pempek
made for mining

Human Interface Control Unit with onboard PLC

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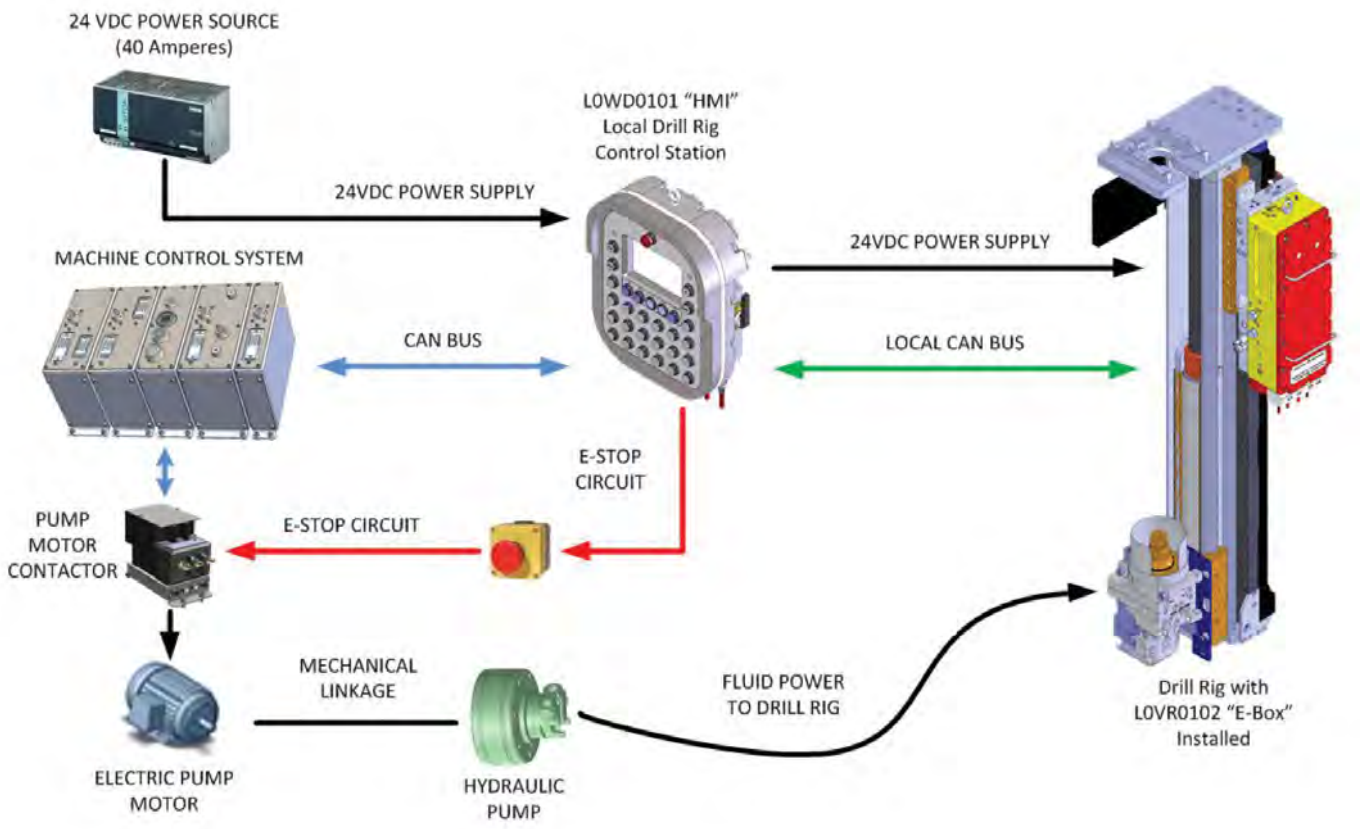
HMI (Human Machine Interface) Control Station is an integrated graphics display and a push-button control unit that is built into a rugged, stand-alone flameproof enclosure used to monitor and control hydraulic functions on many applications such as; shuttle cars, continuous miners, and roof support systems.

Drill Rig HMI Control Station Example - Roof Bolting System



HMI includes automation, control, and safety functions to control and monitor the "EBox" installed on the drill rig. The HMI communicates with the drill rig via a dedicated, local CAN bus. This communication link allows the HMI to turn on and monitor solenoids in the EBox that control hydraulic drill rig functions. The HMI also forms part of the machine stop circuit. It monitors the stop circuit and shuts down the drill rig if the stop circuit is opened by the machine control system or any hard-wired stop device on the machine. The also HMI contains a set of redundant (wired in series) stop relay contacts. These are opened if the operator presses the latching stop button on the front face of the HMI station. These are also opened if the HMI detects an unsafe condition in the EBox, such as a stuck solenoid spool or illegal pressure feedback.

The HMI station also communicates with the machine host control system via the machine-wide CAN bus. The host control system supervises and monitors the HMI and drill rig control via CAN bus communication. This allows the machine control system to implement machine-wide automation and safety functions, including one or more HMI-based drill rig control sub-systems.

