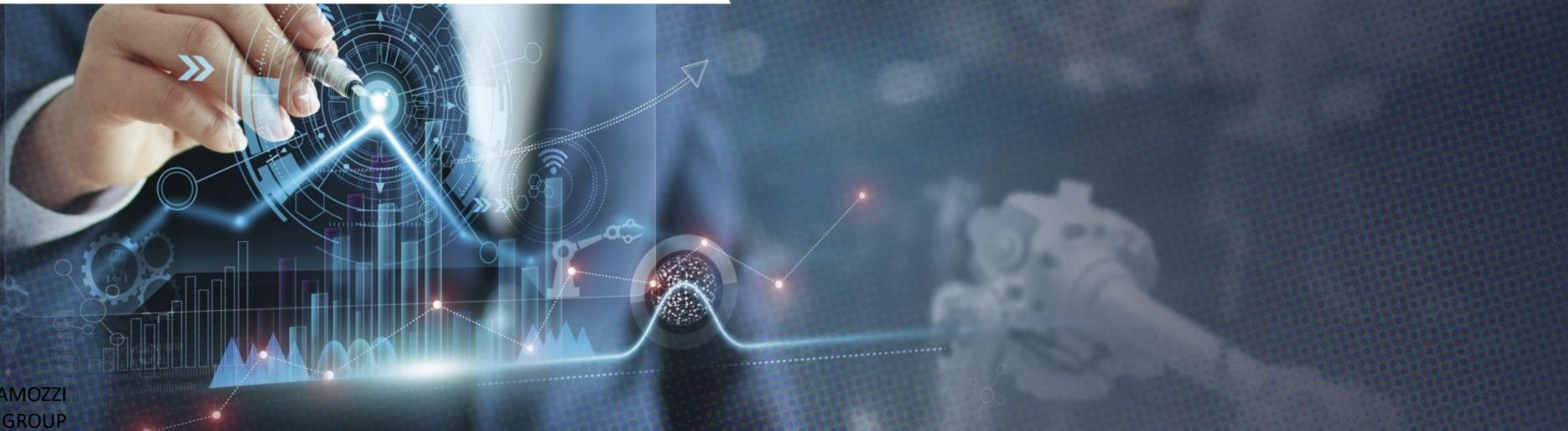


PNEUMATIC EQUIPMENTS WITH CONSTANT MONITORING

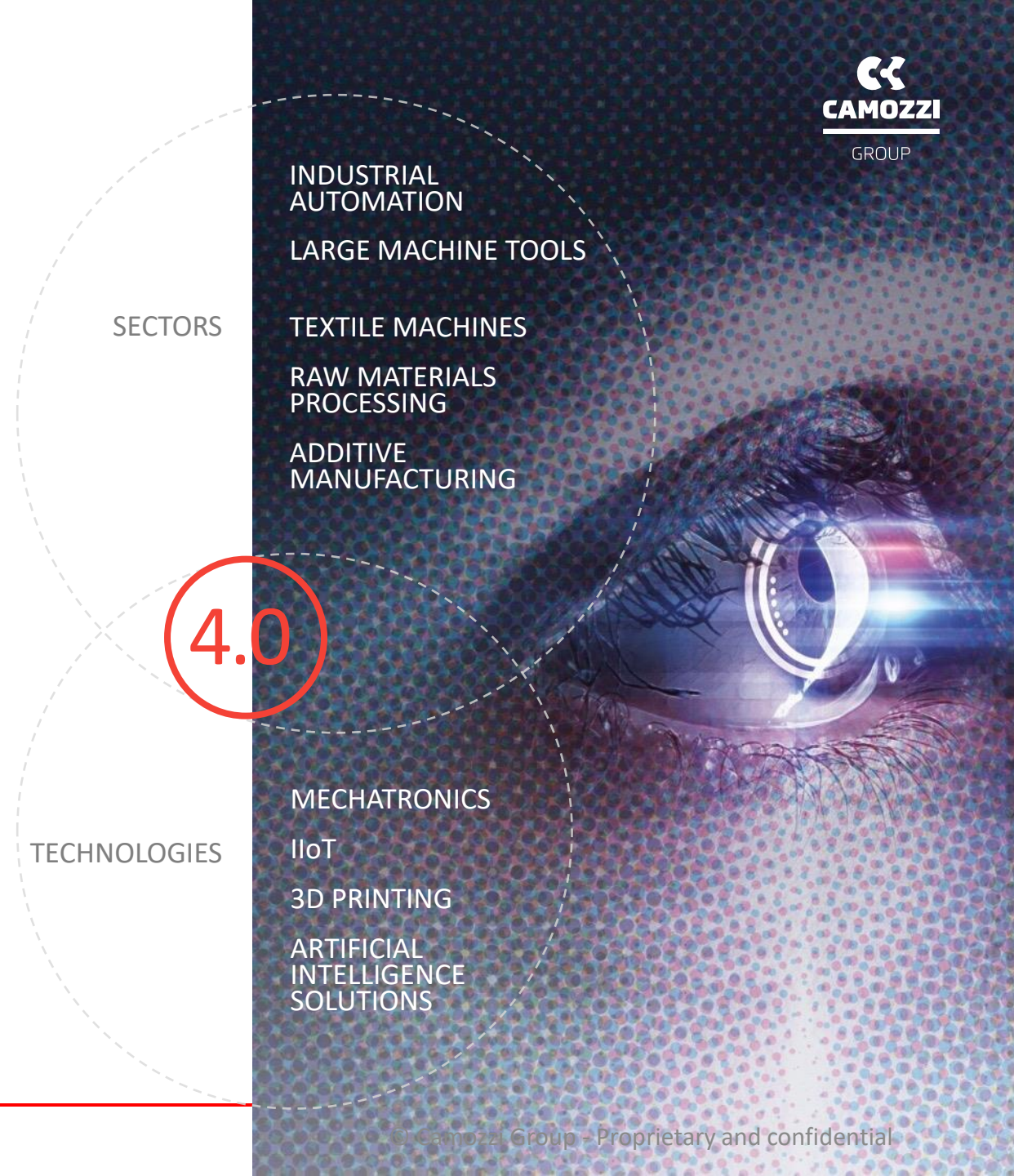
Camozzi Automation



ABOUT US

Founded in 1964, the Camozzi Group is a multinational Italian company and market leader in the production of components and innovative systems for **industrial automation**. It is also a main player in the integrated **Industry Internet of Things (IIoT 4.0)** systems sector. A key driver for the Group is a commitment to complete sustainability.

The Group has expanded its activities into various other sectors: from **specialised large machine tools** to advanced engineering for textile machines and raw materials processing. It has a particular focus on innovative materials involved in additive manufacturing (including composites, titanium, aluminium).



