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Constructed wetland installed and operating

Annex 3

Operational and Maintenance manual of post-treatment system (full-scale and pilot scale)

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WASTE WATER REFINEMENT SYSTEM

ANTISSA DEMO SYSTEM

Università Politecnica delle Marche - SIMAU
Horizon 2020 HYDROUSA

OPERATION AND MAINTENANCE MANUAL

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PART 1 –

SYSTEM DESCRIPTION

Polymeric membrane ultrafiltration system and automatic cleaning system

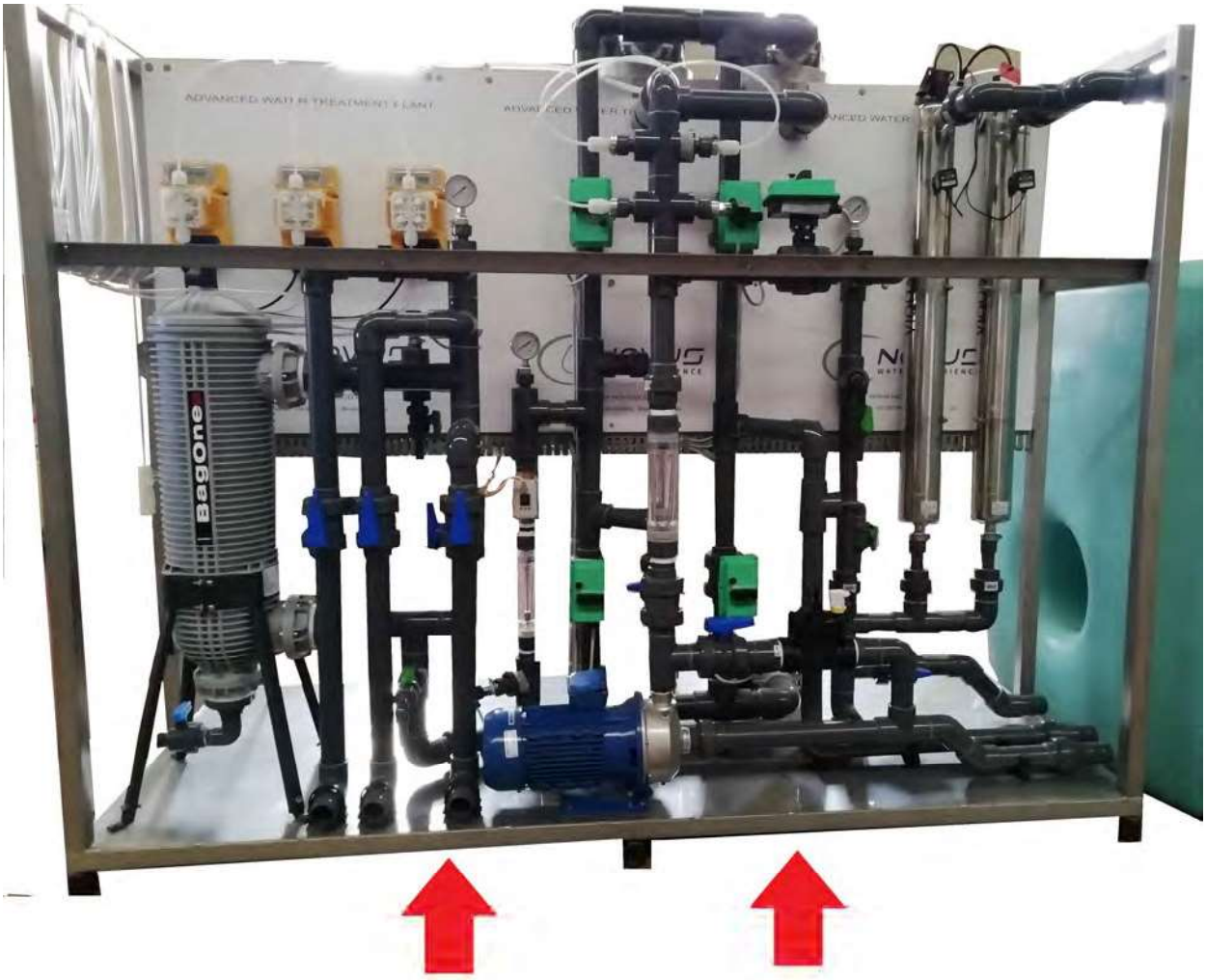
Project name	Antissa Demo UF System
Project flow	83 l/m (5mc/h)
Backwash flow	250 l/m (15 mc/h)
Working pressure	1.1 Bar
Max pressure	5.0 Bar
Power supply	400 Vac + N + PE
Pre-filtration	250 micron
Ultrafiltration	0.02 micron
Turbidity	< 200 NTU
TSS:	< 300 mg/l
Parcile size :	< 300 um
COD:	<100 mg/
Oil:	<0 mg/l
Free clorine:	<0 mg/l

PART 2 –
POSITIONING AND INSTALLATION

2. POSITIONING AND INSTALLATION

2.1. POSITIONING

After unpacking the skid, place it on flat surface and be sure that the system is placed plane.
Do not use harnesses or canvas slings to move the equipment, use a forklift taking care to position it in the points indicated in the photos below.

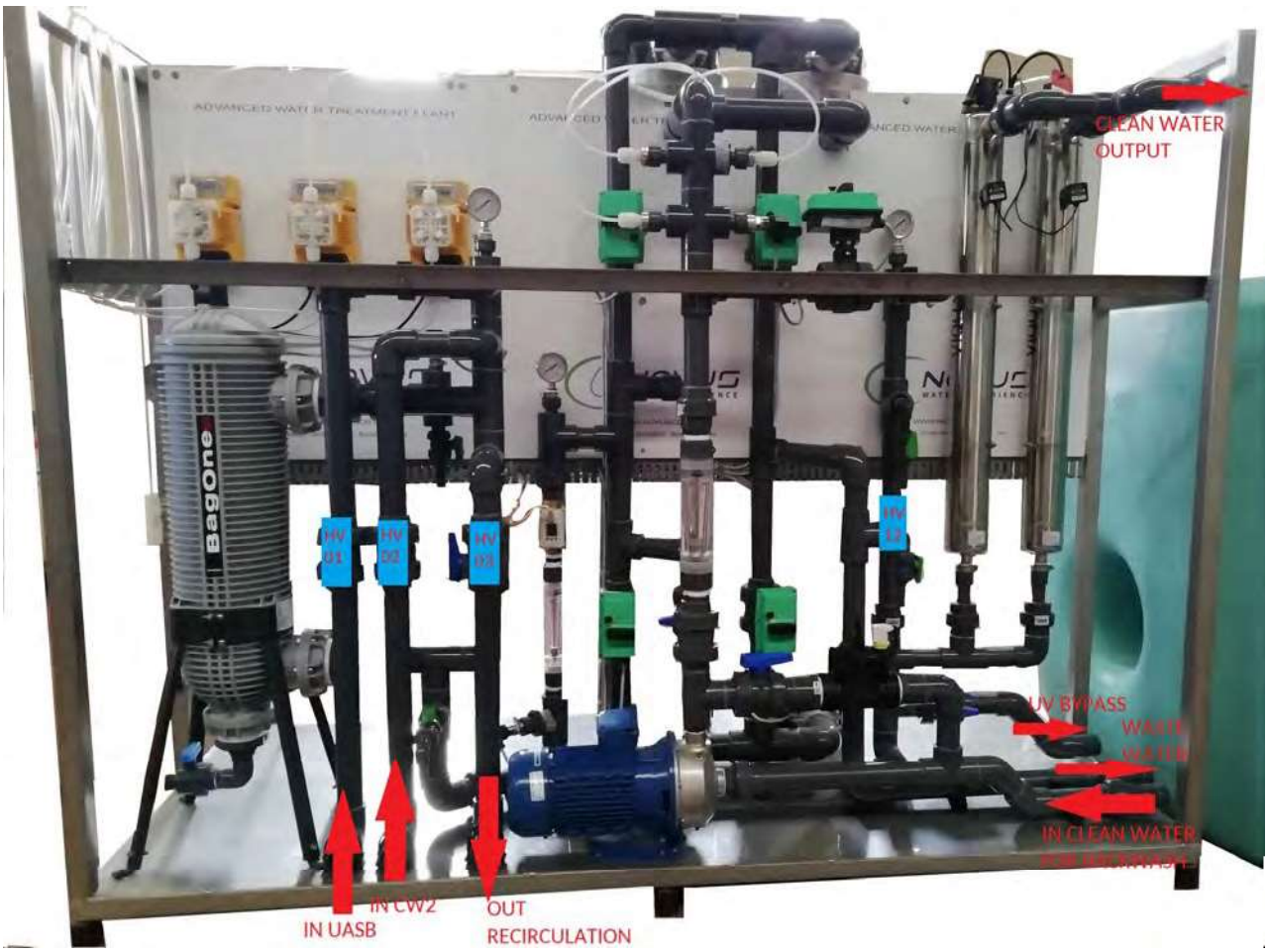


2.2. POWER SUPPLY

Connect the metal frame to the plant grounding network through the connection on the side upright.
Connect the power supply to the general panel as shown in the figure, paying attention to respect the phases sequence.

2.3. HYDRAULIC CONNECTIONS

For the hydraulic connections, refer to the following picture:



The indicated point by the arrow “IN UASB” must be connected to the submersible pump (P1) positioned in the UASB storage tank.
The indicated point by the arrow “IN CW2” must be connected to the submersible pump (P2) positioned in the storage tank CW2.
The indicated point by the arrow “OUT RECIRCULATION” must be connected to a pipe to be positioned in the tank of the untreated water.
The indicated point by the arrow "IN CLEAN WATER FOR BACKWASH" must be connected to the intake pipe on the filtered water tank (ref. "CLEAN WATER" on photo TK1 shown on pg. 9). Before activating the system, be sure to fill the suction duct through the point set up near the filtered water tank.
The indicated point by the “WASTE WATER” arrow must be connected to the storage and re-launching tank of the washing water (ref. “WASTE WATER” on photo TK2 shown on pg. 9).
The “UV BYPASS” connection must be connected to the filtered water tank, in order to carry out the necessary tests excluding the UV section.

The configuration of the hand valves is shown in paragraph 4.3.

The waste water and filtered water tanks connections are configured as shown in the pictures below.

TK2

TK1

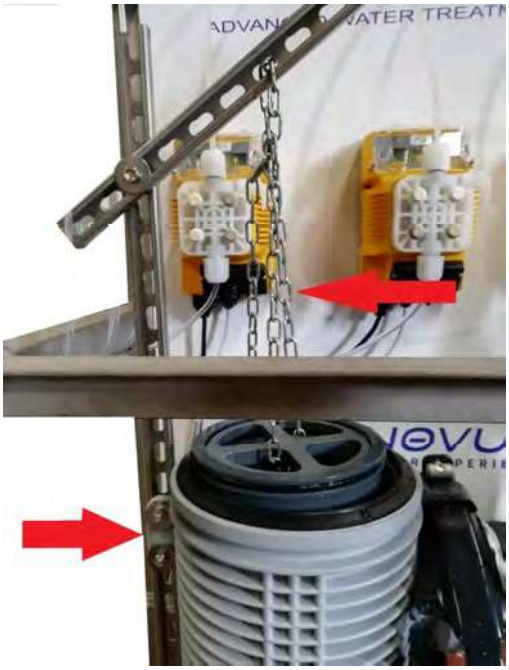
It is recommended to pay attention to the tightening of the compression fittings, once the hose has been inserted.
After installing the line that interconnects the filtered water tank to the P3 backwash pump, take care to fill the suction line to ensure the priming of the P3 pump.

The P4 pump assembly and installation sequence for relaunching the washing water from TK2 to HYDRO1 is shown below.

2.4. BAGONE FILTER BASKET EXTRACTION

In order to facilitate the extraction / replacement of the BAGONE filter basket, a kit, consisting of mast and arm, is supplied. Install the kit as shown in the picture below.

Once the filter top cover is removed, install the mast on the anchor point indicated by the arrow on the left. The arm will act as a lever, which connected to the filter basket extraction handle by the chain, indicated by the arrow on the right, will facilitate its extraction.



PART 3 –

OPERATING LOGIC AND USER INTERFACE

3. ULTRAFILTRATION SKID ANTISSA, GR Commessa 314

This manual section describes the main control system components and the operating logic of the entire system.

3.1. PLC HARDWARE CONFIGURATION

Microcontr. Allen Bradley Micro850	-	PN 2080-LC50-24OWB controller ver 12
Analog IN Expansion 1	-	PN 2080 – IF4
Analog IN Expansion 2	-	PN 2080 – IF4
Digital OUT Expansion 1	-	PN 2085 – OW8
Digital OUT Expansion 2	-	PN 2085 – OW8
Digital IN Expansion 1	-	PN 2085 – IQ16
Operator interface	-	PN 2711R – T7T – Ver. 5.011

3.2. PRECONDITIONS

In order to start any of the system running sequences, the preconditions indicated in the right-hand box of the FILTERING page must be respected.
It will be possible to select the system supply point by enabling pump P1 or alternatively pump P2, consequently the minimum level sensor connected will be precondition.
It will also be possible to enable the start of the enriched backwashing at predefined time intervals, or disable it to run it when necessary.
By disabling the enriched backwash, the status of the minimum level switches installed in the chemical product tanks, will not be taken into consideration among the necessary preconditions for starting the filtration.

3.3. HAND VALVE CONFGURATION

The system is designed to adapt to all the needs of the experiment, the operator can select the set-up he considers most appropriate for achieving the purpose.
It is necessary to set standard flow and pressures conditions, in order to select a working point such as to optimize the performance of the ultrafiltration membranes.
Below are the indications of the main settings of the manual valves:

FILTRATION FROM UASB

TAG	STATE
HV1	Open
HV2	Close
HV3	Open 1/4
HV5	Close
HV8	Close
HV11	Close
HV12	Open 1/4

FILTRATION FROM CW2

TAG	STATE
HV1	Close
HV2	Open
HV3	Open 1/4
HV5	Close
HV8	Close
HV11	Close
HV12	Open 1/4

After system starting, adjust the HV3 and HV12 valves until the following pressure and flow values are obtained:
PI1= 1 bar,
PI2= 1 bar,
PI3 =0.8 bar,
FI1=80 l/min;

3.4. FILTRATION SEQUENCE

In order to reduce the risk of membrane clogging, the filtration cycles will be performed by alternating the flow between the upper and lower inlet.
Pressing on the control panel the START button in the FILTERING box of the FILTERING page, is started the filtration sequence.
The time of the filtration phase can be set between 30 and 60 minutes, at the end of the cycle, before the flow change, a flushing and a backwash cycle will be performed.
The flushing and backwashing phases, are also activated by exceeding the differential pressure set-point downstream / upstream of the membranes.
Once the filtration has started, the system will automatically prepare the components by alternating the configuration of the motorized valves and the starting of the pumps according to the following tables:

FILTRATION CYCLE N

TAG	STATE
MV1	OPEN
MV2	CLOSE
MV3	CLOSE
MV4	CLOSE
MV5	OPEN
P1	ON
P2	OFF
P3	OFF
EV1	OFF
UV	ON

FLUSHING AFTER FILTRATION N

TAG	STATE
MV1	OPEN
MV2	CLOSE
MV3	CLOSE
MV4	OPEN
MV5	CLOSE
P1	ON
P2	OFF
P3	OFF
EV1	OFF
UV	OFF

BACKWASH AFTER FILTRATION N

TAG	STATE
MV1	CLOSE
MV2	CLOSE
MV3	CLOSE
MV4	OPEN
MV5	CLOSE
P1	OFF
P2	OFF
P3	ON
EV1	OFF
UV	OFF

FILTRATION CYCLE N+1

TAG	STATE
MV1	CLOSE
MV2	OPEN
MV3	CLOSE
MV4	CLOSE
MV5	OPEN
P1	ON
P2	OFF
P3	OFF
EV1	OFF
UV	ON

FLUSHING AFTER FILTRATION N+1

TAG	STATE
MV1	CLOSE
MV2	OPEN
MV3	OPEN
MV4	CLOSE
MV5	CLOSE
P1	ON
P2	OFF
P3	OFF
EV1	OFF
UV	OFF

BACKWASH AFTER FILTRATION N+1

TAG	STATE
MV1	CLOSE
MV2	CLOSE
MV3	OPEN
MV4	CLOSE
MV5	CLOSE
P1	OFF
P2	OFF
P3	ON
EV1	OFF
UV	OFF

For filtration sequence, with water supply from tank "CW2", in the tables above consider the pump "P2" active when indicated activates the pump "P1".

