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GRUNDFOS **WASTEWATER**

LC/LCD ranges – level controllers

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GRUNDFOS

Keeping a close eye on liquid levels

Reliable level controllers from Grundfos

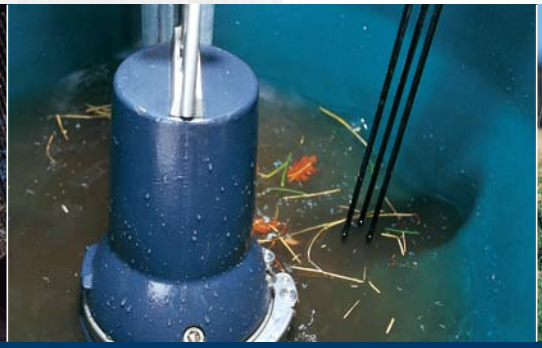
Grundfos offers a choice of level controllers to keep a watchful eye on liquid levels in pump pits, ensuring correct operation and protecting your pumps. The range includes the LC models, designed for single pumps, and the LCD models, designed for two pumps. They are all excellent for both drainage pumps and sewage pumps, making them ideal partners for the Grundfos KP, AP, SEG, S1, SV, SEN, SEV and SE1 pump series.

Three series – six versions

The Grundfos LC/LCD range of level controllers comprises three series with a total of six versions:

- **The LC/LCD 107 level controllers, operated by level bells**
- **The LC/LCD 108 level controllers, operated by float switches**
- **The LC/LCD 110 level controllers, operated by electrodes**

All of these models are designed specifically for Grundfos pump systems, ensuring a perfect match between the technologies used. They are excellent for applications requiring up to 11 kW direct-on-line start motors. The LC and LCD 108 can also be supplied with an integrated star-delta starter for applications requiring larger motors, up to 30 kW.



LC/LCD profile

Control panels and monitoring

All LC/LCD level controllers feature a control panel with a switch, enabling easy operation of one or two pumps in manual or automatic mode. The control panel is fitted in a cabinet that meets the requirements for enclosure class IP 65.

The flexible electronic control units (known as the CU 211/212/213/214, respectively) will handle all inputs and respond in accordance with the controller settings. The control unit features a 10-pole DIP switch which is used to specify the correct system responses to input - such as when to sound an alarm or when to have both pumps operate at the same time. The DIP switch makes it possible to quickly adapt the level controller to current circumstances. It can also enable/disable automatic restart following thermal cut-outs where this is relevant.

Modular system

A modular approach allows the Grundfos level controllers to be fitted with extra features such as an hour counter, start counter and/or battery back-up to ensure that an alarm is sounded in the event of power failure, etc. All modules/accessories are easily installed.

Grundfos level controllers in brief

Listed below are some of the features and benefits of the Grundfos level controllers

- Control one pump (LC) or two (LCD)
- Automatic alternating operation (LCD)
- Automatic test run (prevents shaft seals from becoming jammed in the event of long periods of inactivity)*
- Water hammer protection
- Battery back-up (available as optional accessory)
- Starting delay after power supply failure (prevents network overload)*
- Automatic alarm reset (if required)
- Automatic restart (if required)
- Users can set stop delays of up to 180 seconds to suit operating conditions
- Liquid level indication
- High-level alarm
- Motor overload protection relay
- Protection against motor overheating via input to PTC resistor/thermal switch

**Requires battery back-up*

Alarm protection

The Grundfos level controllers will warn you by raising an alarm in the event of:

- Overload
- Dry running
- Excessive temperatures
- Incorrect phase sequences
- Power cut-out
- Failing level input
- Mains supply failure (when fitted with the optional battery back-up)
- Float switch/level bell/electrode failure

LC/LCD 107

A level bell solution from Grundfos

The LC 107 (for one pump) and LCD 107 (for two pumps) monitor liquid levels by means of level bells. The 107 level controllers are supplied as complete units, incorporating a motor protection relay, level bells, pneumatic tubes and a control unit mounted inside a waterproof cabinet.

The system responds to pneumatic signals received from level bells positioned in a pump pit. Usually, two level bells are used for single-pump applications and three bells are used for dual pump systems. Grundfos 107 controller systems have potential-free signal outputs for common alarms and highlevel alarm as NO and NC.

A buzzer in the control unit also provides an audible alarm.

LC/LCD 107

LC 107

The Grundfos LC 107 level controller is designed for use with a single pump, using a pair of level bells to provide signal input to the control unit. The lower bell sends the input signal that starts the pump, while the upper bell triggers a high-level alarm if the liquid reaches it. It will also start the pump in emergencies if the lower bell should fail. The LC 107 allows users to set a specific operating time, using the DIP switch to specify how long the pump should continue operation after a start signal has been received.

