



Pump control system for level-dependent starting and stopping of up to six pumps
Level detection optionally via float switches, digital switches or analog transmitter (4..20 mA)

Applications

Level-dependent control of up to six pumps in irrigation and drainage duties, e.g.:

- Lifting units
- Collecting tanks
- Lifting stations
- Waste water treatment plants
- Biological filtering systems
- And many more

Operating data/technical specifications

For pumps with power ratings from 0.55 to 22 kW
(higher ratings on request)

For up to 6 pumps (usually 3 pumps)

4-wire or 5-wire system

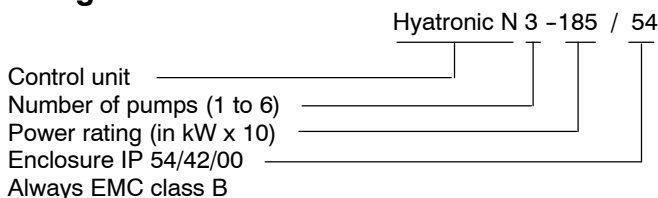
Mains voltage 3~400 V, 50 Hz

(other voltages on request)

Max. voltage fluctuations +6/-10% to IEC 38

Ambient temperature 0 to +45 °C max.

Designation



Function

Hyatronic N is a level-dependent pump control and monitoring unit with display for controlling up to six pumps.

Liquid levels can be detected either via float switches, digital transmitter or analog transmitter (4..20 mA). Pumps are sequenced in as a function of liquid level.

Hyatronic N can be used in tank draining and filling processes. The ATEX-compliant variant of the control unit can be used for pumps in potentially explosive atmospheres. In this case, the control unit must be installed outside the potentially explosive atmosphere.

Other functions of Hyatronic N:

- Automatic pump changeover for even distribution of operating hours among the pumps connected in base load operation
- Automatic pump changeover in the case of a pump fault to ensure maximum availability and operating reliability
- Automatic stand-by function
- Automatic time-of-day based functional check run to prevent pump seizure
- Manual emergency operation
- Lack-of-water monitoring in filling mode
- Automatic restart after power failure or lack of water with user-definable time delay
- Display of faults in plain text
- Optional: individual signals
- And many more

Certification

Certified quality management to ISO 9001

Operation and display

1 Control unit

The control unit is based on a PLC which performs all control, monitoring and signalling functions and is equipped with a display for convenient operation.

Volt-free signals provided as a standard:

General fault message

General "System Operational" message

Optional volt-free signals:

Operation per pump

Fault per pump

2 Operating mode selector switch

Via the operating mode selector switch, the user can assign the following operating modes to the individual pumps:

Automatic	Either of the following operating modes is assigned to the individual pumps as required: <ul style="list-style-type: none"> - Base load operation directly on mains power - Peak load operation directly on mains power - Stand-by mode
Zero	The pump is switched off and is not available for automatic operation
Manual	The pump runs directly on mains power and is not available for automatic operation

3 Master switch (emergency OFF)

The control unit is equipped with a master switch for switching the system on or off (emergency OFF under load).

4 Control cabinet

The control cabinet is designed for wall or floor mounting, depending on the power rating/number of pumps. It contains the ready-wired power components (fuses, contactors, overcurrent trip, connection option for a winding monitoring device, e.g. TCB, PTC resistors)

5 Plain-text display

Graphical display for indicating the operating status and any active messages.

Basic equipment

Housing and internal equipment

Design is to DIN EN 60204-1 (VDE 0113-1), DIN EN 60439-1 (VDE 0660-600-1), DIN EN 61439-2 (VDE 0660-600-2), DIN EN 61000-6-2 (VDE 0839-6-2) and DIN EN 61000-6-3 (VDE 0839-6-3).

Description:

- Steel sheet housing RAL 7035, for indoor installation, enclosure IP 54
- Master switch (power circuit breaker), lockable
- 400 V / 230 V AC control transformer
- Modular PLC, top hat rail mounted
- Door-mounted display
- Door-mounted operating mode selector switch
- Motor protection switch or motor protection relay with fuses per pump
- Contactor combination per pump
- Terminal strips for connecting mains, motor, sensors and inputs/outputs for connection to the building management system (BMS)
- Cable entries and exits below (lateral entries/exits also available on option).

Control unit functions and display

Standard design:

- Operational availability and general fault message are displayed.
- Live-zero monitoring of measuring signals (if analog)
- Changeover in case of pump failure to pump available for operation
- Motor overcurrent monitoring
- Menu-driven display
- Activation and time selection of timer-controlled pump changeover
- Limitation of max. number of pumps running (e.g. for reduced emergency power supply)
- Activation and time selection of timer-controlled functional check run
- Display of all operating parameters

Optional analog inputs for analog level detection:

The PLC supplies power to all transmitters.

Two analog inputs are provided. Via the respective terminal, the input can be used for voltage or current input.

- Voltage: $R_u = 200 \text{ k}\Omega$
- Current: $R_i = 250 \text{ Ohm}$

Digital inputs:

The PLC supplies power to all digital inputs.

- Automatic system ON/OFF
- Remote acknowledgement
- External pump changeover
- External functional check run
- Dry running monitoring
- Level 1 to 6

Digital outputs:

Relay outputs 230 V, 1 A

- General fault message
- General "System Operational" message

Overall safety concept

Monitoring the pumps and the hydraulic system

- Overcurrent monitoring
- Full motor protection by PTC resistors or bimetal switches in manual or automatic operation
- Dry running protection

Fault response

- Changeover to stand-by pump if a pump set fails
- Live-zero monitoring of measuring signal (4-20 mA) for analog level detection

If the feedback value transmitter fails, a fault is signalled and the system is switched off.

Protective measures to prevent fault conditions

- Enable pump changeover
- Enable functional check run

Variants on request

- Other voltages
- Higher power ratings
- Additional volt-free signals for connection to the building management system (BMS)
- Higher types of protection
- Soft starters
- Other components (specified brands)

Supplementary equipment (options)

- Ammeter per pump
- Voltmeter with phase changeover for the complete system
- Operating hours counter for each pump
- Control cabinet light with socket
- Connection to modem (transmission of 4 digital messages)
- Further options on request

BMS signals connected to terminal strip

Volt-free, max. 230 V, 1 A

