HEINZMANN®
thinking in drive and control

HPC I-H Converter

DATA SHEET

Model

Precise & optimum control for a wide range of steam turbine applications

Overview

The HPC (Hydraulic Pressure Converter) is an electro-hydraulic pressure regulating control valve designed for use in positioning single-acting steam turbine control valves. The HPC accepts a 4-20 mA pressure demand signal, and accurately controls pressure for applications including both governor and extraction steam turbine control valves.

The HPC has a robust design with its IP66 corrosion-resistant housing, along with strong and precise all-electric actuator (with contact-free position feedback) that directly positions the linear pilot valve. This makes the HPC an ideal solution for challenging applications, and where contaminated oil may be present.

HPC's unique features include up to 3x control oil pressure sensors (i.e. triple redundant), 1x supply pressure sensor (for easy diagnostics of supply pressure quality), LVDT input for steam valve position feedback & Modbus communications.
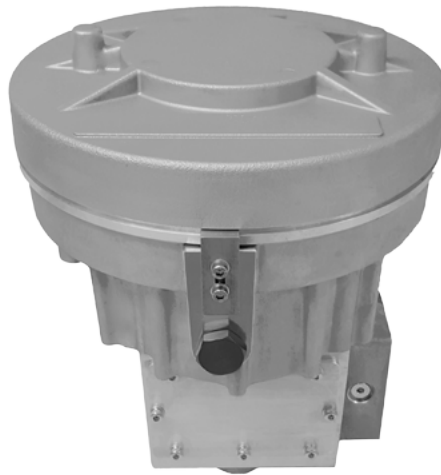
Key features

Precise hydraulic pressure control

Stable and accurate valve/ servo control

Optimum positioning "Linearization Map"

Triple redundant control pressure sensors

Adjustable dither function

Oil contamination resistant

Designed for hazardous locations

User-friendly PC Tune / PC Config. software tools

Remote display unit interface via CAN bus

Optional supply pressure sensor for diagnostics

Optional LVDT input for position feedback

Application

- ◼ Steam turbine generators
- ◼ Back-pressure turbines
- ◼ Condensing turbines
- ◼ Sugar mills
- ◼ Paper mills
- ◼ Oil & gas
- ◼ Geothermal
- ◼ Utility generation

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Features

- High torque internal electric actuator (with precise non-contact feedback) to directly position pilot valve

- Easy access of pressure transducer via external port, with no necessity to remove entire HPC assembly

- Optional pressure transducer for measuring supply oil pressure

- Adjustable dither, for both amplitude and frequency

- Manual stroke function

- Optional LVDT signal for control valve position feedback

- Optional „built-in" pressure transducers for triple redundancy of closed loop control

- Optional HPC Remote Display Unit interface via CAN bus (for display of essential parameters, e.g. oil pressure, etc.)

Performance

- Accuracy: +/- 0.2 % of full scale

- Temperature drift: +/- 0.01 % of full scale (°C)

- Pressure stability: +/- 1.0 %

- Operation: Failsafe, based on return spring on loss of power supply

Hydraulic

- Fluid type: Mineral or synthetic based oils

- Max. supply pressure : 28 bar(a) / 27 bar(g) or 392 psi(g)
  Note: For optimum performance, max. control pressure should be within 70 % of supply pressure

- Filtration: 40 µm nominal (Beta 75 external filter required)

- Viscosity: 20 to 100 cSt

- Return/drain pressure: Maximum 2.8 bar(a) / 2.7 bar(g) or 39 psi(g), or 30 % of min. control pressure, whichever is lower