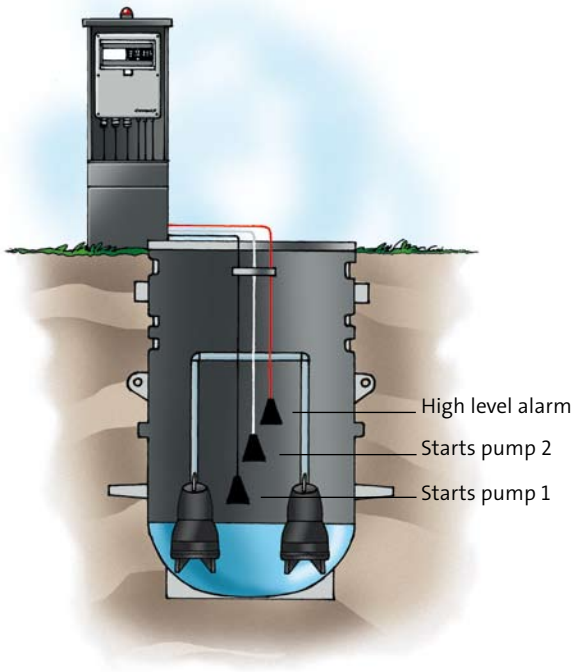
LCD 107

The LCD 107 level controller is almost identical to the LC 107. The main difference is that the LCD 107 is designed as a two-pump controller using three level bells. The LCD 107 also ensures that the total operating hours are evenly distributed between the two pumps by means of an automatic alternation function.

The lower bell sends the input signal that starts the first pump, and the middle bell sends the signal that starts the second pump in cases where simultaneous pump operation is required. The upper bell acts as a high-level alarm and will also start the pumps in emergencies where the lower bells fail.

How it works

Level bells offer a reliable way of monitoring liquid levels. With this solution, no electronic equipment is installed in the pump pit. Instead, the level bells are connected to pressure switches in the control box by means of tubes. As the liquid rises to a height of approximately three centimetres above the bottom of the level bell, the air inside the bell is compressed, activating the pressure switch in the control box. This sends a signal to either start the pump or give warning by means of the system alarms. The simplicity of the solution also has the added benefit of making level bells highly suitable for use in potentially explosive atmospheres.



Design features

Grundfos level bells are made from cast iron. This makes them heavy enough to maintain the correct position in the pump pit. They are suitable for applications where the liquid pumped has a pH value of 4 to 10.

Technical data

Controller type, electrical data and product numbers

Description	Operating current per pump [A]	PRODUCT NUMBER				
		Grundfos product no.	Hour counter available	Start counter available	Combined hour and start counter available	SMS unit available
LC 107 controller, pneumatic version with level bells and tube for 1 pump 1x230V, direct-on-line starting. With built-in start and operating capacitors (150/30 µF) for SEG pumps.	3.2 - 12.0	96841811	Yes *	Yes *	Yes *	Yes *
LC 107 controller, pneumatic version with level bells and tube for 1 pump 1x230V, direct-on-line starting. With built-in start and operating capacitors (60/30 µF) for SEG pumps.	3.2 - 12.0	96841809	96841810	Yes *	Yes *	Yes *
LC 107 controller, pneumatic version with level bells and tube for 1 pump 1x230V, direct-on-line starting. With built-in operating capacitors (30 µF) for SEG pumps."	3.2 - 12.0	96841808	Yes *	Yes *	Yes *	Yes *
LC 107 controller, pneumatic version with level bells and tube for 1 pump 1 x 230V, direct-on-line starting.	1.0 - 5.0	96841806	Yes *	Yes *	Yes *	Yes *
	3.2 - 12.0	96841807	Yes *	Yes *	Yes *	Yes *
LC 107 controller, pneumatic version with level bells and tube for 1 pump 3x400 V, direct-on-line starting.	1.0 - 5.0	96841832	Yes *	Yes *	Yes *	Yes *
	3.2 - 12.0	96841834	Yes *	Yes *	Yes *	Yes *
	6.0 - 23.0	96841835	Yes *	Yes *	Yes *	Yes *
LCD 107 controller, pneumatic version with level bells and tube for pumps 1x230V, direct-on-line starting. With built-in start and operating capacitors (150/30 µF) for SEG pumps."	3.2 - 12.0	96841840	Yes *	Yes *	Yes *	Yes *
LCD 107 controller, pneumatic version with level bells and tube for pumps 1x230V, direct-on-line starting. With built-in start and operating capacitors (60/30 µF) for SEG pumps.	3.2 - 12.0	96841839	Yes *	Yes *	Yes *	Yes *
LCD 107 controller, pneumatic version with level bells and tube for pumps 1x230V, direct-on-line starting. With built-in operating capacitors (30 µF) for SEG pumps.	3.2 - 12.0	96841838	Yes *	Yes *	Yes *	Yes *
LCD 107 controller, pneumatic version with level bells and tube for pumps 1x230 V, direct-on-line starting.	1.0 - 5.0	96841836	Yes *	Yes *	Yes *	Yes *
	3.2 - 12.0	96841837	Yes *	Yes *	Yes *	Yes *
LCD 107 controller, pneumatic version with level bells and tube for pumps 3x400 V, direct-on-line starting.	1.0 - 5.0	96841841	Yes *	Yes *	Yes *	Yes *
	3.2 - 12.0	96841842	Yes *	Yes *	Yes *	Yes *
	6.0 - 23.0	96841843	Yes *	Yes *	Yes *	Yes *

Voltage tolerances
-15% to +10% of nominal voltage
Mains frequency: 50/60 Hz
Ambient temperature

- During operation: -30°C to +50°C (must not be exposed to direct sunlight)
- In stock: -30°C to +60°C

