

Complete direct-on-line motor control & protection.  
Industry-leading space claim  
Most compact solution in its class!

A cost effective motor management  
solution for mobile electric plants

UberMate 2.0

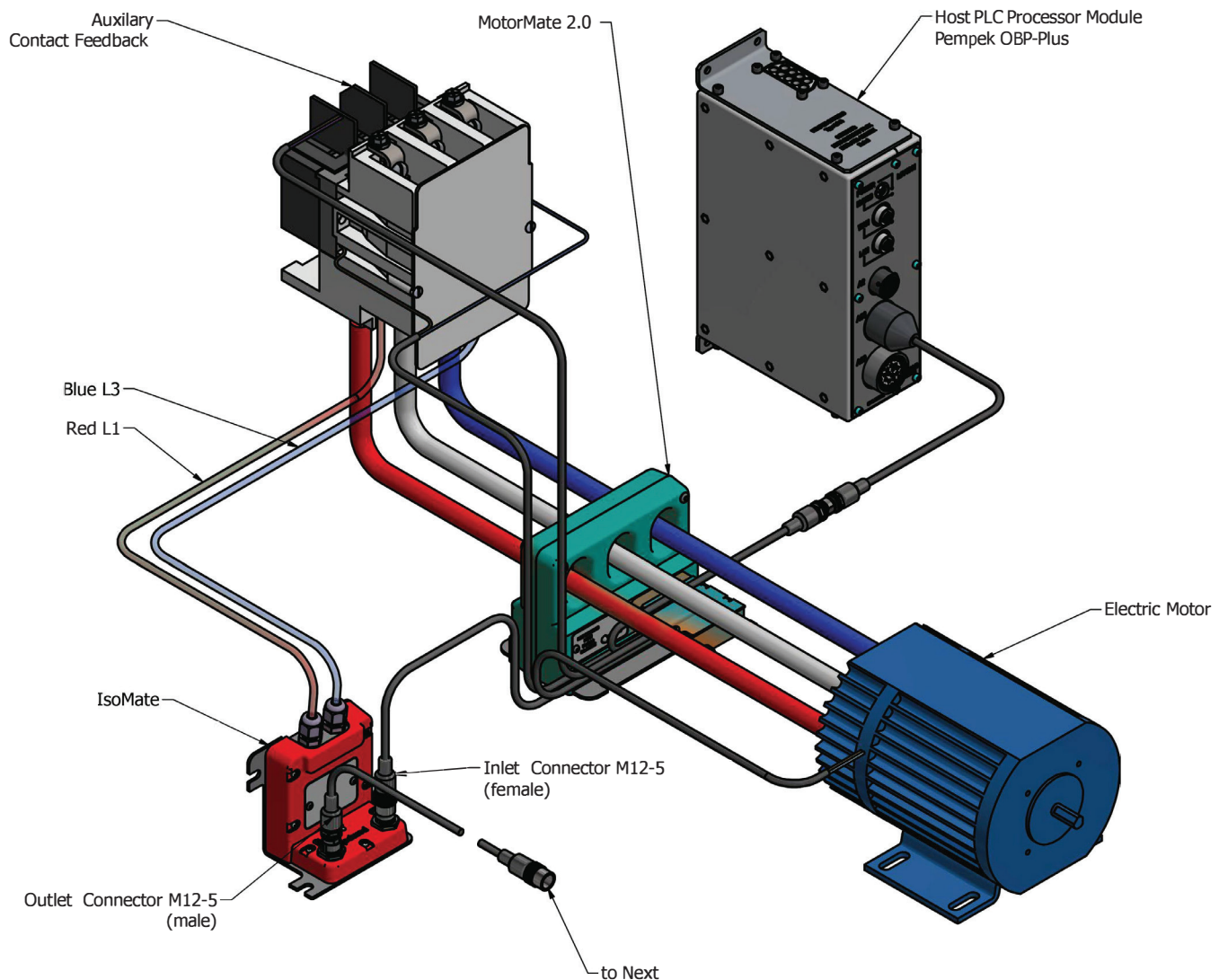
## The PEMPEK UberMate 2.0:

Safe, reliable control of a contactor (motor starter)  
Built-in 3-Phase motor current monitoring and temperature monitoring

Real-time configurable manual or automatic motor protection.

