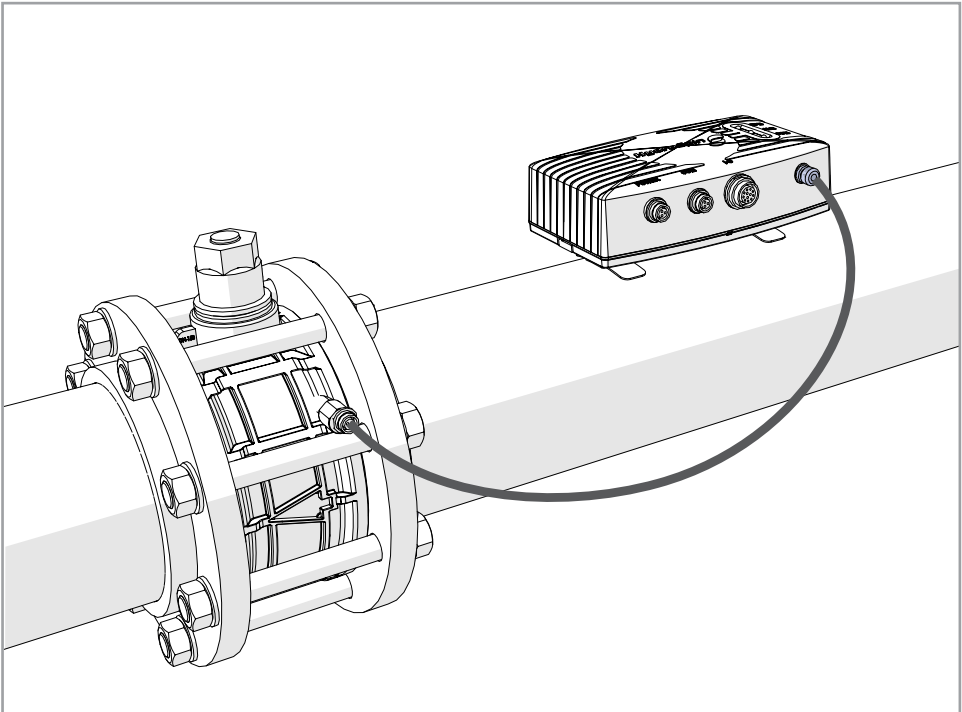


Yogev 10W

DN150-DN200

Hydro-Power Unit



Installation and Operation Guide

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NOTE:

All specifications in this manual are subject to change without notice.

DISCLAIMER

This document and other information from HydroSpin and/or its authorized distributors provide product information and installation instructions for users having the relevant technical expertise. Due to the variety of operating conditions for this product, the user is solely responsible for its correct installation and for assuring that all performance, safety and warning requirements of the application are understood and adhered to.

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1

Safety

Yogev 10W has been designed to meet all known safety requirements. Under normal operation, Yogev 10W presents no hazards to its operator or other personnel. Please read all safety information before installing or operating the unit.

HIGH VOLTAGE WARNING:

Yogev 10W generates high voltage that may cause injury and property damage if relevant precautions are not applied. Use caution when operating the Yogev 10W Hydro-Power Unit.

HIGH PRESSURE:

Before starting any assembly or disassembly operation, the water line must be depressurized. Removing Yogev 10W under line pressure could result in serious personal injury.

Before reopening the water, verify that installation is complete, and all bolts are fastened.

CAUTION

The installation of the HydroSpin Yogev 10W must comply with all applicable federal, state, and local rules, regulations, and codes.

2 Introduction

Overview

HydroSpin Yogev 10W hydro-power generator generates up to 10 Watt of power from the flow within water distribution pipes. The energy generated is suitable to support a wide range of applications such as flow and pressure instruments, 24/7 communication systems, dynamic pressure control systems, water quality analyzers, and data loggers.

HydroSpin Yogev 10W is a standalone unit, easily integrated with any 6" or 8" (DN150-DN200) pipe along the water distribution network, and designed for minimal head loss by implementing its proprietary swing mechanism.

