

# NEX-CDM Quick Guide

Single Phase, Duplex, Smart Pump Controller

Revision 1 - 8<sup>th</sup> September 2023



## INTRODUCTION

The NEX SERIES CE12 DUPLEX is a pump control panel that is manufactured by SJE Rhombus.

Newton Waterproofing sell two versions of this product:

### Newton NEX-F

### Newton-CDM

Newton NEX-F is designed to be used as a foul pumping control panel and is sold as supplied by the manufacturer. Three versions of the Newton NEX-F panel are available:

- Newton NEX-F2 - Supplied with 2 x sewage capable floats
- Newton NEX-F3 - Supplied with 3 x sewage capable floats
- Newton NEX-F4 - Supplied with 4 x sewage capable floats

The instruction manual included within the packaging is all that is required for the installation of the Newton NEX-F panel.

Newton NEX-CDM is designed to be used as a pumping control panel for surface and ground water and has been modified to include 2 x power supply inputs. There is only one version of this panel, sold with:

- 1 x Vertical Control Float
- 1 x Finger Alarm Float

The NEX-F and NEX-CDM panels are visibly distinguishable by their colour-coded labels:

	Left side of panel	Front right of panel	Front of packaging
NEX-F	Red banner & name	Red dot	Red JN Logo & name
NEX-CDM	Blue banner & name	Blue dot	Blue JN Logo & name

**NOTE: This is a complementary guide only for the Newton NEX-CDM pump control panel and must be read in conjunction with the manufacturer supplied instruction manual which is included within the packaging. This can also be downloaded [here](#).**

Please consult the manufacturer installation instructions in full before consulting the remainder of this Quick Guide.

## POWER SUPPLY

The Newton NEX-CDM pump control panel is capable of receiving 230VAC power from 2 x separate power supplies:

- Grid 230VAC - Normal operation
- Inverter 230VAC - Continued operation during power outage

Pumping of groundwater and surface water is critical as unlike with foul/sewage pumping, it is not possible to control the volume of water entering the sump chamber during power outage. Additionally, it is not possible to store water during a power outage due to the large volumes of water that could enter the sump chamber:

Example water volumes:

- Foul pumping of 4 bedroom house over 24 hours = 750<sup>1</sup> litres
- Surface water pumping of 100m<sup>2</sup> during storm over 4 hours = 50,400 litres<sup>2</sup>
- Groundwater pumping - 100m<sup>2</sup> basement - 10 hours = 7,200 litres<sup>3</sup>

<sup>1</sup> Part H of building regulations. 150 litres of storage per person, with 2 x person in bedroom one and 1 x person in further bedrooms

<sup>2</sup> Part H of building regulations. 0.014 litres/second/m<sup>2</sup>

<sup>3</sup> PCA Best Practice - Groundwater Pumping Stations - June 2022. 0.2 litres/second/100m<sup>2</sup>

Pumping must continue during power outage for surface and groundwater pumping systems.

Having 2 x separate power supplies ensures that the panel is still operational even during the unlikely event of catastrophic inverter failure.

**NOTE: If Inverter power supply is also to be connected to the control panel, both the Victron Inverter/Charger manufacturer installation manual as well as the Newton Victron MultiPlus Quick Guide, both included within the Victron Inverter packaging, must be read in full before installation of this panel.**

Detailed information on the Newton Victron Inverter/Charger range can be found [here](#).

## INCLUDED WITHIN THE PACKAGING

The NEX-CDM pump control panel is supplied in two boxes. Within the larger box is the control panel, together with the manufacturer installation instructions and this Quick Guide. Within the second box are:

- Vertical Float with 30' of cable
- Finger Float with 10m of cable

Note: Twin and earth cable is needed to provide power from Grid Mains and Inverter Mains and is not supplied within the packaging of the NEX Control Panel or the Inverter/Charger.

# WARNINGS & INSTALLATION

## QUALIFICATIONS

The Inverter/Charger units are mains powered and should be installed by persons who are electrically skilled by way of appropriate training or a Registered Competent Person as defined within Part P of Building Regulations to either fit a fused plug or wire directly to a fused spur. Knowledge of DC input by battery and the connection of DC battery leads to both the battery/batteries and the Inverter/Charger is required for Inverter/Charger installation.