The product is intended to provide a user-friendly and robust user interface control station for mobile mining equipment that must be operated in so-called hazardous areas; where there is a risk of fire and explosion due to methane gas and coal dust.

The complete assembly is built into a self-contained flameproof enclosure (EX d Explosion Protection Certification); making it suitable for use in hazardous environments such as underground coal mining.

Key Features & Benefits

Compliant with IEC 60079.0 and IEC 60079.1, this flameproof HMI drill rig control module is designed for worldwide explosive atmosphere regulatory approval allowing it to be installed into any underground mining environment after certification assessment.

The L0WD module consists of a flameproof enclosure, graphic display, flameproof buttons allowing operation through the polycarbonate material, and flameproof connectors allowing easy field replacement of the unit in case of failure.

The HMI drill rig control module is designed to be mounted on the machine near the drill rig itself. This Ex d apparatus can be operated in Group I/IIB T6/T5/T4 environment hazardous areas.

Typical Application

- Continuous Bolter/Miners
- Continuous Haulage
- Long Wall Shearers
- Mobile Bolters
- Mobile Roof Supports
- Remote Control Scoops
- Remote Control Loaders
- Control room surface monitoring (ObelixPlus)

Ordering Information

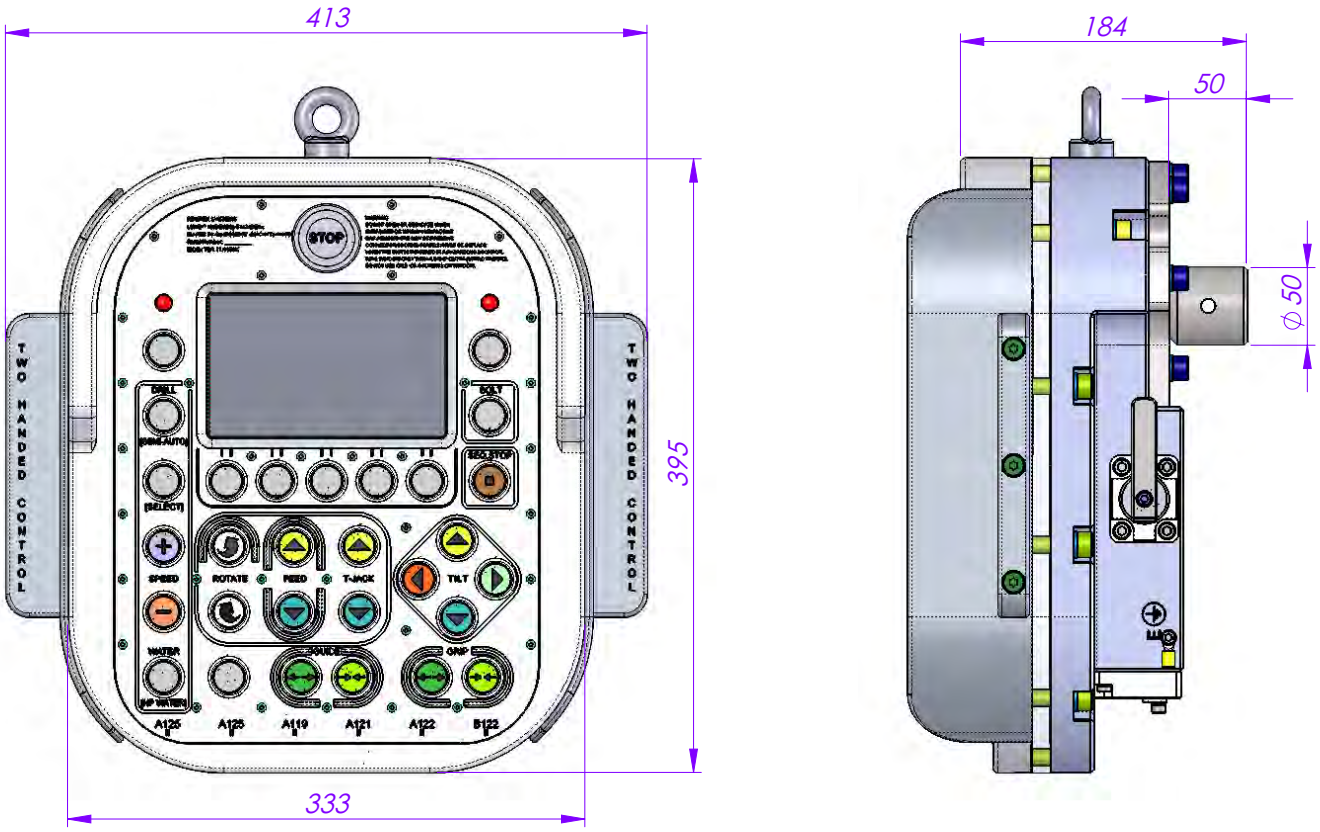
HMI Drill Rig Control Station Ebox IEC EX d Flameproof
Part Number: L0WD0102

ObelixPlus HMI Display Module Flameproof 7”
30 Buttons 24VDC Supply
Part Number: L0WD1101