Enclosure class: IP 65
Pneumatic tubes

- Maximum length of tube: 20 m (standard: pneumatic tube of 10 metres)
- Diameter: 10 mm
- Material: PA 11

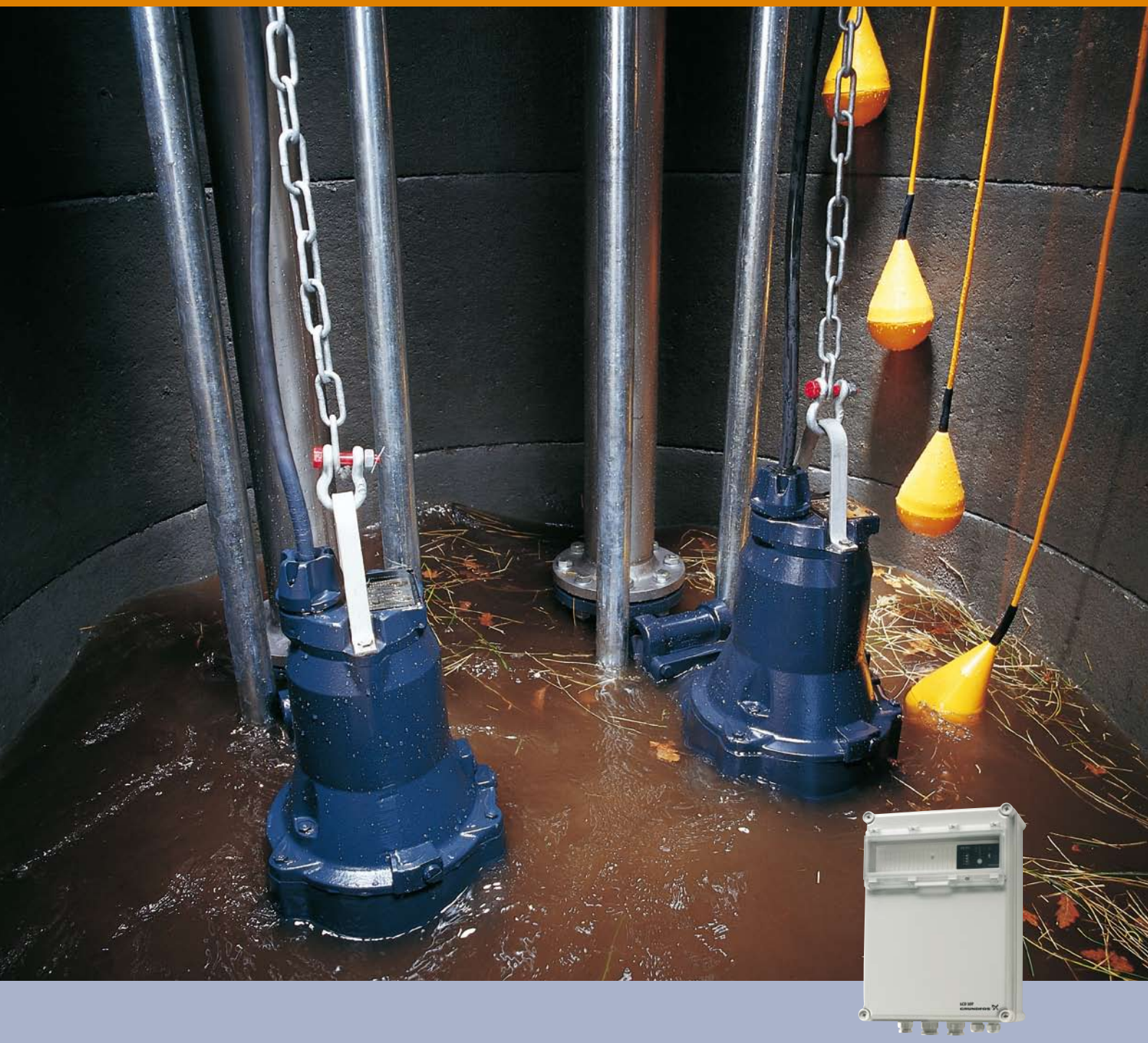
Outputs for alarm devices
Max. 400 VAC/ max. 2 A / min. 10 mA / AC 1 (NO & NC)
Supply system earthing
For TN systems and TT systems

Rated insulation voltage, Ui – 4 kV
Rated impulse withstand voltage, Uimp – 4 kV
EMC (electromagnetic compatibility)
According to EN 61 000-6-2 and EN 61 000-6-3

Accessories for LC/LCD 107

Picture	Description	Product number
	Black pneumatic tube, 20 metres	96 43 16 14
	Red pneumatic tube, 20 metres	96 43 16 15
	White pneumatic tube, 20 metres	96 43 16 16

LC/LCD 108



Controllers with float switches

The LC 108 and LCD 108 level controllers are supplied as complete units with a motor protection relay incorporated in the waterproof cabinet. These level controllers are based on on/off signals, allowing them to receive input from up to four float switches positioned in the pump pit. Float switches are sold separately.

