Well Probe V2

Mechanical float switch for dry run protection of LORENTZ solar pumps

The well probe provides a reliable method of run dry protection for LORENTZ pumps. The well probe detects that water is present within a well, tank or other water source. The well probe is typically attached to the riser pipe above the pump and connected to the controller. When the well probe becomes dry (water level is below the probe) the pump switches off to avoid dry running.

Order Information

Item no.: 19-000005 **Product name:** Well probe sensor V2

Features

- Reliable dry run protection
- Simple to install using 3 cable ties
- Improved tolerance to dirt
- Splicing kit and cable ties for fixing are included

Technical Data

- Max. operating temperature 55°C
- Enclosure class: IP68
- Submersion depth: max 50 m (164 ft)
- Cable length: 1.5 m
- Wire size: 2 x 0.50 mm² or AWG 20, waterproofed
- Must be mounted in a vertical position
- Meets the requirements for CE

Dimensions / Weight

- Packaging dimensions: 255 x 170 x 40 mm
  10.0 x 6.7 x 1.6 in
- Total weight: 0.1 kg / 0.2 lbs

Sun. Water. Life.
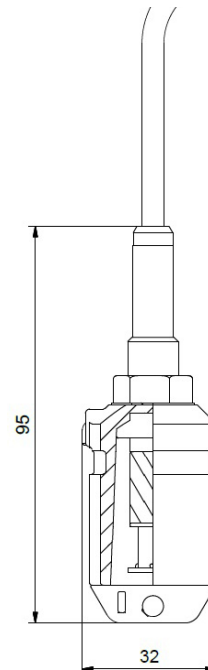
Float Switch

Mechanically Activated Device for Water Level Detection in Applications with LORENTZ Solar Pump Systems

The switch can be used to detect the water level within a tank. When the water level in the tank reaches the maximum, the LORENTZ Controller will stop the pump and indicates Tank Full LED.

ORDER INFORMATION

- **Item no.:** 19-000030   **product name:** Float Switch

FEATURES

- **N.O.** (normally open) and **N.C.** (normally closed) function
- Reliable water level detection
- Simple to install
- Trouble free operation
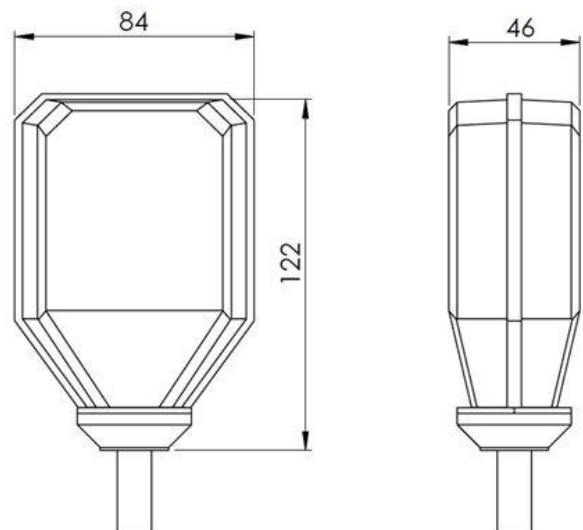- Not sensitive to rotation
- Corrosion-free

TECHNICAL DATA

- Operating temperature: -10°C to 55°C
- Storage temperature: : -10°C to 55°C
- Enclosure class: IP68
- Cable length: 3m, waterproof
- Wire size: 3x 1.0mm² or AWG 18
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packaging dimensions: 230 x 160 x 55 mm
                         9.1 x 6.3 x 2.2 in
- Total weight: 0.8 kg / 1.8 lbs

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V180904

Pressure Switch

Device for Water Pressure Detection in Applications with LORENTZ Solar Pump Systems

The switch can be used to detect the water level within a tank. When the water level in the tank reaches the maximum, the pressure will increase and the LORENTZ Controller will stop the pump and indicates Tank Full LED.

ORDER INFORMATION

- **Item no.:** 19-000310   **product name:** Pressure Switch 1-5bar

FEATURES

- Reliable water pressure detection
- Simple to install
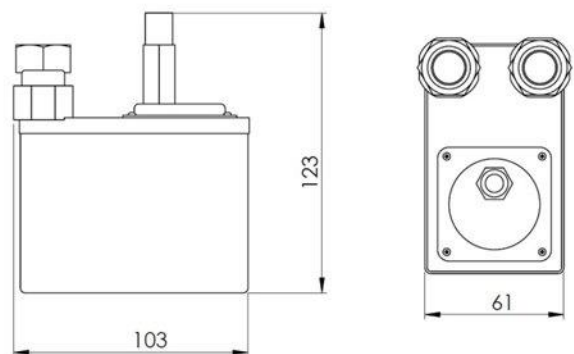- Trouble free operation
- Corrosion-free

TECHNICAL DATA

- Pressure range between 1 and 5 bar
- 2x cable gland Ø 5-9mm
- G ¼'' pipe thread
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packaging dimensions: 130 x 105 x 65 mm
                          5.1 x 4.2 x 2.6 in
- Total weight: 0.5 kg / 1 lbs

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V180904

Liquid Level Sensor

Sensor for measuring the level of liquid in a well or tank

USE / PURPOSE

The range of liquid level sensors use pressure to measure the liquid level in a well or tank. The sensors can be used for collection of long term liquid level monitoring and also for pump control in applications where a well probe cannot be used. The liquid level sensor must be used with a compatible LORENTZ Controller (see requirements).

FEATURES

- Gauge pressure sensor, pressure measurement relative to atmosphere
- For measuring levels of liquid in a well or tank
- Accurate, robust sensor
- For use with LORENTZ PumpScanner and pumpMANAGER

REQUIREMENTS

- LORENTZ PS2 controller, LORENTZ PSk2 controller or PS Controller equipped with a licensed PS DataModule
- The cable contains a capillary tube to balance the sensor against atmospheric changes. The sensor must be ordered with the required cable length for the application as it cannot be spliced. Further cable lengths are available on demand, please contact LORENTZ.

TECHNICAL DATA

- Sensor type: 2 wire gauge sensor
- Enclosure class: IP68
- Sensor housing: stainless steel
- Connects to LORENTZ PS DataModule
- Oil resistant cable with capillary tube
- Overpressure: 2x full scale
- Output signal :4-20mA output
- Voltage : 12-28VDC
- Application temp.: -10 to 80°C
              14 to 176°F
- Accuracy class :0.5% FS
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packing dimensions:
  19-005040:   350 x 350 x 100 mm / 13.8 x 13.8 x 3.9 in
  19-005050:   350 x 350 x 100 mm / 13.8 x 13.8 x 3.9 in
  19-005080:   350 x 350 x 100 mm / 13.8 x 13.8 x 3.9 in
  19-004395:   350 x 350 x 180 mm / 13.8 x 13.8 x 7.1 in
- Weight:
  19-005040:   4 kg / 8.8 lbs
  19-005050:   5 kg / 11.0 lbs
  19-005080:   7 kg / 15.4 lbs
  19-004395: 11 kg / 24.3 lbs

ORDER INFORMATION

Item #	Product	Pressure range	Cable length
19-005040	Liquid Level Sensor, 0-10m/33ft, 30m/100ft Cable	0-100 kPa 0 to 10 m / 0 to 33 ft 0 to 1 bar / 0 to 14.5 psi	30 m / 100 ft *
19-005050	Liquid Level Sensor, 0-20m/66ft, 40m/130ft Cable	0-200 kPa 0 to 20 m / 0 to 66 ft 0 to 2 bar / 0 to 29 psi	40 m / 130 ft *
19-005080	Liquid Level Sensor, 0-50m/164ft, 60m/200ft Cable	0-500 kPa 0 to 50 m / 0 to 164 ft 0 to 5 bar / 0 to 72.5 psi	60 m / 200 ft *
19-004395	Liquid Level Sensor, 0-100m/328ft, 140m/460ft Cable	0-1000 kPa 0 to 100 m / 0 to 328 ft 0 to 10 bar / 0 to 145 psi	140 m / 460 ft *

*Further cable length is available on demand. Please contact LORENTZ.

