192.168.1.100/api/settext.php?&text=Hello&font=Liberation
%20Mono&size=32&r=0&g=0
```

Set image Linux/Win command line example - POST

```
curl -X POST -F image=@"image.png" -F "x=10" -F "y=10" -F "text=Hello\nWorld"
http://192.168.1.100/api/settext.php
```

Get fixed fonts

```
http://192.168.1.100/api/getfonts.php
```

Return Codes

JSON reply on success: `{"status":200,"status_message":"OK"}`

JSON reply on error: `{"status":200,"status_message":"Error description"}`

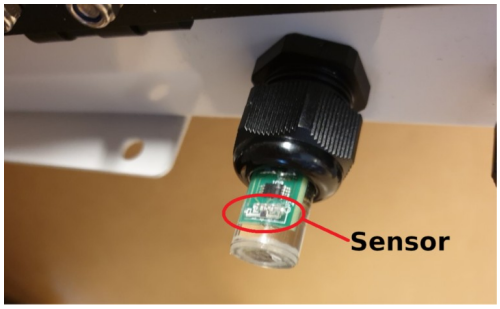
Task	Command	Parameters	Description
Set text	settext (GET or POST)	text=text	Set text. Will clear existing display content if col and row is not defined. Text should be UTF-8 url-encoded, where %-encoding is used for non ASCII charachters. See here for more details.
		col=col row=row	If col or row is defined, the display text will be updated at given row and column. 0,0 is upper left corner of display.
		r=red g=green b=blue	Font color, default is white. Values from 0 to 255.
		font=font name	Font name.
		size=font size	Font size in pixels.
		bold=enable bold	Enable bold font, default is on.
		spacing=line spacing	Set line spacing adjustment in pixels. Default is -1, makeing lines more compact.
		image=PNG-image x=X position y=Y position	Write image to display, will overwrite any text but not clear display. For GET calls where the image is in the URL query string, the PNG must be base64 encoded. When using POST it should point to the image file. See examples sections for how this is done using the cURL command line tool.
Get text	gettext	col=col row=row count=count	Get display text. Without parameters it will return full display text. Rows are separated by "\" + "n". With parameters it will return count digits starting at given row and column. If count is not defined the rest of the line will be returned.
Set HTML	sethtml	html=HTML	Set display content using HTML tags. Will clear any content set using settext.
Get fonts	getfonts	fixed=0|1 variable=0|1	Get comma separated list of avaliable fonts. Parameters control if variable and/or fixed width fonts should be returned. Default will return fixed fonts only.

Light Sensor

To adapt the intensity to ambient lighting, a light sensor is used, physically located in one of the cable glands. It is possible to change max and minimum intensity, as well as the response curve through the **/admin.php** page.

When more displays are connected to form a larger sign, only the main display should use a sensor, the slaves should disable the light sensor.

Make sure the sensor is directed towards the surrounding light.



INSTALLATION

- If possible, avoid direct sunlight. A larger sun/rain/snow shade is recommended for improved legibility and longer life.
- Tools needed: Torx TX30
- The front has 3 x M6 screws and hinges at the bottom.
- M6 screws should be tightened in repeated sequence and final torque should be 2-4Nm

Items NOT INCLUDED in standard package:

* ø8mm screws/bolts to fix the bracket to a wall
* Pole mounting using saddle clamps (see picture)
* Shade to protect from excessive sun and IR heat.
* Ethernet cables

ELECTRICAL:

Cable glands are M20 for cable outer diameter 6-12mm
A good selection is a CAT6/CAT5 plus a field terminated RJ45 plug.

NOTE

USE HIGH QUALITY COMMS CABLES – otherwise you WILL have trouble!
You may add two M20 glands on the other side of the sign for routing cables.