3.5. FLUSHING SEQUENCE

The flushing membranes sequence has been implemented, in the operating cycle of the membranes, to rapidly remove the solids, which are accumulated inside the channels during the filtration phase.
The flushing direction is in co-current with the previous filtration phase.
Once the set filtration time has elapsed, the system will proceed with the following steps:

- stop of the active feeding pump,
- closing of valve MV5
- opening of valve MV3 or MV4, depending on the filtration flow direction.

The involved pumps and automatic valves status table is shown in the previous paragraph.

3.6. BACKWASH SEQUENCE

During the backwash sequence, the fouling deposited on the membrane fibers are removed through the inlet connections and sent to the drain. The sequence “pushes” ultrafiltered water from the outlet connections towards the inlets, countercurrent to the direction of the filter flow.
The automatic valve status tables are shown in paragraph 4.4.

3.7. ENRICHED BACKWASH SEQUENCE

Depending on the treated water characteristics, it could be necessary to carry out an enriched backwash sequence at programmed intervals.
This sequence, thanks to the use of chemical products, removes dirty and fouling that simple backwashing was unable to remove.
The sequence is splitted into three steps, and it can last up to 2 hours.
Each single step is characterized by chemical product dosing (HCl, NaCl, NaOH) capable of removing particular types of fouling.
A generic sequence will be described below, the complete sequence is characterized by the chemical dosing pumps cyclical activation.

- Flushing

See paragraph 4.5

- Backwash

See paragraph 4.6

- UP / DOWN enriched backwash

Once the backwashing phase is completed, the flow delivered by pump P3 is partialized and the chemical product dosage is started. To have a homogeneous action of the chemical on the entire surface of the membranes, the enriched backwash is performed by expelling the wastewater first from the upper inlet and then from the lower one of the membranes. Below is the UP / DOWN enriched backwash valves configuration on different steps.

BACKWASH ENRICHED UP

TAG	STATE
MV1	CLOSE
MV2	CLOSE
MV3	OPEN
MV4	CLOSE
MV5	CLOSE
P1	OFF
P2	OFF
P3	ON
EV1	ON

BACKWASH ENRICHED DOWN

TAG	STATE
MV1	CLOSE
MV2	CLOSE
MV3	CLOSE
MV4	OPEN
MV5	CLOSE
P1	OFF
P2	OFF
P3	ON
EV1	ON

- Pause

The sequence provides a pause time, after dosing the chemicals, to allow reacting with the impurities, before proceeding with the backwash phase without chemicals.

- UP backwash / DOWN backwash

In order to definitively expel the impurities removed by the chemicals used in the previous phase, an alternate Up / Down backwashing cycle is provided.

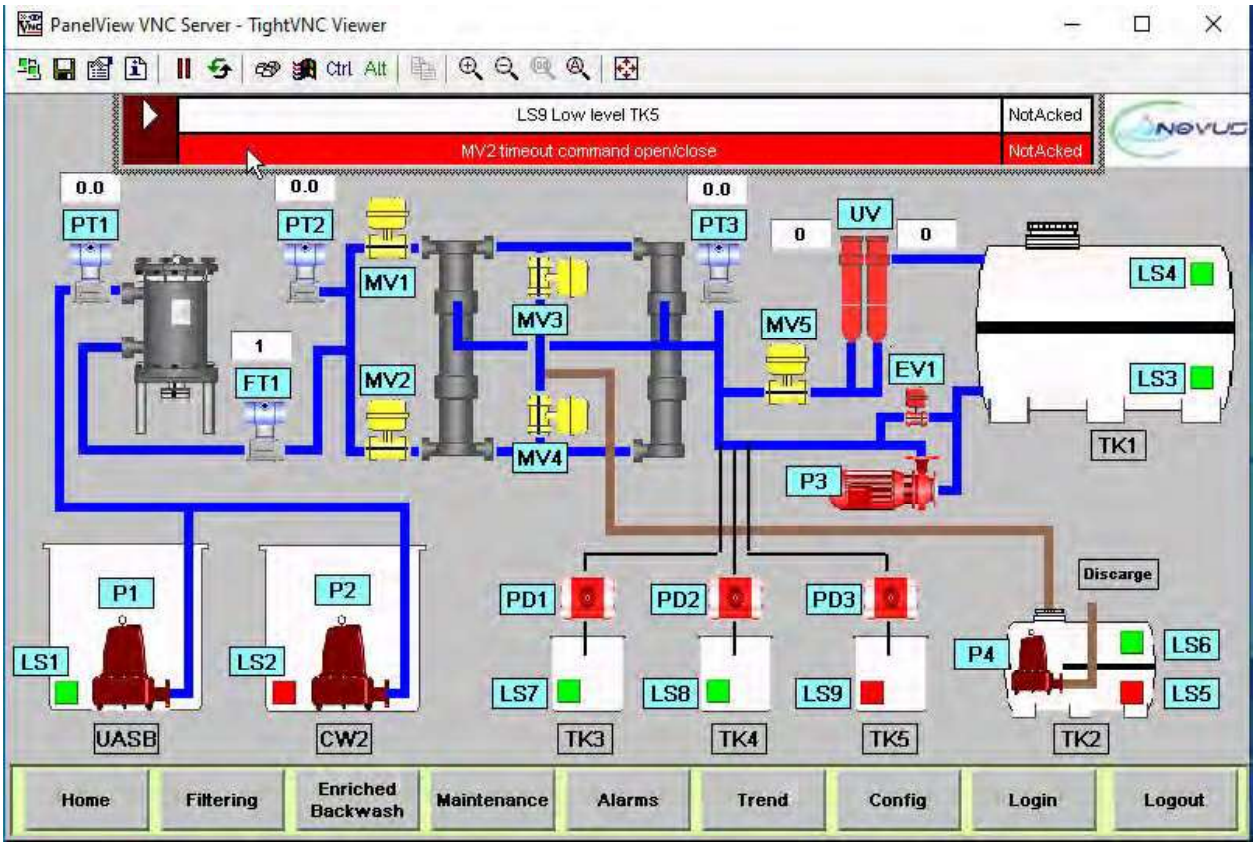
- Filtration

Among a sequence of backwashing enriched and the next, a filtration step is carried out in order to regularize the values of pH on the membranes.

3.8. USER INTERFACE / MANUAL COMMANDS

Here are some screen-shoots that describe the pages of the HMI panel, and the commands listed there.

3.8.1. HOME



The "HOME" screen summarizes the running scheme of the entire system, reporting the status of the components and the reading of the analog values. The legend that identifies the components is reported in the attached P & Id section 5.

Below is the legend of the symbols and colors of the objects on the screen:

Alarm Banner,

Shows the last 2 active alarms, the white color indicates that the alarm has been acknowledged, the red color indicates that the alarm has not been acknowledged.

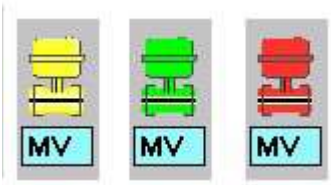
Pressure transmitter:

Shows the circuit pressure of the point on which it is inserted, unit of measure "bar".

Flow transmitter:

Shows the circuit flow rate of the point of on which it is inserted, unit of measure "l / min"

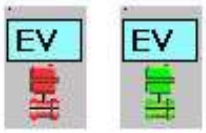
Motorized valve:



Shows the motorized valves status

- Yellow = undefined
- Green = open
- Red = closed
- Flashing = valve moving

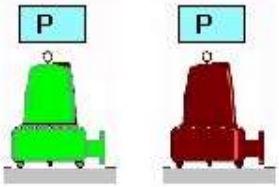
Solenoid valve



Shows the solenoid valve status:

- Green = open
- Red = closed

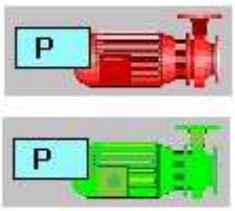
Submerged Pump



Shows the submersible pumps status:

- Green = run
- Red = stop

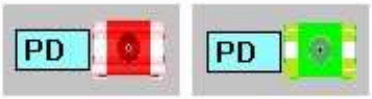
Surface pump



Shows the surface pump status:

- Green = run
- Red = stop

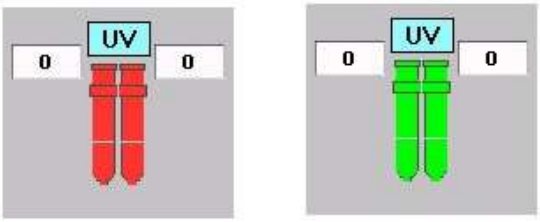
Chemical dosing pump



Shows the dosing pumps status:

- Green = run
- Red = stop

UV disinfection system:

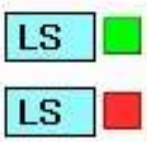


Shows the UV disinfection systems status:

- Green = on
- Red = off

The value shown near to the component indicates the irradiation value detected by the sensor installed on the vessel of the relative UV chamber.

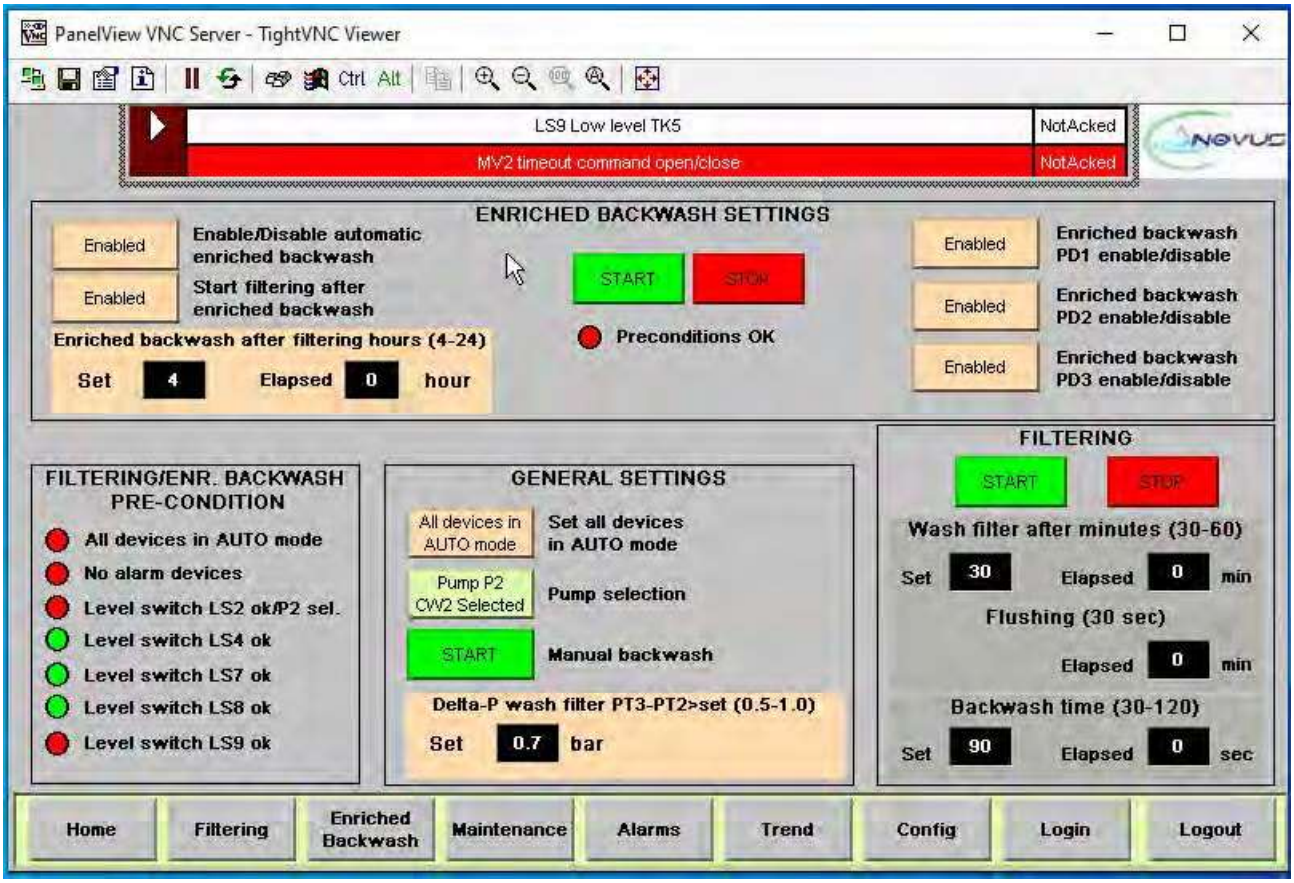
Digital level indicators



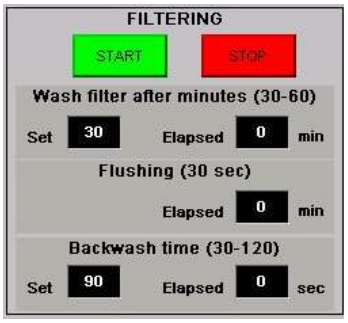
Shows the tank level switches status:

- Green = ok
- Red = alarm

3.8.2. FILTERING

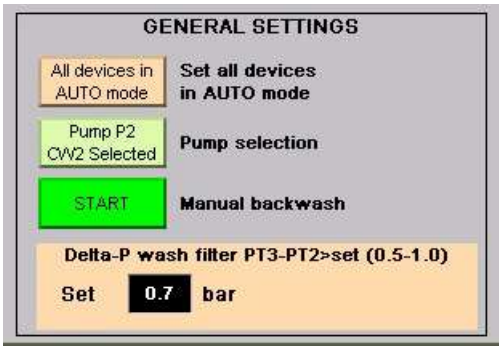


The "FILTERING" page contains the selectors and indicators that allow the operator to set the system configuration. Through this screen, the operator can check the status of the operating preconditions and enable / disable parts of the automatic sequences so as to adapt the automatic cycles of operation to the needs of the experiment.