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V180822

Liquid Pressure Sensor

Sensor for measuring the pressure of liquid in a pipe or vessel

USE / PURPOSE

The sensors are commonly used to measure the pressure in the delivery pipeline or in a vessel. The pressure signal is used with a LORENTZ pump controller to measure pressure and for pressure switching or constant presure applications. The liquid pressure sensor must be used with a compatible LORENTZ Controller.

FEATURES

- Gauge pressure sensor, pressure measurement relative to atmosphere
- For measuring pressure in a pipe or vessel
- Accurate, robust sensor
- For use with LORENTZ PumpScanner and LORENTZ Global

REQUIREMENTS

- LORENTZ PS2 controller, LORENTZ PSk2 controller or LORENTZ PSk3 Controller
- Care must be taken to position the sensor without turbulent water to ensure accurate measurement
- G1/4" or G1/2" female threaded filling / air vent hole is required to mount the sensor

TECHNICAL DATA

- Sensor type: 2 wire gauge sensor
- Enclosure class: IP65
- Sensor housing : stainless steel
- Cable length: 10m/15m (33ft/50ft)
- Overpressure: 1.5x full scale
- Output signal : 4-20 mA
- Voltage : 11-28 VDC
- Application temp.: -30 to 80°C
  -22 to 176°F
- Accuracy class : 0.5% full scale
- Thread type: G1/2" male (G1/4" with adapter)
- Meets the requirements for CE

ORDER INFORMATION

Item #	Product	Pressure range
19-004450	Liquid Pressure Sensor, LPS-500	0-500 kPa 0 to 5 bar / 0 to 72.5 psi
19-004460	Liquid Pressure Sensor, LPS-1000	0-1000 kPa 0 to 10 bar / 0 to 145 psi
19-002760	Liquid Pressure Sensor, LPS-2000	0-2000 kPa 0 to 20 bar / 0 to 290 psi
19-002780	Liquid Pressure Sensor, LPS-5000	0-5000 kPa 0 to 50 bar / 0 to 725 psi

DIMENSION/WEIGHT

- Packing dimensions: 250 x 180 x 100 mm
  9.8 x 7.1 x 3.9 in
- Weight: 0.85 kg / 1.87 Ibs

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V221117

Water Meters
Flow measuring instrument for water use

NWM Water Meter

The **NWM Water Meter** is a device for measuring flow in water applications.

The **NWM water meter** has a pulse output for connection to LORENTZ pump controllers.

The water meter is used in applications where measured flow and water volume values are required.

The **NWM Water Meter** is suitable for applications with a pipe size of DN25 and DN32.

The **NWM Water Meter** contains a special sealed liquid which is separate from the flow water to maximize readability, avoid fogging and avoid scaling.

Characteristics

- All materials in contact with water are corrosion resistant.
- Five (5) digit mechanical display showing total liquid in 1m3 increments.
- Reed switch output which can be connected to PS2 and PSk controllers.
- Easy to install.

Technical Data

- Water temperature max. 50°C
- Water pressure: max. 16 bar
- Reed switch positioned on the x0,001 dial pointer: 10 l/imp.
- Reed Switch cable length: 1,45m
- IP64
- CE Conformity

CE

Flow rate characteristics

Flow	DN25	DN32
Max. flow rate: Q_{max} [m³/h]	7,87	12,5
Nominal flow rate: Q_n [m³/h]	6,3	10
Transition flow rate: Q_t [m³/h]	0,063	0,1
Minimum flow rate: Q_{min} [m³/h]	0,036	0,062

Reed switch impulse data output

Reed switch impulse	
Water meter size	Liters per impulse
DN25	10
DN32	10

Accuracy Curve

The Accuracy curve shows the deviation in percent error for different flow rates. In regular operation the deviation is between -2% and +2%.
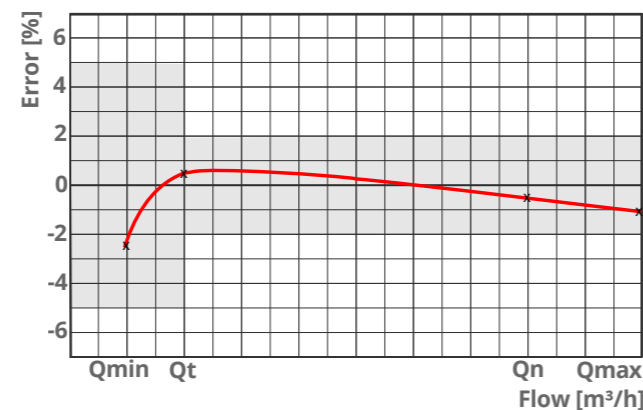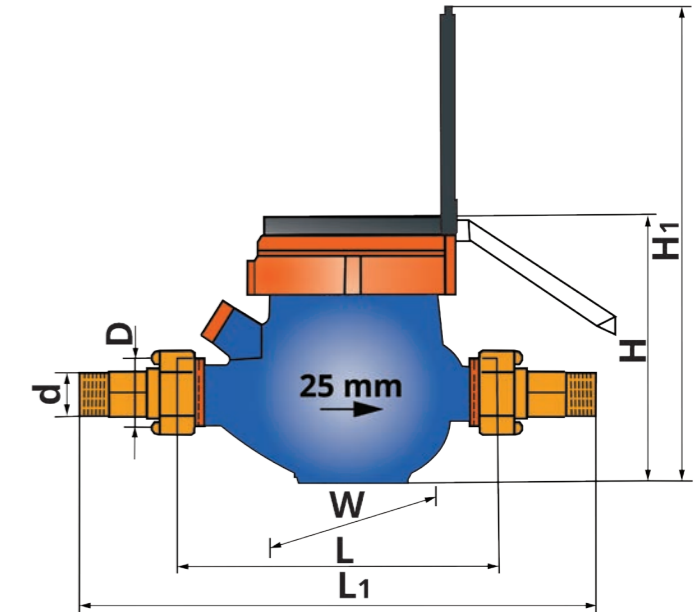

Water Meters
Flow measuring instrument for water use

NWM Water Meter

Dimensions and weights

Description	DN25	DN32
L [mm]	260	260
L1 [mm]	380	384
D [mm]	G1-1/4B	G1-1/2B
d [mm]	R1	R1-1/4
H [mm]	117,5	117,5
H1 [mm]	206,5	206,5
W [mm]	98	98
Net Weight [kg]	2,6	3,1

Order information

Item number	Description
19-002220	Water meter, NWM-DN25, 0.01 cbm/p
19-002225	Water meter, NWM-DN32, 0.01 cbm/p

Packaging information

Description	19-002220	19-002225
Dimension [LxWxH] [mm]	310x280x250	310x280x250
Gross Weight [Kg]	3,5	3,9
Volume [m³]	0,022	0,022

220601

Water Meters
Flow measuring instrument for water use

WP Water Meter

The **WP Water Meter** is a turbine type magnetic transmission instrument intended to measure high flow rates in water applications.
Water meters should be used in cases where accurate measurement of water volume is required.

WP Water Meters cover a wide flow range and are designed to handle high flow rates. They are suitable for applications with a pipe size from DN50 to DN200.

The helical blades of the turbine rotate around the axis of the flow. The magnetic transmission keeps the register separate from water, meaning only the impeller and transmission shaft contact water.

Characteristics

- Removable and interchangeable measuring element.
- Hermetically sealed dry type register.
- Reed switch output which can be connected to PS2 and PSk controllers using LORENTZ CONNECTED applications.
- Easy to install.