Specification

- Supply voltage and input signals are connected to the enclosure through certified flameproof connectors.
- The typical supply current is 3A@24VDC, and the maximum supply current is 9.0A.
- The typical supply voltage is 24VDC.
- Higher voltage is permissible, but the maximum voltage and current shall not dissipate more than allowed by the certificate of conformity.
- Please consult Pempek Systems about your particular enclosure model.
- Typically enclosure rated for operation in temperature range -20 °C to 50 °C can dissipate 156W for group I and 55W for Group II T6 with Glazeguard lense fitted.
- Operating ambient temperature -20 °C to 50 °C or -20 °C to 40 °C as defined by a certificate of conformity and its corresponding label.
- Enclosure rated to IP 66/67.

Dimensions (mm)



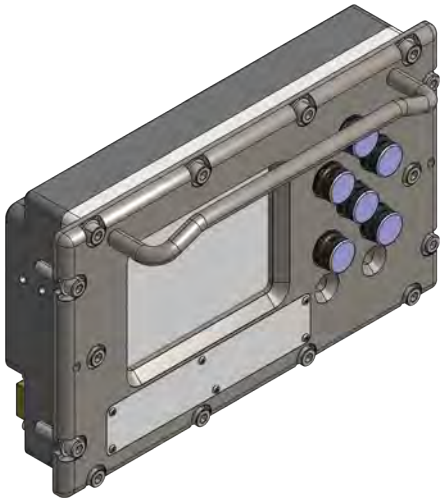
The L0UA01101 IEC Ex d Flameproof Display Module is an industrialised colour display module designed for the rigors of underground mobile mining machinery.

Key Features & Benefits

Designed to exact requirements of IEC 60079.1, this display is designed for worldwide explosive atmosphere regulatory approval allowing it to be installed into any underground environment after certification assessment.

Driven by a low-power 806MHz Marvel CPU complete with 1GB of onboard flash and 8GB of removable flash, the Type L0UA Display is a highly flexible product that can be customised to suit any remote application.

Fundamental to its design are localised navigation buttons that allow the operator to adjust the view on-demand without utilizing secondary remote equipment. This can prove invaluable when commissioning a new installation or fault-finding an existing one.



Ordering Information

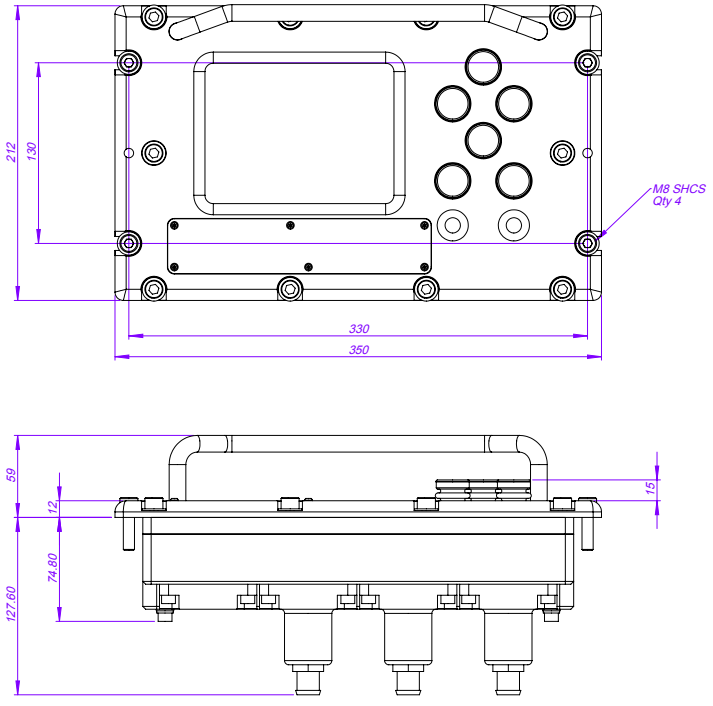
ObelixPLUS Colour Display Module IEC Ex d Flameproof 6-buttons 24VDC Supply
Part Number: L0UA1101

Typical Application

- Continuous Miners
- Continuous Haulage
- Long Wall Shearers
- Mobile Bolters
- Mobile Roof Supports
- Remote Control Scoops
- Remote Control Loaders
- Control room surface monitoring

Specification

- Supply voltage and input signals are connected to the enclosure through Ex d certified cable gland.
- The maximum power dissipation shall not exceed 25W.
- Maximum voltage and current shall not be able to dissipate more than the maximum allowable dissipation of 25W.
- Higher current dissipation is only allowed if the power dissipation source is installed in the enclosure as such that the temperature of the polycarbonate lens will not exceed 80°C and the temperature of the enclosure 150°C for group I and 85°C for group IIB at any possible installation position.
- Supply voltage is between 6 – 30VDC
- Typical supply current 400mA @ 24VDC
- Operating ambient temperature -20°C to 40°C
- Operating relative humidity 10-90% non condensing



Dimensions (mm)

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