Like the other level controllers from Grundfos, the LC and LCD 108 controllers can serve systems requiring up to 11 kW direct-on-line start motors. In addition to this, the 108 controllers are also available with an integrated star-delta starter for applications requiring up to 30 kW motors. Both versions have potential-free signal outputs for common alarms and highlevel alarm as NO and NC.

A buzzer in the control unit also provides an audible alarm.

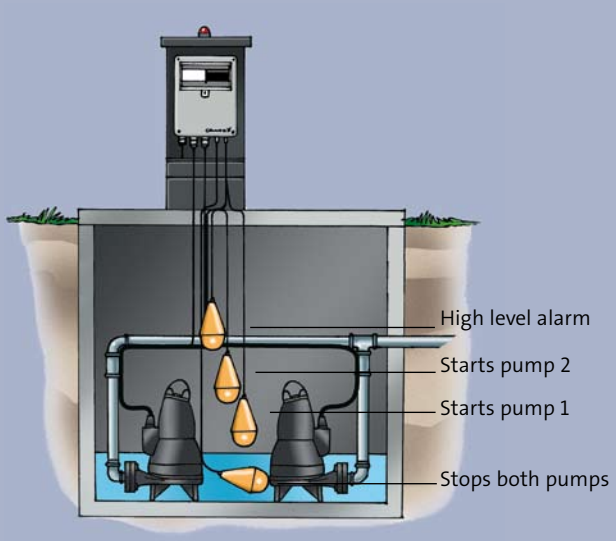
LC/LCD 108

LC 108

The LC 108 level controller is designed for use with a single pump, responding to signals from float switches. When only one float switch is used to start the pump, you must define the operating time following a stop signal by means of the DIP switches.

LCD 108

The LCD 108 level controller is designed to control two pumps on the basis of signals from float switches. The LCD 108 can be configured for systems allowing for simultaneous operation of the two pumps (using three or four float switches), as well as for systems with 100 percent spare capacity. The LCD 108 also has an automatic pump alternation function, ensuring that the total operating hours are evenly distributed between the two pumps.



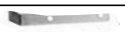
How it works

A float switch is a very popular way of controlling liquid levels in tanks, pits, etc. A switch, encased in a polypropylene housing, is suspended at the desired height by its own 3-core cable. When the liquid reaches a certain level, the drop-shaped float switch tips over, causing the contact to open or close. This triggers the response determined by you.

Design features

The Grundfos float switches are of the non-mercury type and are available for standard and explosion-proof pumps. The hermetically sealed polypropylene housing and polyurethane cable makes the float switch resistant to e.g. many chemicals, alcohol, uric acid, sewage, oils, petrol and fruit acid.

Accessories for LC/LCD 108

No.	Accessories			Product number
	Picture	Description		
1		Float switch with 10 m cable	For LC 108 and LCD 108 controllers	96 00 33 32
		Float switch with 20 m cable		96 00 36 95
		Float switch for potentially explosive environments, with 10 m cable	For LC 108 and LCD 108 controllers connected to LC-Ex4	96 00 34 21
		Float switch for potentially explosive environments, with 20 m cable		96 00 35 36
2		Bracket for float switch		96 00 33 38
3		Standard float switches with 10 m cable and bracket	1 pump without alarm (2 switches)	62 50 00 13
			1 pump with alarm (3 switches)	62 50 00 14
			2 pumps without alarm (3 switches)	62 50 00 14
			2 pumps with alarm (4 switches)	62 50 00 15
4		Float switches for potentially explosive environments, w/10 m cable and bracket. One switch is always used for dry-running protection in explosion-proof applications	1 pump without alarm (3 switches)	62 50 00 17
			1 pump with alarm (4 switches)	62 50 00 18
			2 pumps without alarm (4 switches)	62 50 00 18
5		LC-Ex4 safety barrier for potentially explosive float-switch applications. To be used with float switches for potentially explosive applications only. The LC-Ex4 can be mounted in ambient temperatures ranging from -25°C to +50°C. Safety class: II (1) G [EEx ia] II C		96 44 03 00