Technical Data

- Water temperature max. 40°C
- Water pressure: max. 16 bar
- Reed Switch cable length: 1,45m
- IP64
- CE Conformity

CE

Flow rate characteristics

Flow	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Max. flow rate: Q_{max} [m³/h]	50	78,75	78,75	125	200	312,5	500
Nominal flow rate: Q_n [m³/h]	40	63	63	100	160	250	400
Transition flow rate: Q_t [m³/h]	0,8	1,26	1,26	2	3,2	5	8
Minimum flow rate: Q_{min} [m³/h]	0,5	0,7875	0,7875	1,25	2	3,12	5

Reed switch impulse data output

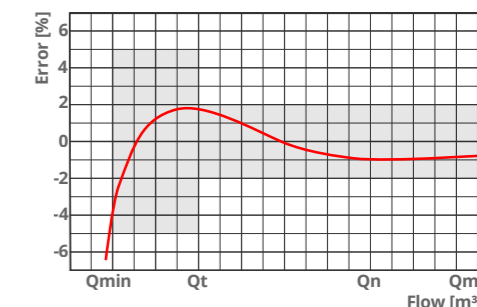| Reed switch impulse	
Water meter size	Litres per impulse
DN50	100
DN65	100
DN80	100
DN100	100
DN125	100
DN150	1000
DN200	1000

Water Meters
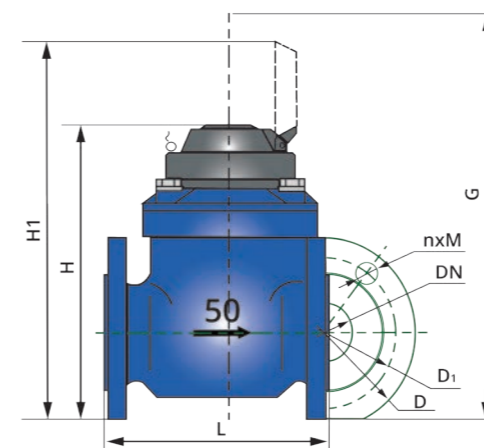## Flow measuring instrument for water use

WP Water Meter

Accuracy Curve

The Accuracy curve shows the deviation in percent error for different flow rates. In regular operation the deviation is between -2% and +2%.

Dimensions and weights

Description	DN50	DN65	DN80	DN100	DN125	DN150	DN200
L [mm]	200	200	225	250	250	300	350
H [mm]	252	262	272	282	297	341	371
H1 [mm]	339	349	359	369	384	428	458
G [mm] [Maintaining height]	400	400	400	400	400	500	500
D [mm]	165	185	200	220	250	285	340
D1 [mm]	125	145	160	180	210	240	295
nxM [Connecting bolt qty]	4xM16	4xM16	8xM16	8xM16	8xM16	8xM20	12xM20
Weight [kg]	12	13	15	16	21	33	42

Order and Packaging information

Item number	Description	Gross Weight [Kg]	Dimension [LxWxH] [mm]	Volume [m³]
19-002165	Water meter, WP-DN50, 0.1 cbm/p	15	280x230x320	0,021
19-002170	Water meter, WP-DN65, 0.1 cbm/p	16	290x230x330	0,022
19-002180	Water meter, WP-DN80, 0.1 cbm/p	17	280x240x350	0,023
19-002190	Water meter, WP-DN100, 0.1 cbm/p	20	320x260x350	0,029
19-002200	Water meter, WP-DN125, 0.1 cbm/p	25	340x310x390	0,041
19-002210	Water meter, WP-DN150, 1 cbm/p	38	370x340x420	0,053
19-002202	Water meter, WP-DN200, 1 cbm/p	49	415x390x435	0,070

SunSwitch

Automatic Solar Level Switching Device

The SunSwitch can be used for any application where you need to switch depending on the solar intensity. It is an autonomous working unit that supplies itself with power from the PV-module on its rear side.

ORDER INFORMATION

- **Item no.:** 19-000050   **product name:** SUN SWITCH Light-Sensor

FEATURES

- Trouble free operation
- Pump will only run when minimum flow rates or pressure levels can be achieved which are required by certain applications
- Reduced wear on the pump and motor since the pump only starts when it will continue to run

TECHNICAL DATA

- Contact rating:
    - Max. voltage 250 VAC / 220 VDC
    - Max. current 2A
    - Max. power 60 W / 62.5 VA
- Enclosure class: IP54
- Cable length: 4 m
- Wire size: 3x 1.0mm² or AWG 18, waterproofed
- Mounted close to the solar array
- Manual with further information is available in PartnerNet
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packaging dimensions: 230 x 115 x 90 mm
                         9.1 x 4.5 x 3.5 in
- Total weight: 1.2 kg / 0.6 lbs

V180903

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PM Accessory bracket

Kit for mounting LORENTZ PS Controller / PV-Disconnect to the Pole Mount PM-1-X

USE / PURPOSE

The PM Accessory bracket is designed for use with the LORENTZ POLE MOUNT-1-X.
The Set allows an easy and flexible mounting of LORENTZ PS Controllers and PV-Disconnect on the Pole of the LORENTZ PM-1-X.
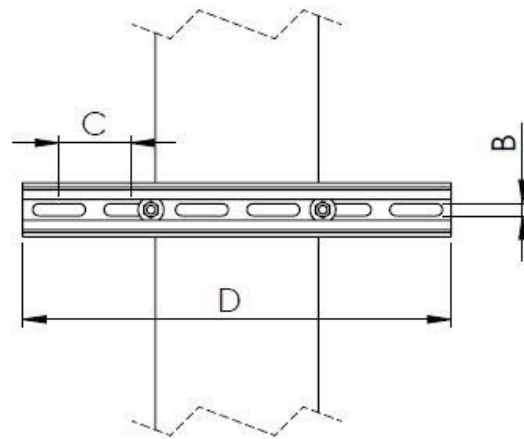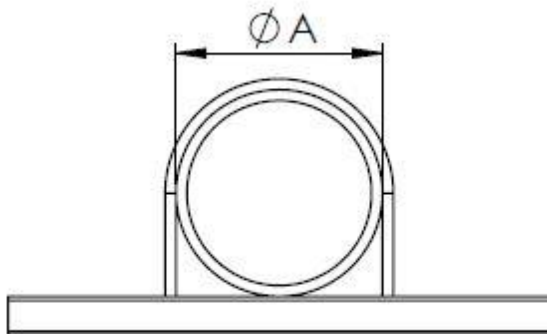
ORDER INFORMATION

Part	Item No.	PM-1-1	PM-1-2	PM-1-3	PM-1-4	PM-1-5	PM-1-6
PM Accessory bracket 2.5-1	19-004220	x	x				
PM Accessory bracket 4-1	19-004210			x	x	x	x

FEATURES

- Simple and cost effective mounting possibility for LORENTZ Controller and PV-Disconnect
- Designed for LORENTZ Pole Mount 1-X

TECHNICAL DATA

	A	B	C	D	Weight	Item no.
PM-1- 1/2	70 -73 mm 2.5 " SCH40	8.5 x 37 mm 0.33 x 1.4 "	50 mm 2 "	300 mm 11.8 "	0.35 kg 0.77 lbs.	19-004220
PM-1- 3/4/5/6	114.3 mm 4 " SCH40				0.4 kg 0.88 lbs.	19-004210

Packing dimensions

305x170x25 mm
12x7x1 inch

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Sun Sensor

Irradiation measurement module and software

The LORENTZ Sun Sensor module and software allow the PS2 and PSk2 controller to accurately estimate irradiation levels and control the pump based on this.

The Sun Sensor function can be configured to offer the pump mechanical protection from repeated starts and stops due to low irradiation. The Sun Sensor function can also be configured to switch external devices via the output terminal.

Each module is tested and specially calibrated for use with the PS2 and PSk2 system. The module also includes a software license to use the features which is accessed via the item serial number.

This Sun Sensor module is included with any PS2-1800 or PS2-4000 controller and any PSk2 controller.

For PS controllers (non PS2) refer to the SunSwitch Datasheet.

