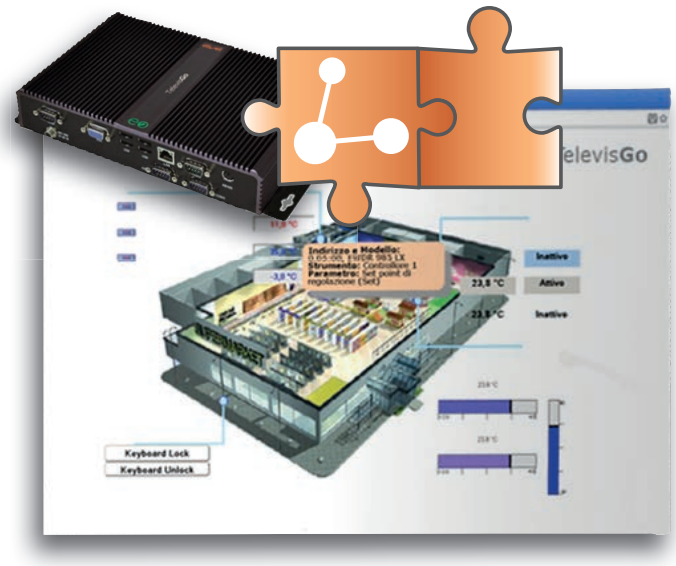
Saturation probe backup for EEV control

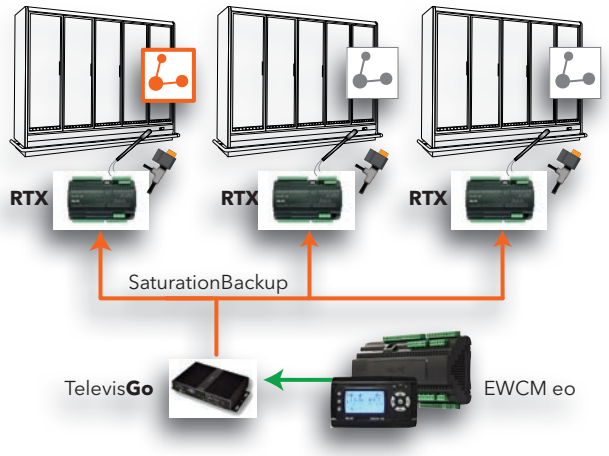


DEFINITIONS AND COMPATIBLE RELEASES

- **TelevisGo** is the Embedded PC platform by Eliwell, that is a monitoring and supervision system with web interface.
  TelevisGo is a system that can be expanded with plug&play algorithms
- **Instance**: Each algorithm can be instantiated, each instance is represented as a virtual instrument
- **Release** instruments that manage the **plug&play algorithms**
  RTX 600/V: Msk**509_19 or higher**, RTN 400:Msk**510_14 or higher**,
  EWCM eo: Msk**504_00 or higher,** TelevisIn: Msk**499_18 or higher**

COMPONENT INSTALLATION

In the cooling cabinets equipped with an electronic expansion valve controlled by RT*600/V, if there is a saturation probe error the system will stop or, if suitably configured, will continue to control, maintaining however the valve opening at the default value. It is possible to modulate the valve opening also in error conditions of the saturation probe by sending a backup value to the RT*600/V controllers, ensuring that the system will continue to operate, which will delay the maintenance operation. The supervisor reads the suction pressure value of the EWCM eo or the TelevisIn modules and sends it to the controllers, adding a settable calibration offset if necessary. In the case of a saturation probe error, the controller will use the backup value automatically.



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Telephone +39 0437 986 111 • Fax +39 0437 989 066
Technical helpline +39 0437 986 300 • E-mail techsuppeliwell@schneider-electric.com
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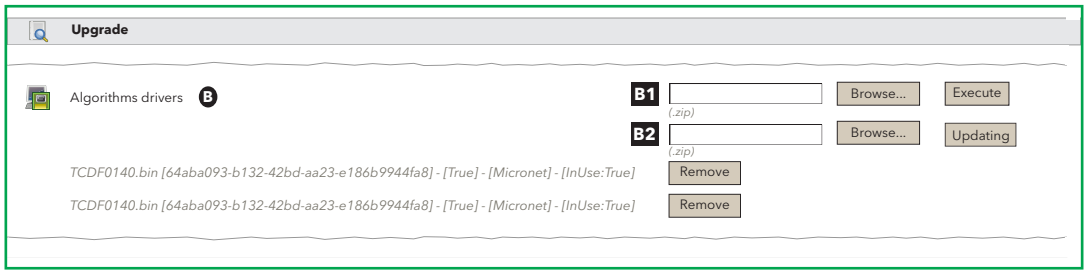
ALGORITHM INSTALLATION