Electrical installation and maintenance has never been easier.

Simple, reliable, and safe DOL motor control

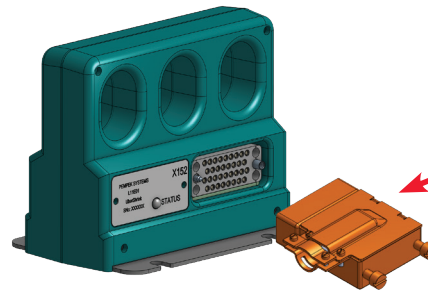
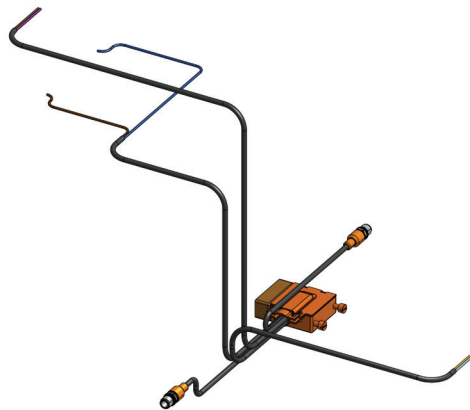


Factory-assembled cable assembly already takes care of CAN bus, contactor wiring and PT100 temperature sensor interfaces.

Wiring has never been so easy.

In case of a cable failure a replacement cable harness can be installed in a few minutes.

High Quality, Mine-Duty Connector Assembly with gold-plated pins



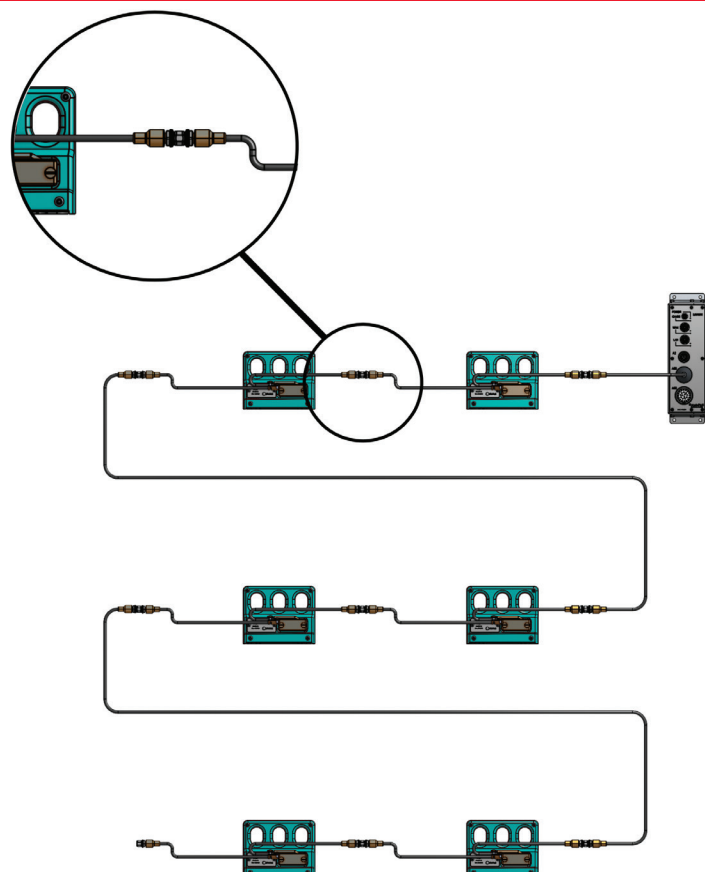
Positive locking jack screws keep connections in place under extreme vibration

More than one motor? Not a problem for UberMate 2.0.

Just daisy chain your UberMates together!