ORDER INFORMATION

- **Item no.:** 19-005030
- **Product name:** Sun Sensor module
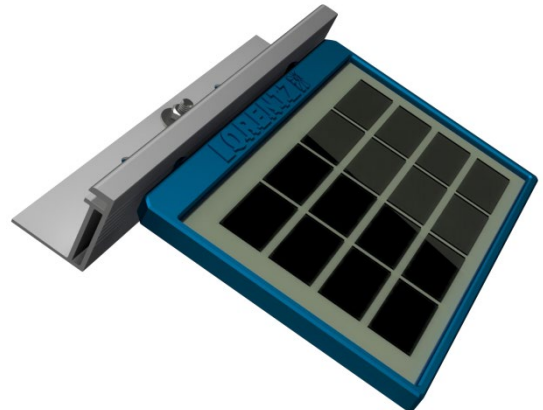
TECHNICAL DATA

- Open circuit voltage V_{oc} = 10.2 V
- Short circuit current I_{sc} = 0.19 A
- Wire size: 2x 1.0mm² / AWG 18, waterproofed
- Mount in parallel to the solar array
- PS2/PSk2 manual with further information is available in partnerNet
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packaging dimensions: 180 x 205 x 60 mm
                            7.08 x 8.07 x 2.36 in
- Total weight: 0.6 kg / 1.33 lbs

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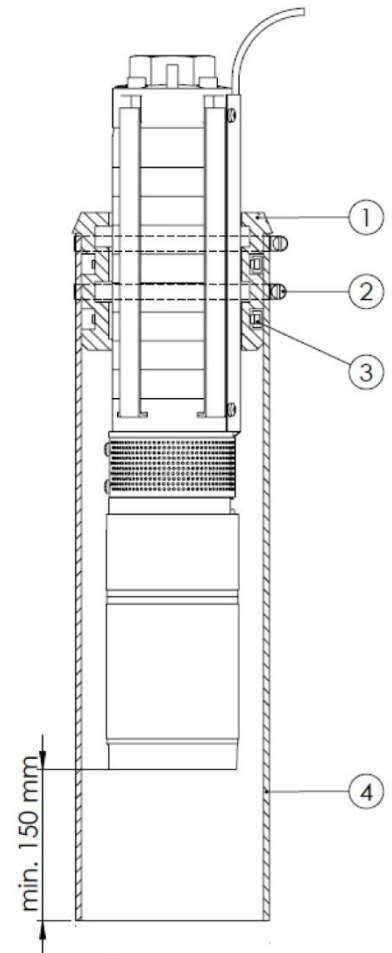
Flow Sleeve for C-SJ Pumps

Device to protect the pump from dirt and for motor cooling

A flow sleeve is a sleeve that goes around the pump body and motor. It has two functions:

1. **A flow sleeve reduces the amount of dirt in the pump.** Where water sources contain sand or have the potential for dirt falling into them (uncapped wells) a flow sleeve is recommended to protect the pump from dirt. Due to the large inner diameter of the flow sleeve the water rises very slowly and dirt deposits at the bottom of the well. Subsequently, water with less sediments enters the pump which increases its lifetime.

2. **A flow sleeve cools the motor.** In open water, tanks or pools there is no natural flow of water across the motor which can lead to heat build-up. The tube enforces water flow across the motor which has a cooling effect.

FEATURES

- Due to the large inner diameter of the flow sleeve the water rises very slowly allowing dirt to settle at the bottom of the well
- The life expectancy of the pump is increased due to less sand entering the pump
- Simple installation
- The flow sleeve must be selected according to the pump system (see table)
- The required borehole diameter depends on the diameter of the flow sleeve

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V190304

ORDER INFORMATION (please compare (1), (2) etc. with the sample flow sleeve)

Item no.	Product name	Scope of delivery	Suitable for
19-000230	Flow Sleeve Kit for 4" C-SJ Pumps with 4" Motor	(1) 1 x adaptor (2) 2 x hose clamp (3) 2 x cable strip (4) 1 x PVC tube: D140x4, 0.5 m length	All 4" C-SJ pump ends with 4" motor
19-000250	Flow Sleeve Adaptor for 4" C-SJ Pumps with 4" Motor	(1) 1 x adaptor (2) 2 x hose clamp (3) 2 x cable strip A PVC tube D140x4mm (4) is not part of the scope of delivery.	All 4" C-SJ pump ends with 4" motor
19-000255	Flow Sleeve Adaptor for C-SJ17-X/30-X with 4" motor	(1) 1 x adaptor (2) 2 x screw 4.2x16 (3) 1 x hose clamp A PVC tube D160x4mm (4) is not part of the scope of delivery.	All C-SJ17-X/30-X with 4" motor
19-005170	Flow Sleeve Kit for C-SJ42-X Pumps	(1) 1 x adaptor (2) 2 x hose clamp d =190-210 mm (3) 2 x hose clamp d= 150-170 mm (4) 1 x PVC tube: D200x5, 1.4 m length	All C-SJ42-X pumps
19-005180	Flow Sleeve Adaptor for C-SJ42-X Pumps	(1) 1 x adaptor (2) 2 x hose clamp d=190-210 mm (3) 2 x hose clamp d=150-170 mm A PVC tube D200x5mm (4) is not part of the scope of delivery.	All C-SJ42-X pumps
19-001400	Flow Sleeve Kit for C-SJ8-x/12-x for 6" motor with tube	(1) 1x adaptor (2) 2x hose clamp d=190-210 mm (3) 2x hose clamp d=150-170 mm (4) 1x PVC tube: D200x5, 1,4m length	All C-SJ8-x and C-SJ12-x pumps with 6" motor
19-001450	Flow Sleeve Adaptor for C-SJ8-x/12-x for 6" motor	(1) 1x adaptor (2) 2x hose clamp d=190-210 mm (3) 2x hose clamp d=150-170 mm A PVC tube D200x5mm (4) is not part of the scope of delivery.	All C-SJ8-x and C-SJ12-x pumps with 6" motor
19-001410	Flow Sleeve Kit for C-SJ17-x/30-x for 6" motor with tube	(1) 1x adaptor (2) 2x hose clamp d=190-210 mm (3) 2x hose clamp d=150-170 mm (4) 1x PVC tube: D200x5, 1,4m length	All C-SJ17-x and C-SJ30-x pumps with 6" motor
19-001460	Flow Sleeve Adaptor for C-SJ17-x/30-x for 6" motor	1x adaptor 2x hose clamp d=190-210 mm 2x hose clamp d=150-170 mm A PVC tube D200x5mm (4) is not part of the scope of delivery.	All C-SJ17-x and C-SJ30-x pumps with 6" motor

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DIMENSIONS/WEIGHT

Flow Sleeve Kit for 4" C-SJ Pumps with 4" Motor (19-000230):
- Packaging dimensions: 590 x 150 x 130 mm
  - 23.2 x 6.0 x 5.1 in   sample flow sleeve
- Total weight: 3.3 kg / 7.3 lbs

Flow Sleeve Adaptor for 4" C-SJ Pumps with 4" Motor (19-000250, without tube):
- Packaging dimensions: 165 x 165 x 110 mm
  - 6.5 x 6.5 x 4.3 in
- Total weight: 1.2 kg / 2.6 lbs

Flow Sleeve Adaptor for C-SJ17-X/30-X with 4" motor (19-000255, without tube):
- Packaging dimensions: 165 x 165 x 110 mm
  - 6.5 x 6.5 x 4.3 in
- Total weight: 1.2 kg / 2.6 lbs

Flow Sleeve Kit for C-SJ42-X Pumps (19-005170):
- Packaging dimensions: 1500 x 205 x 215 mm
  - 59.0 x 8.1 x 8.5 in
- Total weight: 9.3 kg / 20.6 lbs

Flow Sleeve Adaptor for C-SJ42-X Pumps (19-005180, without tube):
- Packaging dimensions: 230 x 230 x 130 mm
  - 9.1 x 9.1 x 5.1 in
- Total weight: 1.9 kg / 4.2 lbs