Examples of communication cables:

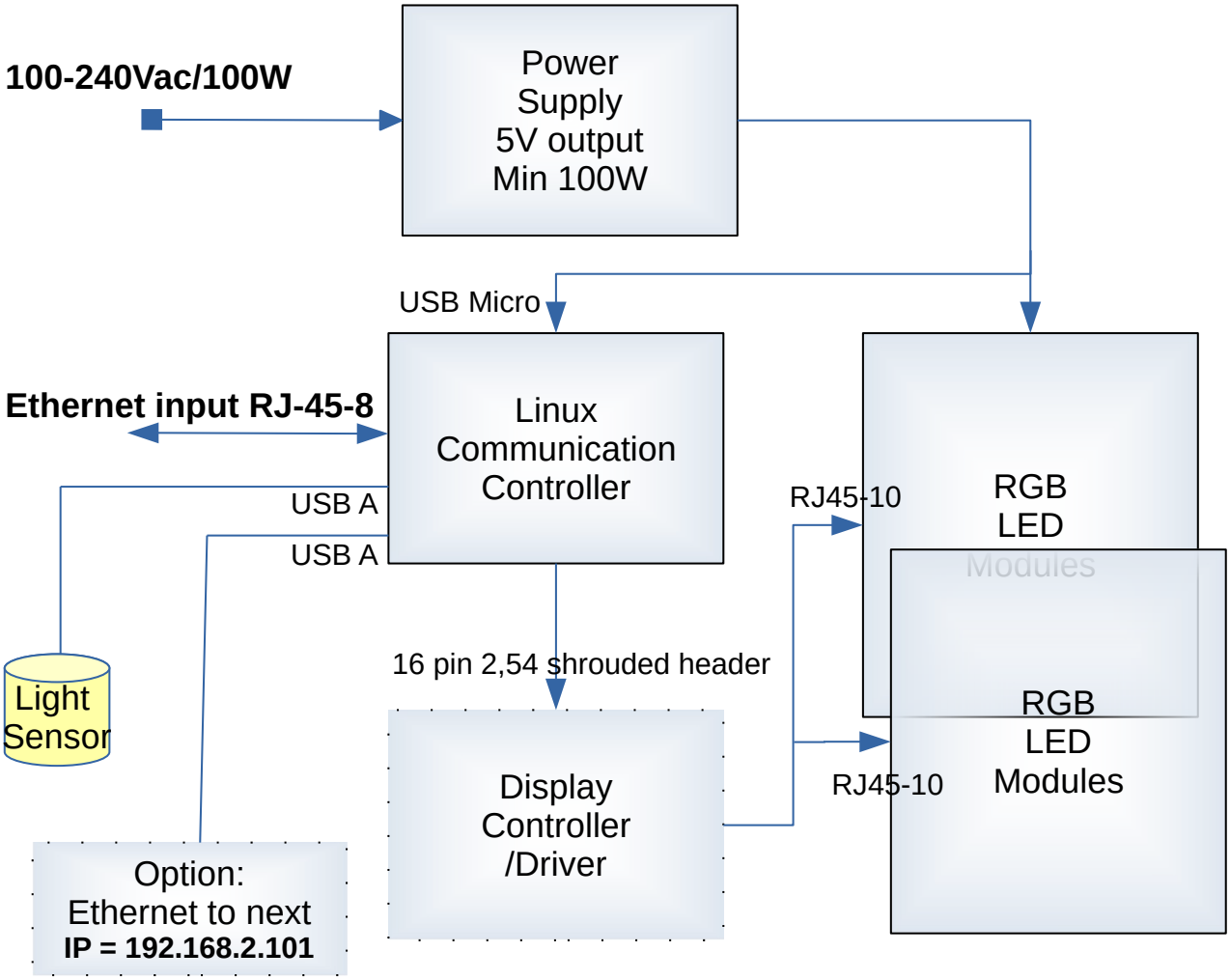
* Belden 74002NH.00305 Black FRNC Cat5e Cable SF/UTP, Unterminated
(RS comp Stock No. 724-8830 is 305m coil)

* LAPP ETHERLINE ® Cat.5 FD BK

Ethernet line length may be extended by using normal switches or e.g. PoE powered extenders like **Veracity VOR-ORL OUTREACH Lite** or **Digitus PoE Extender 802.3af/802.3at**. WiFi access point may be an alternative.

Connectors: eg Wago 750-975 or Phoenix Contact 1656725

Block Diagram ND7069



Installation Site:

Date	IP-address / Issue / Fix	Signed by

Please fill out the above form and send a copy/picture to **sales@norskdisplay.com** immediately after installation and any service. We can then help you more efficiently later. Information is never shared with 3rd party.

