QUICK GUIDE TO DPC DRAINAGE

The **nXt DPC Pro Series Controller** is a smart and user-friendly management system ideal for drainage applications. Whether you're managing a single pump or dual pumps, this controller has you covered.

With the nXt DPC Pro Series Controller, you get real-time updates on how your pumps are performing and it can display the last five error codes, (if there are any), for each pump. These features help you quickly identify and address any issues that may arise, ensuring smooth operation.

- Robust metal enclosure available in powder-coated steel or 304 stainless steel provides full protection against contact with live parts inside the enclosure. Lockable double doors protect against tampering.
- IP54 to ensure protection against dust and water.
- Intelligent real time LCD displays pump running information for ease of diagnostics so you can see what is going on with the pumps.
- Intelligent push button pump overload calibration. Controller prompts for incomplete calibration to guarantee that the pump current is set correctly, protecting the pump from overload and dry running.
- CON control offers versatile installation with float switches, probes, or 4-20mA sensors. It ensures safety with low voltage circuits and accommodates multiple device inputs and outputs for diverse applications.
- Auto, manual switching so you can choose how it works. You can switch it to manual to empty the sump for servicing or repairs.
- Visible and audible alarms alert you if an issue should arise.
- RS485 communication interface (BMS, MODBUS protocol) using a hardwired paired wire to a management system to communicate to the controller remotely.
- Pump accumulated run time display to monitor the run duration and assist in determining age of the pumps based on service.
- Last five pump faults (if any) logged into memory for better diagnostics if there has been a recurring problem with a particular pump.
- Control box contains MCB and DOL contactor to be able to turn the unit off to allow for servicing of pumps
- In addition to the features listed above the dual pump controller (DPC) also has alternating pump starts, automatic dry pump cycling (Anti Seize) and load sharing to balance the life of the pumps.

Shortcuts

Switching between AUTO and MANUAL:

PRESS and release the MODE button

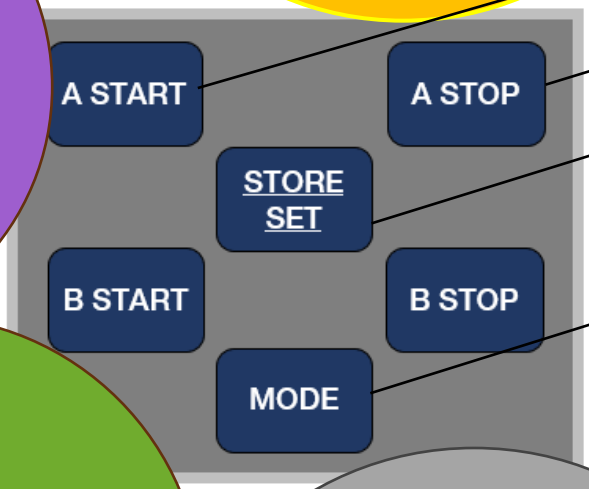
Switching to Manual (controller in LOCK MODE)

Lock parameter # 017

PRESS and HOLD the MODE button for 5 seconds

User Programming menu

Parameter 021 onwards
In manual mode, press and hold STORE/SET for 5 sec



Expert Programming menu

Parameter 003 onwards
In manual mode, press the STORE/SET then the MODE button and hold both for 5 sec.

Programming:

A-START increases a value

A-STOP decreases a value

Short press STORE/SET to store a value and advance to the next parameter

Press MODE to save changes and exit

Single Phase DPC-1

Set Parameter 007: OFF
Set Parameter 008: OFF
Set Parameter 013: Minimum 1 sec
Set Parameter 026: OFF

Shortcuts

Auto pump calibration

Set controller to MANUAL mode.

Short press A-START or B-START

Allow the pump to run and the current draw to stabilise.

Once you are satisfied the pump is in its 'normal' operating range, short press STORE/SET

The controller will monitor for 3 sec then chirp and store the calibration value.