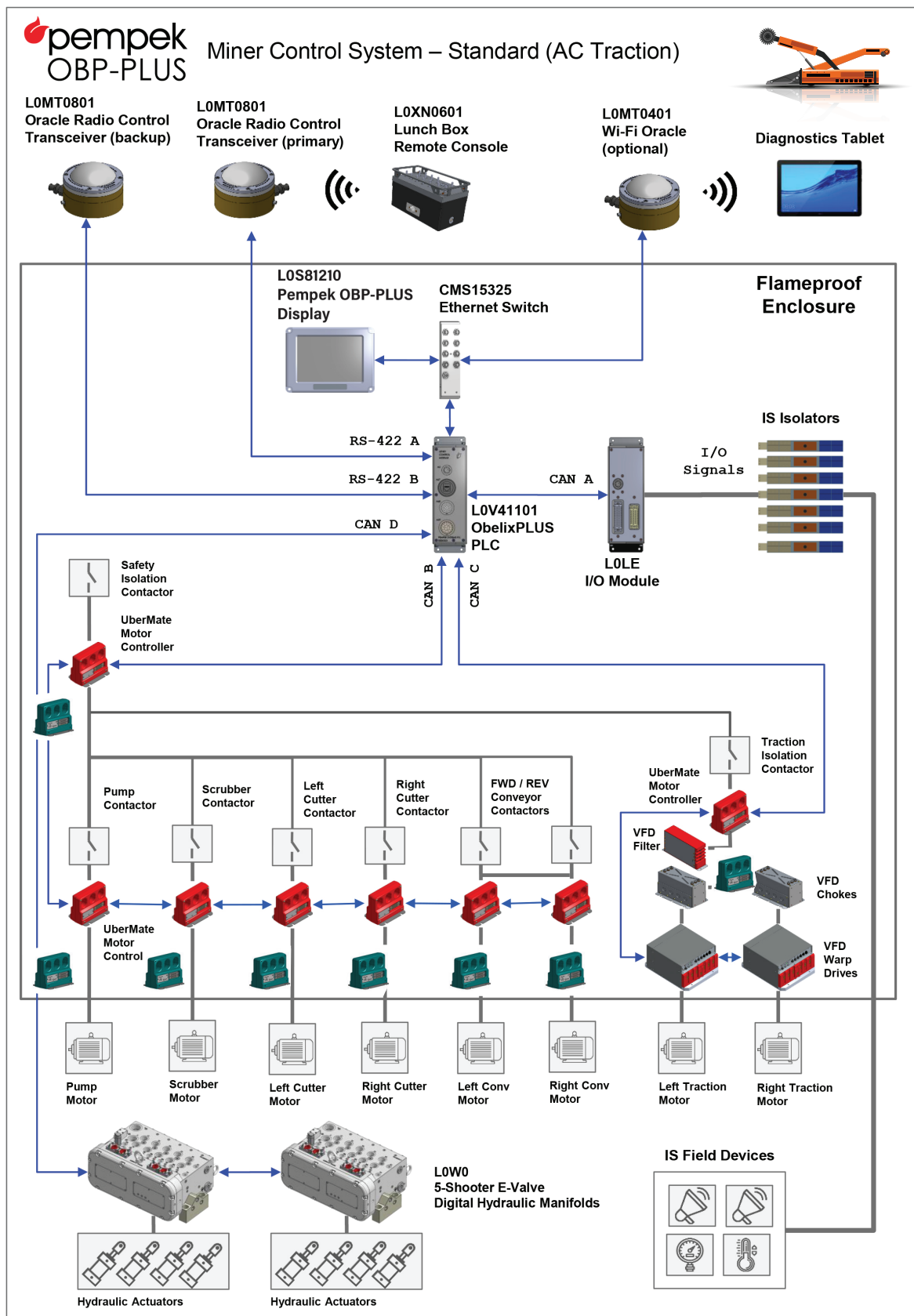
Industry-standard CANopen connectors built into the cable harnesses – makes installation a breeze.

Simple, reliable and cost effective distribution of CAN data and 24-volt supply for all UberMates on the machine.