Application overview
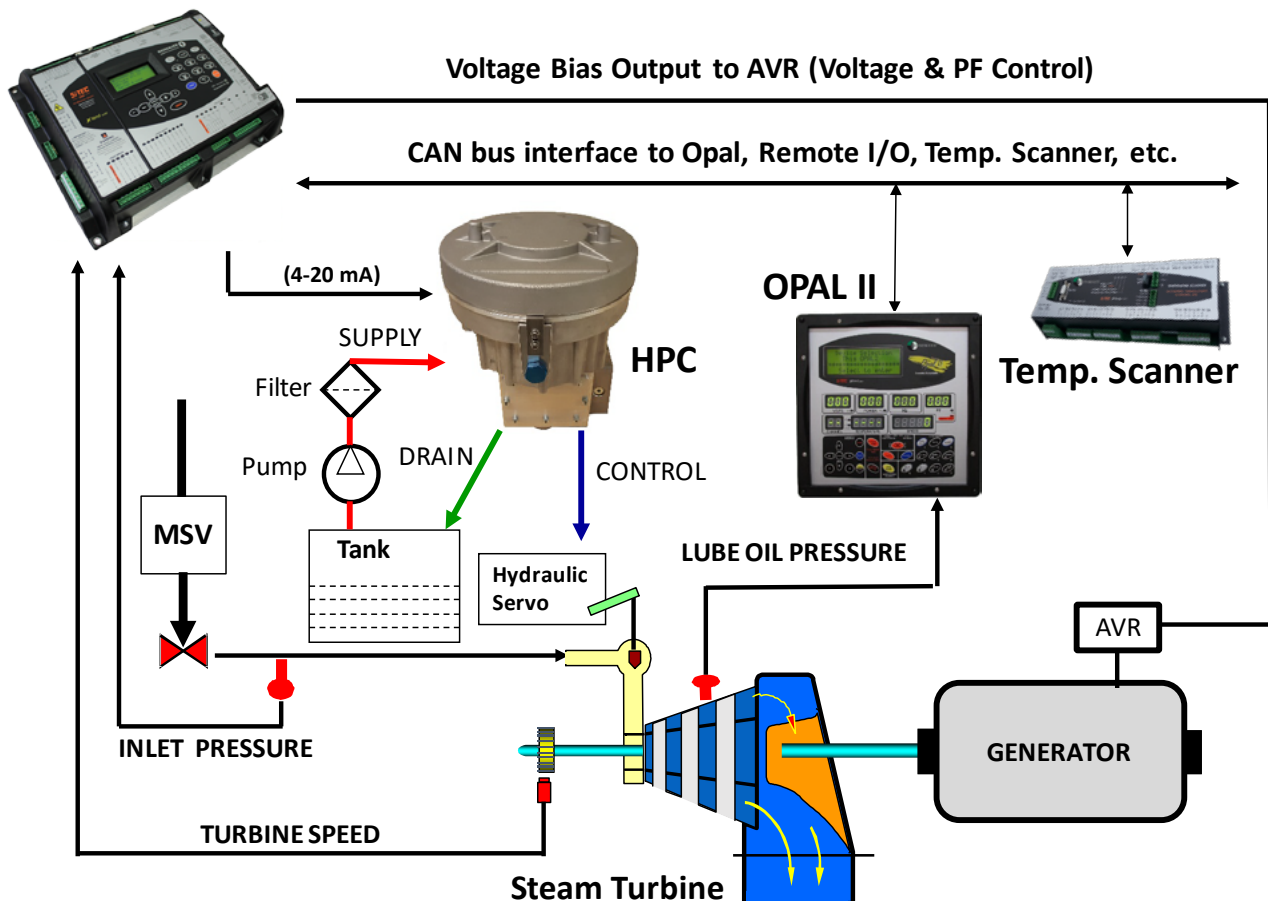
Physical

- Dimensions: 277 x 271.5 x 270 mm
- Weight: Approx. 20 kg (45 lbs)
- Fluid ports: See physical drawings
- Mounting: Four M10 threaded holes, 23 mm deep. Same mounting arrangement as other I-H converters.

Environment

- Operating temperature range: −40 °C ... +85 °C
- Hydraulic supply temperature: −40 °C ... +85 °C
- Ingress protection: IP66

Input signals

- Input supply: 18 to 32 VDC (24 VDC nominal) @ 2.0 A steady state (8.0 A peak)
- Analogue input signals: 3x isolated 4-20 mA, and 1x LVDT
- Logic inputs: 6x optically isolated inputs

Output signals

- Analogue outputs: 1x isolated 4-20 mA
- Relay outputs: 4x relay outputs (3x N/O & 1x C/O relays) Relay rating: 5 A @ 30 VDC~

Communication ports

- RS-232 port: Communications via RS-232 (D9) serial cable
- RS-485 port: Modbus RTU / ASCII Comm. (PLC / SCADA)
- CAN bus port: For interface to extended I/O module or display unit

Internal overview

Physical dimensions