OUR GROUP IN NUMBERS

11

Companies

Consolidated in
5 divisions

2956

Employees

2021

25

Production sites

In Europe, China,
India, Russia and
USA

38

Subsidiaries and
service centres

In over 70 countries

Revenues

2021

455
mln €

Sales

2021

EXPORT
76%

ITALY
24%

Turnover
invested in R&D







R&D, technology partnerships and
technology assets

3%

THE GROUP

5 DIVISIONS

25 PRODUCTION SITES

 <p>Automation Division</p>	<p>Camozzi Automation Solutions for Industrial automation</p>	<p>Camozzi Technopolymers Plastic materials moulding</p>	<p>29 SUBSIDIARIES 15 PRODUCTION SITES</p>		
 <p>Machine Tools Division</p>	<p>Innse-Berardi Machine tools with hydrostatic technology and mechanical engineering</p>	<p>Ingersoll Machine Tools Advanced machine tools with mechanical technology, 3D printing and composites</p>	<p>5 SUBSIDIARIES 2 PRODUCTION SITES</p>		
 <p>Textile Machinery Division</p>	<p>Marzoli Machines Textile Advanced engineering for textile machines</p>	<p>4 SUBSIDIARIES 2 PRODUCTION SITES</p>	 <p>Research Center</p> <p>Conducts research activities for continuous innovation in all divisions</p>		
 <p>Manufacturing Division</p>	<p>Fonderie Mora Gavardo Cast iron, aluminium foundry and mechanical processing</p>	<p>Camozzi Advanced Manufacturing Specialised machining and 3D moulding of composite materials</p>		<p>Newton Metal processing</p> <p>Campress Brass forging</p>	<p>6 PRODUCTION SITES</p>
 <p>Digital Division</p>	<p>Camozzi Digital Digital innovation and IIoT solutions</p>				

Camozzi Research Center

FORMER INNSE MILANO OFFICES
NOW CENTER OF RESEARCH EXCELLENCE

3,600 m² offices and laboratories

30,000 m² industrial area

200 t max load capacity

27 m max height

One of a kind in Europe for technology applications for large-scale manufacturing and cyber physical systems for automated production lines.

- **Research + industrial applications** in the context of a hybrid technology structure that combines research, contract manufacturing, advanced manufacturing and 3D processes
- **Know-how system integrator** of industrial processes, digital systems, robotics and automation **creating genuine cyber physical systems (CPS)**
- Owns and operates 565 patents awarded to group companies
- Joint labs with universities and national and international research centers

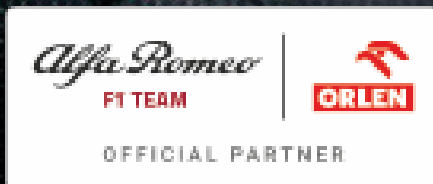
Camozzi and Sauber Technologies

A Technology & Sporting Partnership of Excellence

A new partnership between Camozzi Group and the Alfa Romeo F1 Team ORLEN, managed by Sauber Motorsport has been established in 2022. The partnership, both a technological and sporting venture, is based on the two companies' commitment to delivering excellence through cooperation and shared synergies.

Areas of collaboration

- Development of new materials
- Additive manufacturing
- Design
- Mechatronic systems
- Process modeling
- New talent and knowledge exchange program

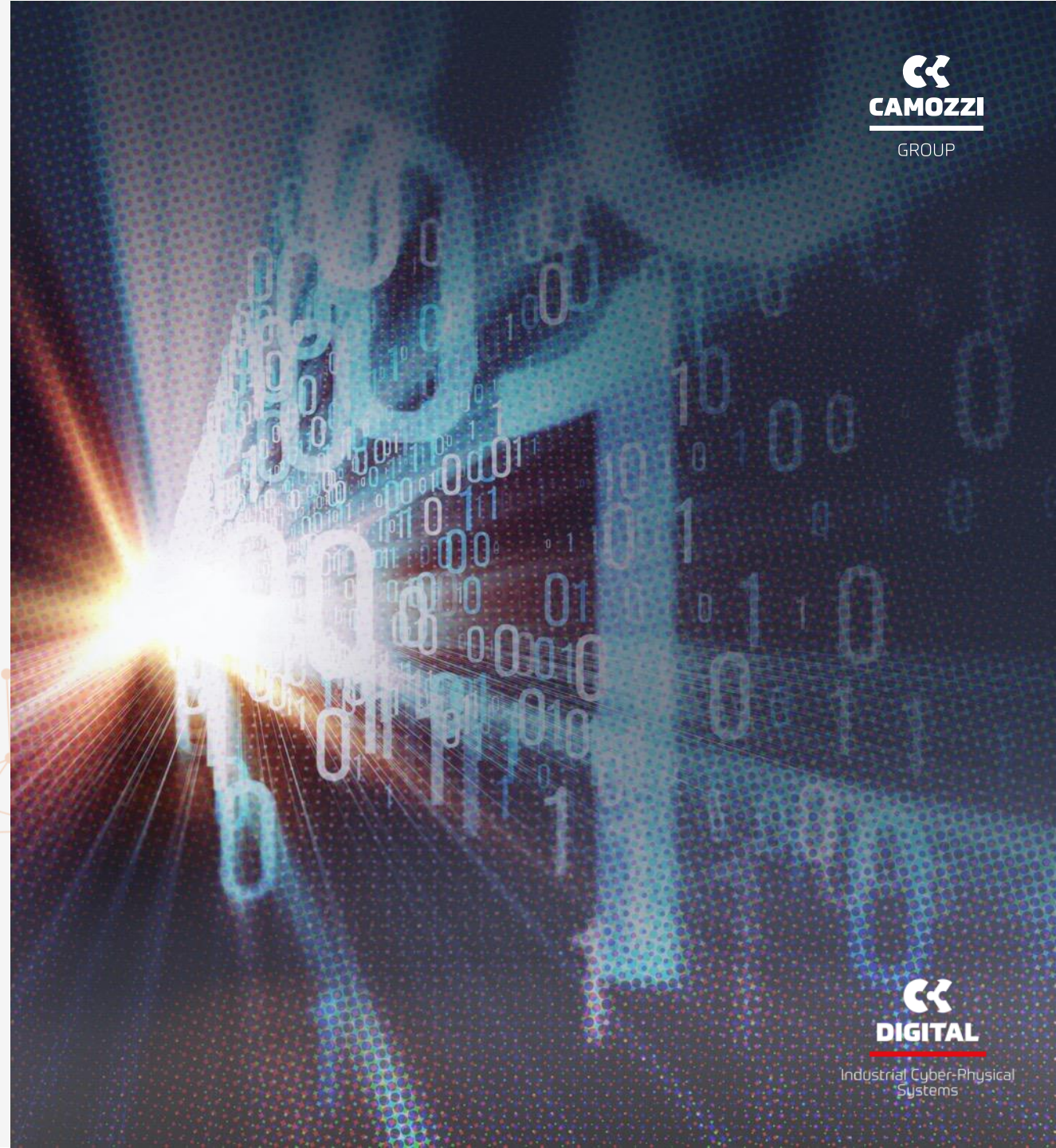


Digital Division

Founded with the aim of supporting companies to digitalise their business and to exploit the full potential of digital innovation and IIoT solutions.