The “FILTERING” box allows the operator to start and stop filtration. In the “Wash filter after minutes (30-60)” section allows the operator to set the filtration cycle time before the flushing and subsequent backwashing is activated. Through the “Set” box the operator can enter the desired duration between 30 and 60 min, the “Elapsed” box displays the elapsed time of the filtration cycle.

The elapsed time of the flushing phase is displayed in the “Flushing (30 sec)” section.
In the "Backwash time (30-120)" section the operator can set the backwash phase time, in the "Set" box the operator can enter a time between 30 and 120 sec, the "Elapsed" box displays the backwash cycle elapsed time.



The "GENERAL SETTINGS" section allows the operator to act on some general settings, that is:

- set all commands in automatic mode,
- select the supply tank of the UASB system - Pump 1, CW2 - Pump 2,
- start the backwash manually,
- set the differential pressure threshold beyond which the flushing and backwashing sequences are automatically started.

The selection of the system supply tank automatically enables the relevant level switch, excluding the level switch of the second tank.

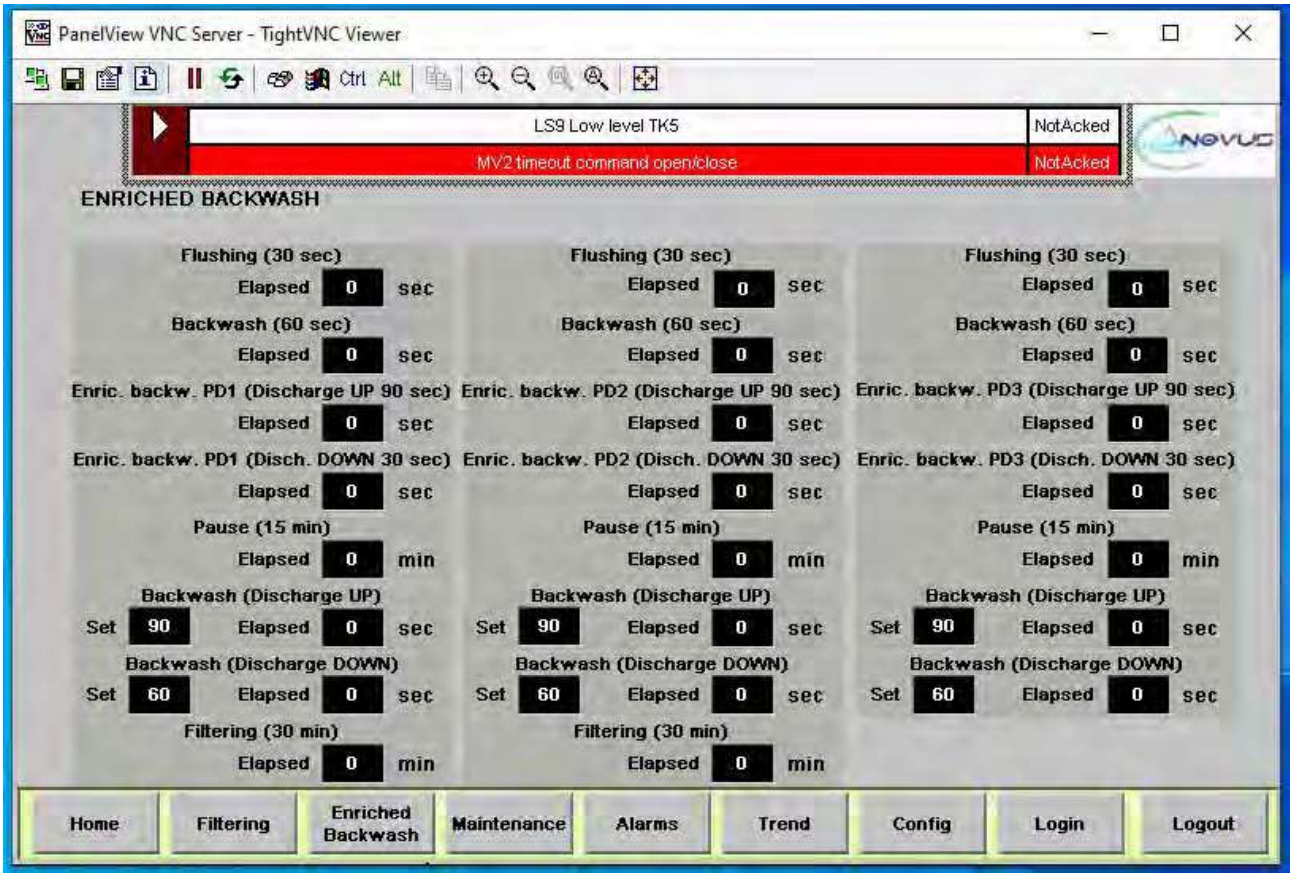
The “FILTERING / ENR. BACKWASH PRE-CONDITION ", shows the preconditions status necessary for the activation of the filtration sequence or enriched backwash. The indicator red warns that the pre-condition is not met, the indicator green warns that the pre-condition is met. The pre-condition linked to P1 or P2 automatically switches to LS1 or LS2 respectively.

The "ENRICHED BACKWASH SETTING" box allows the operator to select the enriched backwash configuration most suitable for the experiment.
The following options can be activated:

- Enable / disable the backwash automatic start after the timer expires as described in the following points,
- Enable / disable the filtration start after the enriched backwash sequences end,
- Set the time interval after which the enriched backwash sequence is started, the timer is activated only if the automatic start of the enriched backwash is selected, in the "Elapsed" box the time elapsed from the start of the filtration.
- Start / stop the enriched backwash sequence,
- Individually enable / disable the chemical product dosing pumps of the enriched washing sequence.

Disabling the single dosing pump inhibits the pre-condition linked to the level of the relative chemical product tank, as well as the entire sequence of the enriched backwash linked to the dosing pump is also disabled.
View the cumulative compliance of the pre-conditions.

3.8.3. ENRICHED BACKWASH



The page above shows the backwash sequence single phases, each single box changes the background color when the section is active, at the same time the phase elapsed time of the is displayed.

In detail, the singles steps are:

Flushing phase, time 30 seconds

Backwash phase, time 60 seconds

Backwash phase with chemicals dosing and drainage of the washing water from the upper membrane door, time 90 seconds.

Backwash phase with chemicals products dosing and drainage of washing water from the lower membrane door, time 30 seconds.

Pause phase to allow the chemicals to react with the impurities present in the membranes.

backwash phase with discharge from the upper part of the membranes, set time 90 seconds.

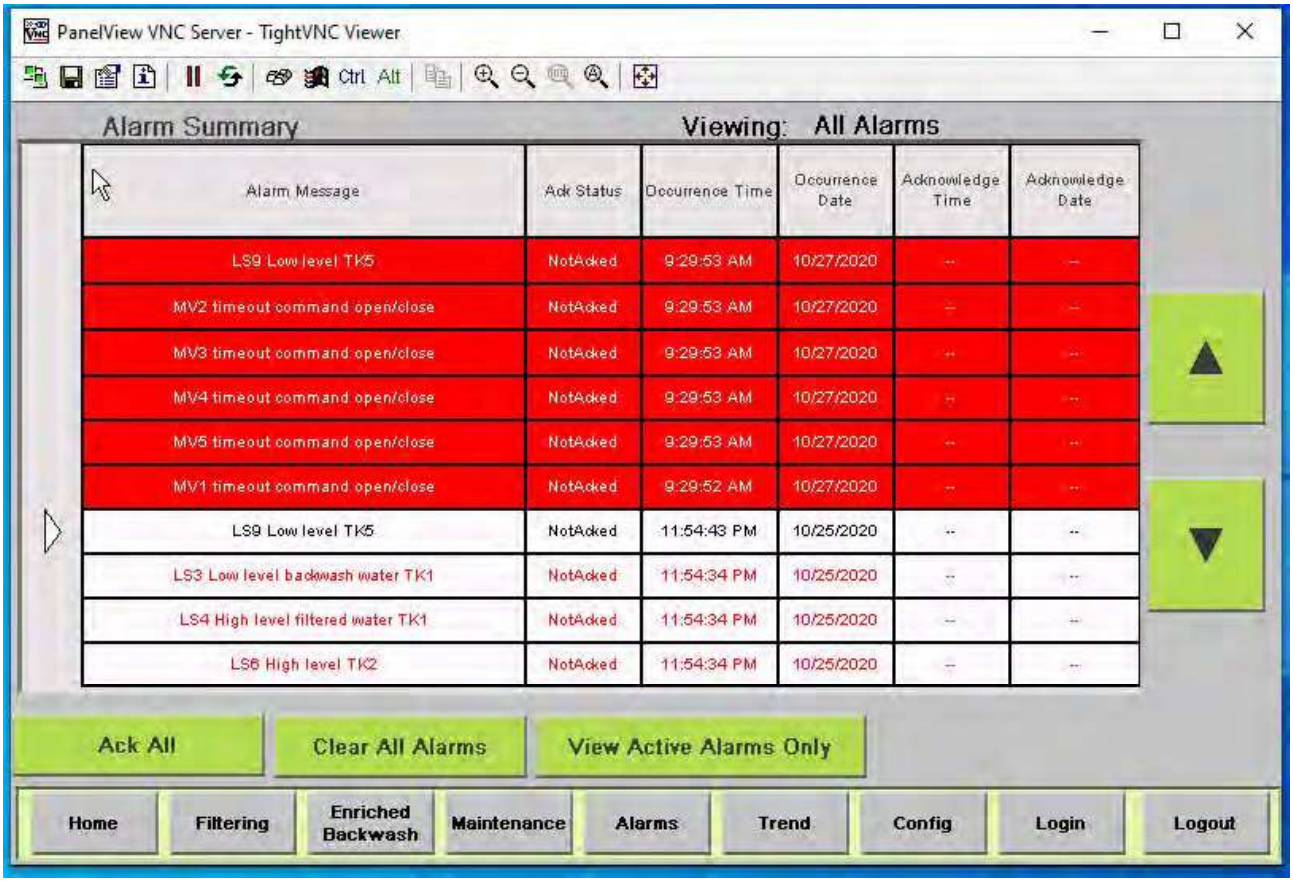
backwash phase with discharge from the lower part of the membranes, set time 60 seconds.

filtration phase necessary for the neutralization of the liquid present in the membranes, filtration time 30 minutes.

3.8.4. MAINTENANCE

The single components commands are grouped in the screenshot above.
Motorized pumps and valves are equipped with automatic / manual selector, once the user has been switched to manual it can be commanded in start / stop or open / close, while the dosing pumps, the solenoid valve and the UV have a step by step command type.
Within the same page there is the general reset button that allows you to recognize any alarms present in the alarm list but no longer active.

3.8.5. ALARMS

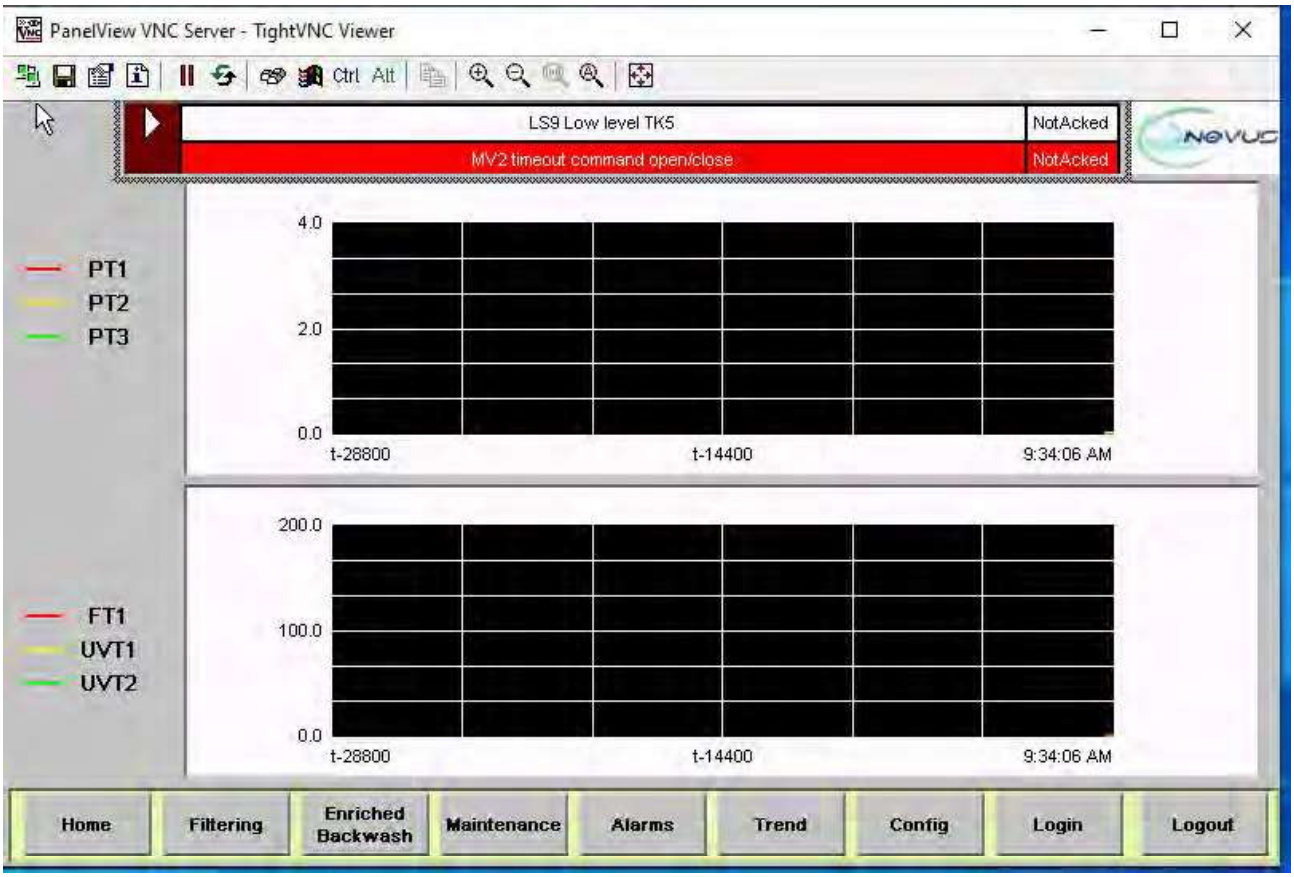


The alarms page displays the alarms sequence that have occurred:

- The white background and black text line indicates that the alarm has been acknowledged and is no longer active.
- The white background and red text line indicates that the alarm has been acknowledged but is still active.
- The red background and white text line indicates that the alarm is still active and has not been acknowledged.

The arrow keys allow the operator to scroll through the alarm log,
The Ack All key acknowledges alarms,
The Clear All Alarms button clears inactive alarms,
The View Active Alarms Only button allows the operator to view only active alarms

3.8.6. TREND



The trend page graphically displays the analog quantities acquired by the PLC. The values are stored in CVS format on the USB key connected to the panel.

3.8.7. CONFIG – LOGIN - LOGOUT

The CONFIG, LOGIN, LOGOUT pages are used to access to the panel technical configuration pages, they do not have useful features for the normal operation of the equipment.

