



Hybrid Feedback™ Manipulator Control System

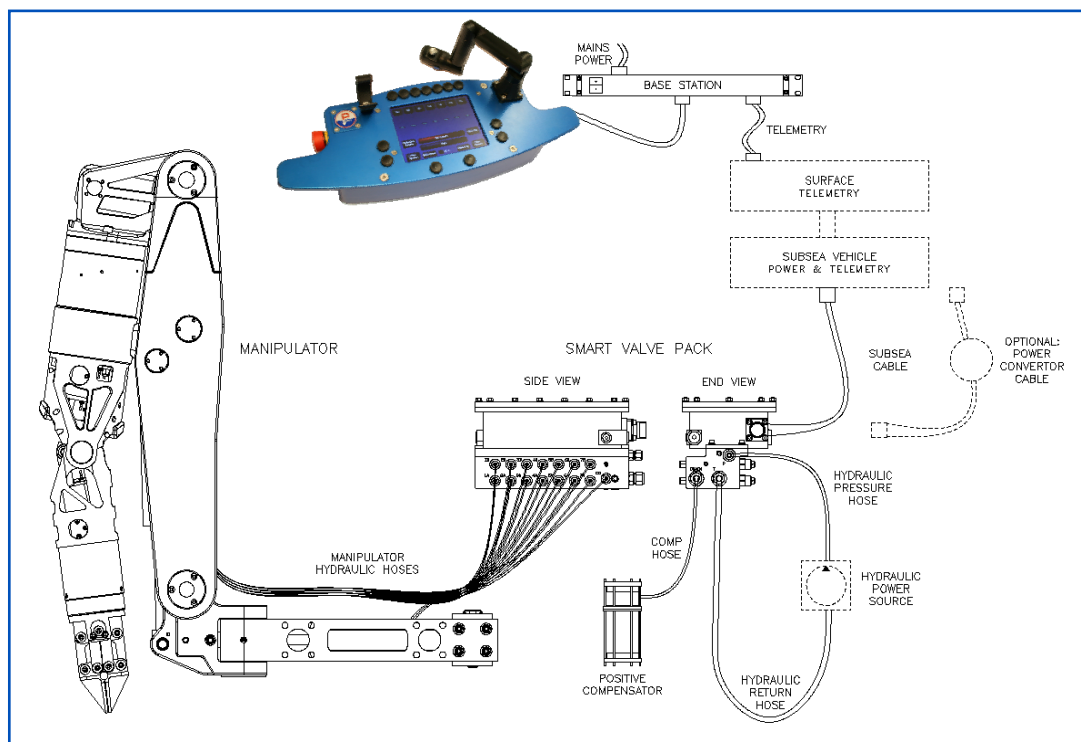
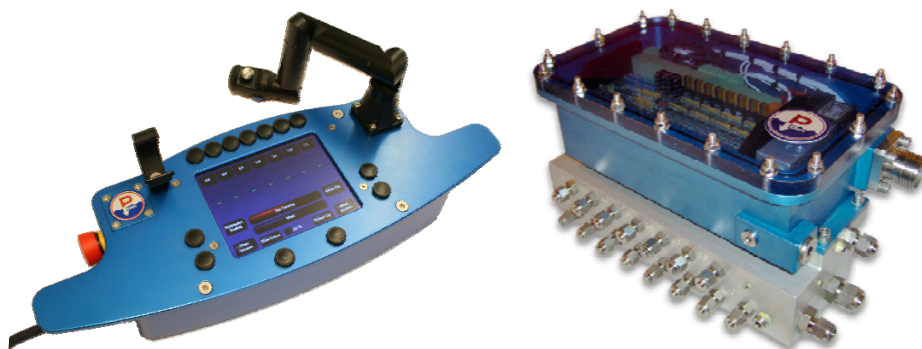
This Patented Hybrid Feedback™ Control System upgrades existing or new rate manipulators to have the master slave performance of feedback manipulators while maintaining the inherent reliability of the rate manipulator. No electronics, wires or sensors are required in the manipulator. This is a class leading control solution, not only from the operator's perspective in terms of performance, reliability and ease of maintenance but also in terms of upgrade cost, downtime and through life cost.

At the surface the PSS Hybrid Feedback Control System comprises of a rugged operator control pendant with buttons and LED backlit colour TFT display. A robust miniature replica master arm that features proportional claw rotate and grip control and a freeze/re-indexing button that ensures comfortable, intuitive manipulator operations, and a compact base station housing a serial converter and power supply.

Subsea the PSS Hybrid Feedback Smart Valve Pack forms the heart of the PSS Hybrid Feedback Control System, and incorporates robust mini NG3 valves (no servo valves) and our industry standard LVC with full diagnostics. The existing rate manipulator hydraulic valve pack connections are freed up for extra tooling capability, hoses are simply moved to the SVP.

Features

- Provides master slave control on rate arms
- Intuitive user interface
- Diagnostics
- Retrofit to most rate arms



Specifications

Options

Smart Valve Pack Features

Local Diagnostic LEDs:	Supply & Onboard Voltages, Comms, Status
Remote Diagnostics:	Supply & Onboard Voltages, Drive Currents Ambient Temperature, Water Ingress etc
Input Supply Protection:	Reverse Polarity, Limited Overvoltage, Spike
Output Drive Protection:	Active Overcurrent, Short Circuit

Smart Valve Pack

Material	Anodised Aluminium (St. St. external valves)
Width	310mm (12")
Depth	190mm (7.5")
Height	174mm (7")
Weight in Air	18kg (40 lb)
Weight in Water	11kg (24 lb)
Supply Pressure	207 Bar (3000psi)
Typical Viscosity	32 cSt
Typical Fluids	Petroleum Based Hydraulic Fluids (For Glycols, etc. consult PSS)
Manipulator Connections	SAE-4 Adapters to JIC or Swagelock, etc.
Required Supply Hose	For SAE-6 Male Fitting
Required Return Hose	For SAE-8 Male Fitting
SVP Pressure Compensation	PSS 480ml positive unit or customer supply

Electrical Power & Telemetry Requirement

Telemetry

Smart Valve Pack:	Half Duplex RS485
Surface Controller:	Half Duplex RS485

Power Supply

Smart Valve Pack*:	Nominal 30V DC Smoothed/Unsmoothed/AC Required Static Power 12W, Typical Dynamic Power 12W-100W
Surface Controller :	100/230 V AC (Auto Select) 47-63 Hz 50W

Operating Temperature

Subsea Smart Valve Pack	-10°C to 50°C (14°F to 122°F)
Surface Controller	0°C to 30°C (32°F to 86°F)

- Alternative master arms to suite manipulator types
- Manipulators
- Hydraulic supply hoses
- Power & Telemetry cable
- 110 V Power conversion module
- Radiation hardening for Nuclear Decommissioning
- Spares kit
- SVP remote 5 function manifold for Hybrid Feedback Grabber Control
- SVP expansion-Additional SVP stations for tools etc

Data Sheet: A001-350-072 issue 7

The specification details are illustrative for marketing purposes only. Actual equipment may be different as a result of product improvement or other reasons. Specific interface and performance information should be reconfirmed at time of order placement.