**NOTE: The manufacturer Installation Manual states that "The control panel must be connected by a qualified electrician in compliance with the electrical regulations in force."**

## LOCATION

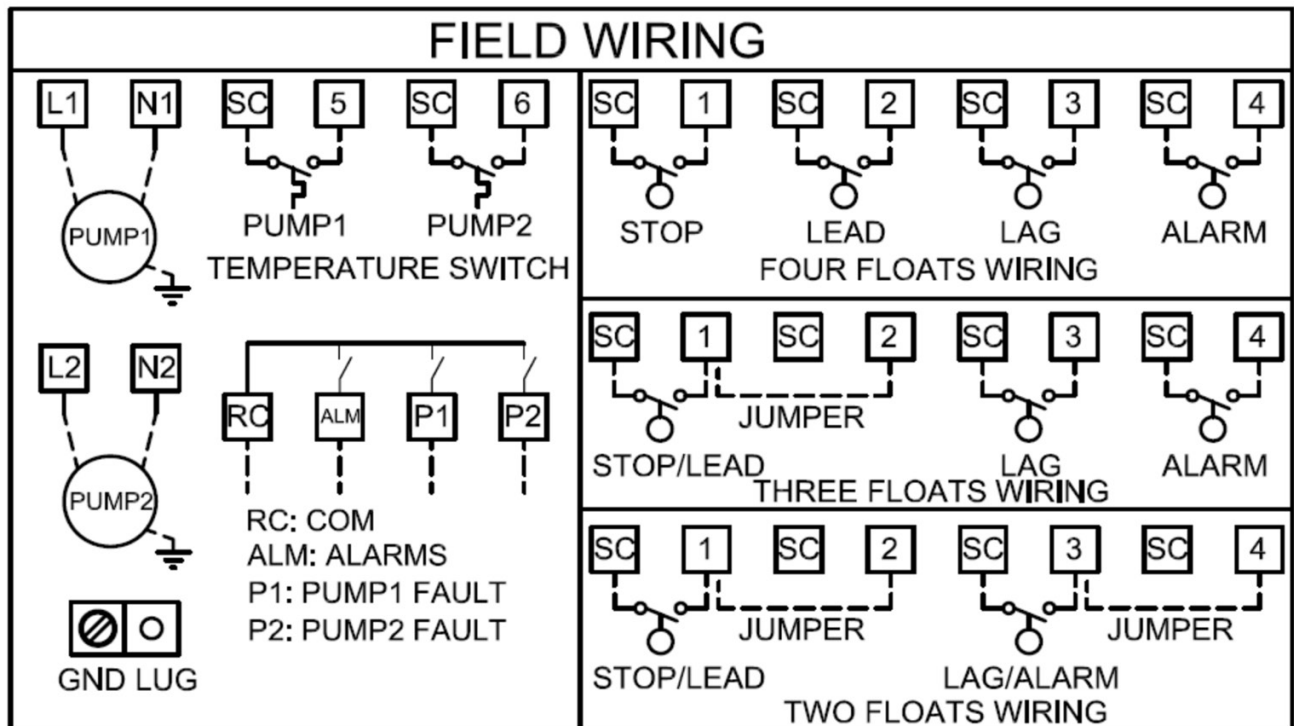
If the panel is not located in direct eye-line of the pumping system, an isolator switch should also be fitted in-line between the pumps and the control panel.