Flow Sleeve Kit for C-SJ8-X/12-X Pumps (19-001400):
- Packaging dimensions: 1510 x 215 x 235 mm
  - 59.4 x 8.4 x 9.2 in
- Total weight: 11 kg / 24.3 lbs

Flow Sleeve Adaptor for C-SJ8-X/12-X Pumps (19-001450, without tube):
- Packaging dimensions: 220 x 220 x 130 mm
  - 8.6 x 8.6 x 5.1 in
- Total weight: 3 kg / 6.61 lbs

Flow Sleeve Kit for C-SJ17-X/30-X Pumps (19-001410):
- Packaging dimensions: 1510 x 215 x 235 mm
  - 59.4 x 8.4 x 9.2 in
- Total weight: 11 kg / 24.3 lbs

Flow Sleeve Adaptor for C-SJ17-X/30-X Pumps (19-001460, without tube):
- Packaging dimensions: 220 x 220 x 130 mm
  - 8.6 x 8.6 x 5.1 in
- Total weight: 3 kg / 6.61 lbs

V190304

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PS2 Manual Speed Controller

Device to provide manual motor speed control of PS2 systems

The LORENTZ PS2 Manual Speed Controller allows adjustment of the maximum motor speed without using the PumpScanner App. To use the Manual Speed Controller, it is required to activate this function in the settings of PumpScanner during or before installation.

ORDER INFORMATION

- Item no.: 19-000035   Product name: PS2 Manual Speed Controller

FEATURES

- Allows manual control of PS2 motor speed
- Outdoor rated, installed in the housing of the controller

TECHNICAL DATA

- Voltage: 15-24 V DC
- Enclosure class: IP65
- Ambient temperature: -38…50 °C (-36… 122 F)
- Wire size: 2 x 0,75 mm²/18 AWG
- Replaces Ø 20mm cable gland
- Meets the requirements for CE
- Please note that if "Manual Speed Controller" is configured then "Set speed limitation" function is not available in PumpScanner.

DIMENSION/WEIGHT

- Packing dimension :   100 x 70 x 35 mm; 3.9 x 2.7 x 1.3 in
- Total weight: 0.2 kg / 0.4 lbs

Sun. Water. Life.

PS 2 Controller Plug Kit

Kit for an easy and electrical safe installation of PS2 Controller

The LORENTZ PS2 Controller Plug Kit can be installed on any PS2 system. The kit extends the internal wiring connections to plugs allowing systems to be pre-wired and delivered to site. Possible uses for the plug kit are where time on site needs to me minimized, where systems are often moved or where the skills available onsite do not allow for a standard installation.

The sensor extension kit allows the installation of two additional sensors, the standard set contains only two plug sets for sensor connections.

Order Information

- 19-005001 Plug- Kit PS2- Controller
- 19-005011 Sensor Plug Extension Kit

Features

- Allows fast, easy and electrical safe installation of PS2 Controller
- Customer must not open the controller for installation
- Outdoor rated, all parts are designed for outdoor use
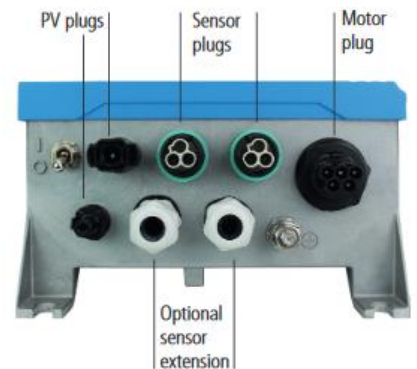
Technical Data

PLUG	Wire size	max. current	max. voltage	Ambient temperature
Motor	max, 6mm² (10 AWG)	32 A	600V DC	-40°C … +90°C
PV	max 8mm² (8 AWG)	40 A (27A at 2.5mm² /14AWG)	1500V DC	-40°C …+90°C
Sensor	max. 1.5mm² (16 AWG)	3 A	50V DC	-40°C …+90°C

Packing Dimension/Weight

19-005001 Plug- Kit PS2- Controller

- Packing dimension: 16 x 300 x 4cm (6.3x12x1.6inch)
- Total weight: 0.33kg (0,73lb)

19-005011 Sensor Plug Extension Kit

- Packing dimension: 16 x 24 x 2cm (6.3x10x0.8inch)
- Total weight: 0.1kg (0,22lb)

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Surge Protector2

Device to Protect LORENTZ Pump Accessories from Voltage Spikes

ORDER INFORMATION

- **Item no.:** 19-005210   **product name:** Surge Protector2

FEATURES/COMPATIBILITY

- Reliable surge protection device for any switched, pulse or analogue (4-20 mA) inputs sensors including:
    - Well Probe Sensor 19-000000
    - Water Sensor 19-000001
    - Float Switch 19-000030
    - Pressure Switch 19-000310
    - Liquid Level (all types, e.g. 19-005040)
    - Liquid Pressure Sensor (all types, e.g. 19-004460)
    - Water Meter (all types, e.g. 19-002160)
    - Sun Switch (19-000050)
- The device must be installed inside the PS2 or PSk2 controller.

TECHNICAL DATA

- Max. voltage: 30 V DC
- Max current 8/20µs: 500 A
- Enclosure class: IP20
- Ambient temperature: max. 80°C (176°F)
- Wire size: 2 x 1.5mm² (AWG 16)
- Meets the requirements for CE

DIMENSION/WEIGHT

- Packing dimensions: 56 x 26 x 120 mm
                          2.2 x 1.02 x 0.47 in
- Total weight   0.1 kg / 0.2 lbs

Sun. Water. Life.

V191120

![LORENTZ]

PowerPack 150S
DC power supply for PS2 pump systems

Description

An outdoor rated power supply unit to allow LORENTZ PS2-100 to PS2-150 systems to be powered from an AC (mains voltage) power source. The PowerPack can be used as a continuous supply, in conjunction with PV modules or as a temporary or seasonal supply.

Features

- DC power supply to power LORENTZ solar pump systems from the grid or a generator
- Robust weatherproof housing
- External on / off switch
- Use of MC4 connections to allow quick change over from PV modules to PowerPack
- DC inputs and outputs allow for permanent connection of a solar array
- 1m AC connection cable - NEMA 5-15P (US Plug) or CEE 7/7 (EU Plug)
- Requires a tool to open the housing
- Designed to be used with the LORENTZ PS2-100 to PS2-150 systems

photo may differ from actual product

Ordering and shipping information

- Packed volume: 0.03 m³ (1.03 ft³)
- Packed weight: 3.6 kg (7.1 lbs)
- See next page for item numbers and variants

Approvals and standards

The switch mode power supply has the following approvals

- EN62368-1
- IEC 62103
- IEC 61000-6-2
- IEC 61000-6-4
- AS/NZS 60950-1
- UL62368-1

![CE]

Technical data / Specifications

	PowerPack 150S
For use with these Pump systems	PS2-100
	PS2-150
AC input	100-260 V AC / 50 - 60 Hz
DC output	24 V - 13.4 A
Maximum PV input	50 V DC
PV in connections	2 x MC4
DC out connections	2 x MC4
AC input	IEC C14 female (US or EU cable supplied)
Environmental protection	IP23
Housing material	Polycarbonate

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V210113

Order information

Item number	Description
19-005290	PowerPack 150S, EU
19-005295	PowerPack 150S, US