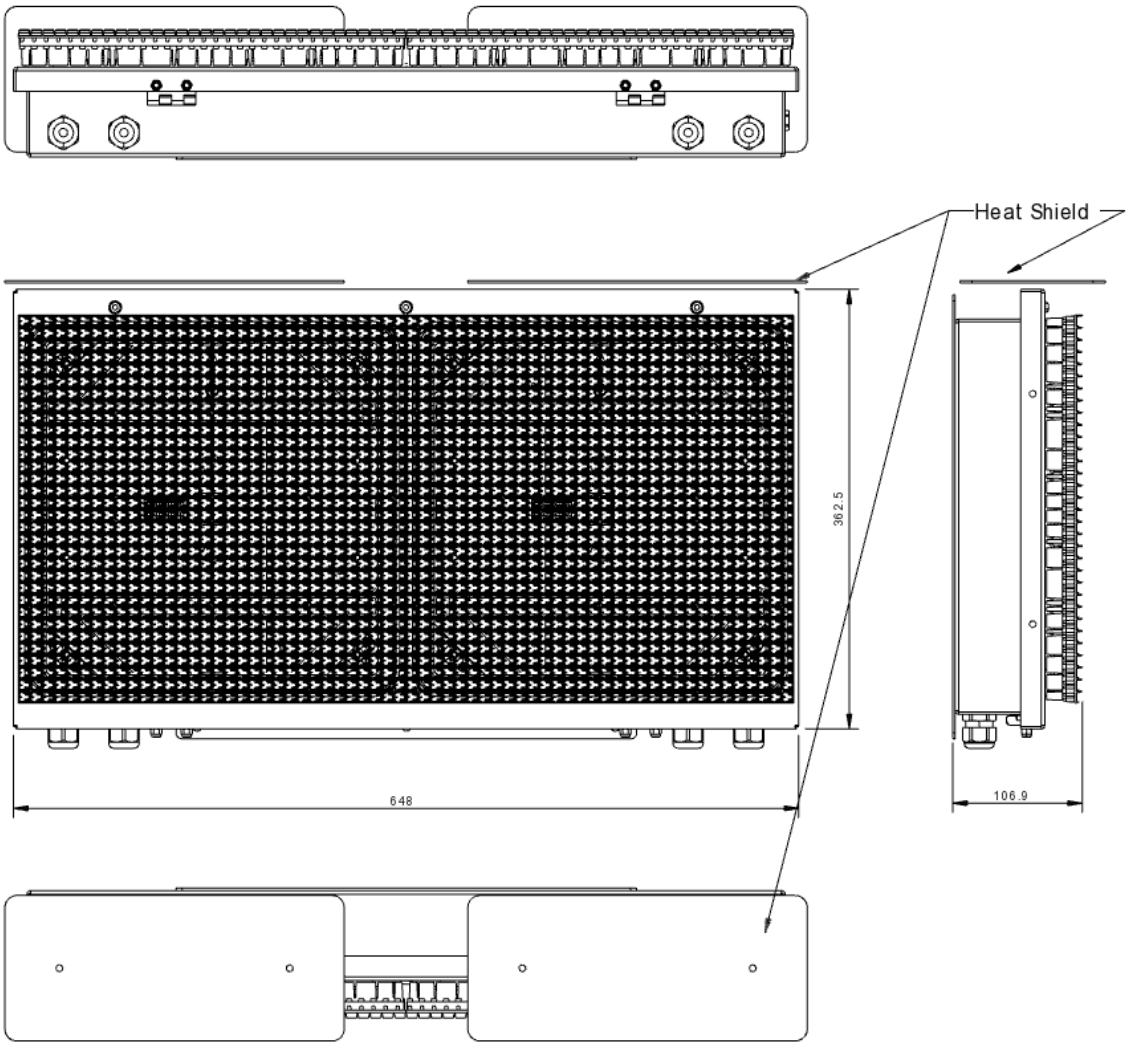
Electrical Characteristics

Power Supply **100-240VAC 200W**
Internal Voltage **5VDC**
Inrush Current **Max 4A @ 100VAC No serviceable internal fuse**

Data Interface **Ethernet 10/100, factory default address: 192.168.1.100**

Mechanical Drawing

Measures for ND7069 in metric mm



Maintenance

The display is made for many years of service.
Correct installation and maintenance will ensure a problem free operation. Note that mechanical stress and use of chemical substances could severely affect life expectancy. Exposure to direct UV light will wear out laquer and plastics surfaces over time.

Keeping the front surface clean will improve legibility. Use a mild detergent and lots of water on a wet cloth to avoid scratching the surface.

The LED modules are fixed to the front using M4 screws or bayonet locks. In environments where vibration may occur, check and re-tighten (2 to 3Nm) the screws periodically to ensure tight gaskets.

NOTE:
Chemicals for washdown or desinfection of nutrition lines are known to disintegrate gaskets. Hot salt water is also considered aggressive.

Service and Support

We pride ourselves with the superior lifetime support. Do not hesitate to test us out via email or phone. Your call will be forwarded at all hours – far beyond office hours.

Upgrades or improved functionality may be available through software patches. Contact factory for details.

Contact factory for updates and requests!

OPTIONS	GIVE US FEEDBACK	LIFETIME SUPPORT
Interfaces: **Power:** WiFi Sub-1GHz RF DC/DC Fieldbus **Mechanical options:** Solar and heat shield	We appreciate any feedback – good or bad – as it will help us make a better product and services. 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