3.9. EMERGENCY STOP

The system is equipped with an emergency button to block the entire system in case of need. The button is installed on the left of the electrical panel and is of the twist release type.
After unlocking the emergency button, the system must be reset using the illuminated button in the center of the internal door of the electrical panel.

PART 4 –

COMMISSIONING

4. COMMISSIONING

4.1. SYSTEM FIRST START-UP

Once the system has been positioned and all the hydraulic and electrical lines have been installed, it is necessary to ensure that:

- P1 and P2 pumps are correctly installed and connected,
- P4 pump is correctly installed and connected,
- The level LS1 is correctly positioned as a minimum level sensor in the UASB tank where P1 is installed,
- The level LS2 is correctly positioned as a minimum level sensor in the CW2 tank where P2 is installed,
- The levels LS3 and LS4 installed respectively as minimum and maximum level sensors of TK1 tank,
- The level LS5 and LS6 installed respectively as minimum and maximum level sensors of TK2 tank,
- The level LS7 must be installed on the suction port of the PD1 dosing pump and together positioned in the TK3,
- The level LS8 must be installed on the suction port of the PD2 dosing pump and together positioned in the TK4,
- - The level LS9 must be installed on the suction port of the PD3 dosing pump and together positioned in the TK5,

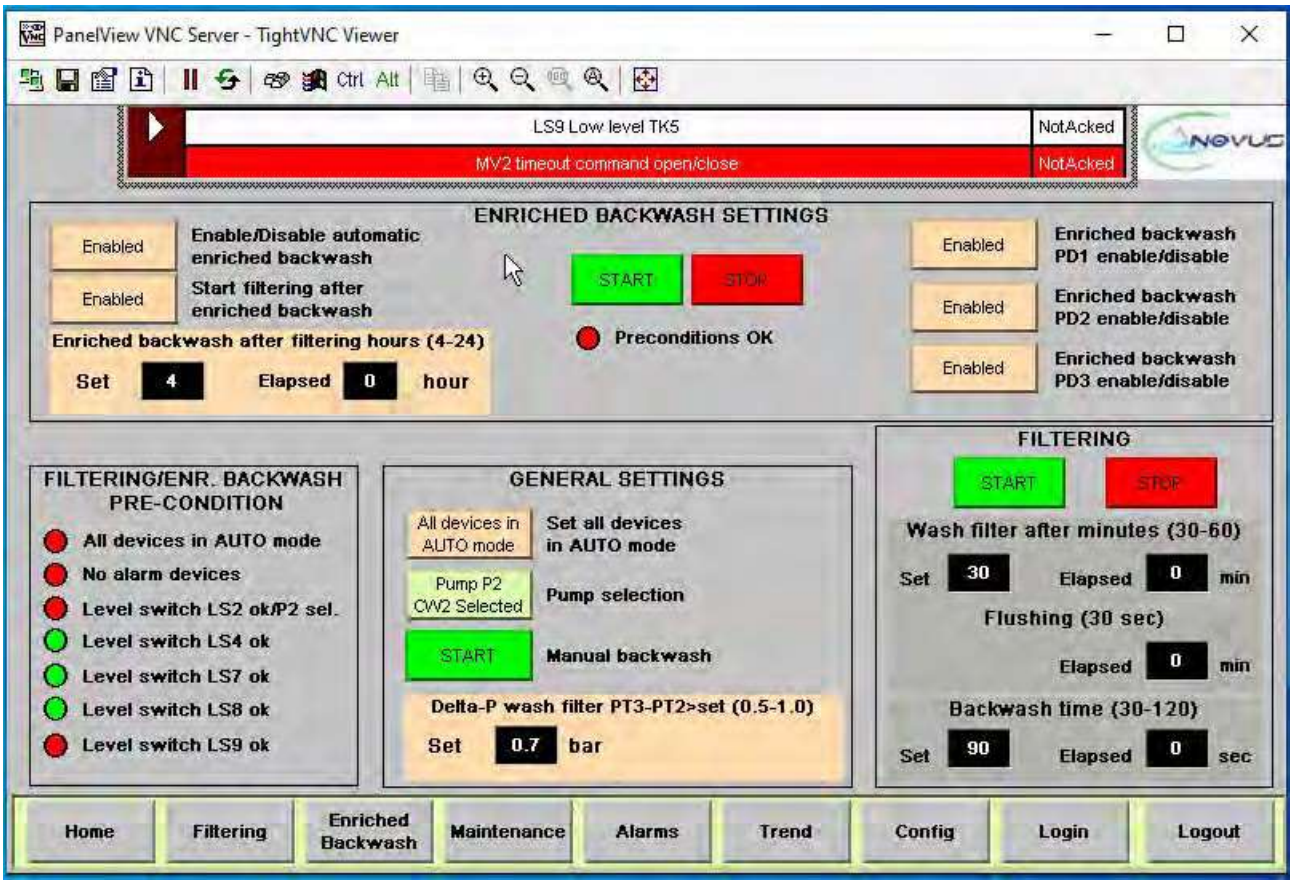
To be able to run the system for the first time make sure that
the manual valves are positioned as shown in the table below:

FILTRATION UASB

TAG	STATE
HV1	OPEN
HV2	CLOSE
HV3	OPEN 1/4
HV5	CLOSE
HV8	CLOSE
HV11	CLOSE
HV12	OPEN 1/4

- the free part of the flexible hose connected to the “OUT RECIRCULATION” line is positioned in the UASB tank,

- On the operator panel "FILTERING" page, press the "Pump selection" button, shown in the centre of the page in the "GENERAL STTINGS" section, until "Pump P1 UASB Selected" appears in the box (if the operator wishes to work with the CW2 tank select "Pump P2 CW2 Selected"),

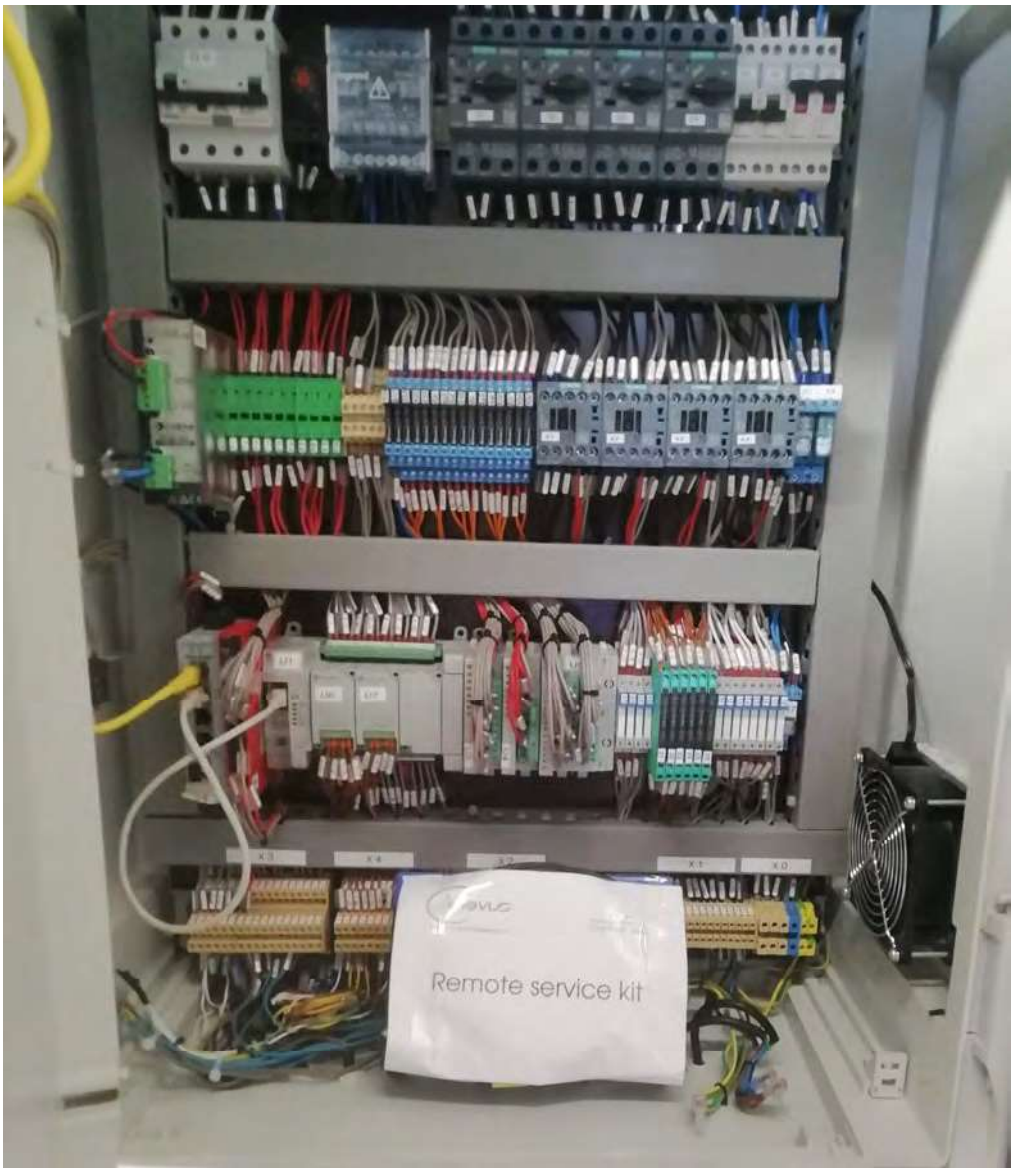


- Set the options dedicated to the backwash procedure enriched by the Enable / Disable buttons located on the panel "FILTERING" page, within the "ENRICHED BAKWASH" box,
- Make sure that the preconditions indicated in the “FILTERING / ENR. BACKWASH PRE-CONDITION ”are all respected (green), to simplify the automatic setting of all components, a special button has been set up in the "GENERAL SETTINGS" box, called "Set all devices in AUTO mode". Pressing this button will set all component controls to automatic mode.

If some or all of the dosing pumps are disabled, the preconditions linked to the chemical products tanks levels state will not be considered in the starting sequence; therefore, even if a red indicator is present, the preconditions met will be sufficient to start the process.

- Once the settings are complete, the machine can be started by pressing the green “START” button in the **“FILTERING” box on the right.**
- Once the flows have stabilized, adjust the valves HV1, HV3, HV12 in order to stabilize the pressures P1= 1 bar, PI2= 1 bar, PI3 =0.8 bar and the flow FI1=80 l/min;

The remote assistance kit has been stored inside the main electrical panel, to activate the connection for remote assistance proceed as described below.



- Connect the PC in the remote service kit to the monitor, keyboard and mouse,
- Connect the PC to the power supply using the power supply supplied in the package,
- Connect the PC to the switch on the operator panel using a Lan cable,
- After powering the main electrical panel of the "UF DEMO" unit, start the connection using the TightVNC application on the PC desktop
- Enter the following credentials::
  IP 192.168.1.100
  PassWord: Antrs$
- From this moment it is possible to view and interact with the operator panel from the remote PC

- To activate remote assistance to the system by a specialized technician, enable the connection of the PC to the factory WiFi network.
- Contact the service center to start the connection for the necessary activities.
- Below is the addresses configuration for the components connected to the unit control system network:
    - IP CPU 192.168.1.99
    - IP HMI 192.168.1.100
    - IP PC 192.168.1.222
    - Sub Net 255.255.255.0

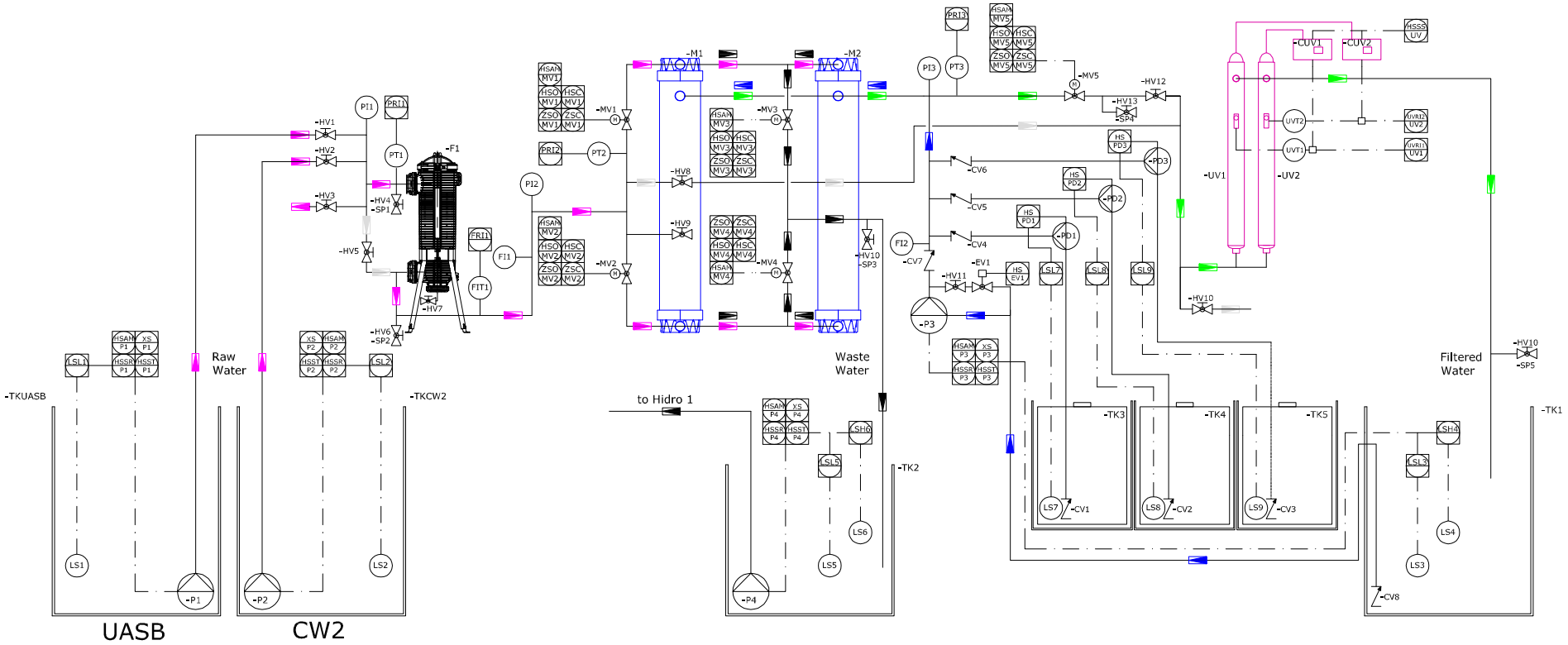
PART 5 –

ANNEX

1. P&Id
2. Electrical diagram
3. BAGONE-S basket filter
4. INGE Dizzer XL ultrafiltration membrane modules
5. Dreno DNA 50-2/110 T (P4) pump
6. Dreno DNA 50-2/220 T (P1-P2) pump
7. Lowara CEA 210/5 (P3) pump
8. Diamant PRO Motorized valve
9. Pressure transmitter FPT 8235
10. Flow transmitter LFE3
11. UV System Viqua F4+
12. Dosing pump Injecta Athena AT-MT
13. VC 314-QE001 – test report –
14. DC 314-QE001 – declaration of conformity –
15. VC 314-UFDEMO – test report –
16. DC 314-UFDEMO – declaration of conformity –