Mounting options

- Wall or panel mount using 4 holes with weather protection
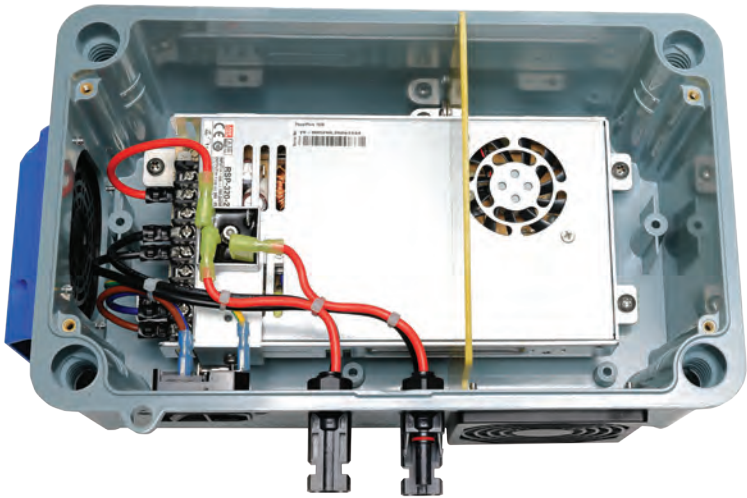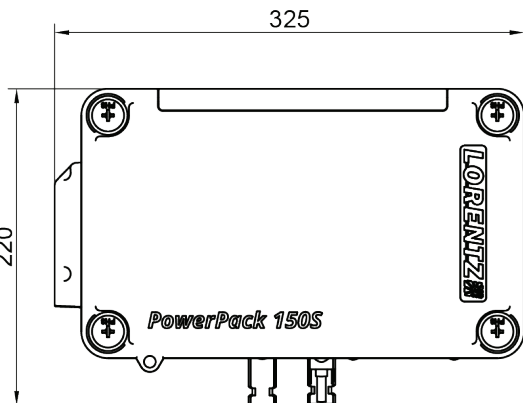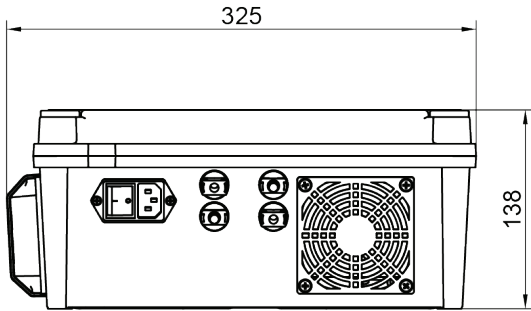
Dimensions and weight

- See drawing for mm measurments
- Max height 220 mm (8.7")
- Max width 325 mm (12.8")
- depth 138 mm (5.4")
- Weight 2.9 kg (6.4 lbs)

325

138

325

220

PowerPack 150S

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LORENTZ

Water Level Measurement Solution

The LORENTZ Water Level Measurement Solution (WLMS) accurately measures water levels in boreholes and tanks. WLMS is a combination of pressure sensor and plug in barometer to provide water level measurement for PS2 and PSk3 systems. Used in conjunction with inbuilt software WLMS allows you to record and monitor water levels in your tank and control your system based on these levels.

The sealed sensor comes with a plug-in barometer placed in the controller and measures the pressure based on the difference between the submersed sensor and the barometer.

This solution allows control of the pump based on the water level in the source or tank. It delivers not only information about the current water level but also about trends related to water usage. Predicting and planning for low water levels is possible with this solution.

The WLMS can also provide dry run protection for the pump and is a very good alternative to a well probe in any water source that is prone to calcium scaling, snails, algae or other contaminants that can effect operation of mechanical float switches.

Features

- Measures water levels in tank, well or other water source
- Provides pump run dry run protection
- Absolute pressure sensor - complete with plug in barometer
- Control of pump based on sensor data
- Very simple configuration and high customer value
- Real time and historic level data is viewed locally via LORENTZ CONNECTED apps (PumpScanner or Assistant or remotely via LORENTZ Global

Technical Data

Sensor type	absolute pressure sensor
Enclosure class	IP68
Sensor housing	high tech polymer
Measuring range	25 m / 82 ft water level
Accuracy	+/- 0.35 m / 1.15 ft
Diaphragm material	stainless steel AISI316L
O-ring material	FKM
Overpressure	max 75m / 246 ft water column
Min shut off level	0.5 m / 1.6 ft
Output signal	4-20mA
Power supply	12-28V DC
Cable jacket	PVC
Cable length	35 m / 114.8 ft
Application temperature	-10 to 80° C / 14 to 176° F
Meets the requirements for CE	

Compatibility

- for use with LORENTZ PS2 controllers and LORENTZ PSk3 controllers

WLMS Ordering Information

Order information

Item number	Description
19-005347	Water Level Measurement Solution, measurement range 25 m / 82 ft cable length 35 m / 115 ft

Dimensions

Packing Dimensions	Weight
225 x 205 x 70 mm / 8.9 x 8 x 2.8 in	1.5 kg / 3.3 lbs

Shipping Items

Sensor with 35m (115 ft) cable on a cable drum

Plug-in barometer

Balancing valve

Splice kit

CLS Water Sensor
Sensor for water presence detection

The CLS Water Sensor is a capacitive limit switch sensor. It is used for efficient and reliable detection of the presence of liquid in pipes or open tanks. The sensor operates on the principle of capacitance variation which is more reliable than resistive or inductive measurement between open probes.

The CLS Water Sensor is suitable as dry run protection for surface pump applications and can be also used to detect the presence of water in tanks.

Characteristics

- Water detection based on the capacitive change principle.
- Quick reaction time.
- Reliable fluid detection.
- Robust and corrosion resistant: Sensor made of AISI316, measuring tip made of PEEK (polyetheretherketone).
- Over current and reverse polarity protection.
- LED indicator on the sensor.
- NPN output for use with water sensor input on PS2 and PSk family controllers.
- Meets the requirements for CE.

Photo may differ from actual product

Technical Specification

|	
Connection	Thread M14x1
Material	Sensor housing: Stainless steel 316 Sensor tip: PEEK
Operating pressure	0 - 10 bar [0 - 145,03 psi]
Temperature range	-25 °C ... 90 °C [-13 °F ... 194 °F]
Protection Class	IP67
Electrical connection	M12-plug
Supply	12 ... 24 V DC
Output	NPN (max. 100 mA, short circuit protection) PNP output also possible**
Reaction time	Approx. 1 ½ s
Display	LED
Cable length	2 m [6.5 ft]

**** Refer to the electrical connection**

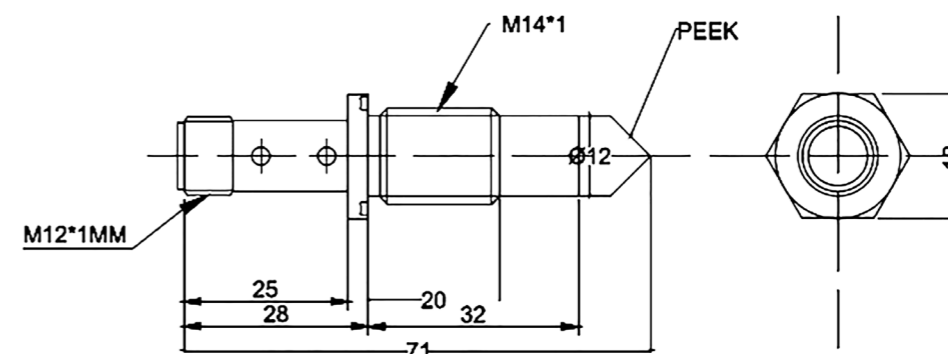## Connection – Water Sensor connection terminals

Controller	Brown	Black	Blue
PS2	13	14	15
PSk2	15	5	6
PSk3	14	15	16

Electrical connection

M12-Plug	Wire	Description
1	Brown	+12 ... 24 V DC
2	White	PNP
3	Blue	0 V
4	Black	NPN
5	Grey	NC
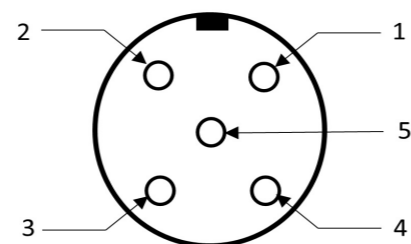
CLS Water Sensor Drawing and Dimensions

Order information

LORENTZ provides CLS Water Sensor for both millimeter and inch pipe installations, please consider the correct item number when ordering:

Item number	Description	Item Picture
19-000004	CLS Water Sensor with cable **(Metric units)**. Includes: - CLS Water Sensor - PVC Adaptor, D 50 mm M14x1 - Ring w. seal for PVC Adaptor, 3 mm	
19-000009	CLS Water Sensor with cable **(U.S. units)**. Includes: - CLS Water Sensor - PVC Adaptor, 2", M14x1 - Ring w. seal for PVC Adaptor, 3 mm	
19-000006*	Adaptor kit, for CLS Water Sensor, Welding, M14x1, Steel + Stainless Steel. Includes: - Adaptor for welding, M14x1, steel - Adaptor for welding, M14x1, stainless steel	
19-000008*	Adaptor, CLS Water Sensor, G1" x M14x1, stainless steel	

*These items can be ordered separately according to the pipework.