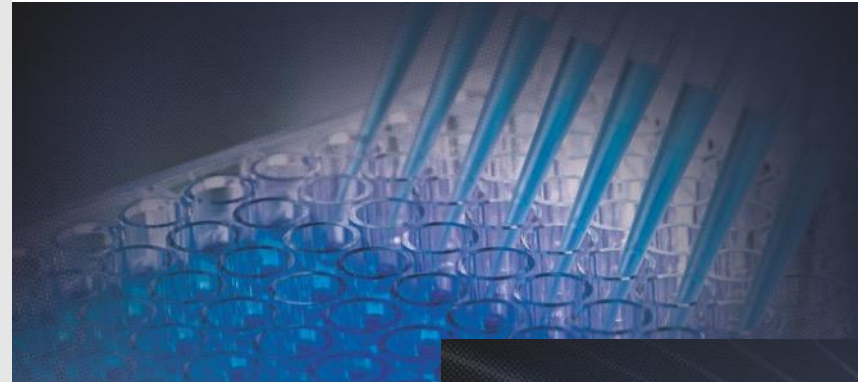
Its solutions enable customers to connect machinery, inventory and logistics systems, facilities and assets with a Cloud platform, transforming them into a cyber physical system (CPS).

The data collected by sensors in the machines are transformed into added value for the client through efficiency and savings.



Automation Division

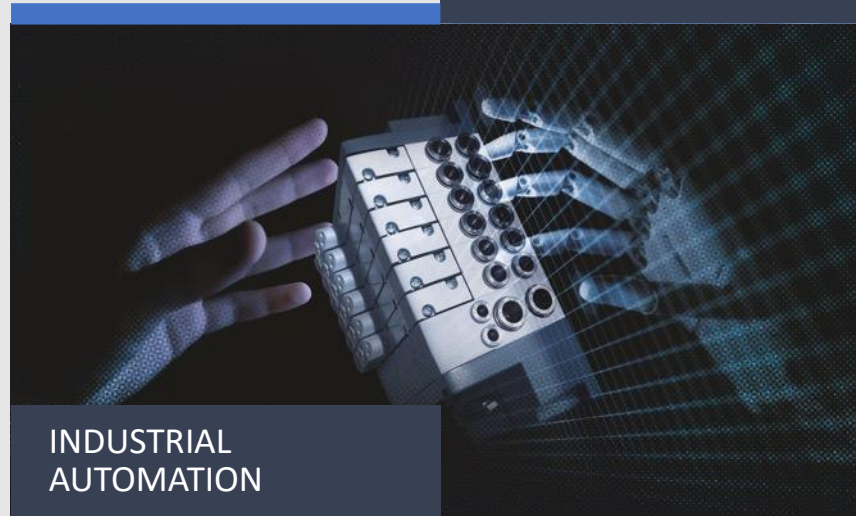
Leader in the design and production of motion and fluid control components, as well as systems and technologies for the sectors:



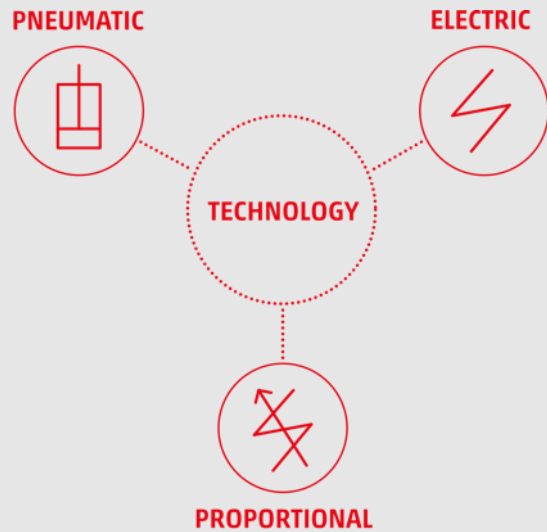
LIFE SCIENCE



TRANSPORTATION



INDUSTRIAL
AUTOMATION



CAMOZZI AUTOMATION'S OFFERING INCLUDES EVER MORE IIoT PRODUCTS AND SOLUTIONS.