MATERIALI

POS.	QUANTITA'	DESCRIZIONE	COD. MATERIALE



LEGENDA

SIMBOL	TAG	
-Pn	Centrifugal pump [number]	-SPn Sampling point number
-PDn	Dosing pump [number]	-FIn Flow inficator number
xxn	On site instrumet [number]	-FITn Flow indicator & transm. number
xx xx	On HMI TAG [number]	-FRIn Flow indicator & registr. number
-EVn	Solenoid valve [number]	-PIn Pressure Indicator number
-HVn	Handle valve [number]	-PRIn Pressure indicator & registr. numb.
-MVn	Motorized valve [number]	-PTn Pressure transmitter number
-CVn	Check valve [number]	-UVTn UV intensity transmitter number
	Raw water flow direction	-UVRIn UV intensity indicator&transm. num
	Filtered water flow direction	-LSn Level switch number
	Clear beckwash water flow direction	-LSHn HIGH Level signal number
	Wastewater water flow direction	-LSLn LOW Level signal number
	BYpass water flow direction	-ZSC Closed position limit switch number
		-ZSO Closed position limit switch number
		-HSAM Handle PB AUTO/MAN
		-HSC Handle PB Close command
		-HSO Handle PB Open command
		-HSSR Handle PB Start command
		-HSST Handle PB Stop command
		-HSSS Handle PB Start/Stop command
		-XSss Hardware feedback from power relay

TAG CORRESPONDANCE

-TAG NOVUS	-TAG UNIPM	-TAG DESCRIPTION
-TK1	-T1	-Filtered water tank
-TK2	-T5	-Waste water tank
-TK3	-T2	-Typ A chemical tank
-TK4	-T3	-Typ B chemical tank
-TK5	-T4	-Typ C chemical tank
-TKUASB	-T6	-UASB Tank
-TKCW2	-T7	-CW2 Tank
-P1	-04-PSU-01	-UASB feed pump
-P2	-04-PSU-02	-CW2 feed pump
-P3	-04-PCE-01	-Memb. backwash pump
-P4	-04-PSU-03	-Waste water pump
-PD1	-04-DOS-01	-Typ A chemical dosing pump
-PD2	-04-DOS-02	-Typ B chemical dosing pump
-PD3	-04-DOS-03	-Typ C chemical dosing pump

TAG CORRESPONDANCE

-TAG NOVUS	-TAG UNIPM	-TAG DESCRIPTION
-F1	-04-SF-01	-Prefiltration cartridge filter
-M1	-04-UF-01	-Ultrafiltration membrane n°1
-M2		-Ultrafiltration membrane n°2
-UV1	-04-UV-01	-Ultraviolet sterilizer n°1
-UV2		-Ultraviolet sterilizer n°2
	-04-ULM-01	
-PI1	-04-MA-01	-Inlet Gauge
-PI2	-04-MA-02	-Membrane Inlet Gauge
	-04-MA-03	
-PI3	-04-MA-04	-Membrane Outlet Gauge
-FI1	-04-FM-01	-Membrane Outlet Flowmeter
-LS3	-04-LS-01	-Low level Filtered water tank
-LS6	-04-LS-02	-High level Filtered water tank

N. REV	NOTE REVISIONE	DATA REV	DISEGNATO	VERIFICATO	APPROVATO
1	As Built	22/10/2020	MP	RC	MP
0	Emissione	10/10/2019	MP	RC	MP

CODICE:

NOME FILE: schema ANTISSA GR r3do

COMMESSA: 314

CLIENTE **UNIPM**

DESCRIZIONE: SCHEMA IMPIANTO LINEA DEMO 100mc/h

NOVUS srl
via E. Fermi 18 - 72100 Brindisi
Tel 0831548222 Fax 0831548011
www.novuscd.it

SCALA

TAV.

FILE M 7.03/03
REV. 0 22/07/05

FOG.

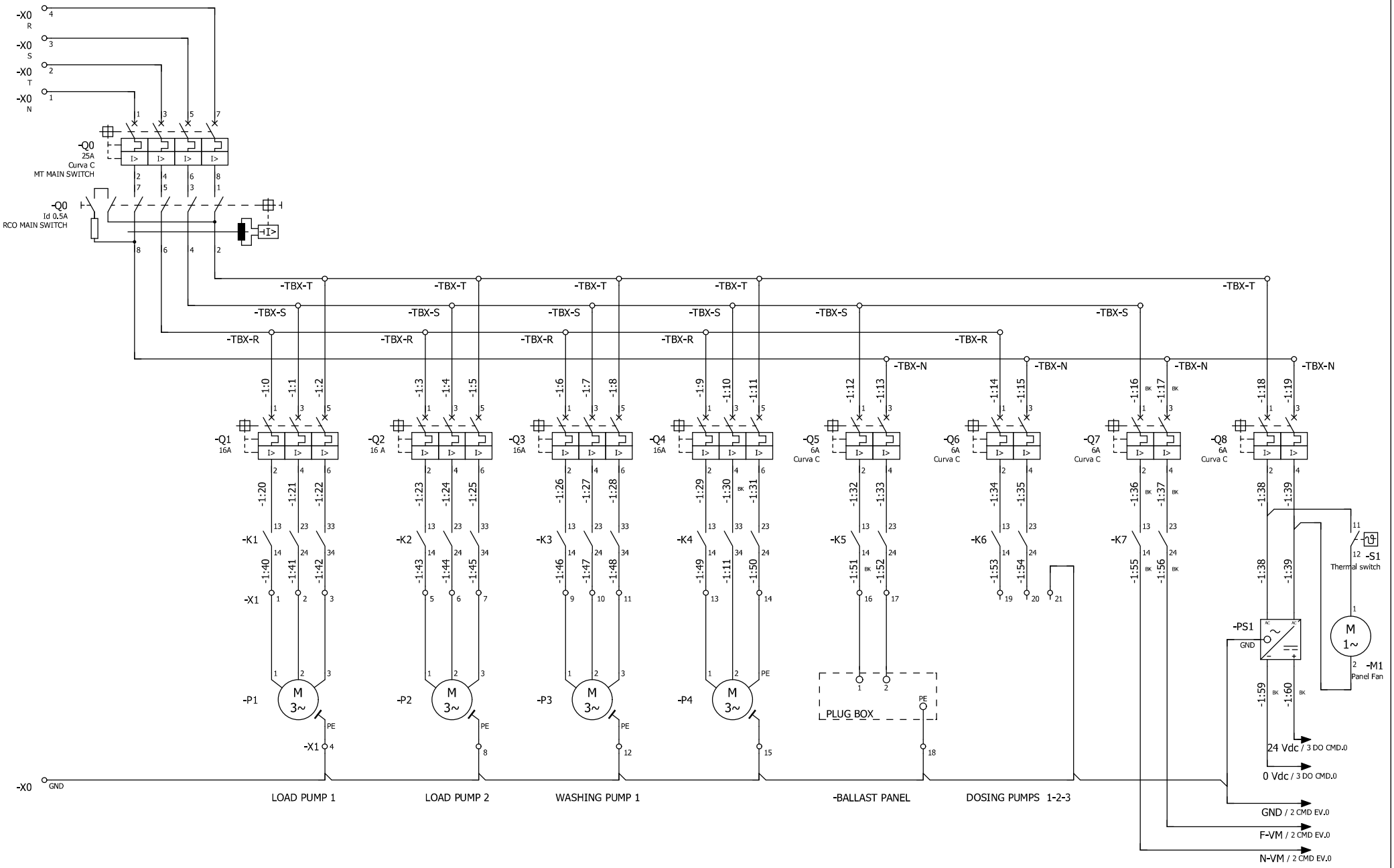
UNIVERSITÀ POLITECNICA DELLE MARCHE

Università Politecnica delle Marche
P.zza Roma, 22
60121 - ANCONA - ITALY

Novus s.r.l.
72100 Brindisi
Phone. +39 (0) 831 548222

Company / customer	
Project description	Antissa Demo Unit Electric Panel
Location	
Job number	QE001-314
Commission	314
Project name	Antissa - UNVPM
Responsible for project	Novus srl
Manufacturing date	
Type	
Place of installation	
power supply	
Input lead	
Control voltage	
Special customer regulations	

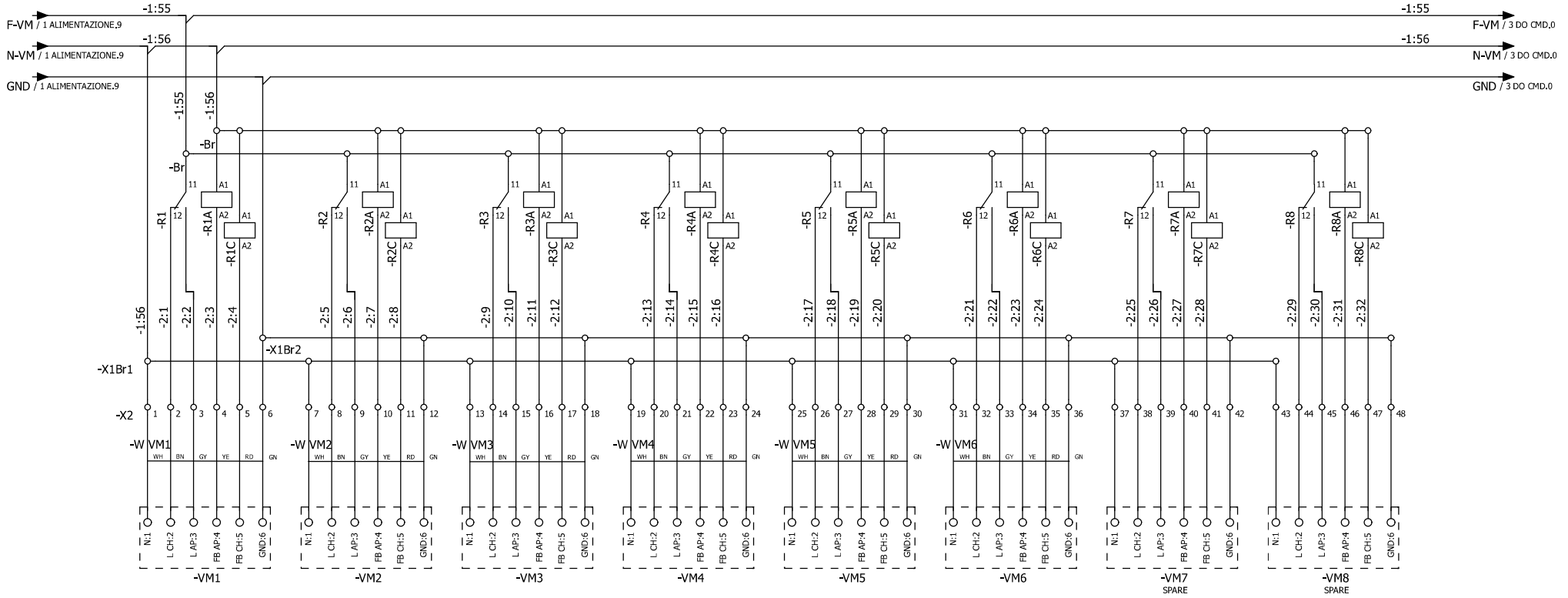
Created on	24/03/2020			
Edit date	07/11/2020	by (short name)	Novus s.r.l.	Number of pages 19



0 ANTISSA DEMO UNIT COPERTINA

2 CMD EV

			Date	07/11/2020	314		Università Politecnica delle Marche	=
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr				QE001-314	Page name 1 ALIMENTAZIONE
Modification	Date	Name	Original		Replacement of	Replaced by		Page 2 / 19



1 ALIMENTAZIONE

3 DO CMD

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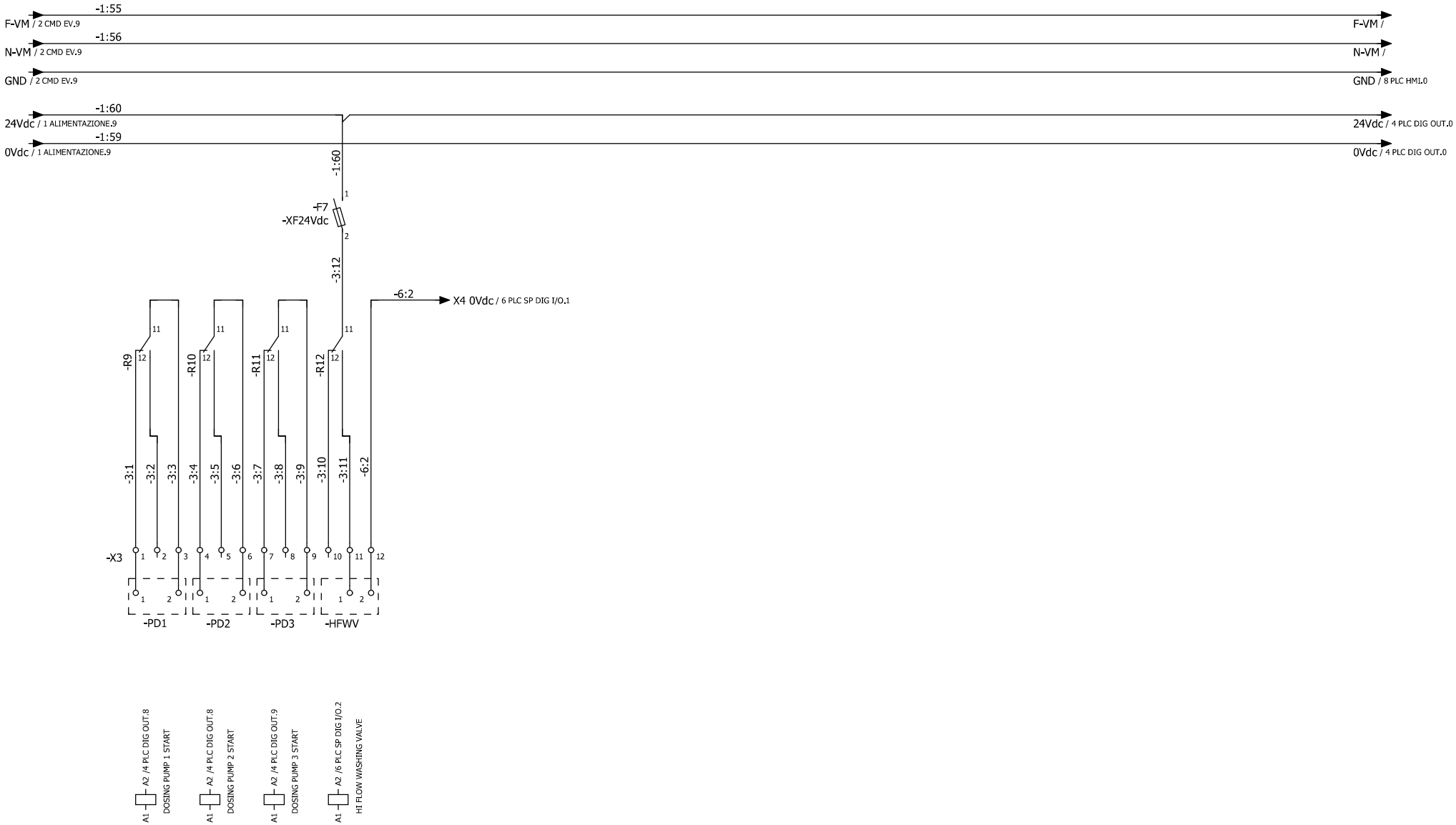
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr					QE001-314 Page name 2 CMD EV
Modification	Date	Name	Original		Replacement of	Replaced by		Page 3 / 19