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LC/LCD 108 – Technical data

Controller type, electrical data and product numbers

Description	Operating current per pump [A]	PRODUCT NUMBER				
		Grundfos product no.	Hour counter available	Start counter available	Combined hour and start counter available	SMS unit available
LC 108 controller, for float switches for 1 pump – 1x230V, direct-on-line starting. With built-in start and operating capacitors (150/30 µF) for SEG pumps.	3.2 - 12.0	96841852 (GB/D/PL/NL) 96841881 (GB/GR/I/F/E) 96841910 (GB/DK/S/RU)	96841853 (GB/D/PL/NL) 96841882 (GB/GR/I/F/E) 96841911 (GB/DK/S/RU)	Yes *	Yes *	Yes *
LC 108 controller, for float switches for 1 pump – 1x230V, direct-on-line starting. With built-in operating capacitors (30 µF) for SEG pumps.	3.2 - 12.0	96841851 (GB/D/PL/NL) 96841880 (GB/GR/I/F/E) 96841909 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
LC 108 controller for float switches for 1 pump 1 x 230V, direct-on-line starting.	1.0 - 5.0	96841844 (GB/D/PL/NL) 96841873 (GB/GR/I/F/E) 96841902 (GB/DK/S/RU)	96841845 (GB/D/PL/NL) 96841874 (GB/GR/I/F/E) 96841903 (GB/DK/S/RU)	Yes *	96841846 (GB/D/PL/NL) 96841875 (GB/GR/I/F/E) 96841904 (GB/DK/S/RU)	Yes *
	3.2 - 12.0	96841847 (GB/D/PL/NL) 96841876 (GB/GR/I/F/E) 96841905 (GB/DK/S/RU)	96841848 (GB/D/PL/NL) 96841877 (GB/GR/I/F/E) 96841906 (GB/DK/S/RU)	96841849 (GB/D/PL/NL) 96841878 (GB/GR/I/F/E) 96841907 (GB/DK/S/RU)	96841850 (GB/D/PL/NL) 96841879 (GB/GR/I/F/E) 96841908 (GB/DK/S/RU)	Yes *
	6.0 - 23.0	96841854 (GB/D/PL/NL) 96841883 (GB/GR/I/F/E) 96841912 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
LC 108 controller for float switches for 1 pump 3 x 230V, direct-on-line starting.	1.0 - 5.0	96841855 (GB/D/PL/NL) 96841884 (GB/GR/I/F/E) 96841913 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	3.2 - 12.0	96841856 (GB/D/PL/NL) 96841885 (GB/GR/I/F/E) 96841914 (GB/DK/S/RU)	Yes *	Yes *	96841857 (GB/D/PL/NL) 96841886 (GB/GR/I/F/E) 96841915 (GB/DK/S/RU)	Yes *
	6.0 - 23.0	96841858 (GB/D/PL/NL) 96841887 (GB/GR/I/F/E) 96841916 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
LC 108 controller for float switches for 1 pump 3x400 V, direct-on-line starting.	1.0 - 5.0	96841859 (GB/D/PL/NL) 96841888 (GB/GR/I/F/E) 96841917 (GB/DK/S/RU)	96841860 (GB/D/PL/NL) 96841889 (GB/GR/I/F/E) 96841918 (GB/DK/S/RU)	Yes *	96841861 (GB/D/PL/NL) 96841890 (GB/GR/I/F/E) 96841919 (GB/DK/S/RU)	Yes *
	3.2 - 12.0	96841863 (GB/D/PL/NL) 96841892 (GB/GR/I/F/E) 96841921 (GB/DK/S/RU)	96841865 (GB/D/PL/NL) 96841894 (GB/GR/I/F/E) 96841923 (GB/DK/S/RU)	96841864 (GB/D/PL/NL) 96841893 (GB/GR/I/F/E) 96841922 (GB/DK/S/RU)	96841866 (GB/D/PL/NL) 96841895 (GB/GR/I/F/E) 96841924 (GB/DK/S/RU)	Yes *
	6.0 - 23.0	96841867 (GB/D/PL/NL) 96841896 (GB/GR/I/F/E) 96841925 (GB/DK/S/RU)	Yes *	Yes *	96841868 (GB/D/PL/NL) 96841897 (GB/GR/I/F/E) 96841926 (GB/DK/S/RU)	Yes *
LC 108 controller for float switches for 1 pump 3x400 V, star-delta starting	5.5 - 20.0	96841869 (GB/D/PL/NL) 96841898 (GB/GR/I/F/E) 96841927 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	10.0 - 30.0	96841870 (GB/D/PL/NL) 96841899 (GB/GR/I/F/E) 96841928 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	15.5 - 59.0	96841871 (GB/D/PL/NL) 96841900 (GB/GR/I/F/E) 96841929 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	15.5 - 72.0	96841872 (GB/D/PL/NL) 96841901 (GB/GR/I/F/E) 96841930 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *

* Please see Accessories on page 14

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LC/LCD 108 – Technical data

Controller type, electrical data and product numbers

Description	Operating current per pump [A]	PRODUCT NUMBER				
		Grundfos product no.	Hour counter available	Start counter available	Combined hour and start counter available	SMS unit available
LCD 108 controller for float switches for 2 pumps 1x230 V, direct-on-line starting. With build-in start and operating capacitors (150/30 µF) for SEG pumps.	3.2 - 12.0	96841933 (GB/D/PL/NL) 96841960 (GB/GR/I/F/E) 96841987 (GB/DK/S/RU)	96841934 (GB/D/PL/NL) 96841961 (GB/GR/I/F/E) 96841988 (GB/DK/S/RU)	Yes *	Yes *	Yes *
LCD 108 controller, for float switches for 2 pumps 1x230V, direct-on-line starting. With built-in operating capacitors (30 µF) for SEG pumps.	3.2 - 12.0	96841931 (GB/D/PL/NL) 96841958 (GB/GR/I/F/E) 96841985 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
LCD 108 controller for float switches for 2 pumps 1x230 V, direct-on.line starting. With build-in start and operating capacitors (60/30 µF) for SEG pumps.	3.2 - 12.0	96841932 (GB/D/PL/NL) 96841959 (GB/GR/I/F/E) 96841986 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
LCD 108 controller for float switches for 2 pump 3 x 230V, direct-on-line starting.	1.0 - 5.0	96841935 (GB/D/PL/NL) 96841962 (GB/GR/I/F/E) 96841989 (GB/DK/S/RU)	96841936 (GB/D/PL/NL) 96841963 (GB/GR/I/F/E) 96841990 (GB/DK/S/RU)	Yes *	96841937 (GB/D/PL/NL) 96841964 (GB/GR/I/F/E) 96841991 (GB/DK/S/RU)	Yes *
	3.2 - 12.0	96841938 (GB/D/PL/NL) 96841965 (GB/GR/I/F/E) 96841992 (GB/DK/S/RU)	96841939 (GB/D/PL/NL) 96841966 (GB/GR/I/F/E) 96841993 (GB/DK/S/RU)	Yes *	Yes *	Yes *
	6.0 - 23.0	96841940 (GB/D/PL/NL) 96841967 (GB/GR/I/F/E) 96841994 (GB/DK/S/RU)	96841941 (GB/D/PL/NL) 96841968 (GB/GR/I/F/E) 96841995 (GB/DK/S/RU)	Yes *	Yes *	Yes *
LCD 108 controller for float switches for 2 pump 3x400 V, direct-on-line starting.	1.0 - 5.0	96841942 (GB/D/PL/NL) 96841969 (GB/GR/I/F/E) 96841996 (GB/DK/S/RU)	96841943 (GB/D/PL/NL) 96841970 (GB/GR/I/F/E) 96841997 (GB/DK/S/RU)	96841944 (GB/D/PL/NL) 96841971 (GB/GR/I/F/E) 96841998 (GB/DK/S/RU)	96841945 (GB/D/PL/NL) 96841972 (GB/GR/I/F/E) 96841999 (GB/DK/S/RU)	Yes *
	3.2 - 12.0	96841948 (GB/D/PL/NL) 96841975 (GB/GR/I/F/E) 96842002 (GB/DK/S/RU)	96841949 (GB/D/PL/NL) 96841976 (GB/GR/I/F/E) 96842003 (GB/DK/S/RU)	Yes *	96841950 (GB/D/PL/NL) 96841977(GB/GR/I/F/E) 96842004 (GB/DK/S/RU)	Yes *
	6.0 - 23.0	96841951 (GB/D/PL/NL) 96841978 (GB/GR/I/F/E) 96842005 (GB/DK/S/RU)	96841952 (GB/D/PL/NL) 96841979 (GB/GR/I/F/E) 96842006 (GB/DK/S/RU)	Yes *	96841953 (GB/D/PL/NL) 96841980 (GB/GR/I/F/E) 96842007 (GB/DK/S/RU)	Yes *
LCD 108 controller for float switches for 2 pump 3x400 V, star-delta starting	5.5 - 20.0	96841954 (GB/D/PL/NL) 96841981 (GB/GR/I/F/E) 96842008 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	10.0 - 30.0	96841955 (GB/D/PL/NL) 96841982 (GB/GR/I/F/E) 96842009 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	15.5 - 59.0	96841956 (GB/D/PL/NL) 96841983 (GB/GR/I/F/E) 96842010 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *
	15.5 - 72.0	96841957 (GB/D/PL/NL) 96841984 (GB/GR/I/F/E) 96842011 (GB/DK/S/RU)	Yes *	Yes *	Yes *	Yes *

* Please see Accessories on page 14

Voltage tolerances
-15% to +10% of nominal voltage
Mains frequency
50/60 Hz
Ambient temperature
- During operation: -30°C to +50°C (must not be exposed to direct sunlight)
- In stock: -30°C to +60°C

Enclosure class
IP 65

Outputs for alarm devices
Max. 400 VAC / max. 2 A / min. 10 mA / AC1 (NO & NC)
Supply system earthing
For TN systems and TT systems
Rated insulation voltage, Ui
4 kV
Rated impulse withstand voltage, Uimp
4 kV
EMC (electromagnetic compatibility)
According to EN 61 000-6-2 and EN 61 000-6-3

LC/LCD 110

Monitoring liquid levels with electrodes

The LC 110 and LCD 110 are supplied as complete level controllers contained within a waterproof cabinet. These level controllers respond to signals from electrodes (sold separately). As they work by means of electronic signals, the LC/LCD 110 can receive input from up to five electrodes located in a pump pit.

LC 110

The LC 110 level controller is designed for level control, monitoring and protection of single pumps in wastewater, water supply and drainage systems. It can be configured with a basic start and stop function (three electrodes), with an added alarm function (four electrodes), or with added dry-running protection (five electrodes).