## PANEL CONNECTIONS



WIRING DIAGRAM

Wiring Diagram

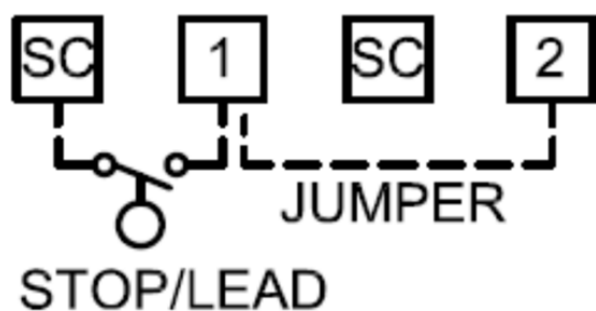


CONNECTION OF FLOAT & ALARM CABLES

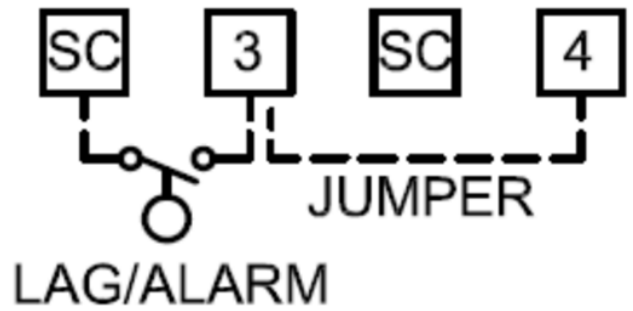
**WARNING:** Ensure that all power is turned off before installing the floats, including fully isolating the inverter/charger power supply.

**CAUTION:** If the floats are not properly mounted and connected in the correct order, the pumps may not function properly.

Vertical Float



Alarm Float



## CONNECTION OF AC POWER

Connect power cables to the connection bar as follows:

Mains input

1 – L

2 – N

Inverter supply

3 – L

4 – N

All earths to the earth panel connection

Continue installation as instructed by the manufacturer installation manual.

## TROUBLESHOOTING

### Pump Error List:

Pump Errors	Pump Indicator	Beacon	Alarm Horn	Possible Cause of Failure	Solutions
Pump overload	Flashing 1x	Flashing 1x	ON	1. Pump overload current setting 2. Pump clogged	1. Check the overload current setting, making sure it is in line with the pump rated current 2. Check the pump inlet, pump impeller, bearing, etc
PSE protection	Flashing 2x	Flashing 1x	ON	1. Pump fault 2. Float fault	1. Check the pump status 2. Check the float switch status
Pump over-temperature	Flashing 3x	Flashing 1x	ON	1. Pump clog, heat dissipation is not very good 2. Water temperature too high, etc	1. Check if there is anything blocked in the pump 2. Check the water tank's temperature
Pump fault	Flashing 4x	Flashing 1x	ON	Pump fault	Check the faulty pump and rising main

### Float Switch Error List:

Float Errors	Float Indicator	Beacon	Alarm Horn	Possible Cause of Failure	Solutions
STOP Float fault	STOP Float Flashing 1x	Flashing 2x	ON	1. Float fail. 2. Float wiring issue 3. Float stuck	1. Test Float 2. Test float wiring and whether the cable is damaged 3. Check if the float is stuck
LEAD Float fault	LEAD Float Flashing 1x	Flashing 2x	ON		
LAG Float fault	LAG Float Flashing 1x	Flashing 2x	ON		
STOP / LEAD Float fault	STOP / LEAD Float Flashing 1x	Flashing 2x	ON		

### Other Error List:

Other Errors	Possible Cause of Failure	Solutions
Power indicator is not on	<ol style="list-style-type: none"><li>1. Power supply fail.</li><li>2. Power supply error</li></ol>	<ol style="list-style-type: none"><li>1. Check if the power voltage is correct</li><li>2. Check if the power is on</li></ol>
Pump does not work automatically	<ol style="list-style-type: none"><li>1. Power supply fail.</li><li>2. HOA switch is not in AUTO mode.</li><li>3. Pump fault</li><li>4. Float switch fault</li></ol>	<ol style="list-style-type: none"><li>1. Check the power supply</li><li>2. Check if HOA switch is in AUTO mode</li><li>3. Test pump</li><li>4. Test floats</li></ol>
Pump does not work manually	<ol style="list-style-type: none"><li>1. Power supply fail</li><li>2. Pump wiring has problem</li><li>3. Pump fault</li></ol>	<ol style="list-style-type: none"><li>1. Check the power supply</li><li>2. Test pumps</li><li>3. Test floats</li></ol>

Newton Waterproofing Systems reserve the right to update product literature at any time. Please always refer to our [website](#) for the latest versions.

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