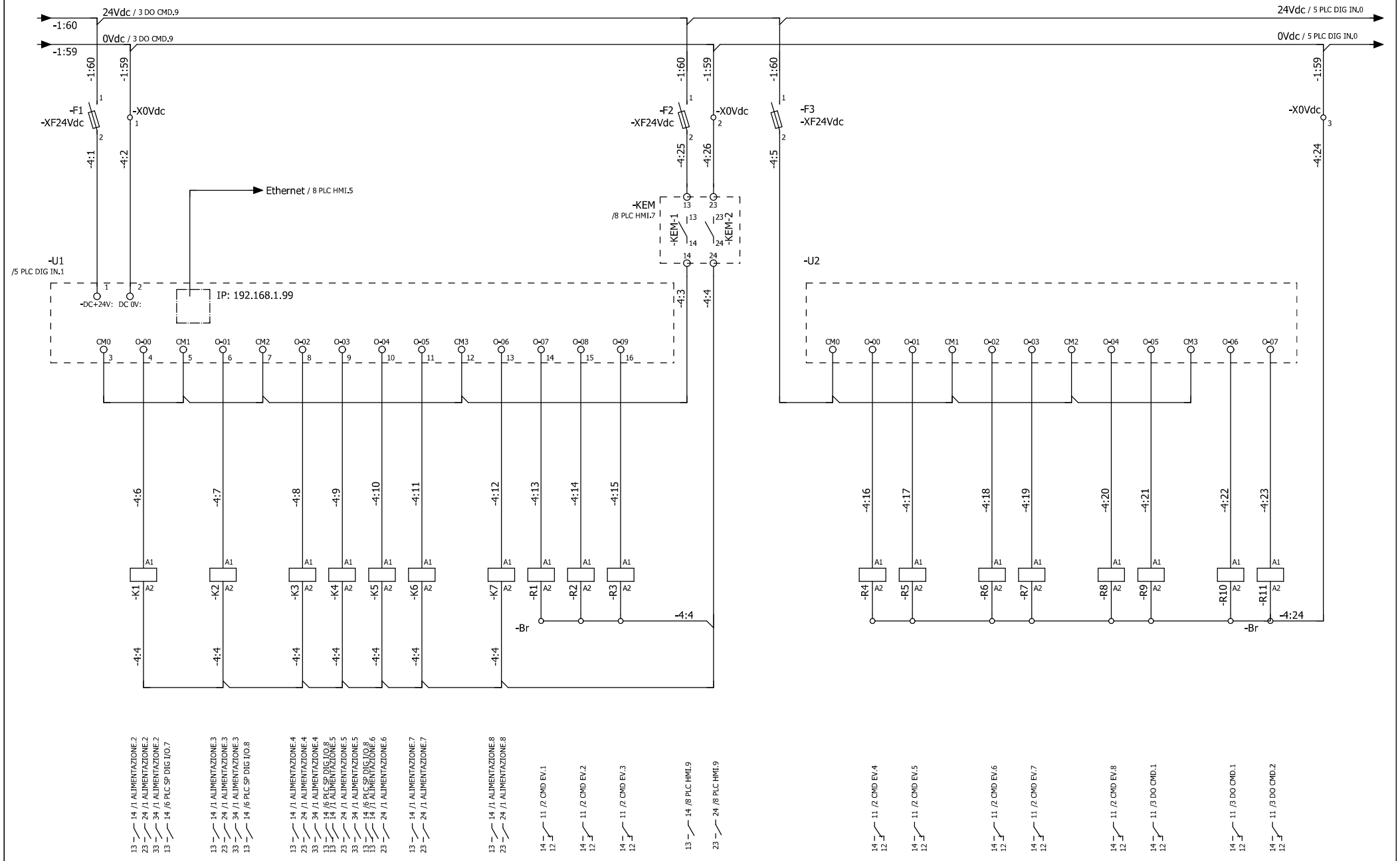


2 CMD EV

4 PLC DIG OUT

			Date	07/11/2020	314	Antissa Demo Unit Electric Panel	Università Politecnica delle Marche Antissa Demo Unit Electric Panel
			Ed.	UTENTE			
			Appr				
Modification	Date	Name	Original		Replacement of	Replaced by	

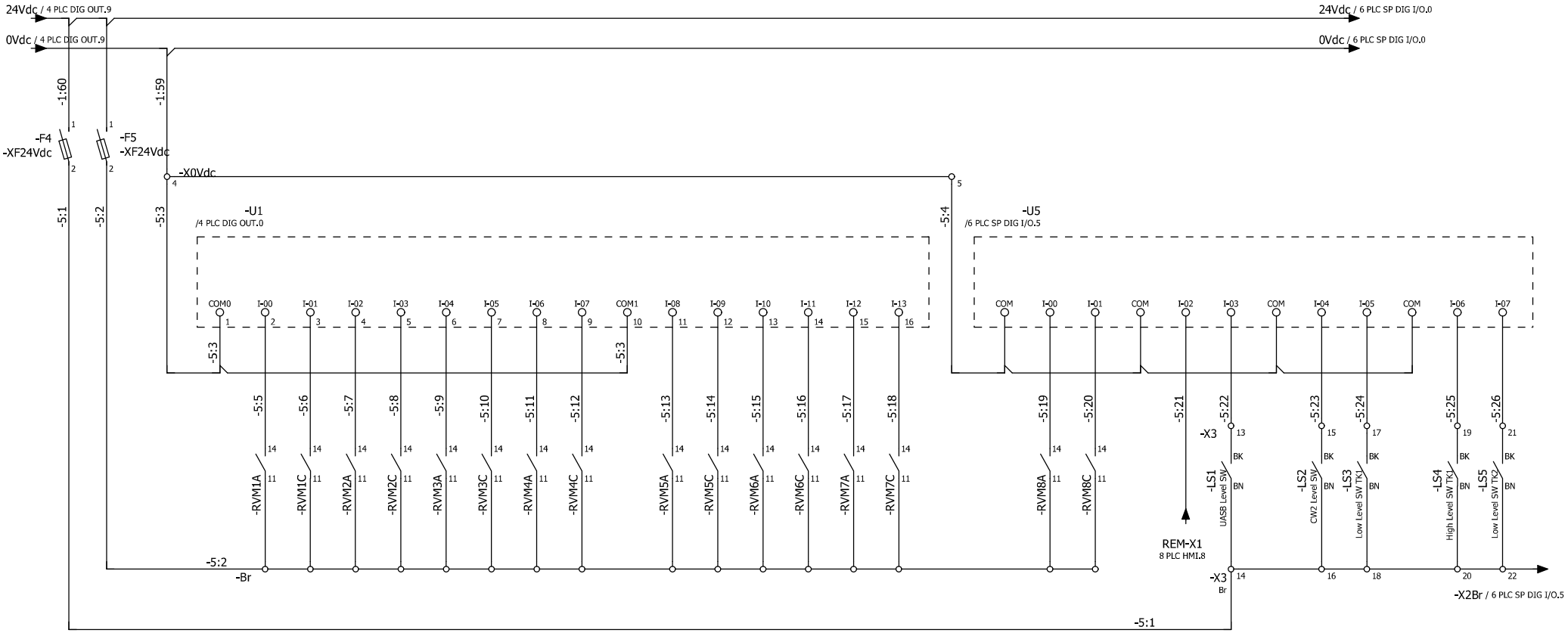
=
+
QE001-314 Page name 3 DO CMD
Page 4 / 19



3 DO CMD

5 PLC DIG IN

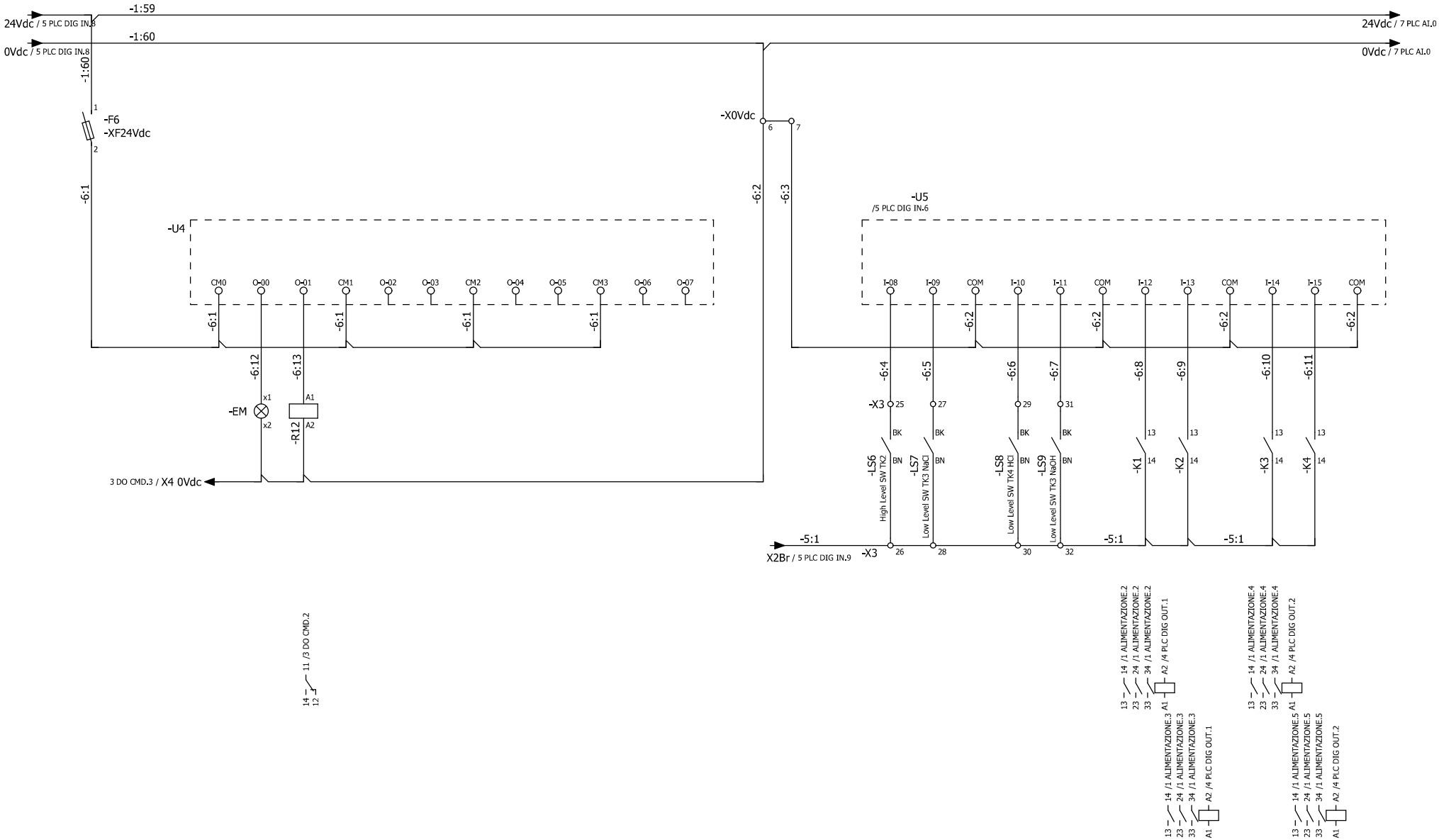
			Date	07/11/2020	314		Università Politecnica delle Marche	=
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr				QE001-314	Page name 4 PLC DIG OUT
Modification	Date	Name	Original		Replacement of	Replaced by		Page 5 / 19



4 PLC DIG OUT

6 PLC SP DIG I/O

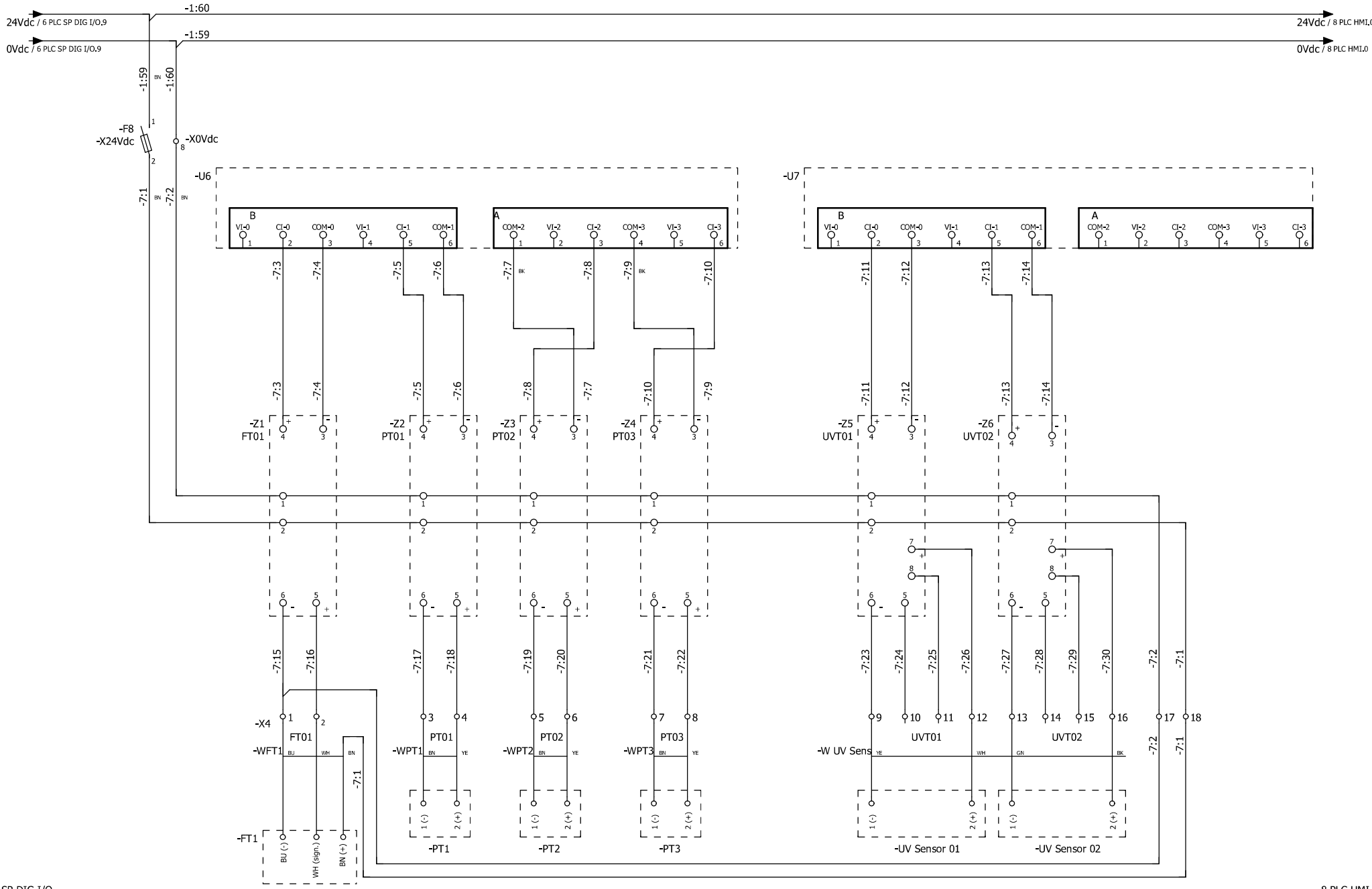
			Date	02/10/2020	314		Università Politecnica delle Marche	=
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr				QE001-314	Page name 5 PLC DIG IN
Modification	Date	Name	Original		Replacement of	Replaced by		Page 6 / 19