LC/LCD 110

LCD 110

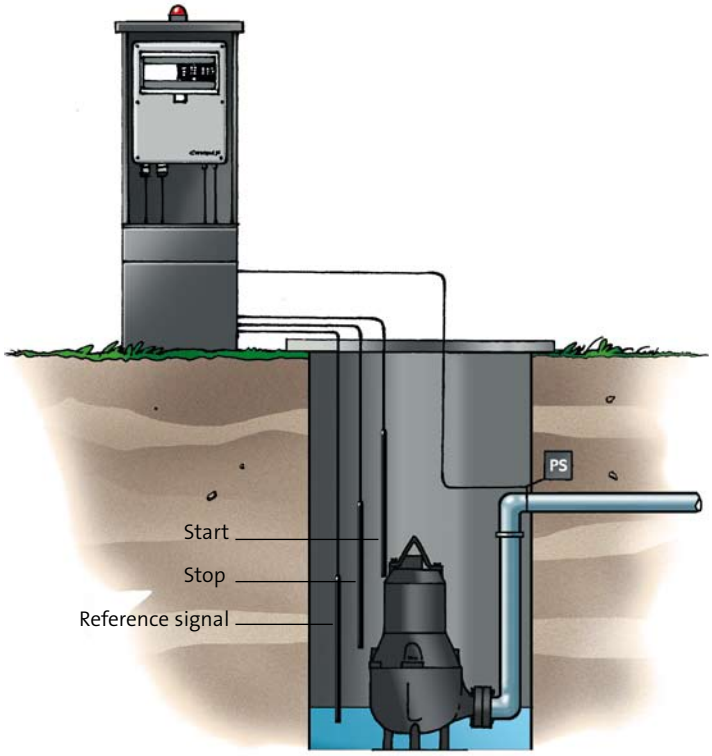
The LCD 110 level controller is designed for level control, monitoring and protection of pairs of pumps in wastewater, water supply and drainage systems. It can be configured with basic stop, start 1, and start 2 functions (four electrodes) or with additional alarm functions (five electrodes), for simultaneous operation of both pumps, and more.

The LCD 110 also has an automatic pump alternation function, ensuring that the total operating hours are evenly distributed between the two pumps.

Design features

The electrodes are made of stainless steel (DIN 1.4401) with polyethylene insulation. They are set inside a nylon housing with an R $1^1/_2$ thread, and are delivered with 10 m cable as standard. The electrodes are sold separately and must be adjusted onsite to suit the application.

The excellent chemical and thermal properties of the electrodes allow them to be used in a wide range of applications. Electrodes are particularly recommended for narrow pits where larger alternatives may become stuck.



How it works

Electrodes offer a highly reliable solution to liquid level monitoring in pump pits, even where space is very limited. Electrodes are suspended at appropriate heights, triggering specific responses as the liquid reaches them. This operating principle requires a reference signal, which means that the controller is connected to a conductive material that touches the liquid. This is usually an electrode, but other materials can be used as well.

Technical data

Controller type, electrical data and product numbers

Description	Operating current per pump [A]	PRODUCT NUMBER				
		Grundfos product no.	Hour counter available	Start counter available	Combined hour and start counter available	SMS unit available
"LC 110 controller for electrodes for 1 pump 1x230 V, direct online starting. With built-in operating capacitors (30 µF) for SEG pumps."	3.2 - 12.0	96842057	Yes *	Yes *	Yes *	Yes *
LC 110 controller for electrodes for 1 pump 1 x 230V, direct-on-line starting.	1.0 - 5.0	96842054	96842055	Yes *	Yes *	Yes *
	3.2 - 12.0	96842056	Yes *	Yes *	Yes *	Yes *
	6.0 - 23.0	96842060	Yes *	Yes *	Yes *	Yes *
LC 110 controller for electrodes for 1 pump 3 x 400V, direct-on-line starting.	1.0 - 5.0	96842061	96842062	Yes *	Yes *	Yes *
	3.2 - 12.0	96842064	96842065	Yes *	Yes *	Yes *
	6.0 - 23.0	96842066	Yes *	Yes *	Yes *	Yes *
LCD 110 controller for electrodes for 2 pumps 1x230 V, direct online starting. With built-in start and operating capacitors (150/30 µF) for SEG pumps.	3.2 - 12.0	96842071	Yes *	Yes *	Yes *	Yes *
LCD 110 controller for electrodes for 2 pumps 1x230 V, direct online starting. With built-in operating capacitors (30 µF) for SEG pumps.	3.2 - 12.0	96842070	Yes *	Yes *	Yes *	Yes *
LCD 110 controller for electrodes for 2 pumps 1 x 230V, direct-on-line starting.	1.0 - 5.0	96842067	96842068	Yes *	Yes *	Yes *
	3.2 - 12.0	96842069	Yes *	Yes *	Yes *	Yes *
	6.0 - 23.0	-	-	-	-	-
LCD 110 controller for electrodes for 2 pump 3 x 400V, direct-on-line starting.	1.0 - 5.0	96842080	96842081	Yes *	96842084	Yes *
	3.2 - 12.0	96842087	96842088	Yes *	Yes *	Yes *
	6.0 - 23.0	96842094	Yes *	Yes *	Yes *	Yes *
LCD108 controller for float switches for 2 pump 3x230 V, star-delta starting	10.0 - 21.0	96842096	Yes *	Yes *	Yes *	Yes *
	15.5 - 55.0	96842097	Yes *	Yes *	Yes *	Yes *
LCD108 controller for float switches for 2 pump 3x230 V, star-delta starting	10.0 - 21.0	96842098	Yes *	Yes *	Yes *	Yes *
	10.0 - 30.0	96842123	Yes *	Yes *	Yes *	Yes *

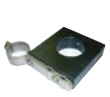
* Please see Accessories on page 14

Voltage tolerances
-15% to +10% of rated voltage
Mains frequency
50/60 Hz
Ambient temperature

- During operation: -30°C to +50°C (must not be exposed to direct sunlight)
- In stock: -30°C to +60°C

