Proportional Manipulator Control

Zetechtics Jupiter 2 User Configurable Control Systems

For over 20 years Zetechtics has been designing and manufacturing high quality ROV intervention tooling control systems for use in a wide variety of applications. There are over 500 Jupiter systems operating around the world. Zetechtics has always been highly focussed on customer support, which is free of charge for the life of the system by telephone and email 24 hours a day.

Features & Benefits

- Suitable for Schilling Atlas Arm, and other manipulators
- 7 x NG3 Proportional Flow Control Bi-Directional
- Open Centre Valves
- 6 valves fitted with Counterbalance Valves for impact absorption and load holding
- 7th Valve (Jaw) fitted with pressure relief but no load holding to allow release in dead sub situation
- Full proportional control means the arm can be moved very delicately and precisely, or more quickly
- Compact light weight housing
- 4000m deep water rated
- X-Box Controller including Wireless Receiver
- Joystick option available
- Two Water Detectors Fitted
- Torque Tool Control option
- Surface Software runs on PC or laptop
- Intuitive and user friendly GUI
- Adjustable gain or rate control settings for the speed of operation

Description

Zetechtics have designed and built a new variant of the Jupiter 2 ROV intervention tooling control system specifically for proportional control of manipulators. The system was tested with an FMCTI Schilling Atlas 7R manipulator. It is an attractive solution to this application for a number of reasons including: reliability, common components with other Jupiter 2 control systems and familiarity of trained technicians with Jupiter 2 hardware and software.

The system has 7 fully proportional bidirectional hydraulic valves, and the associated counterbalance and pressure relief valves for smooth and precise operation. There is also the option of adding Torque Tool Control providing further capability.

The Control System is supplied with all the parts required to operate from a standard PC or laptop using the powerful GUI software which allows total user control over the operation of the Jupiter system and manipulator.

The user control interface for the manipulator is via an X-Box wireless controller, however other options are available.
System Specification

Mechanical/Environment
Size: 391 x 208 x 195mm
Material: 6082-T6 al alloy anodised to BS5599 / 316 stainless steel
All external fixings stainless steel
Weight: Estimated; 22.2kg (air) without compensation oil and fittings
Depth: 4000m
Temperature: -4 to 50°C (Operational)

Hydraulic:
System Supply
Pressure: 250 Bar maximum (Optional Internal Pressure Transducer)
Tank/Return: 100 Bar maximum
Fluid Temp: -20 to 50°C
Oil: Hydraulic Mineral Oil HLP to DIN51524 Part 1 to 3. Operational Viscosity Range: 12mm²/s. to 320 mm²/s. Contamination: ISO 4406:1999 class 20/18/14

Valve Functions:
Bi-Directional: 7 x Bi-directional Proportional Solenoid Valve functions, each with externally mounted manually adjustable counterbalance valves
Proportional Solenoid: 0-250 Bar, 5-15lpm (Factory set to 250 Bar @ 5lt/min)
Ext. Press Transducers: Optional 1 x Pressure Transducer, Bar Value as Required

Compensation
Oil: Shell Diala B/BP Energol JS-A Transformer Oil (or equivalent)
Enclosure Volume: Estimated; 5ltrs

Electrical:
Supply
Voltage: 24Volts DC ±10%
Current: 5 Amps
Power: 120 Watts

Internal Sensor & Camera Supply
Voltage: User configurable from 15VDC to 20VDC
Power: 30 Watts
NOTE: All Cameras and Sensors have individually switched and monitored power supplies capable of delivering up to 400mA

Electrical Functions
Power, Data and Video: Power, Data and Video
24V DC Supply
RS232 / RS485 Data Link with NO galvanic isolation.
Connector: 8 Way (M) Micro Circular Subconn or SEANET option

Diagnostics
Water Detect: Internal Water Detector (2 x Sense Points)