## Systems Architecture Example | UberMate 2.0

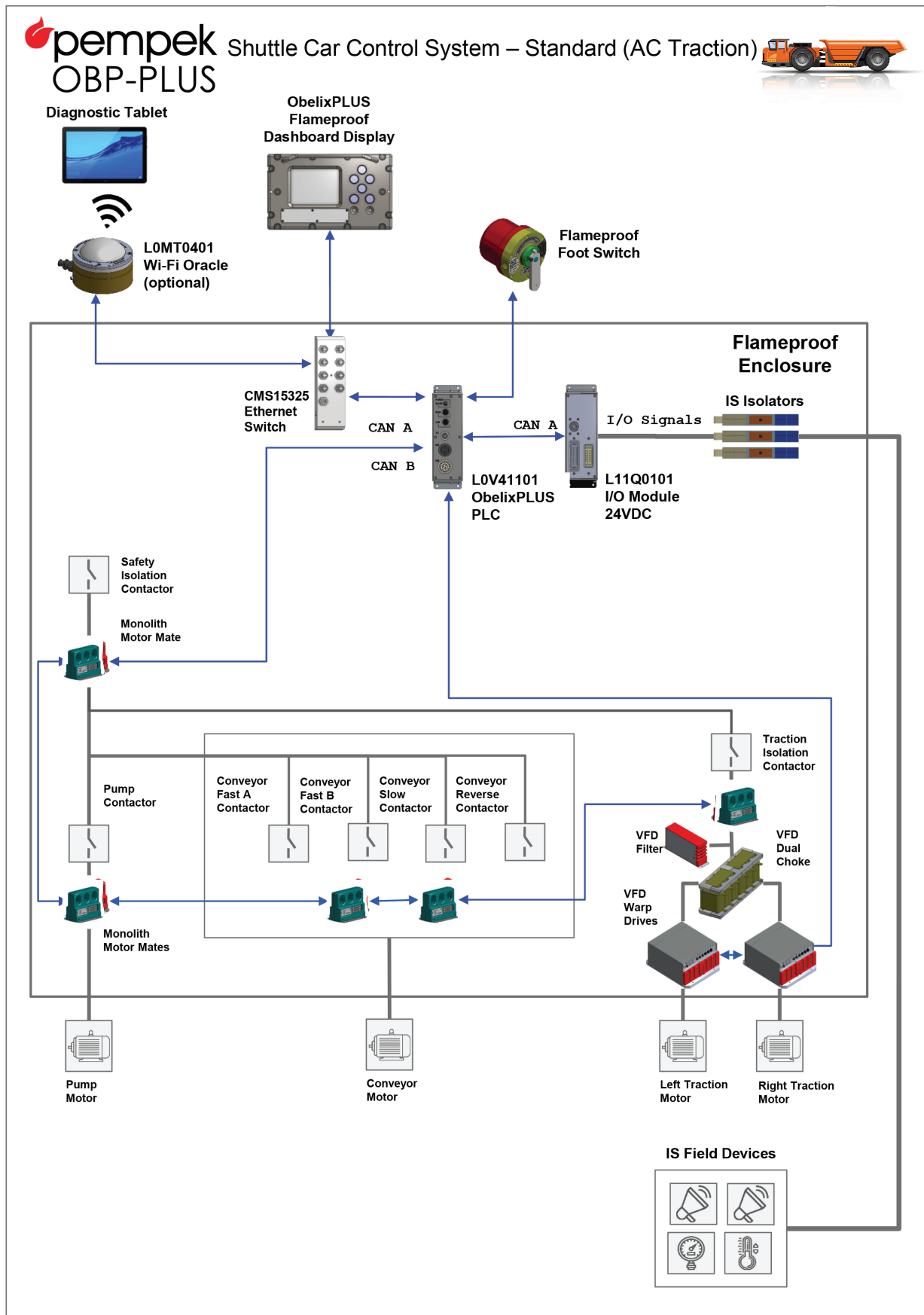
### Typical Continuous Miner Control System





## Systems Architecture Example | UberMate 2.0

### Typical Shuttle Car Control System



## Key Features & Benefits | UberMate 2.0

### Contactor Control

- Full control and monitoring provided by industry standard CANopen field bus
- Controls one [ON/OFF] or two [FORWARD/REVERSE] Direct-online (DOL) contactors.
- Switching contacts rated to 16 Amperes (make/break 4000 VA)
- Switching contacts support withstand inrush of 80 Amperes.
- Two contacts in series to comply with functional safety requirements.
- All relay outputs are protected by independent, internal hardware watchdog timers.

### General Purpose Relay

- Additional auxiliary "C-Form" relay output (for general purpose use or upstream power isolation).

### Contactor Status Monitoring

- Four (4) opto-isolated digital inputs.
- Used for general purpose of for monitoring contactor auxiliary contact status
- Available as either 110VAC or 24VDC sensing options.