Weight and Volume information

Item number	19-000004	19-00009	19-000006	19-000008
Dimension (LxWxH)	190 x 105 x 75 mm [7.4 x 4.1 x 2.9 in]	190 x 105 x 75 mm [7.4 x 4.1 x 2.9 in]	190 x 105 x 75 mm [7.4 x 4.1 x 2.9 in]	190 x 105 x 75 mm [7.4 x 4.1 x 2.9 in]
Volume	0.0015 m³ [0.053 ft³]	0.0015 m³ [0.053 ft³]	0.0015 m³ [0.053 ft³]	0.0015 m³ [0.053 ft³]
Net Weight	0.19 kg [0.42 lb.]	0.21 kg [0.46 lb.]	0.16 kg [0.35 lb.]	0.14 kg [0.31 lb.]
Gross Weight	0.33 kg [0.73 lb.]	0.35 kg [0.77 lb.]	0.26 kg [0.57 lb.]	0.23 kg [0.50 lb.]

PV Disconnect 400-50-3-P

Connection Box with DC Disconnect Switch, String Fuses and Surge Protection Device

Description

The **LORENTZ PV Disconnect 400-50-3-P** is a PV combiner box with an integrated DC disconnect switch, which includes string fuses protection and is additionally equipped with a Surge Protection Device (SPD), for use with LORENTZ PS2 pump systems.

The **fuses** provide protection and isolation for the control unit in the event of an overcurrent situation from the PV array.
The **SPD** will provide an increased level of protection from electrical surges (for example caused by indirect lightning strikes). For operation it requires a reliable ground connection.

Designed to be installed between the solar generator and the controller meeting the electrical requirements of the connected devices.

Features

- DC rated disconnect to provide safe isolation of the system.
- Combining function, allows up to 3 PV strings to be connected in parallel to the solar pump system.
- Built-in protection with **Fuses** and **SPD**.
- Robust weatherproof housing designed to make installation simple.
- Lockable to secure the system during maintenance (power locked off).
- Internal touch protection with screws.
- Required for a professional installation of solar pumping systems

Photo may differ from actual product

Technical Data

Product name	PV Disconnect 400-50-3-P
Built-in protection	Surge protection device (SPD) and Fuses
Ambient temperature	-30 °C to 50 °C [-22 °F to 120 °F]
Max. Voltage	400 V DC
Max. current per string	15 A
Max. total current	50 A
Max. no. of strings	3
Input cable size	2.5 - 10 mm² / AWG 14 - 8
Output cable size	4 - 10 mm² / AWG 12 - 8
Ground cable size	≥ 6 mm² / AWG 10
Quantity of fuses	6
Fuse current rating	15 A
Fuse voltage rating	1000 V DC
Fuse Size	10 x 38 mm
PG glands (input)	6 x M16
PG glands (output)	2 x PG-11
PG gland GND	1 x M16
Enclosure class	IP 68
Housing material	Polycarbonate
Approvals and standards	EN 60947-3 / 6094-3

1

Connection Box with DC Disconnect Switch, String Fuses and Surge Protection Device
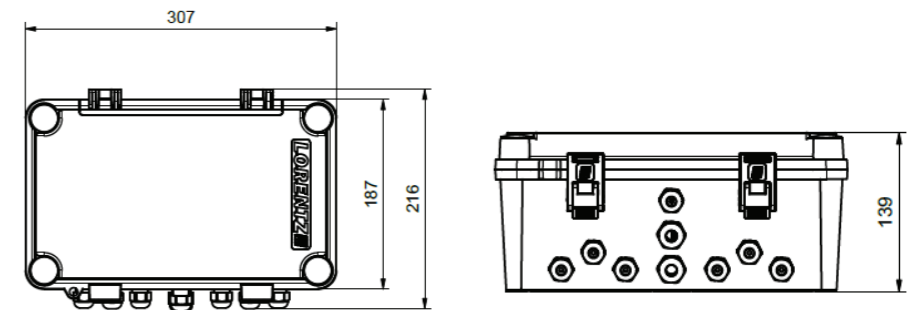
Compatibility

- For use with LORENTZ PS2 controllers [PS2-150 to PS2-4000].

Product dimensions and weight

Dimensions [LxWxH]	307 x 139 x 216 mm [12.1 x 5.4 x 8.5 in]
Net Weight	2.6 kg [5.8 lbs]

307

187

216

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Mounting options

- Wall mount using 4 holes with weather protection.
- Designed for optional pole mounting. Mounting points are pre-marked inside the housing.

Mounting hole distances [WxH, Hole diameter]	270 x 150, Ø6mm [10.6 x 5.9, Ø0.236 in]

PV Fuse, 15A

Order and Packaging information

Item number	19-001975
Product name	PV Disconnect 400-50-3-P
Packed gross weight	3.4 kg [7.5 lbs]
Packed volume	0.018 m³ [0.63 ft³]
Packaging dimensions [LxWxH]	360 x 250 x 200 mm [14.1 x 9.8 x 7.8 in]

CE

V220803

2

PV Disconnect 400-50-1-S

Connection Box with DC Disconnect Switch and Surge Protection Device

Description

The **LORENTZ PV Disconnect 400-50-1-S** is a PV connection box with an integrated DC disconnect switch and equipped with a Surge Protection Device (**SPD**), for use with LORENTZ PS2 pump systems.

The **SPD** will provide an increased level of protection from electrical surges (for example caused by indirect lightning strikes). For operation it requires a reliable ground connection.

The product can connect **one** (1) string of PV Modules through the enclosed DC disconnect switch safely to a solar pump system.

Designed to be installed between the solar generator and the controller meeting the electrical requirements of the connected devices.

Features

- DC rated disconnect to provide safe isolation of the system
- Built-in Surge Protection Device (**SPD**)
- Robust weatherproof housing designed to make installation simple
- Lockable to secure the system during maintenance (power locked off)
- Internal touch protection with screws
- Required for a professional installation of solar pumping systems

Photo may differ from actual product

Technical Data

Product name	PV Disconnect 400-50-1-S
Built-in protection	Surge protection device (SPD)
Ambient temperature	-30 °C to 50 °C [-22 °F to 120 °F]
Max. Voltage	400 V DC
Max. current per string	50 A
Max. total current	50 A
Max. no. of strings	1
Input cable size	2.5 - 4 mm² / AWG 14 - 12
Output cable size	4 -10 mm² / AWG 12 - 8
Ground cable size	≥ 6 mm² / AWG 10
PG glands (input)	2 x M16
PG glands (output)	2 x PG-11
PG gland GND	1 x M16
Enclosure class	IP 68
Housing material	Polycarbonate
Approvals and standards	EN 60204-1 / EN 60947-3

Compatibility

- For use with LORENTZ PS2 controllers [PS2-150 to PS2-4000].