CAMOZZI AUTOMATION GLOBAL STRATEGY, LOCAL SERVICE



Headquarters



29
Subsidiaries and
service centers

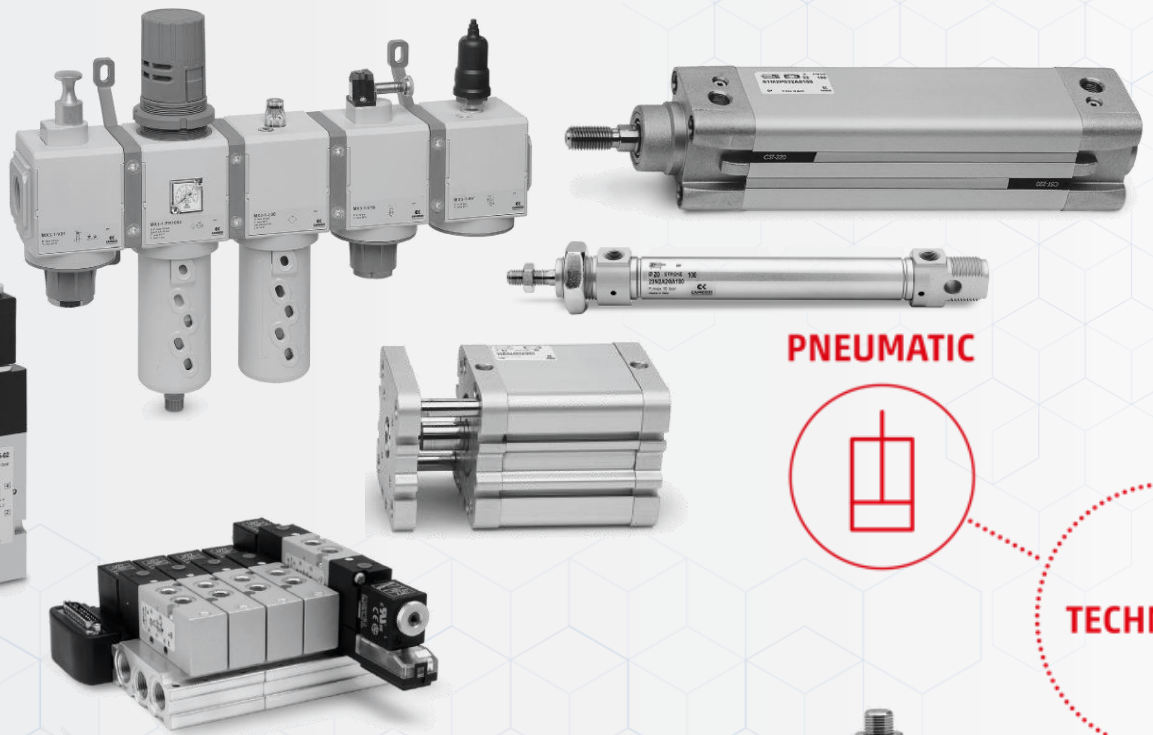


57
Exclusive distributors

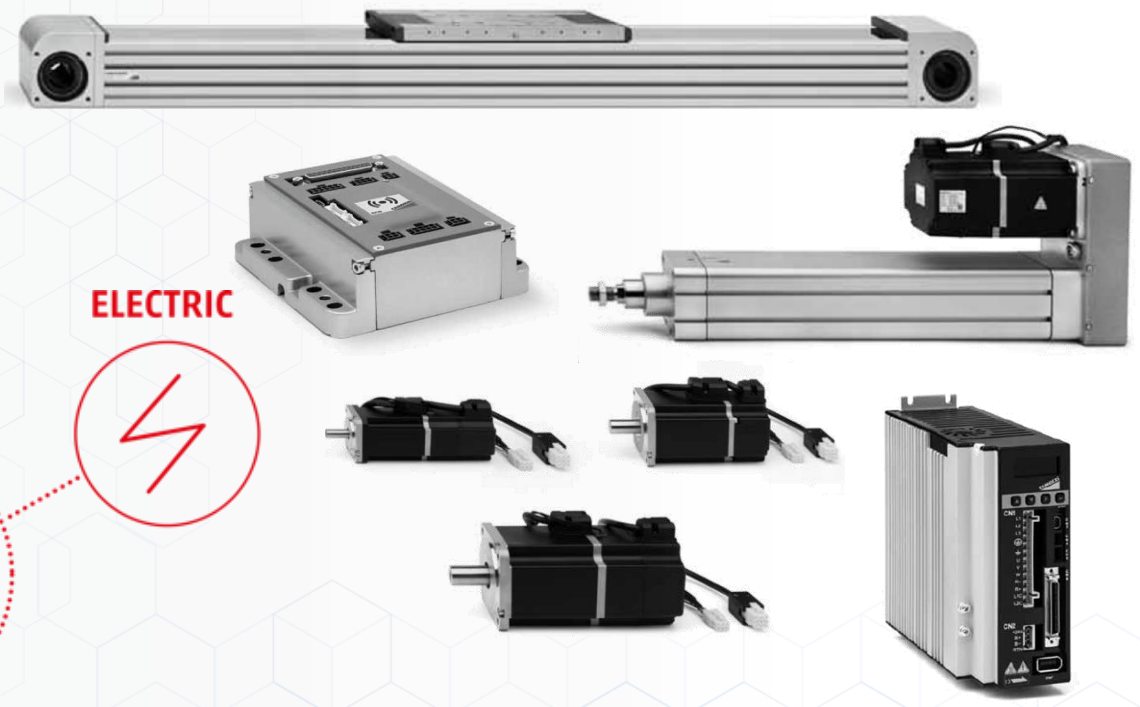


15
Production sites





PNEUMATIC



ELECTRIC



PROPORTIONAL



CAMOZZI
Automation



Automation



VIDEO – LINK BELOW:

<https://www.youtube.com/watch?v=7jpBKiDPgmU>



Industrial Cyber-Physical
Systems

Turning BIG DATA into a VALUABLE ASSET

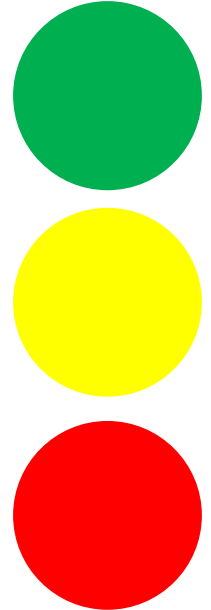
IIOT
INDUSTRIAL
INTERNET
OF THINGS



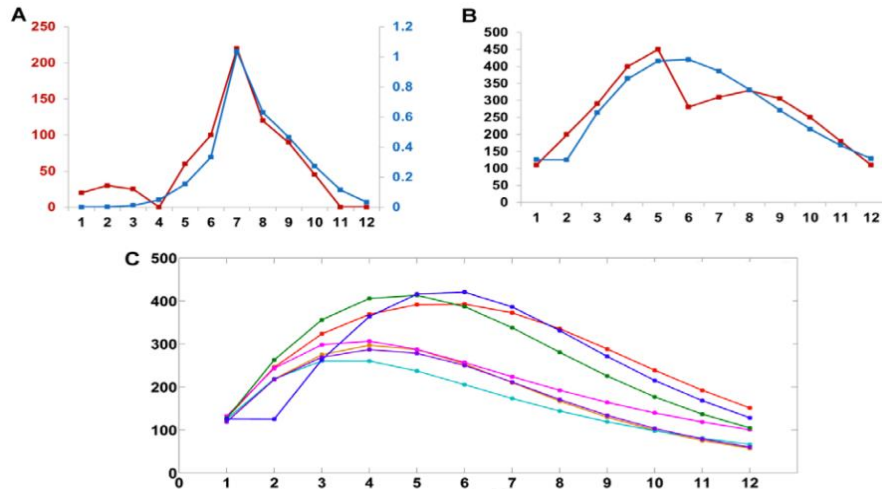
ELABORATION

$$L [f(t)] = F(s) = \int_0^{\infty} f(t) e^{-st} dt$$

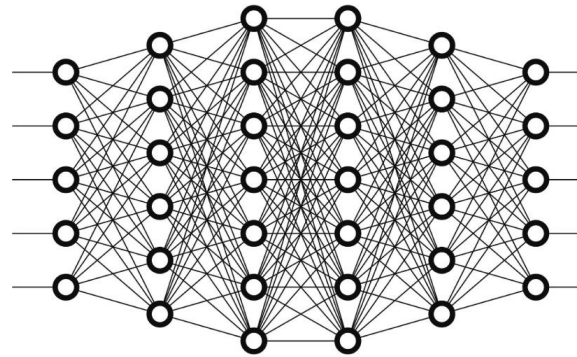
SIMPLIFYING



TELEMETRY



MODELING



- Preventive maintenance
- Machine learning
- Energy saving
- Data analysis
- Total cost reduction
- Increased productivity of the equipment



COILVISION
TECHNOLOGY



Integrated diagnostics and predictivity



Data transmission to the Cloud



Configuration flexibility



Control parameters can be customised

VIDEO – LINK BELOW:

<https://www.youtube.com/watch?v=leFjLfINTEg>

MULTI-SERIAL MODULE

SERIES CX4

FLEXIBILIDADE E CONECTIVIDADE

- PROFIBUS – CANopen – EtherNet/IP – PROFINET – EtherCAT – I/O –Link
- Módulos de 8/16 entradas ou saídas digitais
- Módulos de 2 entradas ou saídas analógicas (0-10V, $\pm 10V$, 0-20mA, 4-20mA, $\pm 20mA$)
- 2 BRIDGE inputs M12
- 2 RTD inputs M12 (PT100, PT200, PT500, PT1000)
- 2 TCM12 inputs (THERMOCOUPLES)



