



**DRAULICS**

**SMART PU – PLE01**  
**machine management**



# SMART PU PLE 01 global control system

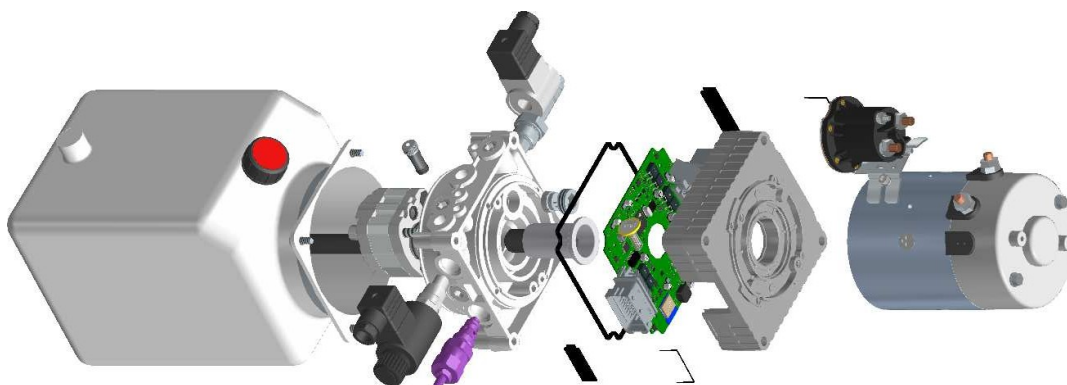


Small Electric Operated PLE needs a lightweight equipment, but are subject to the same safety directives of bigger ICE machines. HYDRONIT offer a one-stop-shop solution for small PLE with electric power up-to 4kW @ 24DC. *SMART POWER UNIT with PLE APPLICATION* consist of:

- Central Mechatronic manifold with:
  - pressure compensated propotional flow control valve on delivery line for smooth motion control of the machine
  - SIL 2 mobile controller with:
    - Valve Direct Drive (no relays, no fuses)
    - LMI (Load Moment Indicator for anti-tipping function)\*
    - Undercarriage level sensor
    - Cage Leveling\*
    - Cage Overload / Weighing\*
    - Automatic undercarriage self leveling\*
    - DC-MOTOR overheating and Limp-Home function
    - CAN-BUS line for cage control panel
    - Motion Battery Management
    - Battery Charger Management
    - Hybrid AC-DC operation\*
    - Working Light Management\*
- Up to 4kW DC motorpump – 24 / 48DC operated
- Four on-off Directional Valves
  - Turret Rotation
  - Main Boom lifting
  - Telescoping / 2nd boom lifting
  - Cage Leveling

The Cage control panel can be wired, can-bus or wireless can-bus for a lighter cable harness and a significant cost reduction of connectors, wirings, and installation time.