Product dimensions and weight

Dimensions [LxWxH]	218 x 139 x 197 mm [8.6 x 5.4 x 7.8 in]
Net Weight	1.7 kg [3.7 lbs]
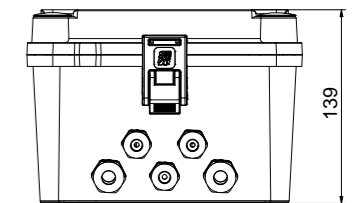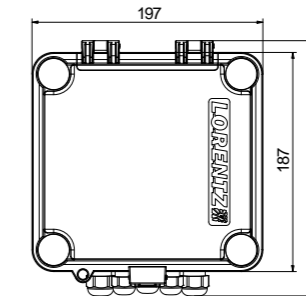
197

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139

Mounting options

- Wall mount using 4 holes with weather protection.
- Designed for optional pole mounting. Mounting points are pre-marked inside the housing.

Mounting hole distances [WxH, Hole diameter]	160 x 150, Ø6 mm [6.3 x 5.9, Ø0.236 in]

Order and Packaging information

Item number	19-001950
Product name	PV Disconnect 400-50-1-S
Packed gross weight	2.3 kg [5.0 lbs]
Packed volume	0.0125 m³ [0.44 ft³]
Packaging dimensions [LxWxH]	250 x 250 x 200 mm [9.8 x 9.8 x 7.8 in]

CE

V220802

PV Disconnect 400-50-3-S

Connection Box with DC Disconnect Switch and Surge Protection Device

Description

The **LORENTZ PV Disconnect 400-50-3-S** is a PV connection box with an integrated DC disconnect switch, a combining function and additionally is equipped with a Surge Protection Device (**SPD**), for use with LORENTZ PS2 pump systems.

The **SPD** will provide an increased level of protection from electrical surges (for example caused by indirect lightning strikes). For operation it requires a reliable ground connection.

The product can combine up to **three** (3) PV Module strings in parallel and connect them through the enclosed DC disconnect switch safely to a solar pump system.

Designed to be installed between the solar generator and the controller meeting the electrical requirements of the connected devices.

Features

- DC rated disconnect to provide safe isolation of the system
- Combining function, allows up to 3 PV strings to be connected in parallel to the solar pump system
- Built-in Surge Protection Device
- Robust weatherproof housing designed to make installation simple
- Lockable to secure the system during maintenance (power locked off)
- Internal touch protection with screws
- Required for a professional installation of solar pumping systems

Photo may differ from actual product

Technical Data

Product name	PV Disconnect 400-50-3-S
Built-in protection	Surge protection device (SPD)
Ambient temperature	-30 °C to 50 °C [-22 °F to 120 °F]
Max. Voltage	400 V DC
Max. current per string	50 A
Max. total current	50 A
Max. no. of strings	3
Input cable size	2.5 - 4 mm² / AWG 14 - 12
Output cable size	4 -10 mm² / AWG 12 - 8
Ground cable size	≥ 6 mm² / AWG 10
PG glands (input)	6 x M16
PG glands (output)	2 x PG-11
PG gland GND	1 x M16
Enclosure class	IP 68
Housing material	Polycarbonate
Approvals and standards	EN 60204-1 / EN 60947-3

1

PV Disconnect 400-50-3-S

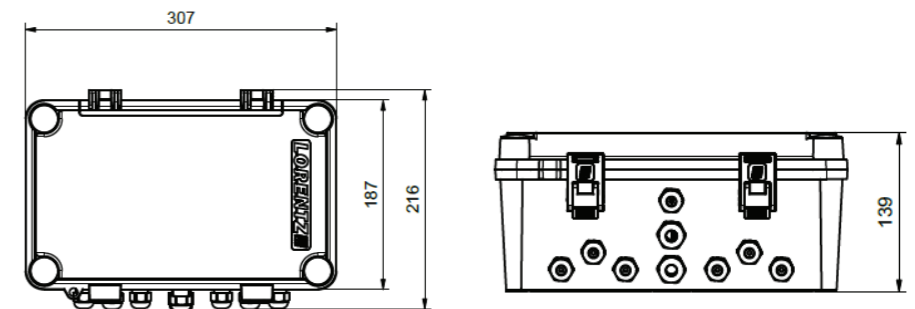## Connection Box with DC Disconnect Switch and Surge Protection Device

Compatibility

- For use with LORENTZ PS2 controllers [PS2-150 to PS2-4000].

Product dimensions and weight

Dimensions [LxWxH]	307 x 139 x 216 mm [12.1 x 5.4 x 8.5 in]
Net Weight	2.2 kg [4.9 lbs]

307
187
216
139

Mounting options

- Wall mount using 4 holes with weather protection.
- Designed for optional pole mounting. Mounting points are pre-marked inside the housing.

Mounting hole distances [WxH, Hole diameter]	270 x 150, Ø6 mm [10.6 x 5.9, Ø0.236 in]

Order and Packaging information

Item number	19-001955
Product name	PV Disconnect 400-50-3-S
Packed gross weight	2.9 kg [6.4 lbs]
Packed volume	0.018 m³ [0.63 ft³]
Packaging dimensions [LxWxH]	360 x 250 x 200 mm [14.1 x 9.8 x 7.8 in]

CE

V220803

2

PV Disconnect 400-50-6-S

Connection Box with DC Disconnect Switch and Surge Protection Device

Description

The **LORENTZ PV Disconnect 400-50-6-S** is a PV connection box with an integrated DC disconnect switch, a combining function and additionally is equipped with a Surge Protection Device (**SPD**), for use with LORENTZ PS2 pump systems.

The **SPD** will provide an increased level of protection from electrical surges (for example caused by indirect lightning strikes). For operation it requires a reliable ground connection.

The product can combine up to **six** (6) PV Module strings in parallel and connect them through the enclosed DC disconnect switch safely to a solar pump system.

Designed to be installed between the solar generator and the controller meeting the electrical requirements of the connected devices.

Photo may differ from actual product

Features

- DC rated disconnect to provide safe isolation of the system
- Combining function, allows up to 6 PV strings to be connected in parallel to the solar pump system
- Built-in Surge Protection Device
- Robust weatherproof housing designed to make installation simple
- Lockable to secure the system during maintenance (power locked off)
- Internal touch protection with screws
- Required for a professional installation of solar pumping systems

Technical Data

Product name	PV Disconnect 400-50-6-S
Built-in protection	Surge protection device (SPD)
Ambient temperature	-30 °C to 50 °C [-22 °F to 120 °F]
Max. Voltage	400 V DC
Max. current per string	50 A
Max. total current	50 A
Max. no. of strings	6
Input cable size	2.5 - 4 mm² / AWG 14 - 12
Output cable size	4 -10 mm² / AWG 12 - 8
Ground cable size	≥ 6 mm² / AWG 10
PG glands (input)	12 x M16
PG glands (output)	2 x PG-11
PG gland GND	1 x M16
Enclosure class	IP 68
Housing material	Polycarbonate
Approvals and standards	EN 60204-1 / EN 60947-3

Compatibility

- For use with LORENTZ PS2 controllers [PS2-150 to PS2-4000].

Product dimensions and weight

Dimensions [LxWxH]	307 x 139 x 216 mm [12.1 x 5.4 x 8.5 in]
Net Weight	2.4 kg [5.2 lbs]

307 187 216 139

Mounting options

- Wall mount using 4 holes with weather protection.
- Designed for optional pole mounting. Mounting points are pre-marked inside the housing.

Mounting hole distances [WxH, Hole diameter]	270 x 150, Ø6 mm [10.6 x 5.9, Ø0.236 in]

Order and Packaging information

Item number	19-001960
Product name	PV Disconnect 400-50-6-S
Packed gross weight	3.1 kg [6.8 lbs]
Packed volume	0.018 m³ [0.63 ft³]
Packaging dimensions [LxWxH]	360 x 250 x 200 mm [14.1 x 9.8 x 7.8 in]

CE

V220803