The controller display will indicate if a pump does not have a calibration value stored.

The controller calibration value can be checked and adjusted from the User Menu

Pump A = parameter #021

Pump B = parameter #022

Manual calibration

Set controller to MANUAL mode.

Press and hold STORE/SET for 5 sec

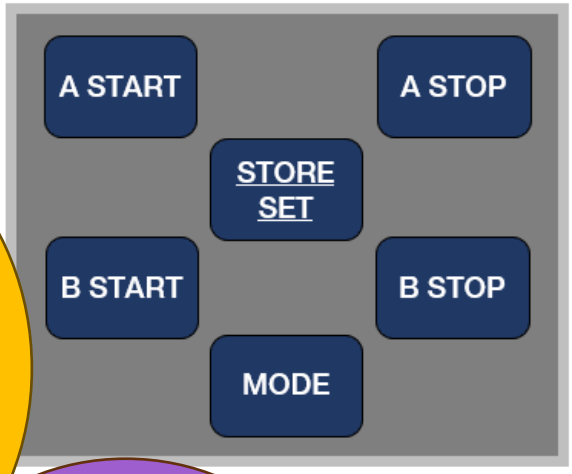
Enter the desired calibration value

Pump A = parameter #021

Press STORE/SET to advance to the next parameter

Pump B = parameter #022

Press MODE to save and exit



Error log:

Switch to MANUAL mode
Ensure no pumps are running.
PRESS and HOLD the A -STOP or the B -STOP button, then SHORT PRESS the MODE button
Press MODE to scroll
Press A-STOP to exit

Accumulated Run time:

Controller in manual state.
Press and hold STORE/SET

Press A-STOP or B-STOP to see the run time

To clear a pump calibration

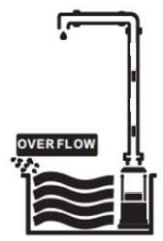
With controller in MANUAL mode and the pump stopped, PRESS and HOLD either A-STOP or the B-STOP button for 30 seconds.

