

## user's guide

### Quick Data

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

Size: ND7069: 648 x 382 x 107mm; 8kg/10kg 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

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### WARNING

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

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## **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 increase legibility and life expectancy. Power-reducing functions may be set to further increase usable life.

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.

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 JSON containing HTTP/HTTPS over TCP. 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>


## 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 'see' the surrounding light.

## **INSTALLATION**

- Tools needed: Torx TX30 
- The front has 3 x M6 screws and is hinged at the lower end.
- 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 : Use 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 to 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:

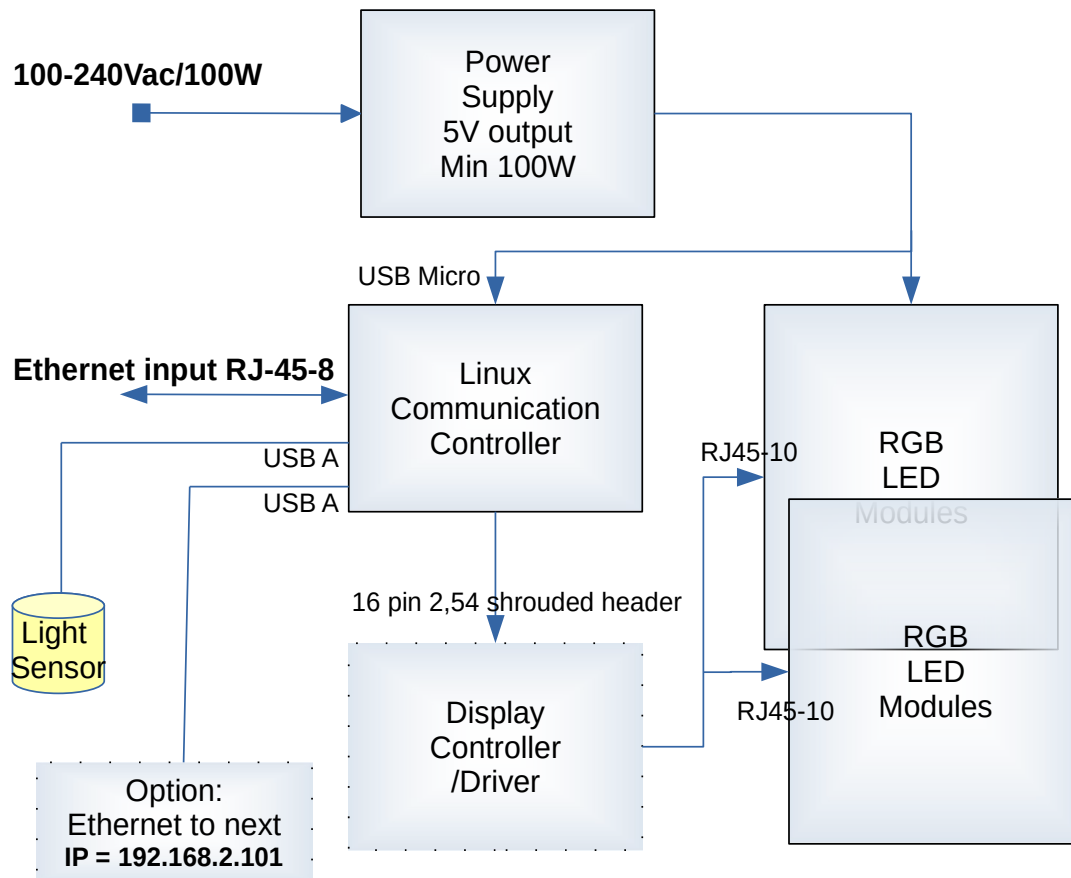
\* Belden 74002NH.00305 Black FRNC Cat5e Cable SF/UTP, Unterminated  
(RS comp Stock No. 724-8830 is 305m coil)

\* 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.