Módulos compactos



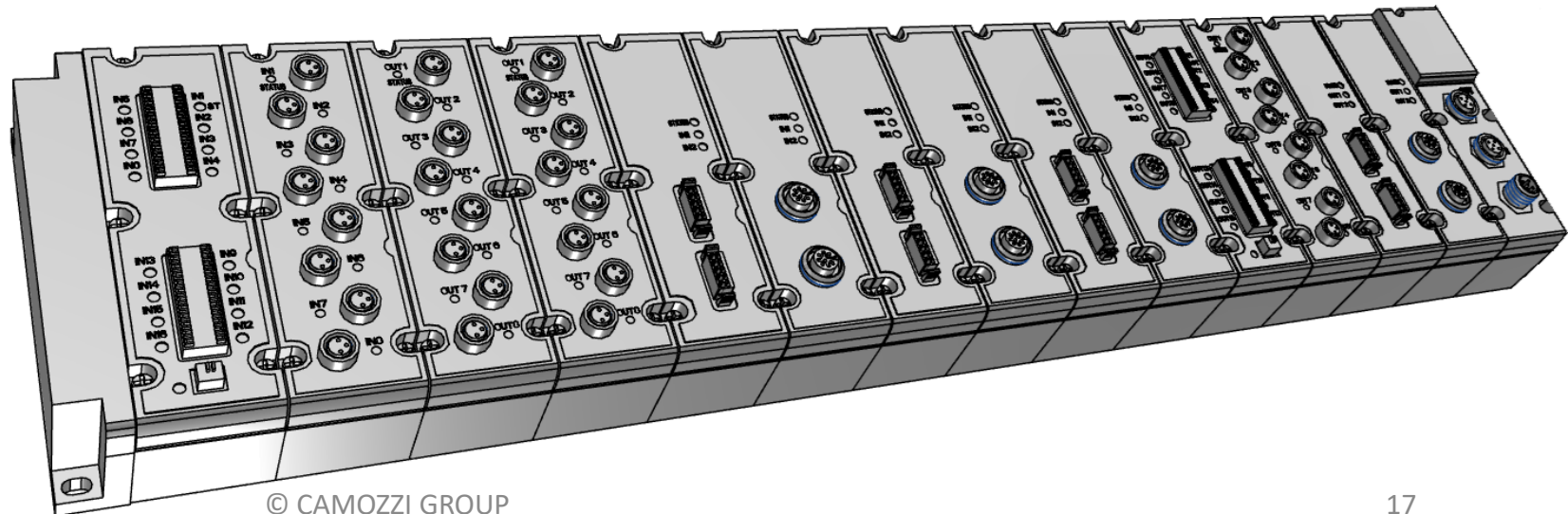
Tempos de manutenção e instalação reduzidos



Flexibilidade nas conexões



Flexibilidade e possibilidades de expansão ou modificações



VALVE ISLAND SERIES D

MODULAR E FLEXÍVEL
COILVISION® TECHNOLOGY

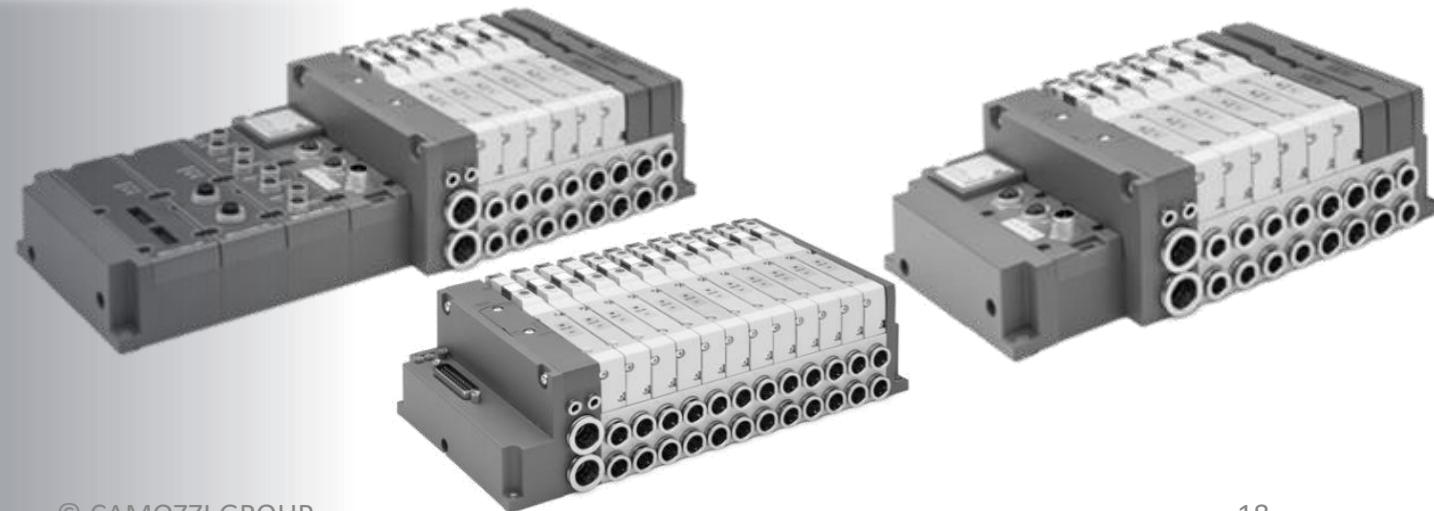
Tamanho 1

- 10.5 mm
- 250 NI/min
- Fieldbus 128 bobinas em até 64 posições
- IO-Link 64 bobinas em até 32 posições
- DB 25 pinos em até 11 posições
- DB 44 pinos em até 19 Posições



Tamanho 2

- 16 mm
- 950 NI/min
- Fieldbus 128 bobinas em até 64 posições
- IO-Link 64 bobinas em até 32 posições
- DB 25 pinos em até 11 posições
- DB 44 pinos em até 19 Posições