The display will show that the pump has no calibration stored

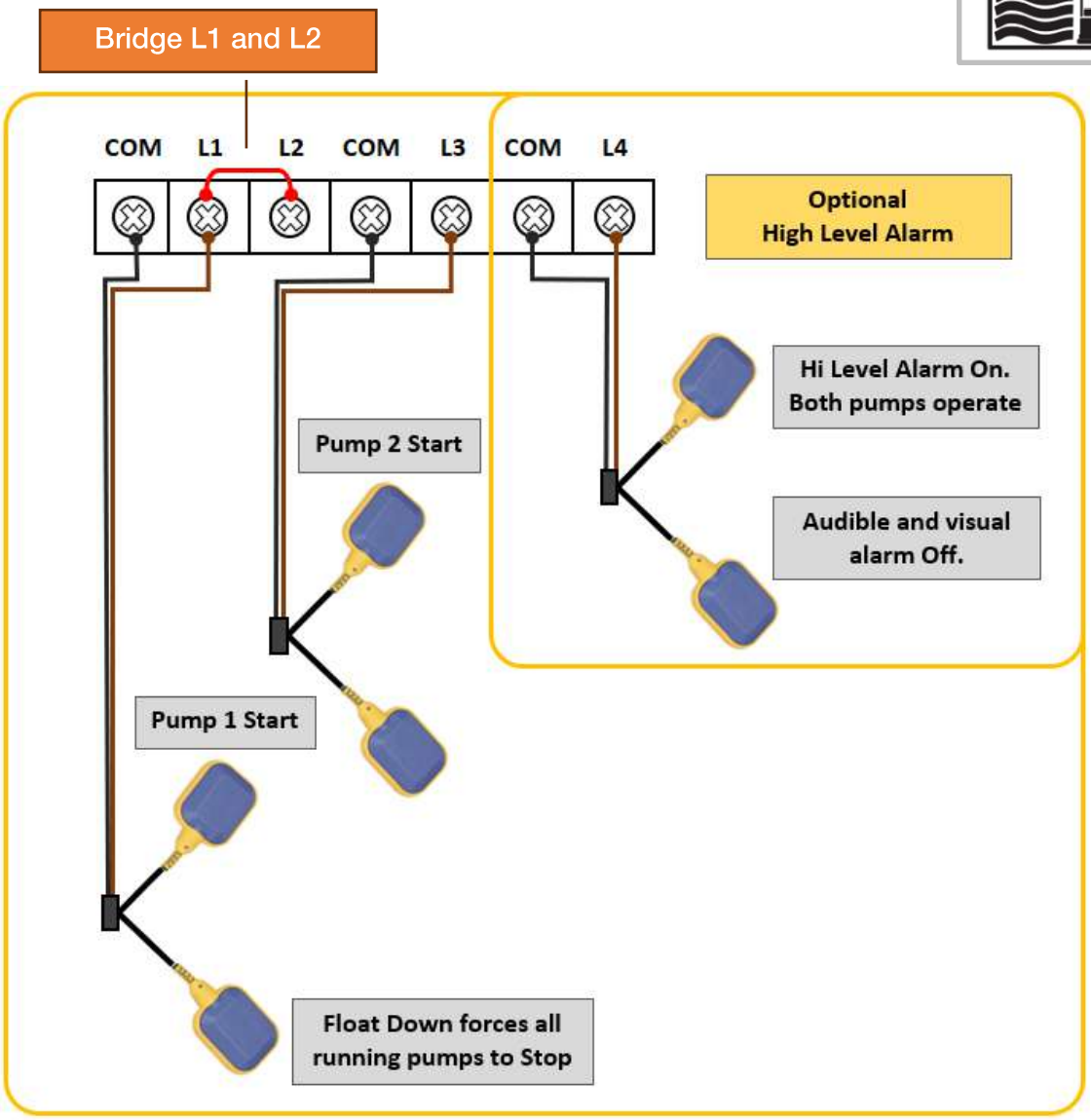
Mode 00 Drainage Mode, floats connected to control

Parameter 003 = 00 Default mode as supplied

DISPLAY



A pump with its own float can be used in this configuration so long as the Pump off-level of **Pump Stop Switch L1** is HIGHER than the pump-off level of the float attached to the pump.



Complete Manuals

nXt DPC 3 Pro Complete Manual

nXt DPC 1 Pro Complete Manual

Program Parameters

ITEM	DEFAULT	OPERATION
003	**00**	**Controller Operation Logic** **00** = 'Drainage' Mode where the control inputs (generally level floats or probes) are located at the source. (default) **01** = 'Drainage' Mode where the level control input is managed by a flexible float on the pump. **02** 'Pressure Boosting' Mode. Main control via (N/C) pressure switch. Supports run / no run level protection at the source via floats or probes. **03** = 'Transfer' Mode. **DUTY / ASSIST** Main control via control inputs (floats or probes) at destination or by a pressure switch on the delivery line. Supports run / no run level protection at the source. **04** = 'Transfer' Mode. **DUTY / STANDBY** Main control via control inputs (floats or probes) at destination or by a pressure switch on the delivery line. Supports run / no run level protection at the source. **05** = 'Drainage' Mode with overflow alarm through a 4-20mA level transmitter. Program levels (cm) **06** = 'Pressure Boosting' Mode controlled via a 4-20mA pressure transmitter. Supports run / no run level protection at the source via floats or probes. Program pressures (bar) **07** = 'Transfer Mode' with 4-20mA level transmitter at the destination. Supports run / no run level protection at the sources via floats or probes. Program levels (cm)
004	**05 sec**	**Pump Stall Delay Time** (ignore time for in-rush current) Range: 0 – 60 sec
005	**Off**	**Boosting mode only** **Repeated start protection** Values greater than 0 represent maximum starts in a 1 minute period before repeat start protection activates Range: 0 – 50
006	**Off**	**Over temp Protection Optional** Options: On / Off
007	**OFF**	**Phase Reversal Protection N/A DPC 1-22 Model** When using the nXt DPC in conjunction with a VFD set to OFF
008	**OFF**	**Open Phase Protection N/A DPC 1-22 Model** When using the nXt DPC in conjunction with a VFD set to OFF