\*: requires additional equipment to be ordered separately



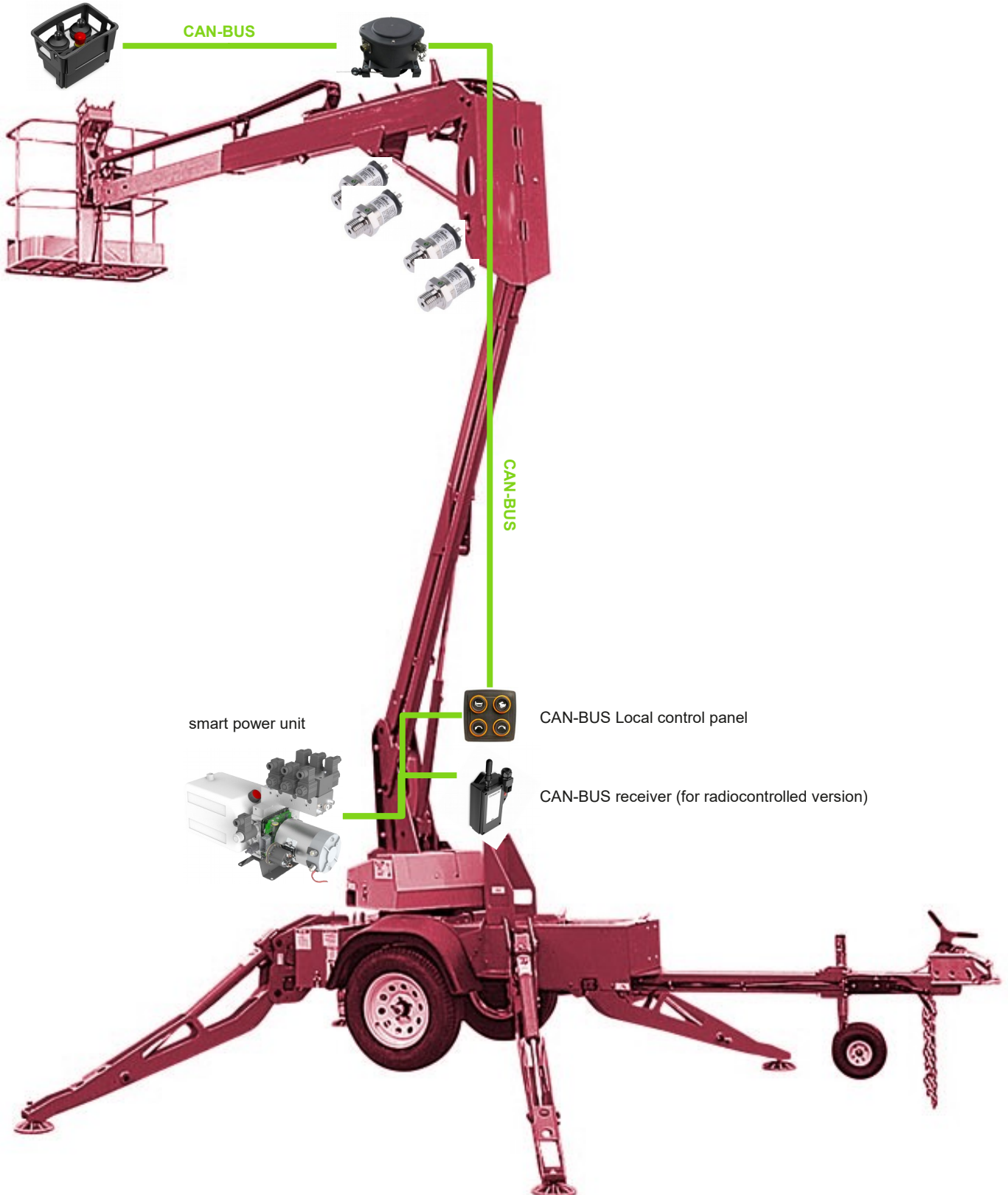
SMART POWER UNIT – CORE – Without valves

