ELECTRO-HYDRAULIC UNIT (EHU)

The NORDIC Electro-Hydraulic Unit (EHU) is an integrated electro-hydraulic valve remote control system used for controlling valves and actuators remotely, developed to be mounted directly on Nordic's actuators on board vessels and offshore platforms.

The EHU consists of a hydraulic pump driven by an electric motor. When in operation, the oil is siphoned from the tank through the suction filter to the pump, which then goes through the pilot operated check valve to the actuator port, causing the actuator to open the valves.

When the valve is fully opened, the motor will be stopped by a limit switch. The actuator in this instance will be hydraulically locked in position by the pilot check valve. Emergency operation can be conducted for both double and single acting EHU using the manual override using a portable hand pump connecting to the quick coupling port.

For single acting EHU, during loss of power, it causes hydraulic pressure drop and normally closed 2/2-way solenoid poppet valve open contact. Compressed spring will be released and quickly closes the valve for safety purpose.

Alternatively, NORDIC Electro-Hydraulic actuators can be operated locally through a Local Control Box. The Local Control Box contains two push buttons for "OPEN" and "CLOSE" functions, and a Local/Remote key to choose the mode of control, whether locally or remotely.

In addition, Electro-Hydraulic actuators can be interfaced through PROFIBUS.

ABOUT PROFIBUS

Applications

PROFIBUS is able to seamlessly connect all types of devices without having to isolate process instruments from discrete devices with a second bus. In particular, PROFIBUS DP can be used to easily and reliably integrate Motor Control Centers (MCC), variable speed drives and switching gear with control systems.

PROFIBUS PA, which integrates seamlessly to DP, is used to network and provide power to field instruments. Both media types support the PROFIsafe profile for process safety, which allows the use of distributed fail-safe I/O.

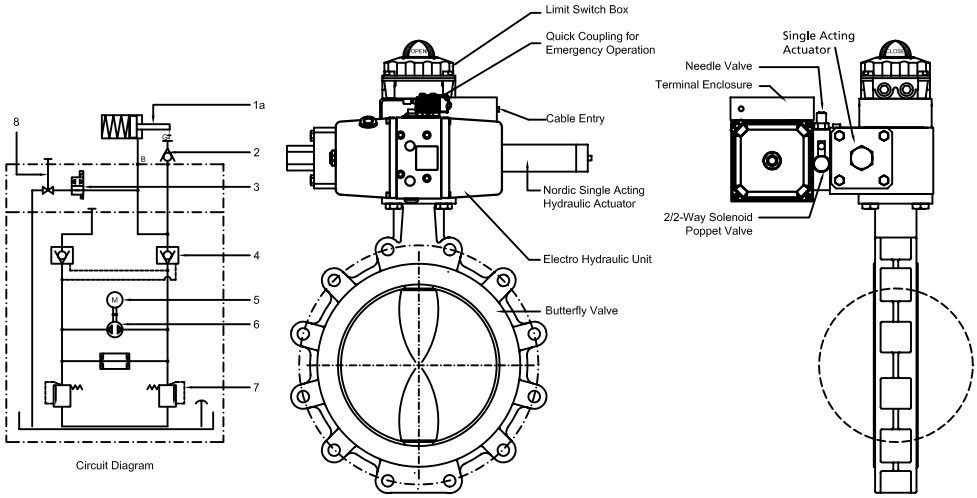
The system is applied to network control of electro-hydraulic operated valves for ballast, bilge and fuel & cargo oil handling valve remote control systems. PROFIBUS DP serial communication is ideally suited to the control of NORDIC EHU. The PROFIBUS DP network can operate over a range of communication speeds and provides the mechanism for control of the actuator and feedback of EHU. The latest NORDIC EHU PROFIBUS DP cards support standard PROFIBUS DP.