Program Parameters cont

009	On	**Pump enable / disable function** • B pump enabled, A Pump Disabled • Both pumps A pump and B pump enabled • A pump enabled, B Pump Disabled An indicator on the left hand side of the screen shows which pump(s) are enabled. Disabled pump(s) are indicated by  icon(s) on the RHS
010	On	**Auto and Manual function setting** • Both Pumps automatic operation • A Pump Automatic operation, B Pump Manual operation • B Pump Automatic operation, A Pump Manual operation An indicator on the left hand side of the screen shows which pump(s) are in automatic mode. Pump(s) in manual mode are indicated by the  icon(s) on the RHS
011	Off	**Pump Alternation:** The continuous running time after which the operating pump will alternate. Not related to start alternation Range Off – 254 min
012	96 hrs	**Anti-seize setting** Range: 00 – 254 hrs
013	Off	**Start delay time** Suggest setting to minimum 1 sec Range Off – 254 sec
014	Off	**Stop delay time** Range Off – 254 sec
015	Off	**Boosting mode only – maximum run time** Range Off – 254 min
016	Off	**Fault Alarm audio setting** When a fault occurs and activates the alarm, after the time specified in parameter #013 & #016 the continuous alarm will switch to chirp mode (lasts 1sec) at 5-minute intervals. Range: 00 – 24 hrs
017	Off	**Button Lock Function** Options 0 = Off, 1 = On
018	01	**RS485 - Controller ID** Range 00 – 254
019	04	**RS485 – Baud Rate** 01 = 1200, 02 = 2400, 03 = 4800, 04 = 9600 bps (default 9600bps)
020	00	**RS485 Parity Check** 00 = None, 01 = Odd Parity, 02 = Even Parity
021	25.0A	**Rated Output i.e. Pump Calibration Value – A Pump** Range: 0 – 25 Amps
022	25.0A	**Rated Output i.e. Pump Calibration Value – A Pump** Range: 0 – 25 Amps
Whenever a replacement pump(s) is installed, the previous calibration(s) should be removed and new calibration values entered		