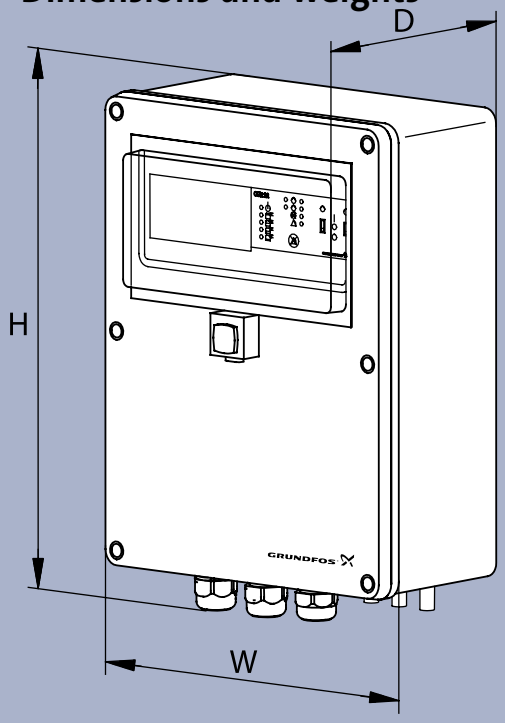
Enclosure class, IP 65
Outputs for alarm devices
Max. 400 VAC / max. 2 A / min. 10 mA / AC1 (NO & NC)
Supply system earthing
For TN systems and TT systems
Rated insulation voltage, Ui, 4 kV
Rated impulse withstand voltage, Uimp, 4 kV
EMC (electromagnetic compatibility)
According to EN 61 000-6-2 and EN 61 000-6-3

Accessories for LC/LCD 110

Picture	Description	Product number
	Bracket for electrodes	91 71 31 96
	1 electrode with 10 m cable	96 07 62 89
	3 electrodes with 10 m cable	96 07 61 89
	4 electrodes with 10 m cable	91 71 34 37

Dimensions

Dimensions and weights



Controller type	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
LC 107	410	278	150	8
LCD 107	410	278	150	10
LC 108	410	278	150	6
LC 108 Y/D	590	380	200	12
LCD 108	410	278	150	7
LCD 108 Y/D	635	500	220	32-56
LC 110	410	278	150	6
LCD 110	410	278	150	7

LC/LCD with capacitor – please contact Grundfos

Type key

			Example:	LC	107	230	1	12	30/150	DOL
Controller type	LC =	One-pump controller								
	LCD =	Two-pump controller								
Type of level sensors	107 =	Control of 1 or 2 pumps based on signals from bell shaped level pickups (pneumatic) Max. 11 kW shaft power DOL								
	108 =	Control of 1 or 2 pumps based on signals from float switches or electrodes Max. 11 kW shaft power DOL Max.30 kW shaft power SD								
	110 =	Control of 1 or 2 pumps based on signals from electrodes Max. 11 kW shaft power DOL								
Voltage [V]										
Number of phases	1 =	1 phase								
	3 =	3 phase								
Maximum operating current per pump [A]										
Operating / starting capacitor [mF] [ ] = without capacitor 30 = operating capacitor 30/150 = 30 mF operating and 150 mF starting capacitor										
Starting method	DOL =	Direct on-line starting								
	SD =	star-delta starting (only LC 108 and LCD 108)								

Note: Controllers with capacitor are for 12 A operating current.

Accessories

SMS unit for one or two pumps

When the SMS module is integrated into an LC/LCD control it acts as an time recorder for the pumps and after it has been programmed (using an ordinary mobile telephone with text messaging facility), it can send test messages containing "high water alarm", "general alarm", information about operating time and the number of time the pump has started up.

The SMS module is also available with battery and , thus, can send text messages that will inform you of power failure and when power has been restored.

The LC/LCD control functions independently - both before and after integration of the SMS module. The SMS module is primarily intended as a monitoring unit or alarm transmitter. Thus, the operator will receive a text message in the event of an emergency mode in the system and will be able to receive operating information.

Accessories

Accessories

No.	Accessories			Product number
	Picture	Description		
1		Battery back-up	9.6 V	96 00 25 20
2		Signal lamp, 1 x 230 V	Outdoor mounting	62 50 00 20
3		Acoustic signal (horn), 1 x 230 V	Outdoor mounting	62 50 00 21
			Indoor mounting	62 50 00 22
4		Hour counter	230 V & 400 V	96 00 25 14
			400 V (Until P.c. 0815)	96 00 25 15
5		Start counter	230 V & 400 V	96 00 25 16
			400 V (Until P.c. 0815)	96 00 25 17
6		Combined hour and start counter	230 V & 400 V	96 00 25 18
			400 V (Until P.c. 0815)	96 00 25 19
7		External mains switch for supply cable	25 A	96 00 25 11
			40 A	96 00 25 12
			80 A	96 00 25 13
8		SMS Unit	Danish	96 80 51 58
			English	96 80 51 59
			German	96 80 51 60
			French	96 80 51 61
			Spanish	96 80 51 72
			Russian	96 80 51 73
9		SMS unit complete kit (Antenna, Battery)	Danish	96 80 51 77
			English	96 80 51 79
			German	96 80 51 82
			French	96 80 51 83
			Spanish	96 80 51 84
			Russian	96 80 51 85