# SMART PU PLE 01 example of layout



wired / wireless control panel

length / angle sensor

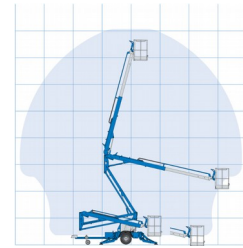


## SMART PU PLE 01 safety functions

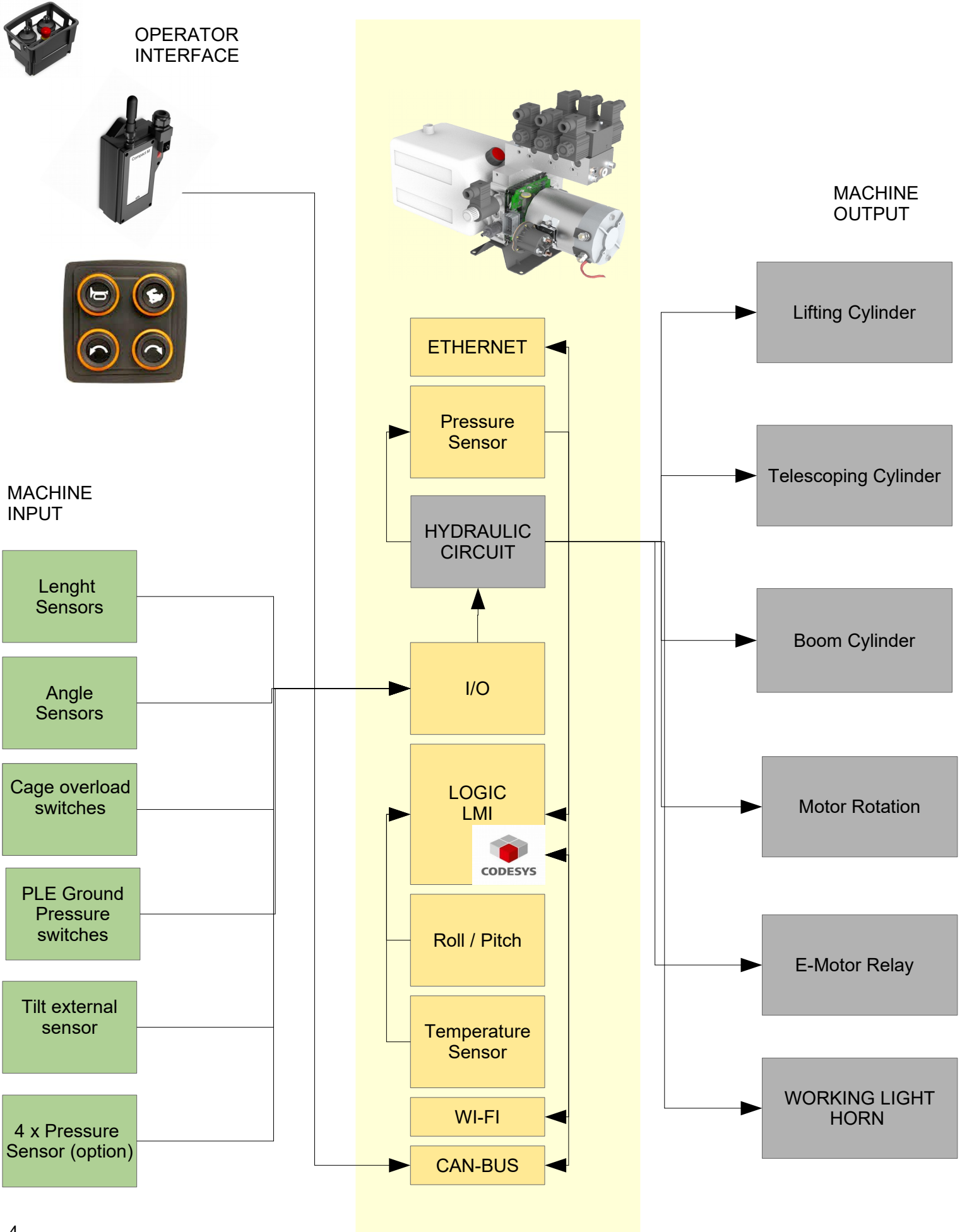


If requested by local regulation, a PLE must be equipped with safety devices which avoid platform to tip-over. HYDRONIT SMART PU PLE01 is equipped of all resources to manage the complete PLE with compliance to:

- **GEOMETRIC LOAD MOMENT LIMITER:**
  - SPU measures length and angle of the telescopic boom through sensors
  - Additional Pressure sensors on the lifting cylinder allows LOAD MOMENT control
  - Measured Geometric limiter or Load moment limiter are then compared to the calculated "LOAD CHART" in order to prevent danger
- **CAGE OVERLOAD DETECTION:**
  - Overload Detection prevent lifting when the cage load exceed the nominal one. It requires specific load cell or "spring suspended" cage with activates redundant microswitches. SPU can read those sensors: just lowering is allowed.
- **UNDERCARRIAGE HORIZONTALITY:**
  - For stability reasons, the complete PLE must be horizontal in order to enable lifting of the cage. SPU is equipped with a 3 axis accelerometer which detects horizontality of the undercarriage
- **JACKS GROUND PRESSURE control:**
  - Prior to start lifting operation, jack must be securely pressing the soil. Jacks are normally installed on a floating mechanism which allows a limited play of the jack when not pressed. This play is detected by switches which can be read by the SPU in order to start lifting



# SMART PU TTC BLOCK UNIT



This is an extract of the full document.  
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[sales@hydronit.com](mailto:sales@hydronit.com) (English, French, Spanish)  
[export@hydronit.com](mailto:export@hydronit.com) (English, Russian, Polish, German)  
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# XDRAULICS



is a brand of:  
**Hydronit Srl**  
via Pastrengo 62  
20814 Varedo (MB), Italy

☎: +39 0362 1841 210

+39 0232 0625 145

📠: +39 0362 1841 214

@: [info@hydronit.com](mailto:info@hydronit.com)

[www.minipowerpacks.com](http://www.minipowerpacks.com)

[www.hydronit.com](http://www.hydronit.com)



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