5 PLC DIG IN

7 PLC AI

			Date	02/10/2020	314		Università Politecnica delle Marche	=
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr				QE001-314	Page name 6 PLC SP DIG I/O
Modification	Date	Name	Original		Replacement of	Replaced by		Page 7 / 19



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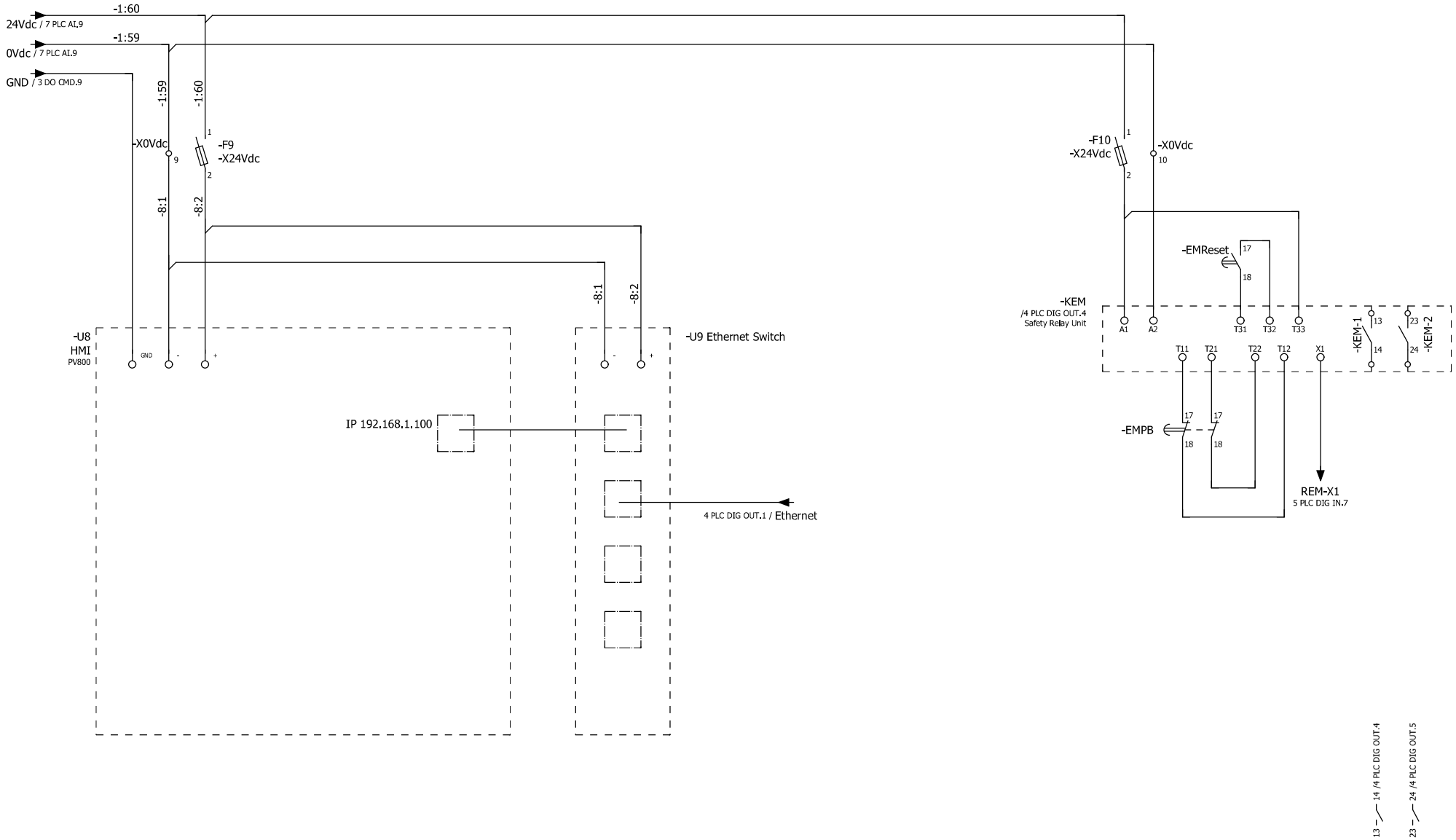
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr				QE001-314	Page name 7 PLC AI
Modification	Date	Name	Original		Replacement of	Replaced by		Page 8 / 19


24Vdc / 7 PLC AI.9
0Vdc / 7 PLC AI.9
GND / 3 DO CMD.9
-1:60
-1:59
-X0Vdc
-F9
-X24Vdc
-8:1
-8:2
-U8
HMI
PV800
GND
-U9 Ethernet Switch
IP 192.168.1.100
4 PLC DIG OUT.1 / Ethernet
-F10
-X24Vdc
-X0Vdc
-EMReset
-KEM
/4 PLC DIG OUT.4
Safety Relay Unit
A1
A2
T31
T32
T33
T11
T21
T22
T12
X1
-KEM-1
-KEM-2
-EMPB
REM-X1
5 PLC DIG IN.7
13 — 14 /4 PLC DIG OUT.4
23 — 24 /4 PLC DIG OUT.5

8 PLC HMI

10 PART LIST

			Date	29/03/2020	314		Università Politecnica delle Marche	=
			Ed.	UTENTE	Antissa Demo Unit Electric Panel		Antissa Demo Unit Electric Panel	+
			Appr					QE001-314 Page name 9 DISPOSIZIONE
Modification	Date	Name	Original		Replacement of	Replaced by		Page 10 / 19

Parts list

F01_001 - NOVUS

Device tag	Quantity	Designation	Type number	Supplier	Part number
-BALLAST PANEL	0				
-EM	0				
-F1	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F2	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F3	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F4	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F5	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F6	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F7	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F8	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F9	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-F10	1	FUSE TERMINAL BLOCK	SFO.4	CABUR	CBR.SF400
-FT1	0				
-K1	4	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K2	4	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K3	4	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K4	4	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K5	3	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K6	3	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-K7	3	CONTACTOR RELAY, 3 NO + 1 NC, 24 V DC	3RH2131-1BB40	SIE	SIE.3RH2131-1BB40
-KEM	2	SAFETY EMERGENCY RELAY	G9SE201DC24	OMRON	OMR-G9SE201DC24
-P1	1	SUBMERSIBLE ELECTROPUMP WITH VORTEX IMPELLER	DNA DN50-2/220T	DRENO	DRE.DNA DN50-2/220T
-P2	1	SUBMERSIBLE ELECTROPUMP WITH VORTEX IMPELLER	DNA DN50-2/220T	DRENO	DRE.DNA DN50-2/220T
-P3	1	SUBMERSIBLE ELECTROPUMP WITH VORTEX IMPELLER	DNA DN50-2/220T-1	DRENO	DRE.DNA DN50-2/220T-1
-P4	1	ELECTROPUMP WITH SINGLE IMPELLER	CEANM210/2	LOWARA	LOW.CEANM210/2
-PD1	0				
-PS1	1	120W. XLE POWER SUPPLY	1606-XLE120E	ROCKWELL	RCK.1606-XLE120E
-PT1	0				
-PT2	0				
-PT3	0				
-Q0	1	CIRCUIT BREAKER 400 V 10kA, 4-pole, C, 32 A,	5SY4432-7	SIE	SIE.5SY4432-7
-Q0	1	RC UNIT FOR 5SY, 4-P IN 63, 500 mA	5SM2745-6	SIE	SIE.5SM2745-6
-Q1	1	MOTOR PROTECTION, 4.5...6.3 A	3RV2021-1GA15	SIE	SIE.3RV2021-1GA15
-Q2	1	MOTOR PROTECTION, 4.5...6.3 A	3RV2021-1GA15	SIE	SIE.3RV2021-1GA15
-Q3	1	MOTOR PROTECTION, 4.5...6.3 A	3RV2021-1GA15	SIE	SIE.3RV2021-1GA15
-Q4	1	MOTOR PROTECTION, 4.5...6.3 A	3RV2021-1GA15	SIE	SIE.3RV2021-1GA15
-Q5	1	CIRCUIT BREAKER 230/400V 6KA, 2-P	5SY6206-7	SIE	SIE.5SY6206-7
-Q6	1	CIRCUIT BREAKER 230/400V 6KA, 2-P	5SY6206-7	SIE	SIE.5SY6206-7
-Q7	1	CIRCUIT BREAKER 230/400V 6KA, 2-P	5SY6206-7	SIE	SIE.5SY6206-7
-Q8	1	CIRCUIT BREAKER 230/400V 6KA, 2-P	5SY6206-7	SIE	SIE.5SY6206-7
-R1	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R2	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R3	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R4	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R5	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R6	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R7	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R8	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R9	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R10	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R11	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-R12	2	SINGLE CHANNEL RELAY MODULE SUPPLY 24 VDC	CWRE7-0842	CABUR	CBR.CWRE7-0842
-RVM1A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM1C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM2A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM2C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847

Parts list

F01_001 - NOVUS

Device tag	Quantity	Designation	Type number	Supplier	Part number
-RVM3A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM3C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM4A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM4C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM5A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM5C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM6A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM6C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM7A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM7C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM8A	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-RVM8C	2	SINGLE CHANNEL RELAY MODULE SUPPLY 230VAC	CWRE7-0847	CABUR	CBR.CWRE7-0847
-U1	2	Micro850 Controller, 14-24V DC/V AC Input, 10-Relay Output Controller	2080-LC50-24QWB	ROCKWELL	RCK.2080-LC50-24QWB
-U2	1	Micro850 Output Module, Digital, 8 Point, 12/24VDC, Relay, 2A	2085-OW8	ROCKWELL	RCK.2085-OW8
-U4	1	Micro850 Output Module, Digital, 8 Point, 12/24VDC, Relay, 2A	2085-OW8	ROCKWELL	RCK.2085-OW8
-U5	2	Micro850 Input Module, Digital, 8 Point, 120 VAC	2085-IA8	ROCKWELL	RCK.2085-IA8
-U6	1	2080 Micro800 System, 4-ch V/I Analog Input	2080-IF4	ROCKWELL	RCK.2080-IF4
-U7	1	2080 Micro800 System, 4-ch V/I Analog Input	2080-IF4	ROCKWELL	RCK.2080-IF4
-U8	1	PanelView 800, 7 in HMI Terminal	2711R-T7T	ROCKWELL	RCK.2711R-T7T
-U9 Ethernet Switch	0				
-UV Sensor01	0				
-UV Sensor02	0				
-VM1	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM2	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM3	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM4	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM5	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM6	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM7	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-VM8	1	ACTUATOR FOR 2WAY BALL VALVE 230vac	ISO5211-F05	COMAPRATO	DIA.ISO5211-F05
-Z1	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-1C.H	PEPPERL+FUCHS	PEF.S1SD-1AI-1C.H
-Z2	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-1C.H	PEPPERL+FUCHS	PEF.S1SD-1AI-1C.H
-Z3	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-1C.H	PEPPERL+FUCHS	PEF.S1SD-1AI-1C.H
-Z4	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-1C.H	PEPPERL+FUCHS	PEF.S1SD-1AI-1C.H
-Z5	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-2C	PEPPERL+FUCHS	PEF.S1SD-1AI-2C
-Z6	1	SMART TRANSMITTER POWER SUPPLY	S1SD-1AI-2C	PEPPERL+FUCHS	PEF.S1SD-1AI-2C

Terminal diagram

F13_003

Strip

=+-X0

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
			1	N			-Q0:1	/1 ALIMENTAZIONE.1
			2	T			-Q0:3	/1 ALIMENTAZIONE.1
			3	S			-Q0:5	/1 ALIMENTAZIONE.1
			4	R			-Q0:7	/1 ALIMENTAZIONE.1
			GND				-X1:4:PE	/1 ALIMENTAZIONE.2

Terminal diagram

F13_003

Strip

=+-X1

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
-P1:1			1	P1 LINE "R"			-K1:14	/1 ALIMENTAZIONE.2
-P1:2			2	P1 LINE "S"			-K1:24	/1 ALIMENTAZIONE.2
-P1:3			3	P1 LINE "T"			-K1:34	/1 ALIMENTAZIONE.2
-P1:PE			4				-X0:GND	/1 ALIMENTAZIONE.0
-P2:1			5				-K2:14	/1 ALIMENTAZIONE.3
-P2:2			6				-K2:24	/1 ALIMENTAZIONE.3
-P2:3			7				-K2:34	/1 ALIMENTAZIONE.3
-P2:PE			8					
-P3:1			9				-K3:14	/1 ALIMENTAZIONE.4
-P3:2			10				-K3:24	/1 ALIMENTAZIONE.4
-P3:3			11				-K3:34	/1 ALIMENTAZIONE.4
-P3:PE			12					
-P4:1			13				-K4:14	/1 ALIMENTAZIONE.5
-P4:2			14				-K4:24	/1 ALIMENTAZIONE.5
-P4:PE			15					
-Y2:1			16				-K5:14	/1 ALIMENTAZIONE.6
-Y2:2			17				-K5:24	/1 ALIMENTAZIONE.6
-Y2:PE			18					
-Y3:1			19				-K6:14	/1 ALIMENTAZIONE.7
-Y3:2			20				-K6:24	/1 ALIMENTAZIONE.7
-Y3:PE			21				-X1Br2	/2 CMD EV.1

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			Date	10/05/2020	314	Università Politecnica delle Marche	Terminal diagram =+-X1		=
			Ed.	UTENTE					+
			Appr		Antissa Demo Unit Electric Panel			QE001-314	Page 12
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Terminal diagram