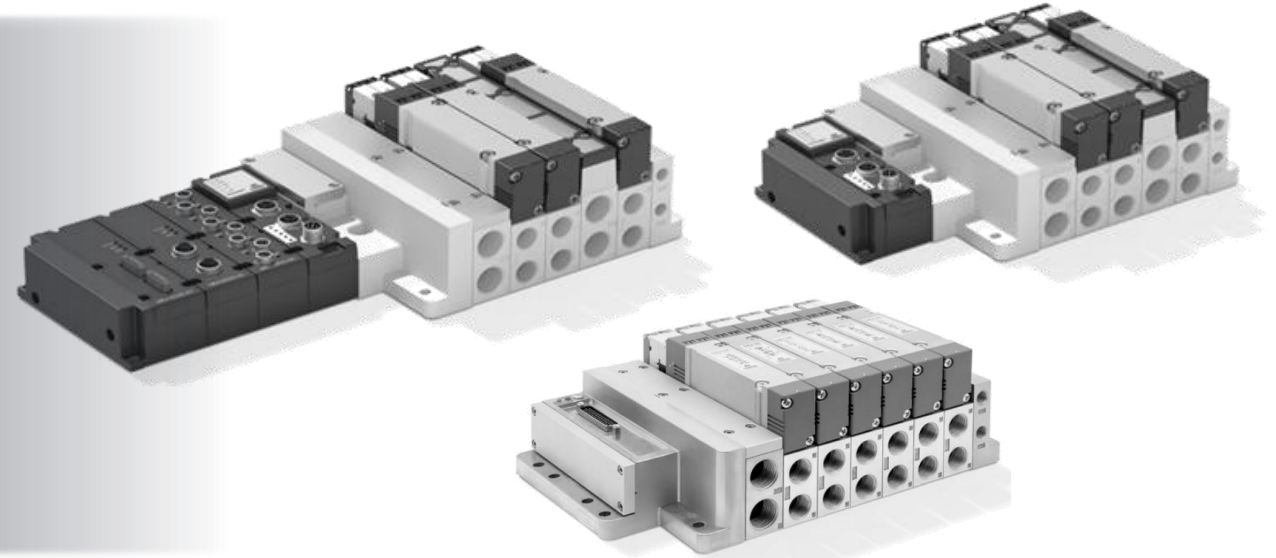


VALVE ISLAND SERIES D

MODULAR E FLEXÍVEL
COILVISION® TECHNOLOGY

Tamanho 4

- 25 mm
- 2000 NI/min
- Fieldbus 128 bobinas em até 64 posições
- IO-Link 64 bobinas em até 32 posições
- DB 25 pinos em até 11 posições
- DB 44 pinos em até 19 Posições



Tamanho 5

- 10.5 mm e 16 mm
- 250 NI/min e 950 NI/min
- Fieldbus 128 bobinas em até 64 posições
- IO-Link 64 bobinas em até 32 posições
- DB 25 pinos em até 11 posições
- DB 44 pinos em até 19 Posições



UVIX - WLAN

VALVE COMMUTATION
LED

MANUAL
COMMANDS

COILVISION
LED

OPERATION
STATUS LED

DIAGNOSTIC
PIN



COILVISION[®]

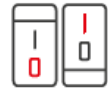
TECHNOLOGY



UVIX



IIoT gateway



ON/OFF status of each valve



Health status



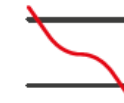
Short circuit or solenoid fault



Temperature monitoring of the Master module and the solenoids



Interrupted solenoid



Over and under voltage

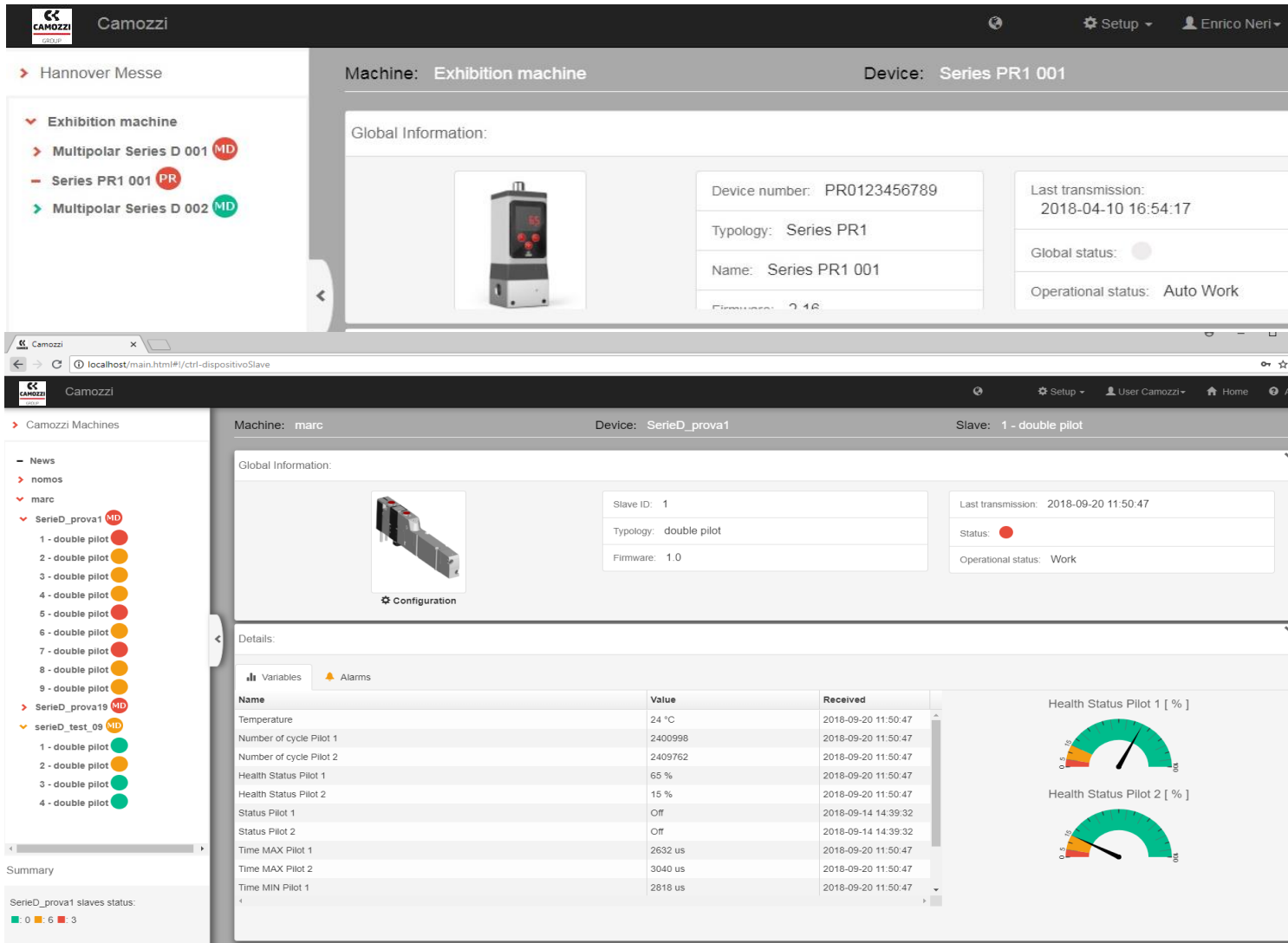


Cycle counter



Power consumption

UVIX - WEB APP PLATFORM



The screenshot displays two instances of the Camozzi UVIX web application. The top instance shows the 'Exhibition machine' monitoring page for 'Device: Series PR1 001'. It features a sidebar with a tree view of devices, a main panel with a device image, and a 'Global Information' section containing fields for Device number (PR0123456789), Typology (Series PR1), Name (Series PR1 001), Last transmission (2018-04-10 16:54:17), Global status (grey circle), and Operational status (Auto Work).

