

Mechatronic department

**SMART PU – Mobile Column
hydraulic wireless machine
management**

DRAULICS



SMART PU MCH MACHINE MANAGEMENT



A wireless mobile column lift machine is a “distributed automation” complex system.

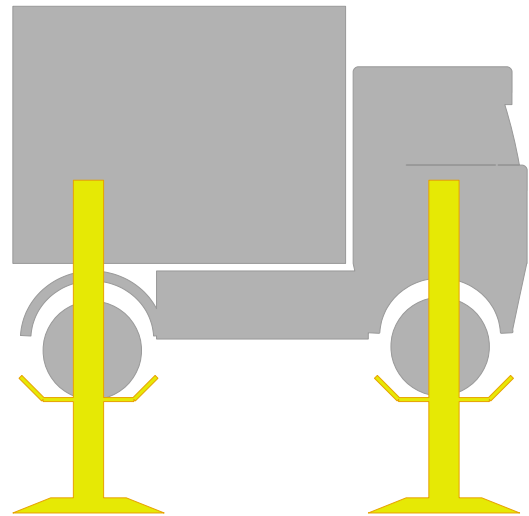
One machine consist of 2 – 4 – 6 - 8 autonomous and independent lifting devices (columns) that can be freely moved in a plan. Each Column is battery operated and includes:

- Frame
- Battery
- Battery charger
- Lifting cylinder
- DC Hydraulic power pack
- One or more electronic controllers
- A communication system (radio, wired)
- HMI (such as operator panel)
- Sensors
- Cable Harness
- Wi-Fi

Using our patented SMART POWER UNIT technology Hydronit offers a “one-stop-shop” solution for mobile column machine.

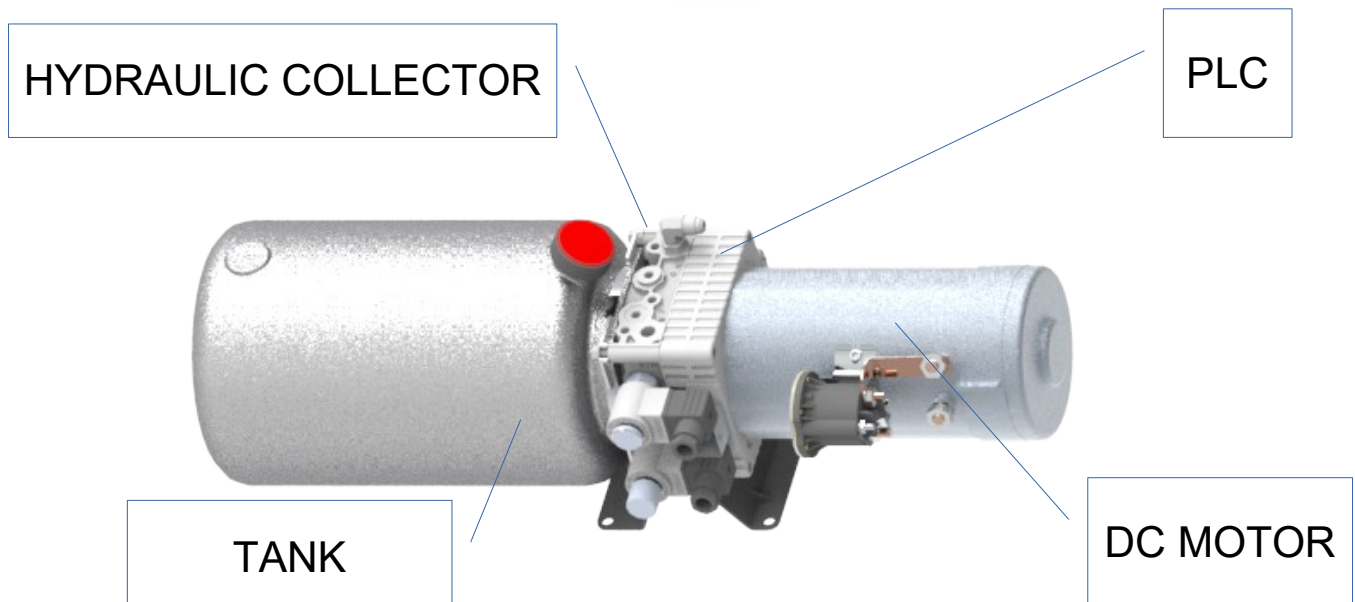
The Offer is including:

- SMART POWER UNIT
 - Hydraulic power pack
 - Embedded SIL 2 programmable PLC
 - Embedded Sensors (see data sheet)
 - WiFi – CAN – Ethernet
- 4,3” touchscreen – Ethernet
- IDE (programming environment)



One SMART POWER UNIT is able to fully manage one column from both hydraulic and electric point of view. It allows a consistent reduction of the TCO of the machine reducing assembly time since several sensors are embedded. It Integrates a large number of I/O which can direct-drive valves both on-off or proportional.

The Smart Power Unit is programmable by CoDeSys



SMART PU MCH MACHINE MANAGEMENT

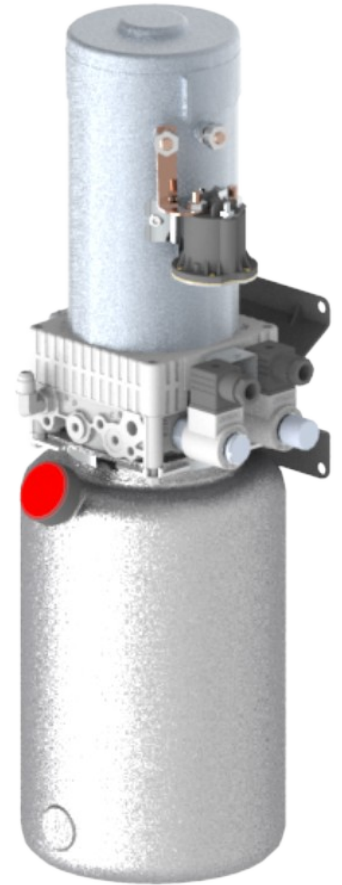


A Smart Power Unit is equipped with all the hydraulic, electric and electronic features required to fully manage a complete complex machine (see full data sheet). The electronic and mechanic architecture is developed in order to meet SIL 2 (safety integrity level) as per EN61508 for or PI c as per EN13849. The smart Power Unit is ready to operate 48VDC, with the related cable harness downsizing (and cost saving). The smart power unit is programmable with



In a Mobile column lifting machine, one SMART PU can manage the complete machine with the following features:

- Columns connected via embeded WI-FI
- drive the complete hydraulics thanks to electric motor, pump and embeded valves. The hydraulic scheme corresponds with the strictly necessary circuit to lift and lower the vertical mast. The basic circuit allows three speeds and lifting and three speed lowering.
- The same electronic controller can manage propotional valves (see our optional proposal for a seamless flow control).
- Detects load, thanks to embeded pressure sensor
- Detect actual temperature of the fluid (optional)
- Drive extra solenoids/electric load such as "lock light" and "safety lock", as well as management of the battery charger
- Up to 12 sensors/buttons for the machine operation, such as UP/DOWN and Emergency switches, end strokes proximity switches , machine ground pressure, wheel forks status, battery status and so on



The Embeded Electronic controller allows also the following features:

- preventive maintenance and data logging (for future rental options)
- connection with a smartphone (for example machine control through app)



HMI:

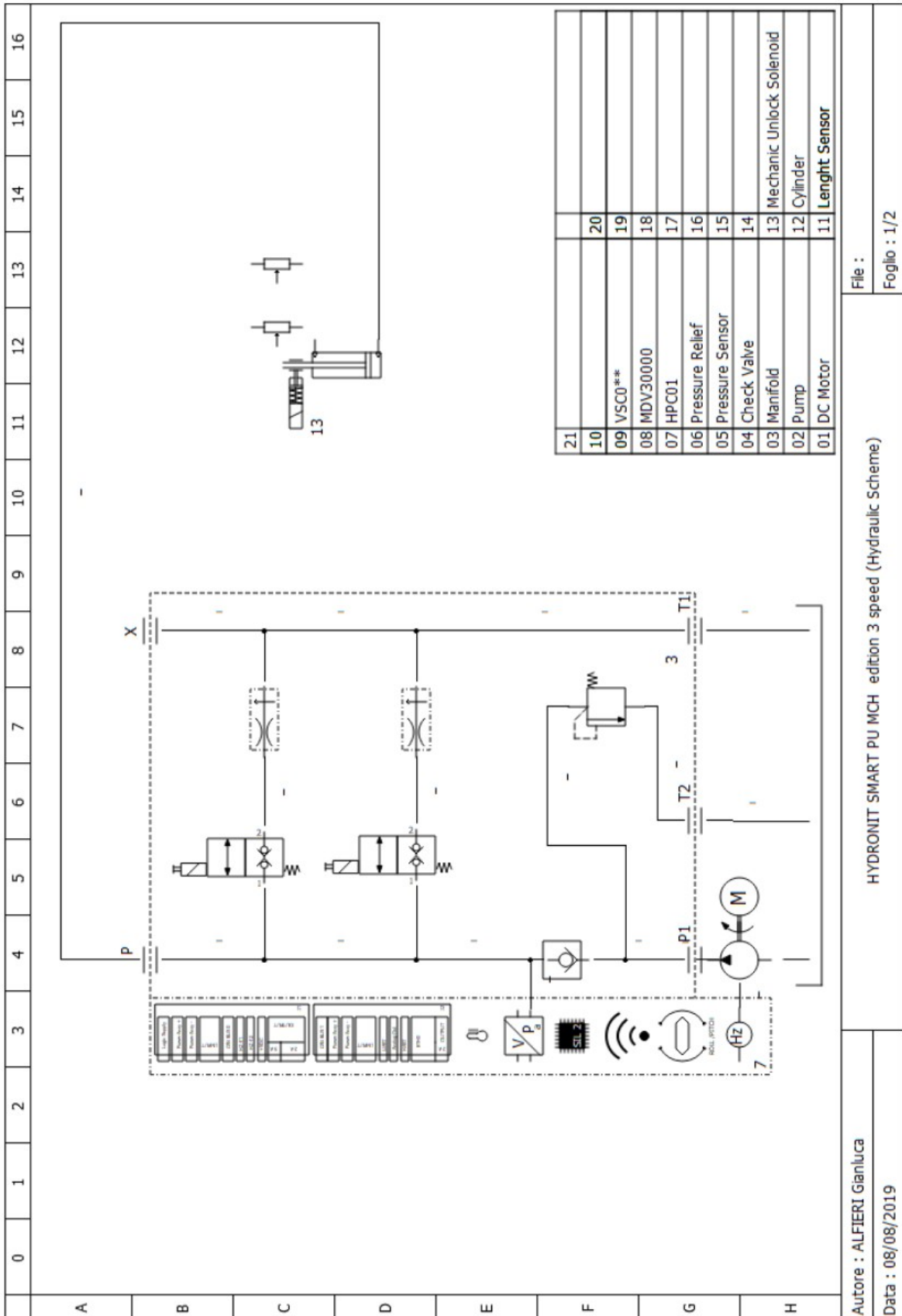
The Smart-Power-Unit range is completed by our 7" touchscreen display wich can be connected to the PLC through a CAN BUS line. Our Touchscreen is programmable through a proprietary IDE based on QT which is open-source



SMART PU MCH three speed drive



HYDRAULIC SCHEME of the SPU MCH: the scheme allows 3 values of speed which can be used to accelerate or slow down the lifting cylinder



File :

Foglio : 1/2

HYDRONIT SMART PU MCH edition 3 speed (Hydraulic Scheme)