Advantages

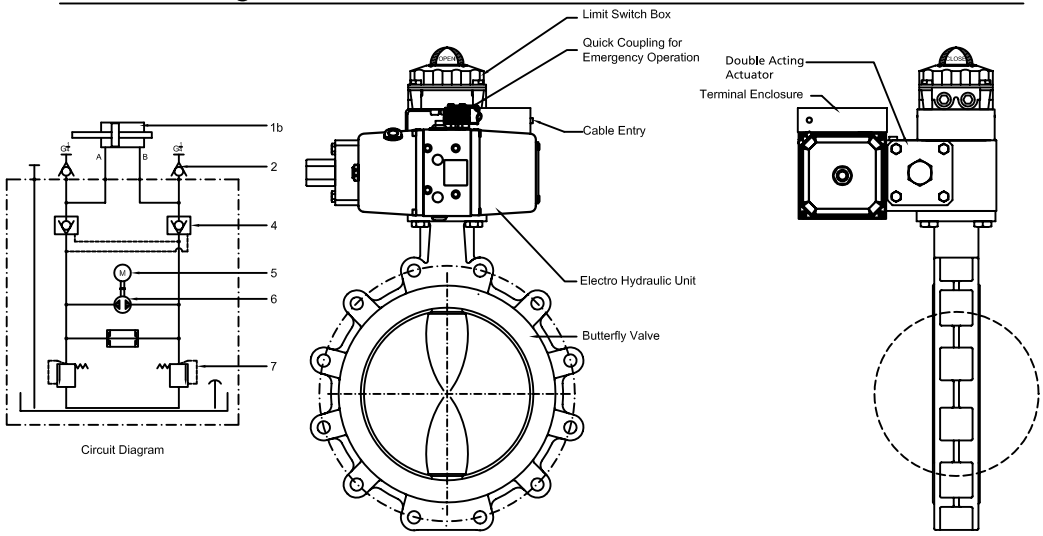
- Suitable for marine applications
- Adaptable for applications like easy plug and play
- Capable of remote operation without any bus interface (bus optional)
- Override possible on the Electro-Hydraulic itself through a Local Control Box or manually through a portable hand pump
- The standard GSD files allow all PROFIBUS DP master devices to easily configure the system
- Standardized I/O System reduces the number of spares needed
- A network using PROFIBUS DP provides a cost effective method for connecting EHU in any location to the central control system simply and efficiently

TECHNICAL SPECIFICATIONS

Single Acting EHU



Double Acting EHU



No.	Item
1a	Single Acting Actuator
1b	Double Acting Actuator
2	Quick Coupling for Emergency Operation
3	Solenoid Valve (Normally Open)
4	Double Pilot Operated Check Valve
5	Electric Motor
6	Hydraulic Pump
7	Relief Valve
8	Throttle Valve for Single Acting Actuator Only (for emergency operation)

	Single Acting EHU	Double Acting EHU
Working Pressure	135 Bar	135 Bar
Ambient/Working Temperature	-15°C to 40°C	-15°C to 40°C
Rotation	90° +/- 3°	90° +/- 3°
Closing	Clockwise	Clockwise
Indication	On/Off on Drive Unit	On/Off or Modulating on Drive Unit
Enclosure Rating	IP 65	IP 65
Viscosity Range	200 to 10 mm^2/s	200 to 10 mm^2/s
Solenoid Valve	2/2-way, normally open poppet valve cartridge, 230V AC coil	-
Emergency Operation	Emergency operations in the case of a loss of power is carried out with a portable hand pump	Emergency operations in the case of a loss of power is carried out with a portable hand pump
Motor Voltage	Single phase AC, 230V AC 50/60Hz	Single phase AC, 230V AC 50/60Hz
Nominal Power	300W	300W
Maximum Starting Current	< 6A at 220V 50 Hz (varies with size of EHU)	< 6A at 220V 50Hz (varies with size of EHU)
Overload Protection	Temperature switch opens at 140°C	Temperature switch opens at 140°C
Delivery Rate of Radial Piston Pump	0.2 ~ 0.5 l/min (varies with size of EHU)	0.2 ~ 0.5 l/min (varies with size of EHU)
Maximum Operating Pressure	200 Bar	200 Bar
Pump Relief Valve Preset to	145 Bar	145 Bar
Duty Cycle	S3 10% ED	S3 10% ED