The bottom instance shows the 'marc' monitoring page for 'Device: SerieD_prova1'. It includes a sidebar, a main panel with a device image, and a 'Global Information' section with fields for Slave ID (1), Typology (double pilot), Firmware (1.0), Last transmission (2018-09-20 11:50:47), Status (red circle), and Operational status (Work). Below this is a 'Details' section with a table of variables and two gauge charts for 'Health Status Pilot 1' and 'Health Status Pilot 2'.

Name	Value	Received
Temperature	24 °C	2018-09-20 11:50:47
Number of cycle Pilot 1	2400998	2018-09-20 11:50:47
Number of cycle Pilot 2	2409762	2018-09-20 11:50:47
Health Status Pilot 1	65 %	2018-09-20 11:50:47
Health Status Pilot 2	15 %	2018-09-20 11:50:47
Status Pilot 1	Off	2018-09-14 14:39:32
Status Pilot 2	Off	2018-09-14 14:39:32
Time MAX Pilot 1	2632 us	2018-09-20 11:50:47
Time MAX Pilot 2	3040 us	2018-09-20 11:50:47
Time MIN Pilot 1	2818 us	2018-09-20 11:50:47

The monitoring system is a platform to monitor a range of Camozzi smart devices: valve island, pressure regulators, motor drives etc.

It's a web-based app, so it can be seen by PCs, tablets, smartphones, everywhere an internet connection is available simply using the favourite browser

UVIX - WEB APP Platform


Machine: News
Device: Campus Valve Island
Slave: 1 - double pilot

Global Information:


Details:

Number of Errors So...	1	2018-10-25 13:37
Number of Errors So...	0	2018-10-25 13:37
Number of Comm. R...	0	2018-10-25 13:37

Health Status Solenoid 1 [%]

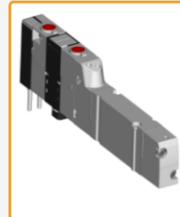


Health Status Solenoid 2 [%]



Machine: News
Device: Campus Valve Island
Slave: 2 - double pilot

Global Information:



Slave ID: 2

Typology: double pilot

Firmware: 1.8

Details:

Machine: News
Device: Campus Valve Island
Slave: 2 - double pilot

Global Information:

Details:

Name	Value	Received
Number of Cycles S...	3	2018-10-25 13:37
Number of Cycles S...	2	2018-10-25 13:37
Health Status Solen...	2 %	2018-10-25 13:37
Health Status Solen...	100 %	2018-10-25 13:37
Status Solenoid 1	Off	2018-10-25 13:37
Status Solenoid 2	Off	2018-10-25 13:37
Time MAX Solenoid 1	5271 us	2018-10-25 13:37
Time MAX Solenoid 2	0 us	2018-10-25 13:37
Number of Errors So...	0	2018-10-25 13:37
Number of Errors So...	0	2018-10-25 13:37
Number of Comm R...	1	2018-10-25 13:37

Health Status Solenoid 1 [%]

Machine: News
Device: Campus Valve Island

Global Information:

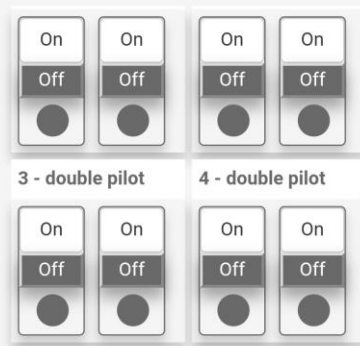
Details:

New command

Last Commands

3 - double pilot

4 - double pilot



VIDEO – LINK BELOW:

<https://www.youtube.com/watch?v=RXOtm6uONQU>

PROPORTIONAL PRESSURE REGULATOR SERIES PRE

GERENCIAMENTO DIGITAL DE PRESSÃO



COILVISION[®]
TECHNOLOGY

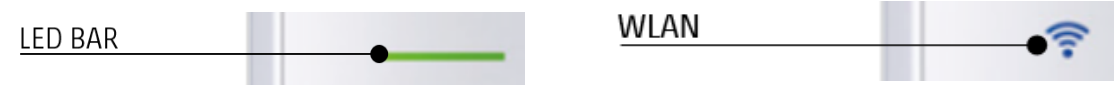


G1/4" – 1100NL/min
G3/8" – 4600NL/min

- Versão compatível com oxigênio.
- Parâmetros customizáveis.
- Versões com e sem display
- Versões para montagem em manifold
- Controle analógico, IO-Link e 5 bit PreSet (32 configurações)
- Modular com a série MD.
- 3 Vias



DIAGNOSTICS AND PREDICTIVE MAINTENANCE



1

DIAGNOSTICS

Basic Monitoring

- Datalogging of operation and events
- Interrupted solenoid
- Temperature monitoring
- Detection of short circuit, abnormal power consumption or low voltage

TRANSMISSION VIA USB OR IO-LINK - VIEWABLE THROUGH DISPLAY and LED BAR

2

DIAGNOSTICS

- Detection of mobile plunger's movement
- Datalogging of operation and events
- Interrupted solenoid
- Temperature monitoring
- Detection of short circuit, abnormal power consumption or low voltage

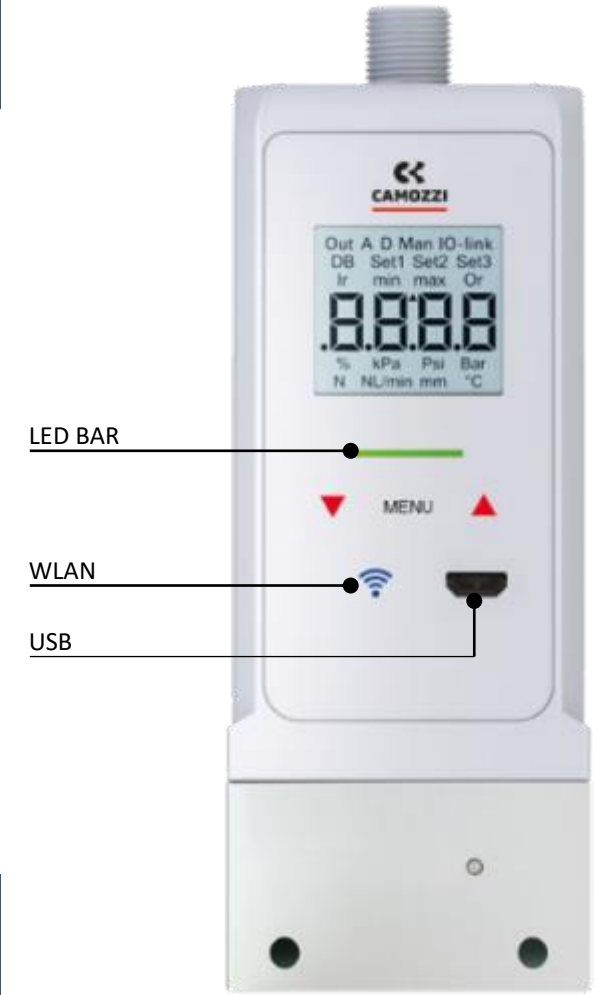
TRANSMISSION VIA USB OR IO-LINK - VIEWABLE THROUGH DISPLAY and LED BAR