When the flow increases, the generator rises above the flow line, to ensure minimal head loss. When the flow decreases, the generator swings back into the flow line to allow optimal energy harvesting.

Purpose of this Document

This document assists the user during installation and operation of the Yogev unit.

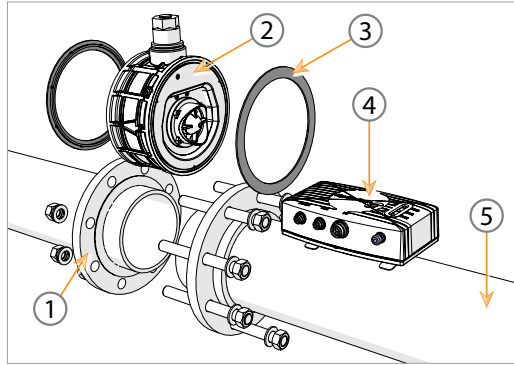
Applicable Documents

For additional information regarding the Yogev, refer to:

- Mechanical ICD drawing
- Electrical ICD drawings
- [HydroSpin Website](#)

Major Components

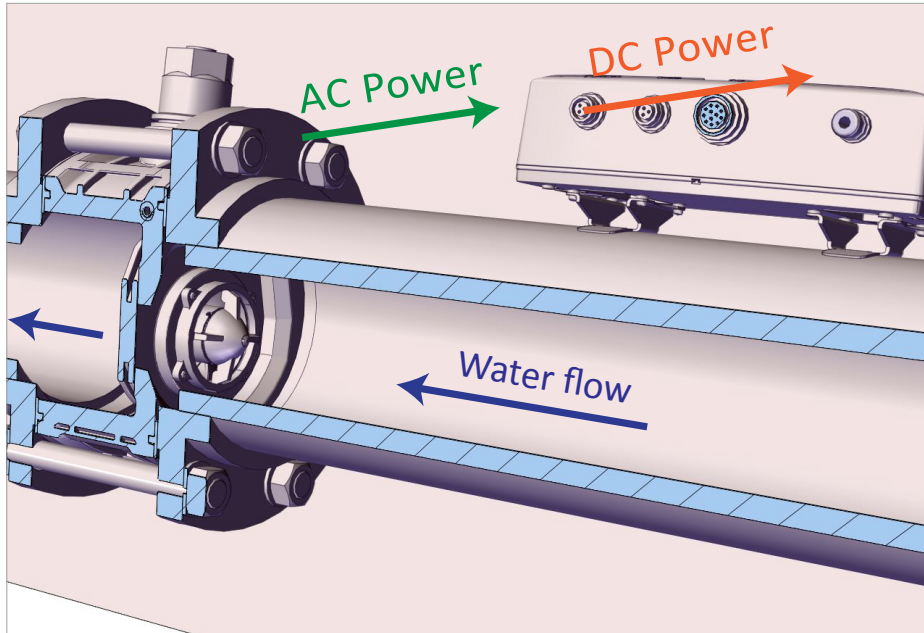
- **Main Unit (2)** – connected to the pipeline (5) using gaskets (3) and two flanges (1) and converts kinetic energy from the water flow into electrical AC power.
- **HydroCharger (4)** – receives AC voltage from the generator and converts it to DC power.



Principle of Operation

The Yogev 10W, connected to a water pipeline, converts kinetic energy from the water flow into an electrical charge that powers devices in a smart water network. Water flow activates a turbine that produces AC voltage, and charges an internal battery.

