

Cla-Val e-Power IP

Electrical power generator

- Autonomous:** Entirely autonomous system providing 12 VDC and 24 VDC
- Powerful:** 14 Watt electrical power with a pressure differential of 0.6 bar at a flow of 50 l/min flow
- Economical:** Transforms hydraulic energy available across a regulating valve into electrical power
- Longevity:** Optimal point management technology prevents unnecessary over-usage of the turbine



**Leading
the Innovation**



CLA-VAL e-Power IP

Electrical power generator

DESCRIPTION

The CLA-VAL **e-Power IP** uses the hydraulic energy (pressure differential) within the water network to generate electrical power for your system, including during power outages. The compact and completely autonomous system is fitted around the valve, and can feed various instruments such as actuated pilots, sensors, HMI interfaces, or PID controllers.

The **e-Power IP** is the ideal compact power generator for a completely autonomous regulating valve including electronics, such as the new generation CLA-VAL D22 electronic valve controller and e-Drive-34 actuator.

FUNTIONALITY

The **e-Power IP** comprises a power generator (alternator), a latching solenoid to activate and de-activate the turbine and a differential pressure limiter. The system also includes a 12 V rechargeable battery and an electronic charge management circuit.

The optimal operating point of the turbine is reached with a differential pressure of just 6 meters and a 50 l/min flow (through the turbine). The battery then provides the following output voltage, current and power:

Output Voltage	Continuous Current (60 min/h)	Peak Current (1 min/h)
12 V	1,16 A 14 W	5 A 60 W
24 V (step-up)	0,58 A 14 W	2 A 48 W

Differential pressure management

To avoid unnecessary aging of the turbine, the e-Power IP implements a differential pressure management system, limiting the differential pressure across the turbine and optimising the generated power.

Power management

The «Maximum Power Point Tracker (MPPT)» algorithm ensures optimization of the generated power, adjusting the voltage produced by the turbine to achieve the maximum charging power. The MPPT algorithm ensures power optimization for any pressure variation during the day.

Battery characteristics

The battery implemented in the **e-Power IP** is a commercially available VRLA (Valve Regulated Lead Acid) chargeable battery, and is authorized for air, rail, and road transport without any particular conditioning, according to the IEC 60896-2 norm and in conformity to IATA, DGR clause A67. The accumulator is totally recyclable, and its lifetime is estimated to be 5 to 7 years (20°C), depending on the usage (nominal residual capacity of 80% after 2000 cycles).

Typical assembly

The **e-Power IP** can be assembled according to the installation needs and constraints:

- Fitted to the valve (FM option) for a very compact system
- Wall mounted (WM option) for a variety of hydraulic installations



SPECIFICATION

Battery

- Charging voltage: 12 V
- Capacity: 7.0 Ah (standard)
- Recyclable valve-regulated lead-acid battery (VRLA)
- Max. operating temperature: 55°C

Power supply protection

- Reverse polarity and short-circuit
- Automatic shut-off at 80°C internal

Output voltage

12 VDC Output

- Continuous current*: 1.16 A, charging 60 min/h (14 W)
- Peak current*: 5 A, charging 1 min/h (60 W)

24 VDC Output (step-up)

- Continuous current*: 0.58 A, charging 60 min/h (14 W)
- Peak current*: 2 A charging at 1 min/h (48 W)

*Valid, assuming the other output voltage is not active

Battery alarm output

- Relay contact (max. 1 A)

Operating diagnostics

- Charging (turbine ON): blinking red LED
- Discharging (turbine OFF): blinking green LED

Box connection

- 1 x 10 meter molded cable (5 wires)
- Wire section: 0.50 mm²
- Cable section: 7.4 mm

Operating pressure

- PN 10 bar

Valve type and DN (mm)

(Tubing 3/4" : T-3/4") (Tubing 1" : T-1")

- NGE DN 100 bosses tapped Rp 1/2" - T 3/4"
- NGE DN 125-200 bosses tapped Rp 3/4" - T 3/4"
- NGE DN 250-600 bosses tapped Rp 1" - T-1"
- GE/AE DN 65-80 bosses tapped Rp 1/2" - T 3/4"
- GE/AE DN 100-150 bosses tapped Rp 3/4" - T 3/4"
- GE/AE DN 200-400 bosses tapped Rp 1" - T-1"