3

PREDICTIVE MAINTENANCE

- Percentage of general health status
- Detection of mobile plunger's movement
- Datalogging of operation and events
- Interrupted solenoid
- Temperature monitoring
- Detection of short circuit, abnormal power consumption or low voltage

TRANSMISSION VIA USB OR IO-LINK - VIEWABLE THROUGH DISPLAY and LED BAR



PROPORTIONAL PRESSURE REGULATOR SERIES PRE

GERENCIAMENTO DIGITAL DE PRESSÃO

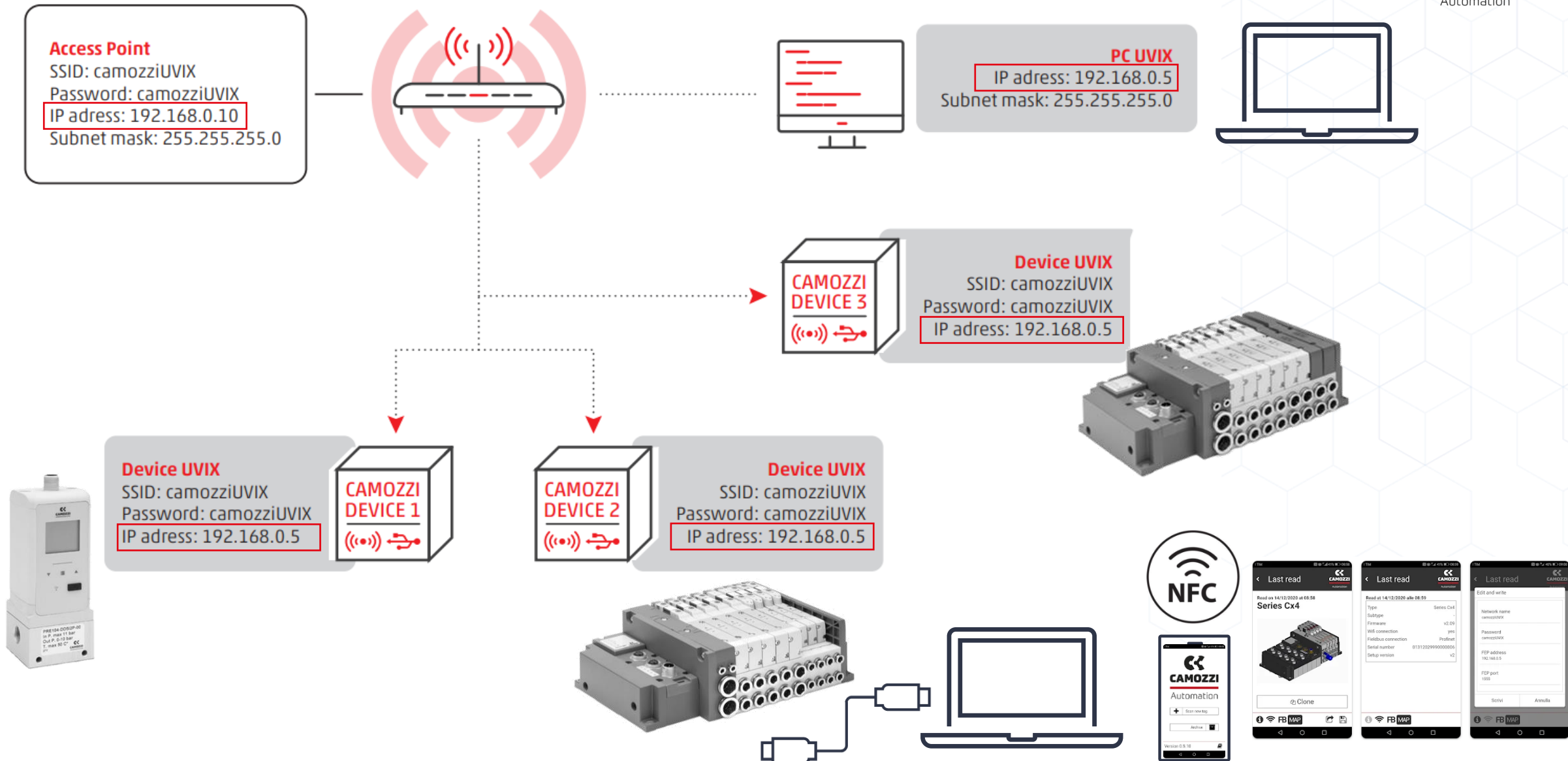
GENERAL DATA

Standard of reference	CE; Rosh; ATEX; UL-CSA		
Controlled quantity	Pressure		
Number of ways	3 ways		
Flow (Qn)	PRE104 - 1100 NI/min	PRE238 - 4600 NI/min	
Media	Filtered and non-lubricated compressed air of class 7.4.4 according to ISO 8573.1. Inert gases and oxygen		
Min & max regulated pressure (bar)	0 - 1 bar (0-14,5 PSI)(B) 0,03 - 4 bar (0,43-58 PSI) (E)	0,05 - 10,3 bar (0,72-150 PSI)(D) 0,05 - 7 bar (0,72-101,5 PSI) (G)	0,05 - 6 bar (0,72-87 PSI)(F)
Maximum inlet pressure	2 bar (B) 5 bar (E)	11 bar (D); (G) and (F)	
External sensor (optional)	input signal 0-10 V DC or 4-20 mA		
Resolution (% FS)	0,3 (Size 1) 0,6 (Size 2)		
Fluid temperature (min and max °C)	0 - 50 °C		
Environmental temperature (min and max °C)	0 - 50 °C		
Pneumatic ports	G1/4 - G3/8 -1/4NPTF		
Materials	body: aluminium - cover: technopolymer - seals: NBR or FKM		
Supply voltage (V)	24 V DC		
Command signal	0-10V (2); 4-20 mA (4); 5 bit Digital (D); IO-Link (I)		
Hysteresis (% FS)	0,5% (Size 1) 0,7% (Size 2)		
Power consumption	Max 0,5A (Envisage a power supply of at least 1A)		
Type of electrical connection	M12 5 Pin Male (IO-Link) M12 8 Pin Male (Analog and PreSet) M12 12 Pin Male (version with external sensor)		
IP protection class	IP65		
Repeatability (% FS)	0,4		
Linearity (% FS)	0,4		
Modularity	With Series MD		
PRE in IO-Link version	V1.1 according to standard IEC 61131-9/ 61131-2		
Feedback signal	0-5 V DC and 4-20 mA (always present in the version with analog command signal (2) (4))		

COILVISION®
TECHNOLOGY



UVIX - Platform for viewing diagnostics and modified parameters



THANK YOU

FÁBIO OLIVEIRA – ENGINEERING DEPT.

+55 19 99179-8149 - FOLIVEIRA@CAMOZZI.COM.BR



A Camozzi Group Company
www.camozzi.com