The **saturation probe backup for EEV control** algorithm, identified by **1026_SaturationSensor Backup .zip,** is a .zip file available on the Eliwell website after registering at the following link
http://www.eliwell.it/filedownload.aspx?id=25485
path: Eliwell > Home > Technical Support > Software Download > TelevisGo

Enter the following menu[1] to load or update an algorithm:

Computer → Update



In section **B** related to the **algorithms drivers** it is possible to load a new algorithm or update an algorithm already loaded.

Loading an algorithm

To load a new algorithm, press Browse in line **B1**, scroll through the folders (directories) to search for the file **1026_SaturationSensorBackup.zip** and select it. After clicking **Run**, the software automatically opens the Algorithms window (see Algorithm selection).

Updating an algorithm

To update a driver of an algorithm already loaded, press Browse in line **B2**, scroll through the folders (directories) to search for the file and select it. After clicking Update, the software automatically opens the Algorithms window.

NOTE: an attempt to load an algorithm already present in **B1** line generates the message "The algorithm is already present". Use **Update** to replace it with the new version preceded by the ⓘ icon.

N.B: before updating an algorithm, it is recommended to previously save the current parameters map using the menu:
Functions » Parameters » <algorithm selection> <select label> » Save map

1 **To access this section, data logging must be suspended**

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ACTIVATION

To select the instances of the algorithms loaded, enter the following menus in sequence:

Settings → Interfaces → Algorithms

The list of all previously loaded algorithms and the relative settings is shown here

The colours of the lines that appear have the following meanings:

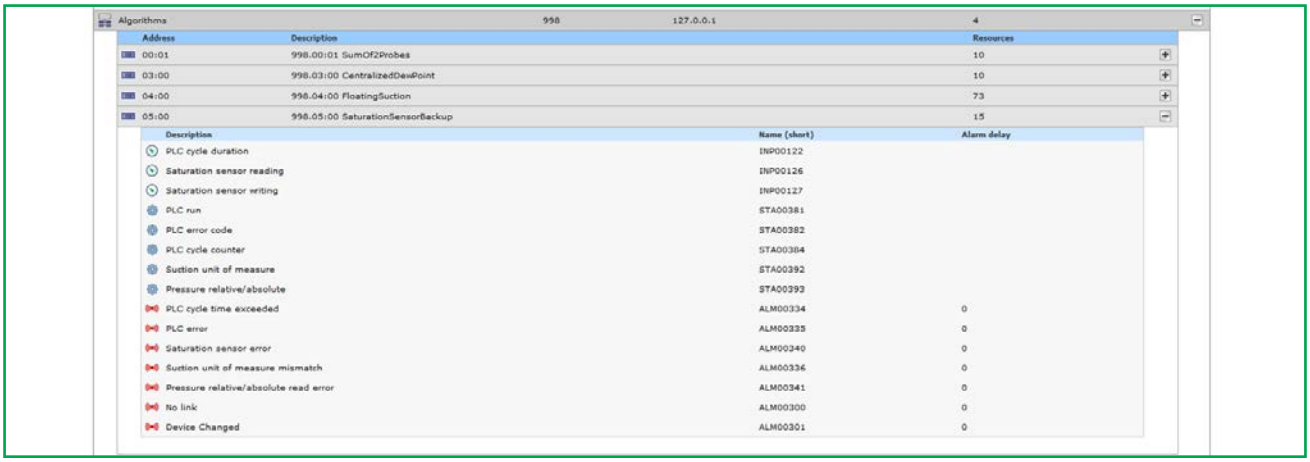
- **green:** **new** algorithm found in the virtual network
- **black:** algorithm **already present** in the virtual network

The value of the address and model linked to each algorithm instance is assigned automatically by the application.
The maximum number of instances per **SaturationSensorBackup algorithm = 2**
The value of the **Period** displayed indicates the time interval (or cycle period).
The period, expressed in seconds, can take a value between 60 (1 minute) and 86400 (1 day).
It is possible to change the current value of the cycle period by typing the desired value.