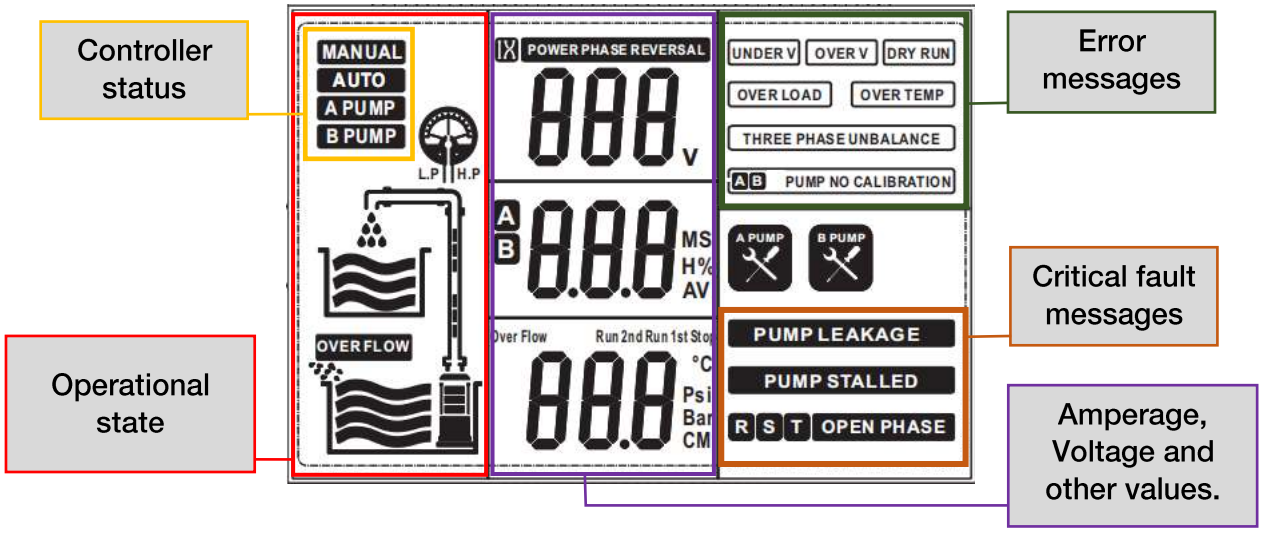
Program Parameters cont

023	75%	**Trip response ratio – Under-load protection** Range: Off – 95%
024	130%	**Trip response ratio – Over-load protection** Range: Off – 170%
025	180%	**Trip response ratio – Pump stalled / locked rotor protection** Range: Off – 195%
026	OFF	**Trip response ratio – Phase imbalance N/A DPC 1-22 Model**
027	192V 1Ph 332V 3Ph	**Trip voltage – Under Voltage Protection** Range 00 – 312 V
028	276V 1 Ph 477 3Ph	**Trip voltage – Over Voltage Protection** Range 00 – 312 V
029	05 sec	**Trip response time – Dry run Protection delay time** Range 1 – 553 sec
030	45 min	**Recovery time – Dry run Protection restart delay time** Range 1 – 60 min
031	04 min	**Recovery time – Overload protection restart delay time** Range 1 – 254 min
032	04 min	**Recovery time – Under/Over Voltage restart delay time** Range 00 – 60 min

Display

The DPC display provides a real time indication of the operational mode and the current state of the controller, including real-time voltage/current and any error messages.

Only the icons relevant to the current operational state will display.



Fault Messages

Fault Message	Possible Cause	Potential Solutions
UNDER V	The actual running voltage is lower than the calibrated voltage parameter 027. The pump is in an under-voltage protection state	The controller will attempt to restart the pump every 5 minutes until line voltage is restored to normal If this fault occurs repeatedly, report low line voltage to the power supply company
OVER V	The actual running voltage is higher than the calibrated voltage parameter 028. The pump is in over-voltage protection state	The controller will attempt to restart the pump every 5 minutes until line voltage is restored to normal If this fault occurs repeatedly, report high line voltage to the power supply company
PUMP STALLED	The pump motor running amperage has exceeded the normal (calibrated) running amperage by more than parameter 025 (default value 180%) This could be due to physical jamming or a mechanical issue. If the pump stalled error occurs repeatedly at commissioning check the controller rating is matched to the pump	Pump Stalled is a 'critical error' and will not automatically reset. Isolate the power supply and inspect the pump for anything which has caused the sudden increase in load
OVER LOAD	Pump motor running amperage exceeds the normal (calibrated) running amperage by more than parameter 024 (default value 130%)	Isolate the power supply and inspect the pump for anything which is causing the pump to draw more amperage than the initial calibration value
UNDER LOAD	Pump motor running amperage is less than the normal (calibrated) running amperage by more than parameter 023 (default value 75%)	Under-load is sometimes referred to as Dry-run protection as a pump motor will draw less current when there is no load.
OPEN PHASE	The power supply has lost a phase.	Check fuses and wiring.
PUMP NO CALIBRATION	Calibration not complete	Check the calibration Parameter 021, 022
OVER TEMP Parameter 006 ON	The temperature in the pump motor is high causing the thermal switch (if fitted) to operate	Investigate the cause of the overheating.
PUMP LEAKAGE	The pump moisture sensor has detected moisture inside the pump body	Service or replace pump