Connectors: eg Wago 750-975 or Phoenix Contact 1656725

## Block Diagram ND7069



Installation Date : Installed by:  
Installation Site :  
IP Address :  
Configurations :

Service Date : Service Issue :

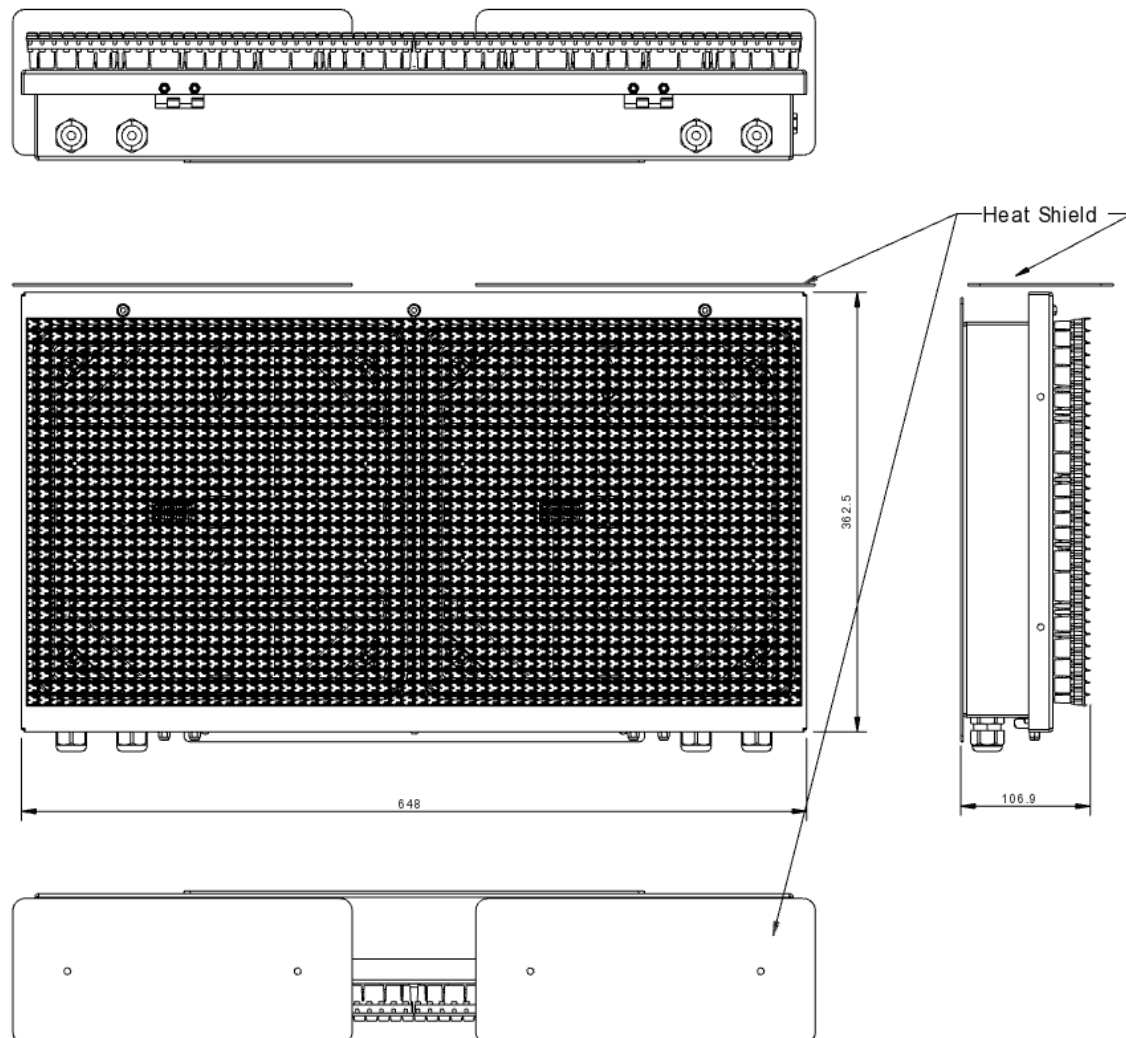
Send a copy/picture to [sales@norskdisplay.com](mailto:sales@norskdisplay.com) immediately after installation and any service. We will then be better able to help later. Information is never shared with 3rd party.

## 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 disinfection 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
<b>Interfaces:</b> WiFi Sub-1GHz RF Fieldbus	<b>Power:</b> DC/DC	We appreciate any feedback – good or bad – as it will help us make a better product and services.	* <b>Help during installations</b>
<b>Mechanical options:</b> Solar and heat shield		Suggestions or critical remarks are best sent to the support email.	* Free adaption for interfacing your equipment
			support email: <a href="mailto:sales@norskdisplay.com">sales@norskdisplay.com</a>  Tel: +47 3288 7000