



SMART PU – PLE01
machine management

DRAULICS
X

SMART PU PLE 01 global control system

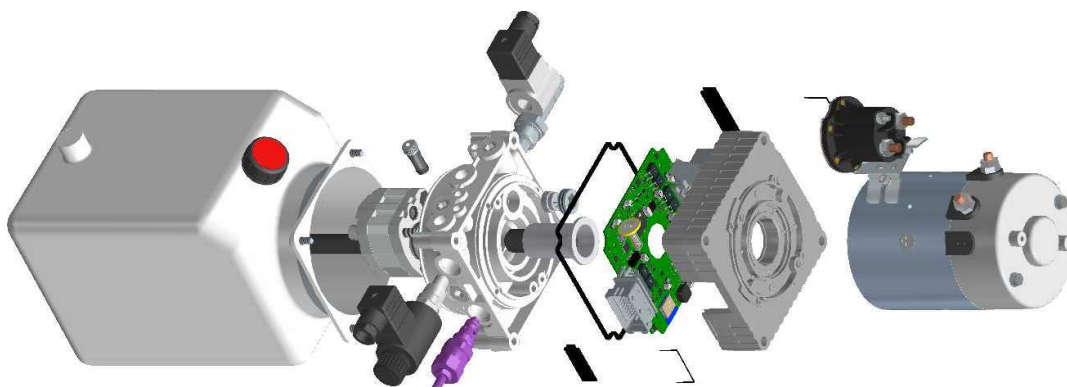


Small Electric Operated PLE need a lightweight equipment, but are subjected to the same safety directives of bigger ICE machines. HYDRONIT offer a one-stop-shop solution for small PLE with electric power up-to 4kW @ 24DC. *SMART POWER UNIT with PLE APPLICATION* consist of:

- 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 sensible cost reduction of connectors, wirings, and installation time.

*: requires additional equipment to be ordered separately



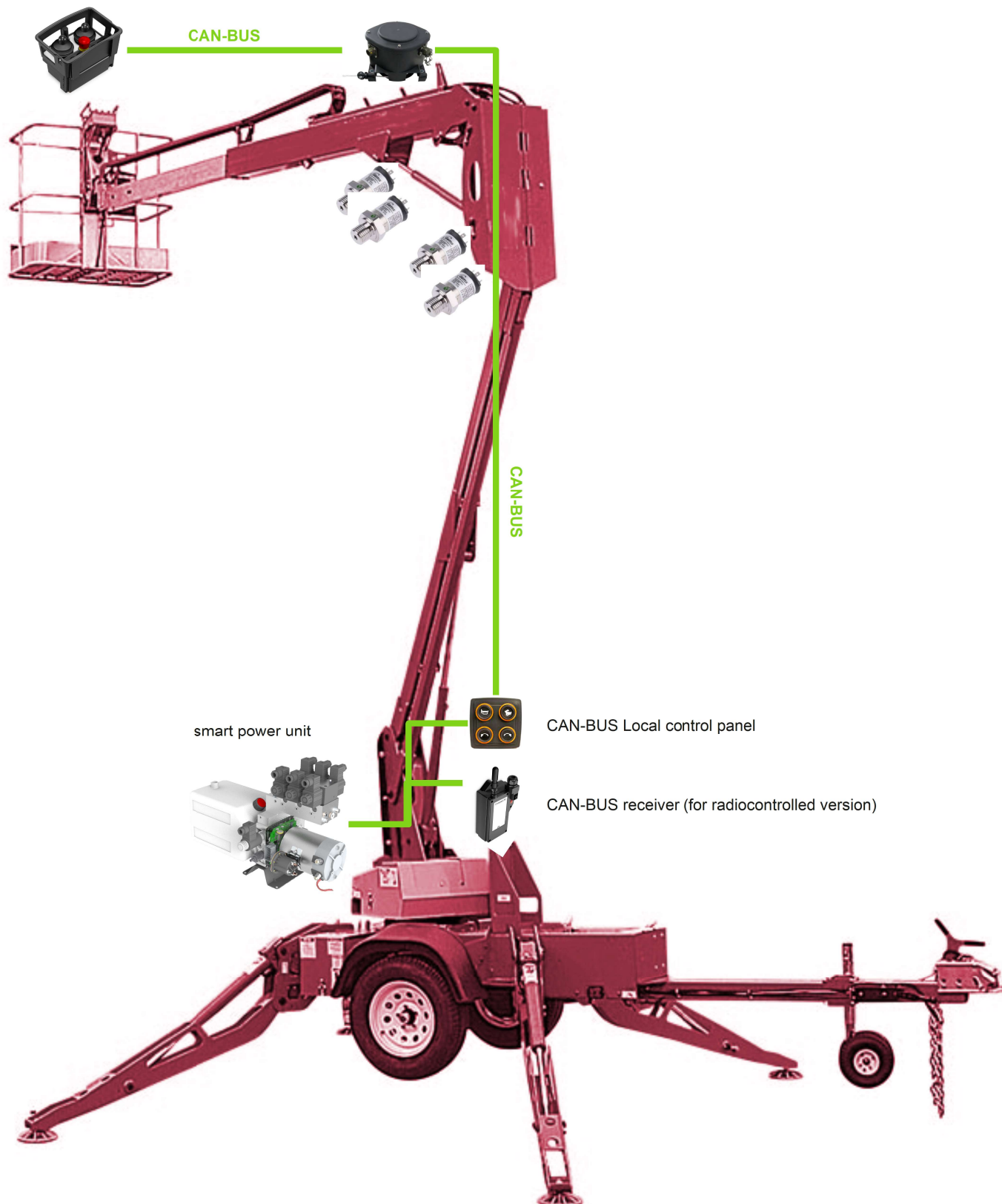
SMART POWER UNIT – CORE – Without valves