F13_003

Strip

=+-X2

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
-VM1-N:1			1				-X1Br1	/2 CMD EV.1
-VM1-L CH:2			2				-R1:12	/2 CMD EV.1
-VM1-L AP:3			3				-R1:14	/2 CMD EV.1
-VM1-FB AP:4			4				-R1A:A2	/2 CMD EV.1
-VM1-FB CH:5			5				-R1C:A2	/2 CMD EV.1
-VM1-GND:6			6				-X1Br2	/2 CMD EV.1
-VM2-N:1			7				-X1Br1	/2 CMD EV.2
-VM2-L CH:2			8				-R2:12	/2 CMD EV.2
-VM2-L AP:3			9				-R2:14	/2 CMD EV.2
-VM2-FB AP:4			10				-R2A:A2	/2 CMD EV.2
-VM2-FB CH:5			11				-R2C:A2	/2 CMD EV.2
-VM2-GND:6			12				-X1Br2	/2 CMD EV.2
-VM3-N:1			13				-X1Br1	/2 CMD EV.3
-VM3-L CH:2			14				-R3:12	/2 CMD EV.3
-VM3-L AP:3			15				-R3:14	/2 CMD EV.3
-VM3-FB AP:4			16				-R3A:A2	/2 CMD EV.3
-VM3-FB CH:5			17				-R3C:A2	/2 CMD EV.3
-VM3-GND:6			18				-X1Br2	/2 CMD EV.3
-VM4-N:1			19				-X1Br1	/2 CMD EV.4
-VM4-L CH:2			20				-R4:12	/2 CMD EV.4
-VM4-L AP:3			21				-R4:14	/2 CMD EV.4
-VM4-FB AP:4			22				-R4A:A2	/2 CMD EV.4
-VM4-FB CH:5			23				-R4C:A2	/2 CMD EV.4
-VM4-GND:6			24				-X1Br2	/2 CMD EV.4
-VM5-N:1			25				-X1Br1	/2 CMD EV.5

Terminal diagram

F13_003

Strip

=+-X2

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
-VM5-L CH:2			26				-R5:12	/2 CMD EV.5
-VM5-L AP:3			27				-R5:14	/2 CMD EV.5
-VM5-FB AP:4			28				-R5A:A2	/2 CMD EV.5
-VM5-FB CH:5			29				-R5C:A2	/2 CMD EV.5
-VM5-GND:6			30				-X1Br2	/2 CMD EV.5
-VM6-N:1			31				-X1Br1	/2 CMD EV.6
-VM6-L CH:2			32				-R6:12	/2 CMD EV.6
-VM6-L AP:3			33				-R6:14	/2 CMD EV.6
-VM6-FB AP:4			34				-R6A:A2	/2 CMD EV.6
-VM6-FB CH:5			35				-R6C:A2	/2 CMD EV.6
-VM6-GND:6			36				-X1Br2	/2 CMD EV.6
-VM7-N:1			37				-X1Br1	/2 CMD EV.7
-VM7-L CH:2			38				-R7:12	/2 CMD EV.7
-VM7-L AP:3			39				-R7:14	/2 CMD EV.7
-VM7-FB AP:4			40				-R7A:A2	/2 CMD EV.7
-VM7-FB CH:5			41				-R7C:A2	/2 CMD EV.7
-VM7-GND:6			42				-X1Br2	/2 CMD EV.7
-VM8-N:1			43				-X1Br1	/2 CMD EV.8
-VM8-L CH:2			44				-R8:12	/2 CMD EV.8
-VM8-L AP:3			45				-R8:14	/2 CMD EV.8
-VM8-FB AP:4			46				-R8A:A2	/2 CMD EV.8
-VM8-FB CH:5			47				-R8C:A2	/2 CMD EV.8
-VM8-GND:6			48				-X1Br2	/2 CMD EV.8

Terminal diagram

F13_003

Strip

=+-X3

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
-PD1:1			1				-R9:12	/3 DO CMD.1
			2				-R9:14	/3 DO CMD.1
-PD1:2			3	DOSING PUMP 1 START			-R9:11	/3 DO CMD.1
-PD2:1			4	=			-R10:12	/3 DO CMD.1
			5	=			-R10:14	/3 DO CMD.1
-PD2:2			6	DOSING PUMP 2 START			-R10:11	/3 DO CMD.1
-PD3:1			7	=			-R11:12	/3 DO CMD.2
			8	=			-R11:14	/3 DO CMD.2
-PD3:2			9	DOSING PUMP 3 START			-R11:11	/3 DO CMD.2
			10	=			-R12:12	/3 DO CMD.2
-HFWV:1			11	=			-R12:14	/3 DO CMD.2
-HFWV:2			12	HI FLOW WASHING VALVE			-EM:x2	/6 PLC SP DIG I/O.1
-LS1:BK			13				-U5-I-03	/5 PLC DIG IN.7
-LS1:BN			14	Br			-F4:2	/5 PLC DIG IN.0
-LS2:BK			15				-U5-I-04	/5 PLC DIG IN.8
-LS2:BN			16					
-LS3:BK			17				-U5-I-05	/5 PLC DIG IN.8
-LS3:BN			18					
-LS4:BK			19				-U5-I-06	/5 PLC DIG IN.9
-LS4:BN			20					
-U5-I-07			21				-LS5:BK	/5 PLC DIG IN.9
-LS5:BN			22					
-LS6:BK			25				-U5-I-08	/6 PLC SP DIG I/O.6
-LS6:BN			26					
-LS7:BK			27				-U5-I-09	/6 PLC SP DIG I/O.6

13.a

14.a

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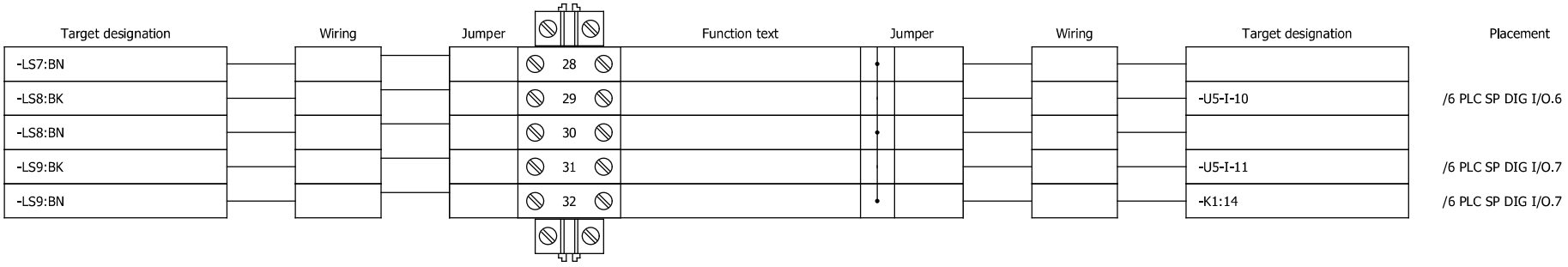
Terminal diagram

F13_003

Strip
=+-X3



Terminal diagram

F13_003

Strip

=+-X4

External targets

Internal targets

Target designation	Wiring	Jumper		Function text	Jumper	Wiring	Target designation	Placement
-FT1:BU (-)			1				-Z1:6	/7 PLC AI.2
-FT1:WH (sign.)			2				-Z1:5	/7 PLC AI.2
-PT1:1 (-)			3				-Z2:6	/7 PLC AI.3
-PT1:2 (+)			4				-Z2:5	/7 PLC AI.3
-PT2:1 (-)			5				-Z3:6	/7 PLC AI.4
-PT2:2 (+)			6				-Z3:5	/7 PLC AI.4
-PT3:1 (-)			7				-Z4:6	/7 PLC AI.4
-PT3:2 (+)			8				-Z4:5	/7 PLC AI.5
-UV Sensor01:1 (-)			9				-Z5:6	/7 PLC AI.6
			10				-Z5:5	/7 PLC AI.6
			11				-Z5:8	/7 PLC AI.6
-UV Sensor01:2 (+)			12				-Z5:7	/7 PLC AI.6
-UV Sensor02:1 (-)			13				-Z6:6	/7 PLC AI.7
			14				-Z6:5	/7 PLC AI.7
			15				-Z6:8	/7 PLC AI.7
-UV Sensor02:2 (+)			16				-Z6:7	/7 PLC AI.7
			17				-Z6	/7 PLC AI.7
-FT1:BN (+)			18				-Z6	/7 PLC AI.7

14.a

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Filtri a cestello

FILTRI A CESTELLO IN POLIPROPILENE

FILTRO BAGONE-S

Collegamento a disegno PDF
(http://www.everblue.it/CadDrawings/F20190808141857710FBS0PP19_MERGED.pdf)

CARATTERISTICHE

Modello	FILTRO BAGONE-S
Materiale	PP
Altezza ed Attacchi	19" 3” BSP F, 19" DN80 FLANGE DN8063 PN16
Portata in continuo	No
Micron	80 - 125 - 200 - 300 - 500 - 800 - 1000 - 2000 - 3000

DATI DI PROGETTO

Pressione di esercizio max	6 bar
Pressione di collaudo	9 bar
Max temperatura d'esercizio	40°C
Test d'invecchiamento	-

APPLICAZIONI

Acqua
Acqua mare
Prefiltrazione di impianti di trattamento acque
Acque di processo
Torri evaporative
Scambiatori di calore
Irrigazione
Acquacoltura
Protezione degli ugelli spruzzatori

Filtri a cestello

FILTRI A CESTELLO IN POLIPROPILENE

FILTRO BAGONE-S

Codice	Descrizione	Superficie filtrante	Altezza - Attacchi In/Out	Attacco scarico	Micron	Portata (l/h)[1]	Quantità scatola	-
FBSOPP19300FT80	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	80	50.000	1	
FBSOPP19300FT125	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	125	50.000	1	
FBSOPP19300FT200	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	200	60.000	1	
FBSOPP19300FT300	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	300	60.000	1	
FBSOPP19300FT500	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	500	60.000	1	
FBSOPP19300FT800	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	800	60.000	1	
FBSOPP19300FT1000	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	1000	60.000	1	
FBSOPP19300FT2000	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	2000	60.000	1	
FBSOPP19300FT3000	FILTRO BAGONE-S	0,2 m²	19" 3" BSP F	1" BSP F	3000	60.000	1	
FBSOPP19DN80F80	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	80	50.000	1	
FBSOPP19DN80F125	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	125	50.000	1	
FBSOPP19DN80F200	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	200	60.000	1	
FBSOPP19DN80F300	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	300	60.000	1	
FBSOPP19DN80F500	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	500	60.000	1	
FBSOPP19DN80F800	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	800	60.000	1	
FBSOPP19DN80F1000	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	1000	60.000	1	
FBSOPP19DN80F2000	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	2000	60.000	1	
FBSOPP19DN80F3000	FILTRO BAGONE-S	0,2 m²	19" DN80 FLANGE DN8063 PN16	1" BSP F	3000	60.000	1	

[1]Portata max in l/h di acqua pulita a 20°C e differenza di pressione di 0,15 bar.

Solo per membri della Comunità Europea.
Questi filtri soddisfano tutti i requisiti della normativa P.E.D. 37/23/CE secondo il modulo A (controllo produzione interna) come procedura di accertamento della conformità.

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Filtri a cestello

FILTRI A CESTELLO IN POLIPROPILENE

FILTRO BAGONE-S

TABELLA CODICI FILTRI A CESTELLO

Modello	Materiale	Altezza - Attacco IN/OUT		Micron		Finitura/specifica	
FILTRO BAGONE-S	FBSO	PP	PP	19" 3" BSP F 19" DN80 FLANGE DN8063 PN16	19300FT 19DN80F	80 125 200 300 500 800 1000 2000 3000	80 125 200 300 500 800 1000 2000 3000		

Foto indicativa. La scelta dell'attacco e delle misure comporteranno l'assemblaggio di un prodotto che potrebbe differire da quanto mostrato in figura

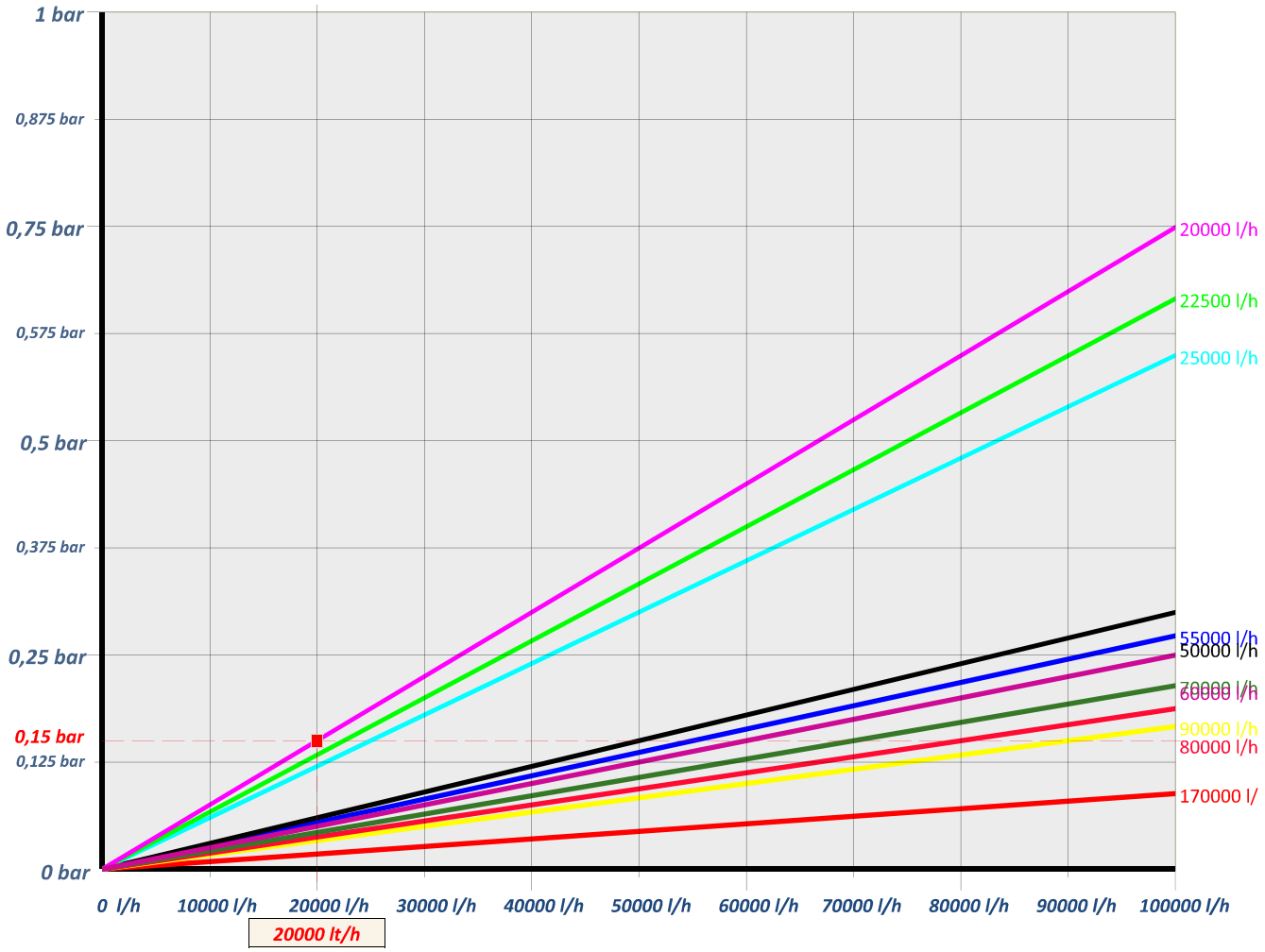
Filtri a cestello

FILTRI A CESTELLO IN POLIPROPILENE

FILTRO BAGONE-S

GRAFICO DELLE PORTATE (Litri/Ora) IN FUNZIONE DELLA DIFFERENZA DI PRESSIONE (Bar)

Differenza di pressione



Portata

inge®
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BASF
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