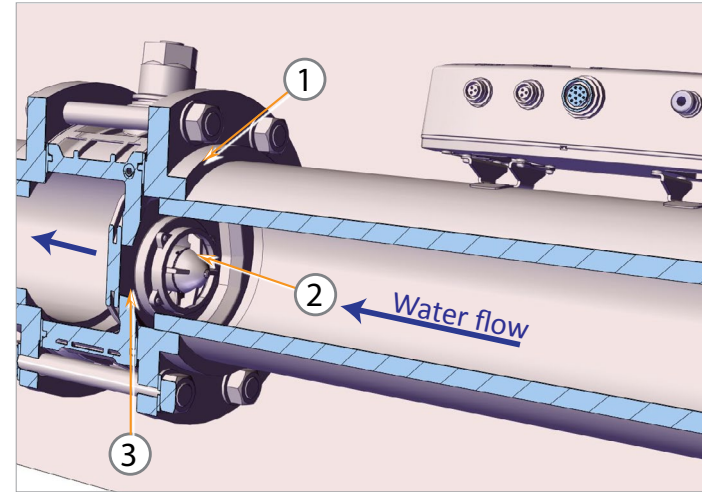
Even in low water flow rate levels, optimal energy harvesting is possible as the HydroCharger maximizes the power produced by the generator, in dynamic flow and voltage, to charge its internal battery.



Main Unit

The Yogev 10W main unit consists of the following parts:

- **Unit housing (1)** – houses the turbine. Connects to the water pipe using two flanges.
- **Turbine (2)** – the water flow in the pipe spins the turbine blades and rotates the generator rotor.
- **Turbine plate (3)** – holds the turbine. In high flow rate levels, the turbine plate rotates, allowing water flow with reduced head loss.



NOTES:

The main unit must be connected to the pipeline in correct orientation in relation to the water flow (see "Unit Orientation" on page 12). The arrow on the unit must match the water flow direction.

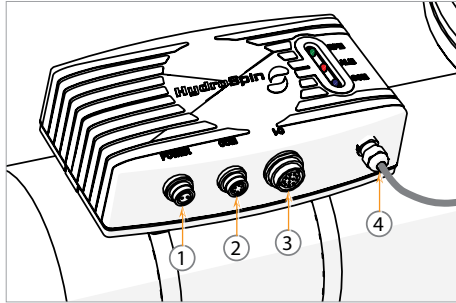
The HydroCharger Unit

The HydroCharger consists of:

Interconnection Panel

The HydroCharger front panel includes:

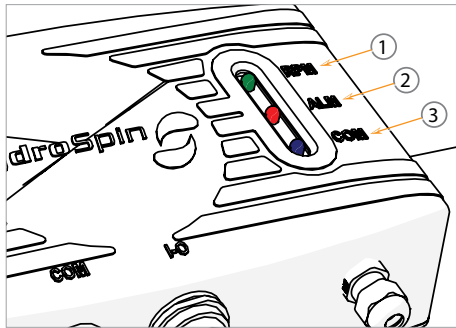
- **Generator input (4)** – cable connected to the main unit.
- **Power (1)** – DC power output to peripheral devices. Predefined output voltage: 12, or 24 VDC.
- **COM (2)** – communication to a host computer (supporting MODBUS protocol).
- **I/O (3)** – input and output for peripheral devices.



Control Indication

Three indication lights on the top panel of the unit:

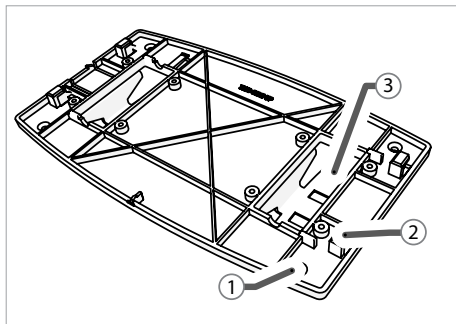
- **RPM (1)** – green LED that flashes every 100 revolutions of the generator turbine.
- **ALARM (2)** – red LED that flashes to indicate a problem in the system.
- **COM (3)** – blue LED that flashes when communication with the host is active.



Mounting Plate

Attached to the bottom of the HydroCharger unit. The HydroCharger is mounted on this plate, which includes:

- **Wall mount holes (1)** – enable attaching the plate to a wall.
- **Snaps (2)** – connect the plate to the HydroCharger unit.
- **Pipeline connections (3)** – connect the plate to pipe clamps.



3

Installation and Operation

Product Unpacking and Inspection

The Yogev 10W is packed in a carton box.

After opening the package, the product and accessories should be visually inspected for any physical damage that may have occurred during shipment.