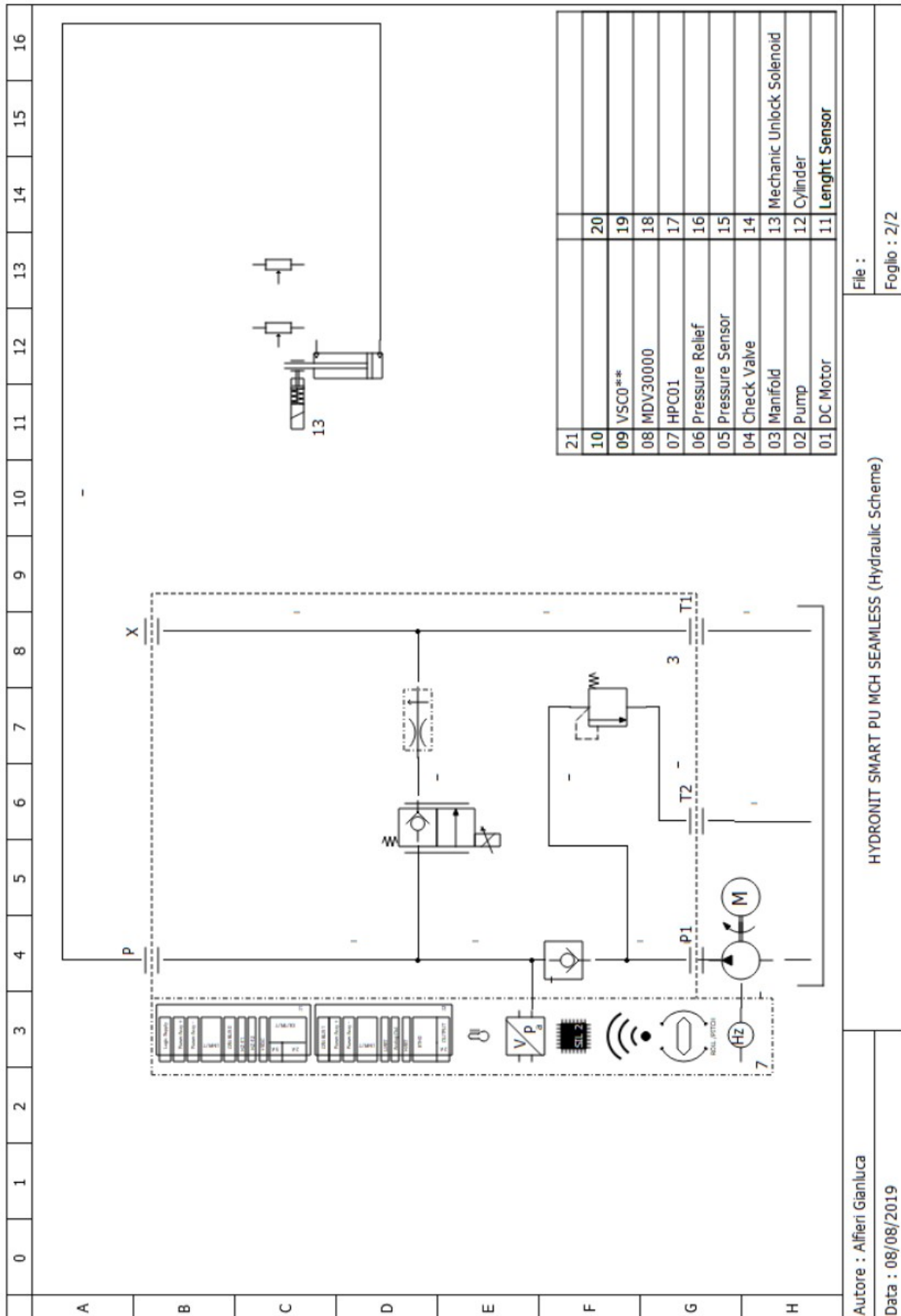
Autore : ALFIERI Gianluca

Data : 08/08/2019

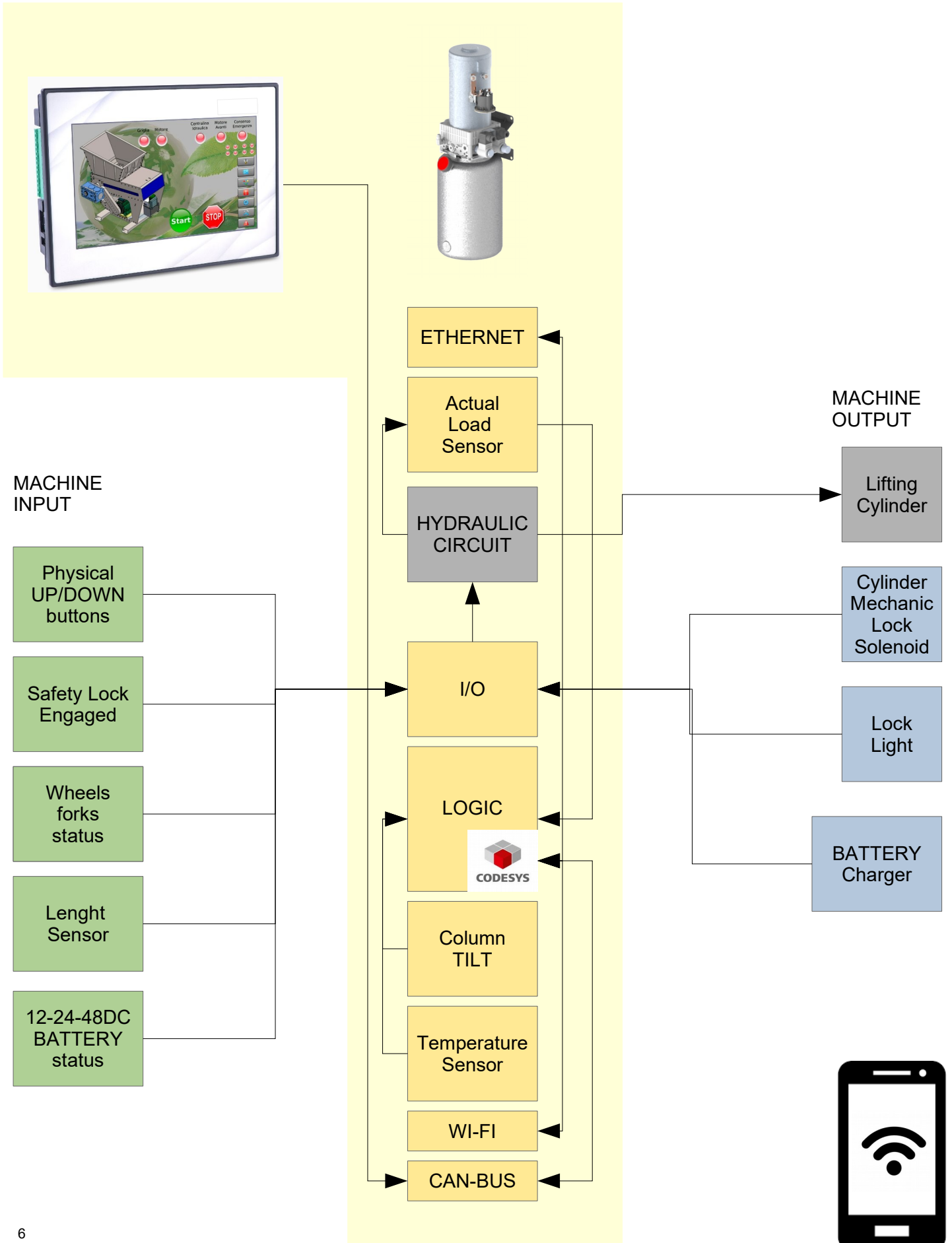
SMART PU MCH seamless drive



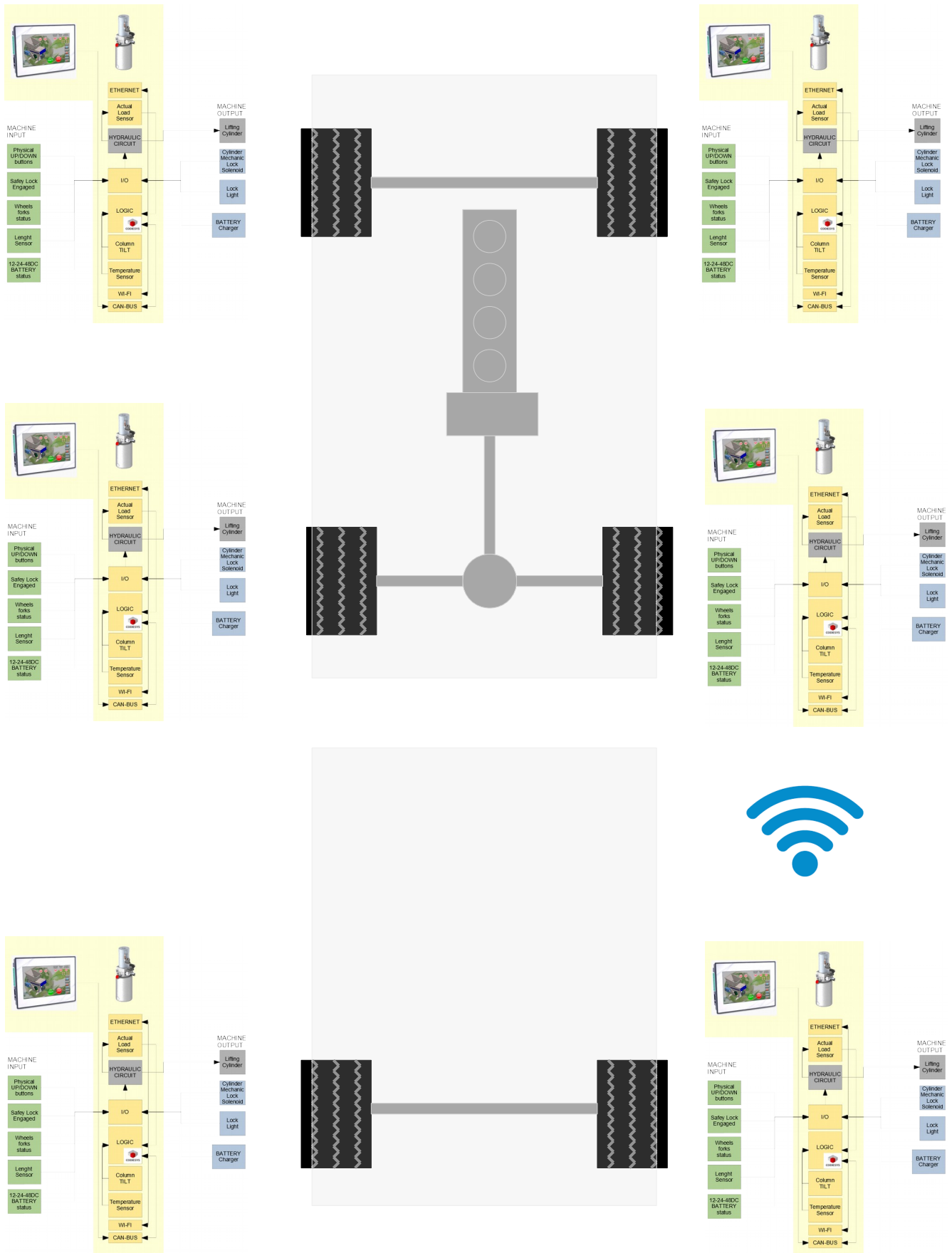
ALTERNATIVE HYDRAULIC SCHEME of the SPU MCH, using proportional throttle valve: allow wiring simplification and smooth control of the speed. Of course "speed profile" algorithm is required to be developed for the application (non recurring cost)



SMART PU MCH BLOCK UNIT



SMART PU MCH SYSTEM SCHEME



SMART PU MCH OVERALL DIMENSIONS



This is an extract of the full document.
To get the full document, please contact our sales office:
sales@hydronit.com (English, French, Spanish)
export@hydronit.com (English, Russian, Polish, German)
vendite@hydronit.com (Italian)

IMPORTANT NOTE. All information contained in this catalogue is subject to change without notice. Images are not to scale. Hydronit Srl does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential or other damage. The terms and conditions of sale, downloadable from www.hydronit.com, including limitations of our liability, are applied to all products and services sold.



Hydronit Srl
via Pastrengo 62
20814 Varedo (MB), Italy

☎ : +39 0362 1841 210

+39 0232 0625 145

📠 : +39 0362 1841 214

@ : info@hydronit.com

www.minipowerpacks.com

www.hydronit.com



© Hydronit Srl - All rights reserved
Printed in Italy

Hydronit communicates with
paper from certified sources



MCH 2019-00/EN