### Motor Current Monitoring

- True RMS current measurement with range from less than 100mA up to 1600 A.
- Measurement settling time 100 milliseconds.
- Allows UberMate to be a universal part for all motors (big and small) on the machine

### Motor Temperature Monitoring

- Three (3) self-powered, 2-wire PT100 inputs.
- Galvanically-isolated (UL 1577: 5000 V RMS for 1 minute).
- Built-in earth leakage resistance measurement.

### Motor Protection Options

- Protection is configurable for each protection skill by host PLC control system in real-time
- Give system integrators the flexibility to use built-in protection or custom PLC-managed protection
- Built-in motor protection options:
- Motor Over Temperature Protection (via PT100 temperature sensors)
- Jammed Motor Rotor Protection (based on motor current measurement)
- Thermal Overload Protection (based on inverse-time calculation of motor currents)
- Phase Imbalance Protection (unequal motor currents in 3-phase system)
- Phase Rotation Sequence Verification

### Earth Fault Monitoring Options

- Using the Uber Offline and Uber Online companion devices; protection against run-time earth faults and also look-ahead offline earth fault monitoring can be added to the suite of standard motor protection features.
- The full Uber package is then a complete solution for motor protection and motor earth fault protection requirements.

## Specifications

| Mechanical                     |  |   |                             |
|--------------------------------|--|---|-----------------------------|
| Housing                        | ABS plastic  | Plated mild steel, 2mm  |                             |
| Dimensions                     |  | Volume (W) 140mm x (H) 110mm x (D) x 95mm                     |                             |
| Dimensions                     |  | Mounting (W) 80mm x (D) 80mm                                  |                             |
| Conductor Aperture             |  | 25mm x 35mm (A comfortable fit for lugged 120mm2)             |                             |
| Mass                           |  | 0.7kg (without connector)                                     |                             |
| Installation                   |  | 4 x M6 x 12mm + Pressure Washer Recommended Max. Torque = 9Nm |                             |
| Environmental                  |  | Supply / Interface  |                             |
| IP Rating                      | N/A  | Voltage / Power   | 18..30 VDC / < 5W           |
| Temperature Rating             | Component -40°C..+85°C   | Polarity Safe   | YES                         |
| Temperature Rating             | Ambient Operating -35°C +75°C  | Network   | CAN 2.0B, CANOpen Compliant |
| Inputs                         |  |   |                             |
| Current                        | 3 x True RMS Rogowski Coils – 1..1600A @ 1% Linear Scale (10000A peak) |   |                             |
| Digital                        | 4 x 110VAC/24VDC   |   |                             |
| RTD                            | 3 x PT100 Line Fault Protected – isolation UL 1577: 5000 V RM          |   |                             |
| Outputs                        |  |   |                             |
| Relays                         | 2 x Contact(s) Voltage Free – Forward / Reverse Configuration          |   |                             |
| Relays                         | 1 x Contact(s) Voltage Free – Auxiliary                                |   |                             |
| All contacts are               | 240V / 16A rated, make/break 4000VA, inrush 80Amps                     |   |                             |
| Test Standards:                |  |   |                             |
| Climatic Test                  | EN 60068-2-30 (Damp heat, non-condensing)                              |   |                             |
| Mechanical Stability           | EN 60068-2-6 (Vibration)   |   |                             |
| Immunity to Interfering Fields | EN 61000-6-2 2005  |   |                             |
| Interference Emission          | EN 61000-6-4 2007  |   |                             |

## Ordering Information UberMates



UberMate 2.0 – 110VAC Digital Inputs **Part Number: L11E0101**

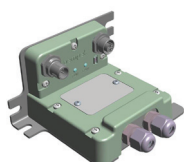
UberMate 2.0 – 24VDC Digital Inputs **Part Number: L11E0201**

## Ordering Information Accessories



Cable Assembly UberMate 2.0 - Standard **Part Number: H11E0201**

Cable Assembly – custom configurations **Part Number: Contact Factory**



Uber Offline Earth Fault Companion (3.3 KV) **Part Number: L11J0101**

Uber Online Earth Fault Companion (1 KV) **Part Number: L11L0101**



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