SMART PU PLE 01 example of layout



wired / wireless control panel

length / angle sensor

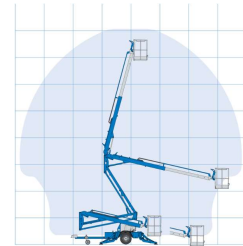


SMART PU PLE 01 safety functions

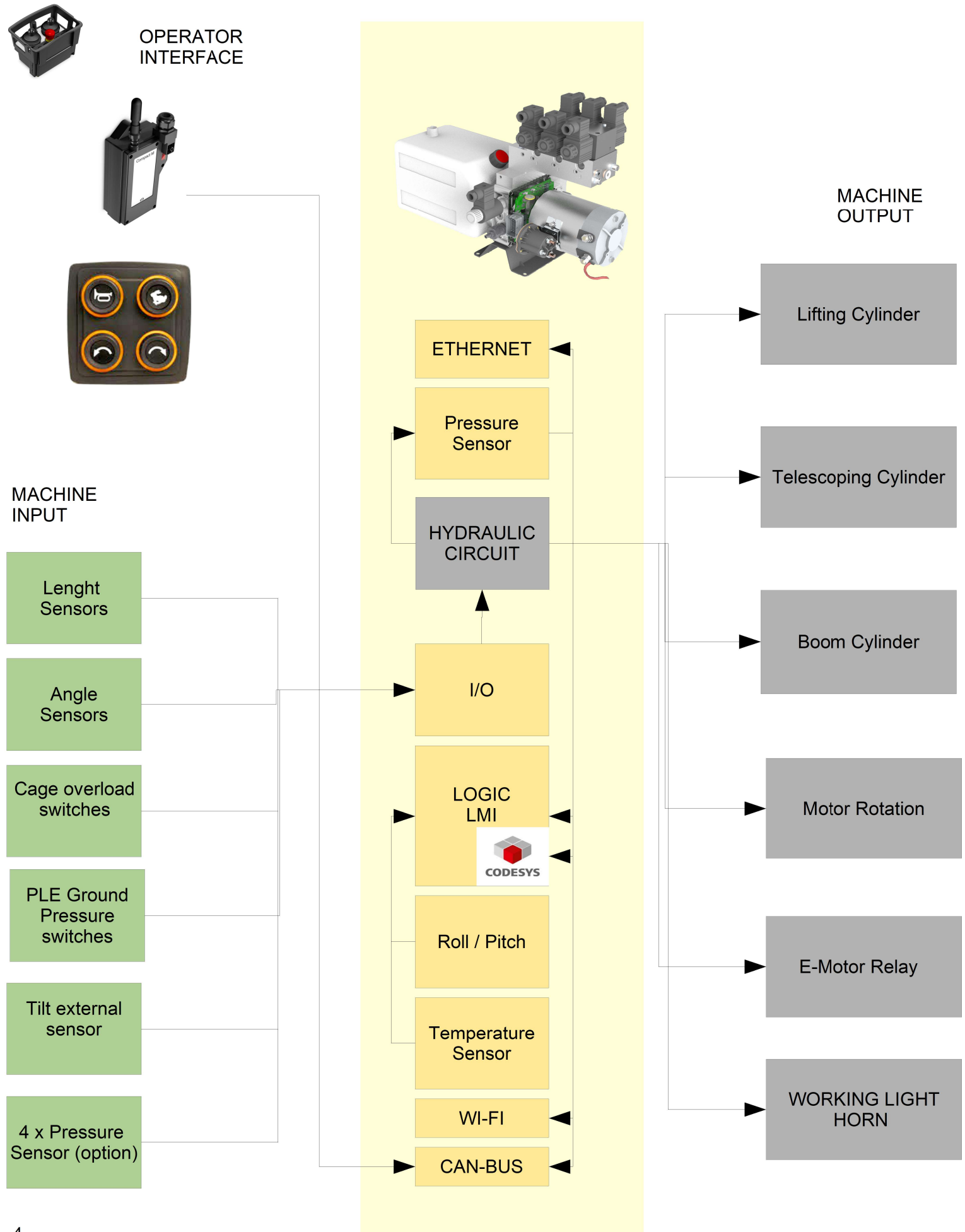


If requested by local regulation, a PLE must be equipped with safety devices which avoid platform tip-over. HYDRONIT SMART PU PLE01 is equipped of all resources to manage the complete PLE with compliance to:

- **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



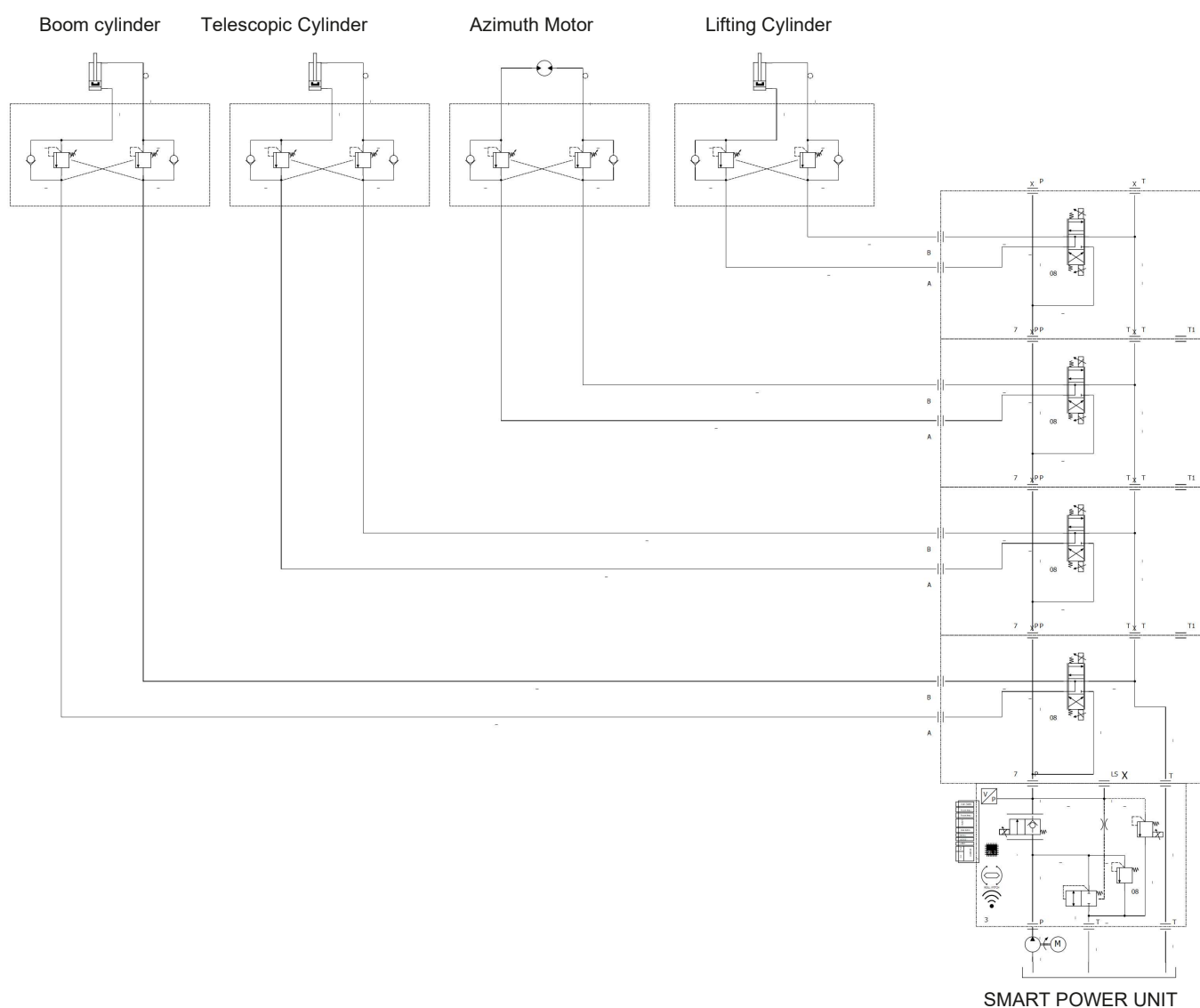
SMART PU TTC BLOCK UNIT



SMART PU 4SYNCHRO system



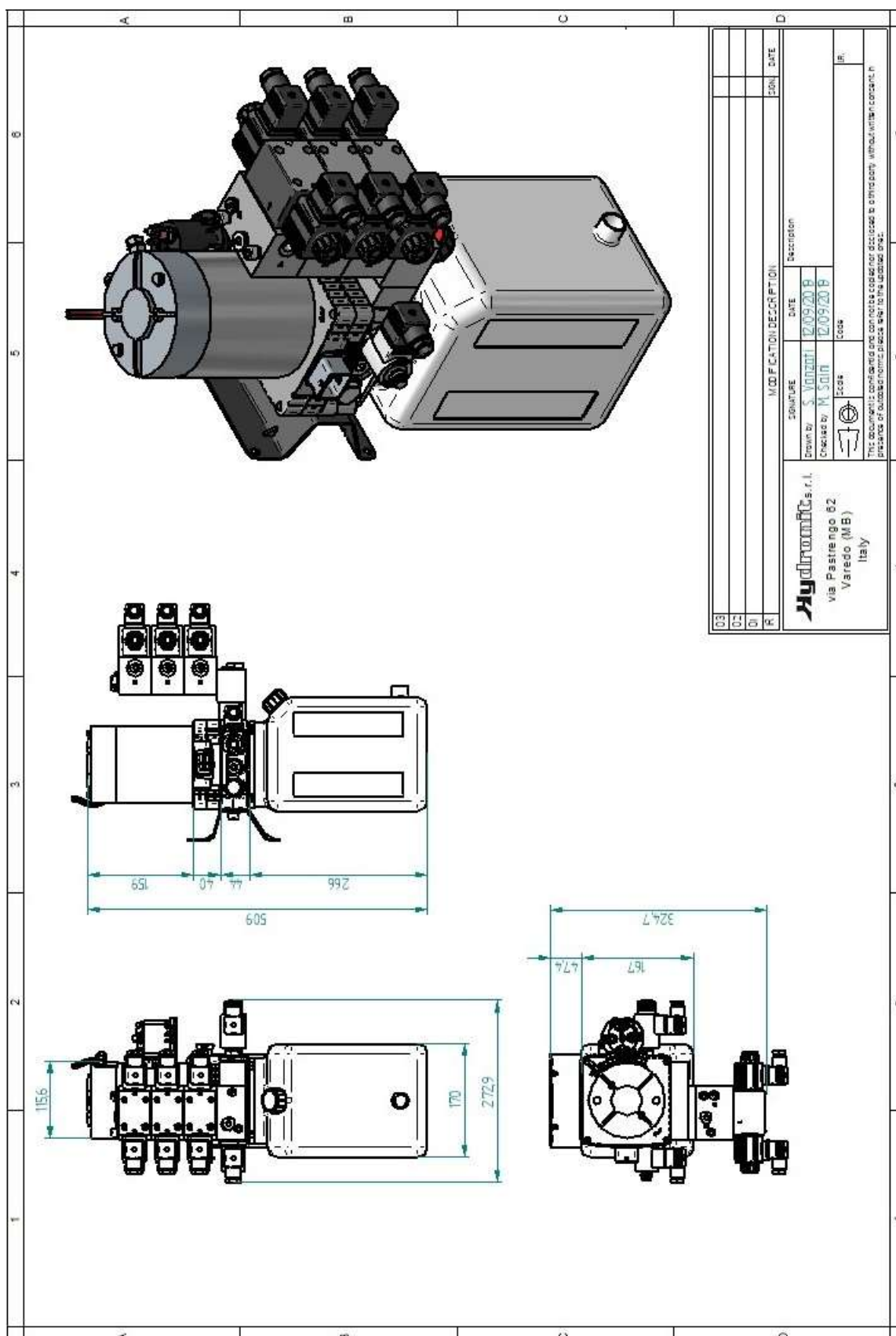
Hydraulic Scheme (typical)



SMART PU 4SYNCHRO system



OVERALL DIMENSIONS
(size can change depending on hydraulic configuration)



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