Filter

- For the solenoid, 0.2 mm mesh (optional)

Protection

- IP 68 (solenoid not included)

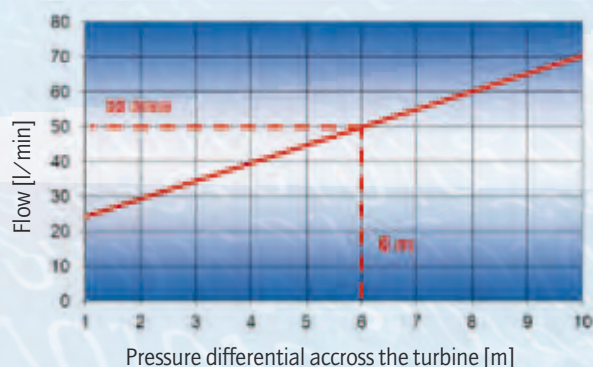
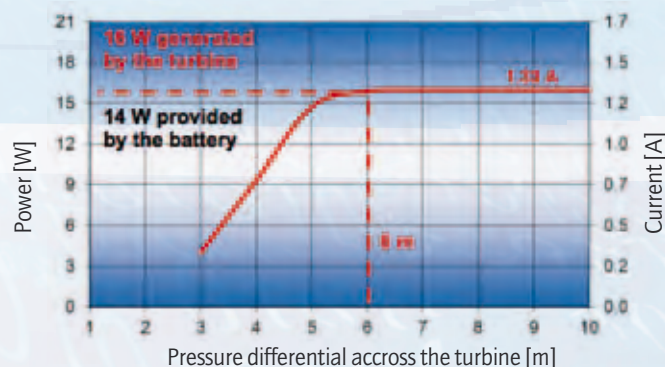
Interface

- Plug & play
- Graphical User Interface compatible with Window 7 (32 & 64 bit)

e-Power IP PERFORMANCE CURVES

The following graphs show the typical power performance curve of the turbine as a function of the differential pressure across it.

Note that the electrical power generated by the turbine charges the battery with an 88% yield ($0.88 \times 16 \text{ W} = 14 \text{ W}$).



Note : The power shown in the graphs is obtained by optimising the power generated by the turbine for each pressure differential.



SWITZERLAND

Europe, Middle East & Africa
 Chemin des Mésanges 1
 CH-1032 Romanel-sur-Lausanne
 ☎ + 41 21 643 15 55

UAE - DUBAI

Office 2004 , JBC5 - Cluster W - JLT
 P.O. Box 336812 Dubai, UAE
 ☎ +971 4 5667665

USA

Global Headquarters
 1701 Placentia Avenue, Costa Mesa
 CA 92627-4475
 ☎ + 949 722 4800

UNITED KINGDOM

Dainton House, Goods Station Road
 CGB - Tunbridge Wells
 Kent TN11 2 DH England
 ☎ + 44 1892 514 400

FRANCE

ZAC du Champ du Périer
 1, Porte du Grand Lyon
 FR - 01700 Neyron
 ☎ + 33 4 72 25 92 93

CANADA

4687 Christie Drive
 Beamsville, Ontario
 Canada L0R 1B4
 ☎ + 905 563-4963

WATERWORKS

From the reservoir to the customer tap, the CLA-VAL Company has developed more than 3,500 Automatic Control Valve models.

Accurately controlling pressure, tank level and flows within water networks is the result of more than 80 years of unparalleled expertise.

NEW ZEALAND

45 Kennaway Road
 1 Woolston, Christchurch, 8023
 ☎ + 64 396 44860

MEXICO

Tubrialco, S.A. de C.V.
 Circunvalacion Jorge Alvarez
 del Castillo No 1206-3
 Col. Chapultepec Country
 CP 44620 - Guadalajara, Jalisco
 ☎ + (33) 11309329



WWW.CLA-VAL.CH