Package Content

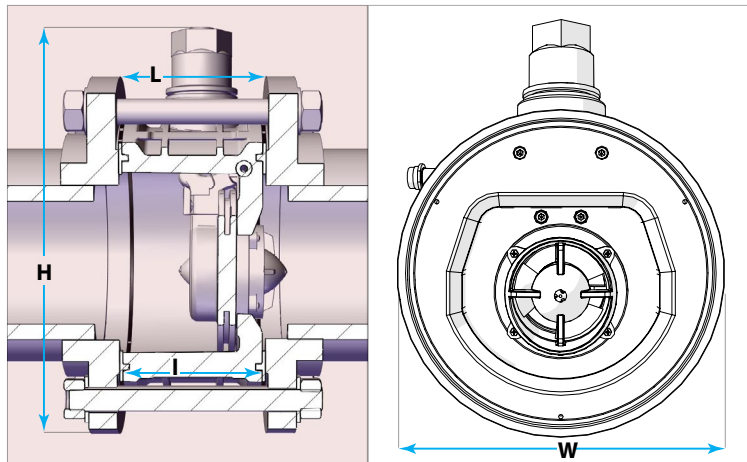
- Yogev 10W unit
- HydroCharger, mounting plate and connection cables
- HydroCharger banderole

NOTE:

If product damage is detected, the company must be notified within 48 hours of delivery and a claim must be filed with the carrier. A claim for equipment damage in transit is the sole responsibility of the purchaser.

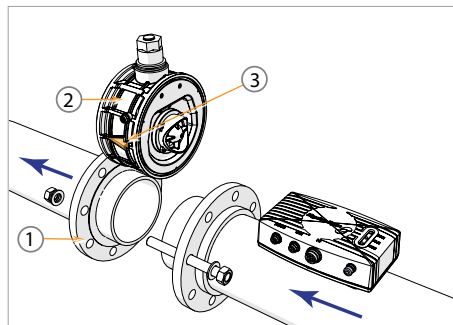
Dimensions

Model		6"	8"
Nominal Size	(mm)	150	200
	(inch)	6	8
l – Unit length (mm)		113	133
L – Total length between flanges (mm)		131	145
W – Width (mm)		222	260
H – Height (mm)		292	324
Weight (kg)		4	5



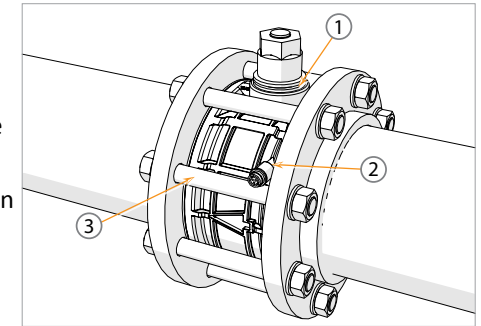
Unit Orientation

Verify correct orientation of the Yogev 10W unit (2) with relation to the pipeline (1) water flow, using the arrow (3) marked on the side of the unit as a guide.



Installing the Main Unit

1. Verify that the gaskets are in place.
2. Verify that the spring cover (1) is fastened.
3. Verify that there is no contact between the axle (2) and the screw (3).
4. Use crisscross tightening sequence to fasten the flanges screws.
5. Gradually open the water valve.

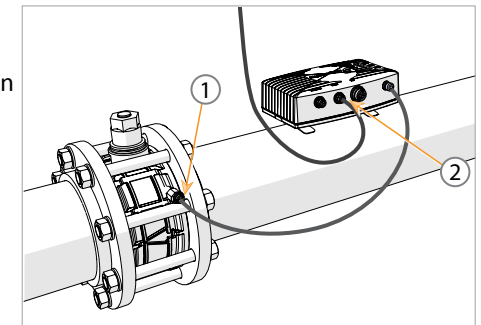


Installing the HydroCharger

1. Choose a location for the HydroCharger.
2. Attach the mounting plate onto the pipe or a wall (see "Mounting Plate" on page 10).
3. Place the HydroCharger unit on the mounting plate.

