DATA SHEET

VP01

ABB Ability™ Symphony® Plus Hardware Selector

The VP01 Valve Positioner module provides control of the flow of steam, gas, or water through a turbine by precisely regulating the position of the inlet valves. It is intended for modulation of hydraulic actuators via servo valves or I/H converters..

The VP01 performs closed loop control for servo valves utilizing single or redundant position feedback devices, or open loop control for current drive valves. It offers a response time from input to output under 1 millisecond and can generate servo output signals up to 500 milliamps per servo coil output. The feedback devices can be AC or DC LVDT's and the control output can be Proportional-Integral or Proportional-Only.

Features and benefits

- The VP01 Valve Positioner controls the flow of steam, gas, or water thru a turbine by precisely regulating the position of inlet valves
- 16-Bit resolution of analog inputs & outputs
- Input signals are updated every millisecond
- Coil drive surrents up to 500mA
- Support for several types of position feedback devices
- Sinusoidal excitation signals from 1.05 to 8.96 Vrms and frequencies from 400 to 15,000 Hz
- 2x Form A contact, max 400 mA @ +24 VDC Digital Outputs

General info	
Article number	2VAA008172R01
Type	Valve Positioner
Signal specification	Coil Driver: 502 mA maxPosition FB: 4…20 mA position transducer, AC LVDT 1.05…8.96 VRMS, 400…15,000Hz,Unipolar DC position transducer (0…+12 V),Bi-polar DC position transducer (± 6 V or ±12 V) AO: 4…20 mA (System Powered)DI: 24 VDC, 6 mA each (Field Power)DO: Form A max 400 mA @ +24 VDC
Life cycle status	ACTIVE
Number of channels	12
Signal type	2x Coil Driver, 2x Position FB, 2x AO, 3x DI, 2x DO, 1x AI
HART	No
SOE	Yes
Redundancy	Yes
Form factor	Standard (190 mm)
Mounting	Horizontal Row or Vertical Column
MTBF (per MIL-HDBK-217-FN2)	PR E: 169,924 Hours
MTTR (Hours)	1 Hours

Detailed data	
Module power requirements	24 VDC ± 5%, 330 mA typical, 500 mA max (up to 2.0 A inrush)
Module power connection	POWER TB on cHBX01L or VBX01T
Field IO power	Analog Output: Max 60 mA @ +24 VDC ±5 % Coil Driver: ±15 VDC ±5 %, 50 mA max. + load current -OR- ±24 VDC ±5 %, 50 mA max. + load current.
Field IO Power, Digital Outputs	Coil Driver: ±15 VDC ±5 %, 50 mA max. + load current. OR±24 VDC ±5 %, 50 mA max. + load current.
Overvoltage category	Category I for power, inputs or outputs. Tested according to EN 61010-1
Max field cable length	600 meters (1968 feet)
Number of Channels	12 Total (2x Coil Drivers, 2x Position FBs, 2x AO, 3xDI, 2x DO, 1xAI)
Signal ranges and types	Coil Driver Output (2): ± 502 mA maxPosition Feedback (2): AC LVDT (1.05…8.96 Vrms, 400…15,000Hz), 4…20 mA position transducer, Unipolar DC position transducer (0...12 V), Bipolar DC position transducer (±6 V or ±12 V)Analog Ouputs (2): 4…20 mA (System Powered)Digital Inputs (3): +24 VDC, 6 mA each (Field Powered)Digital Outputs (2): 1-Form A Contact, +24 VDC max 400 mAExt. Digital Outputs (4): 2-Form C Contact, 3A @ 150 VDC, 5A @ 120 VAC Analog Input (1): 4...20 mA (Field Powered)
SOE timestamp accuracy	1 msec resolution for 24 & 48 VDC
Output response time	Max 1 msec
A/D Conversion	2x 24-Bit A/D converters, each with 4 inputs and embedded filtering
A/D Resolution	16-Bit I/O resolution
A/D Update rate	1.5 msec for all channels
D/A Resolution	16-Bits
Field signal to Logic isolation	UL1577 1000 VRMS for 1 minute
Channel isolation	500 VRMS at 60 Hz for Digital I/O
Open circuit detection time	Max 1 msec
Short circuit protection	Coil Driver: 506 mA nominal output current limitLVDT: 150 mA nominal output current limit

Diagnostics	
Front plate LED's	STATUS LEDs: R (Run) and F (Fault) + I/O CH Status
Local availability	Mini USB connection on module front plate
Remote availability	HN800 device diagnostics via SPE

Environment and certification	
Temperature, Operating	-20 to +55 °C Tested according to IEC/EN 60068-2-1, IEC/EN 60068-2-2
Temperature, Storage	-40 to +85 °C Tested according to MIL-STD-810G
Relative humidity	20% to 95% @ 40°C non-condensing. Tested according to IEC/EN 60068-2-78, IEC/EN 61298-3
Vibration (operational sinusoidal)	5 to 60 Hz 0.137 mm (0.0054 in.), 60 to 150 Hz 1.0 G. Tested according to IEC/EN 60068-2-6
Vibration (transportation)	10 to 500 Hz. Tested according to MIL-STD-810G
Shock (storage)	15 G, 11 msec. Tested according to IEC/EN 60068-2-27
Drop	100 mm. Tested according to IEC/EN 60068-2-31
Protection class	IP20 according to EN 60529, IEC 529
Altitude (operational)	Sea level to 3,048 meters (10,000 ft.) Tested according to MIL-STD-810G
Altitude (storage)	Sea level to 12,192 meters (40,000 ft.) Tested according to MIL-STD-810G
Air quality	ISA S71.04 G1, ISA S71.04 G3 compliant versions SPCxxxA are also available
ESD immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-2, Severity level 3
Surge immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-5, Severity level 3
Electrical fast transient immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-4, Severity level 3
Radiated RFI immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-3, Severity level 3
Conducted Immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3
Magnetic field immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-8, Severity level 4
Radiated emission	Tested accTested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipmentording to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3
Conducted emission	Tested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipment
Voltage dips and interruption immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-11
CSA non-hazardous locations	Certified for use as process control equipment in an ordinary (non-hazardous) location
CSA hazardous, nonincendive locations	Class I, Division 2, Groups A, B, C, D
CE Mark	CE Mark EMC directive 2004/108/EC & Low Voltage Directive 2006/95/EC
RoHS compliance	RoHS Directive 2015/863
WEEE compliance	DIRECTIVE/2012/19/EU

Compatibility	
Use with MTU	HBS01-TCM, VBS01-TCM
Module keying code for base	slot #1 = 12, slot #2 = 23

Dimensions	
Width	27 mm
Depth	106 mm
Height	190 mm
Weight	294 g

solutions.abb/symphonyplus
solutions.abb/controlsystems