Select on the checkbox ☑ to the left of the address the instances that have to be enabled and press **Save** to save the configuration of the algorithm instances.

Contents

With the menu: **Settings » Interfaces » Summary** it is possible to check which algorithms are present.



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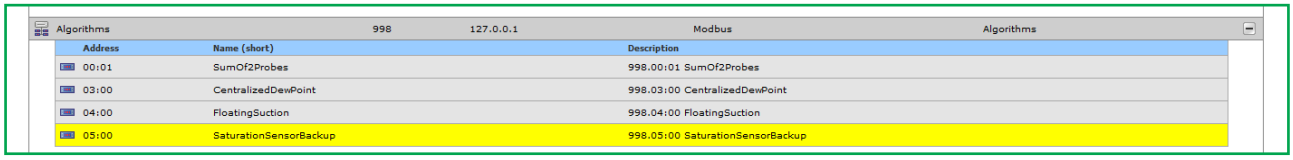
TELEVISGO CONFIGURATION

It is important to set the selectors as accurately as possible to guarantee that the algorithm will function correctly and to apply its effects on the established controllers.

From the menu **Functions » Parameters » Step 1** select the **SaturationSensorBackup** algorithm



Click on the line (in yellow) of the **SaturationSensorBackup** algorithm to access the following page **Functions » Parameters » Step 2**
This page shows all the parameters of the selected device.
The read-only selectors are in blue and cannot be changed by the user.

	Label	Description	UM	Min	Max	Default	Device	Input
	filter0	Selector of the TelevisIn module		0	1	view		
	filter1	Selector saturation sensor from TelevisIn		1	1	view		
	filter2	Selector compressor rack EWCM eo		0	1	view		
	filter3	Selector saturation sensor from EWCM eo		1	1	view		
	filter4	Selector unit of measure of the EWCM eo		1	1	view		
	filter5	Selector pression relative/absolute EWCM eo		1	1	view		
	filter6	Selector section 1		0	10	view		
	filter7	Selector backup saturation pressure		1	1	view		
	filter8	Selector section 2		0	10	view		
	filter9	Selector backup saturation pressure		1	1	view		
	filter10	Selector section 3		0	10	view		
	filter11	Selector backup saturation pressure		1	1	view		
	filter12	Selector section 4		0	10	view		
	filter13	Selector backup saturation pressure		1	1	view		
	filter14	Selector section 5		0	10	view		
	filter15	Selector backup saturation pressure		1	1	view		
	Use_EWCMeo	Saturation sensor from EWCM eo		False	True	True		
	CabinetsGroup1_Offset	Section 1 offset		0	10	0		
	CabinetsGroup2_Offset	Section 2 offset		0	10	0		
	CabinetsGroup3_Offset	Section 3 offset		0	10	0		
	CabinetsGroup4_Offset	Section 4 offset		0	10	0		
	CabinetsGroup5_Offset	Section 5 offset		0	10	0		