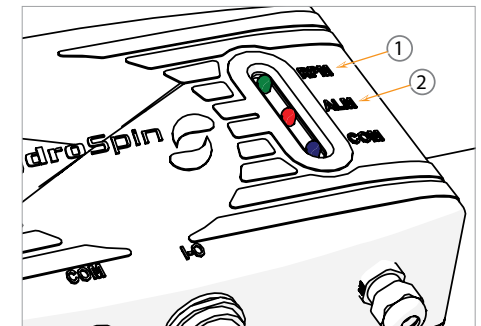
Connecting the Cables

1. Connect the main cable connector (1) to the main unit socket. See "Electrical ICD" on page 16 for details about the cables.
2. Connect the external devices power cord to the power socket (2) located on the HydroCharger panel.



Operation

1. Make sure the main unit is properly installed.
2. Make sure all cables are connected securely and in the correct sockets.
3. **Gradually and smoothly open the water flow in the pipeline.**
4. A gentle whirring sound is normal; investigate any other sounds.
5. On the HydroCharger panel, verify the status of the following LEDs:
 - RPM light (1) is flashing steadily.
 - ALARM light (2) is OFF.



4

System Specifications

General Specifications

Main Unit:

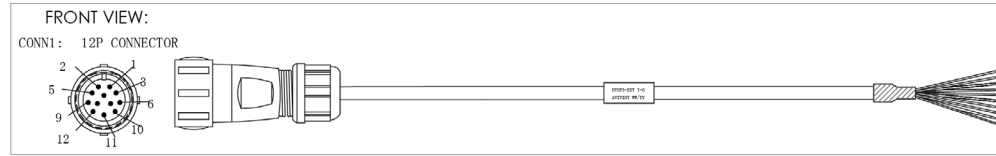
- **Yogev 6"** – 150 mm
- **Yogev 8"** – 200 mm
- **Main cable connector** – IP68 rating
- **Maximum working pressure** – PN16
- **Three-phase AC generator**

HydroCharger:

- **Communication** – Modbus protocol
- **Output voltage** – 12 or 24 VDC (predefined)
- **Battery type** – Li-Ion 5.3 AH battery
- **Battery life time** – 5 years

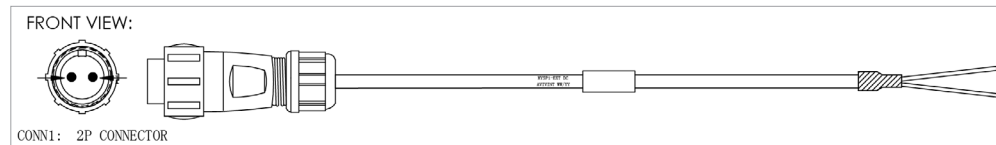
Electrical ICD

I/O Cable



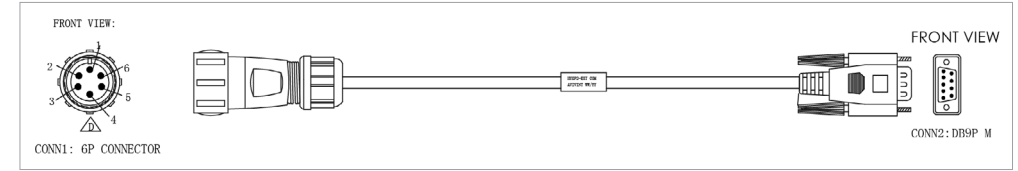
Pin no.	Color	Description
1	Red	Input P1
2	Black	Input M1
3	White	Input P2
4	Green	Input M2
5	Yellow	Output 1
6	Gray (Violet)	GND
7	Orange	Output 2
8	Blue	GND
9	Brown	Output 3
10	Violet	GND
11 & 12	(Short)	-

Power Cable (J6)



Pin no.	Color	Description
1	Red	Battery 1
2	Black	GND

Communication Cable



Pin no.	Color	Description
1	Red	RS232-TXD
2	Black	RS232-RXD
3	White	RS232-DTR
4	Green	Reset
5	Yellow	GND
6	Gray (Violet)	GND