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Description	Min	Max	Factory setting	User settings
Selector of the TelevisIn module	0	1	TelevisIn*	Specify the address if multiple Televisin are present in the network
Selector saturation sensor from TelevisIn	1	1	INP40001-3	Change if a probe other than PB3 is used: INP40001-1 TelevisIn PB1 INP40001-2 TelevisIn PB2 INP40001-3 TelevisIn PB3 INP40001-4 TelevisIn PB4 INP40001-5 TelevisIn PB5
Selector compressor rack EWCM eo	0	1	EWCM*eo*	Specify the address if multiple EWCM eo are present in the network
Selector saturation sensor from EWCM eo	1	1	INP40123:4-1	Change if using Psi or absolute pressures of if the value read by circuit 2: INP40123:2-1 Suction pressure bar/absolute circuit 1 INP40123:4-1 Suction pressure bar/relative circuit 1 INP40123:3-1 Suction pressure Psi/absolute circuit 1 INP40123:5-1 Suction pressure Psi/absolute circuit 1 To read the suction pressure for circuit 2, change the setting to INP40123:2-2 (e.g. for bar/abs)
Selector unit of measure of the EWCM eo	1	1		✘ read only
Selector pressure relative/absolute EWCM eo	1	1		✘ read only
Selector section 1	0	10	RTX*	specify the controller addresses for section 1
Selector backup saturation pressure	1	1		✘ read only
Selector section 2	0	10	RTX*	specify the controller addresses for section 2
Selector backup saturation pressure	1	1		✘ read only
Selector section 3	0	10	RTX*	specify the controller addresses for section 3
Selector backup saturation pressure	1	1		✘ read only
Selector section 4	0	10	RTX*	specify the controller addresses for section 4
Selector backup saturation pressure	1	1		✘ read only
Selector section 5	0	10	RTX*	specify the controller addresses for section 5
Selector backup saturation pressure	1	1		✘ read only
Saturation sensor from EWCM eo	False (False)	True (True)	True (True)	must be changed in order to use the default TelevisIn = True Saturation sensor from EWCM eo = True → associated with filter3 - Selector saturation sensor from EWCM eo Saturation sensor from EWCM eo = False → associated with filter1 - Selector saturation sensor from TelevisIn
Section 1 offset	0	10	0	specific offset for section 1
Section 2 offset	0	10	0	specific offset for section 2
Section 3 offset	0	10	0	specific offset for section 3
Section 4 offset	0	10	0	specific offset for section 4
Section 5 offset	0	10	0	specific offset for section 5

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The **SaturationSensorBackup** algorithm is preset with **instruments and resources to minimise user settings**
See **the UM column** that shows an icon that identifies the type of selector:

Instrument selector (device)
rule to select the devices on which the algorithm works.
Input resource selector (subsidiary)
rule to select an input resource on which the algorithm works.
Output resource selector (subsidiary)
rule to select an output resource on which the algorithm works.

The user must set the input resource selectors and the selectors of the instrument/device to indicate from which controller the pressure backup value should be read and to which controller it should be written.
There are **5** destination instrument/device selectors corresponding to the division of the system into **5 sections**, and a maximum of 10 devices can be addressed in each.

If selected, by checking the checkbox ☑, it can be changed by clicking on **set**
column **Value input**.
To display the selector setting, click on **Copy from default**
Enter the required parameters (address, name, model) and **save**

To change the selector again, press **edit** and repeat the procedure.

Setting the input resource selectors
It is possible to set both selectors described in the previous table and indicated below.

The **Selector saturation sensor from EWCM eo** selector defines which of the two to use:
- **Saturation sensor from EWCM eo = False associated with filter1**
- **Saturation sensor from EWCM eo = True associated with filter3**

filter1 - Selector saturation sensor from TelevisIn
Selector preset by default to value INP40001-3 corresponding to TelevisIn PB3
N.B. It is recommended to load the AP2 application for a correct configuration.
N.B. The backup pressure value expected from TelevisIn must be in bar relative; make sure that TelevisIn is correctly configured.

filter3 - Selector saturation sensor from EWCM eo
This selector must be set coherently with the current configuration of EWCM eo.
Preset by default to the value INP40123:4-1 corresponding to the reading of the suction pressures of circuit 1 in bar relative.
Change the setting if:
- the unit of measure selected on EWCM eo is Psi or
- absolute pressure selection or
- suction pressure reading for circuit 2

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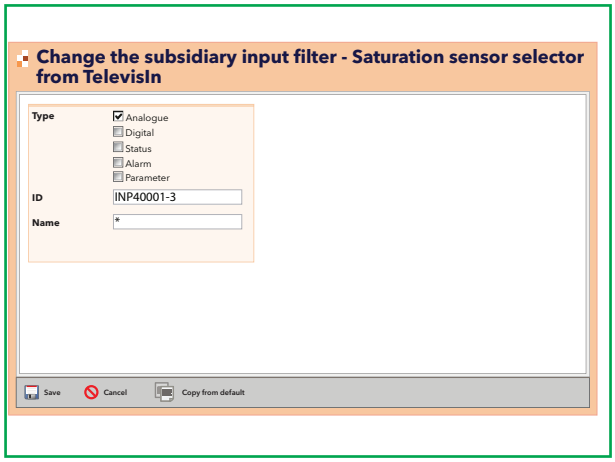
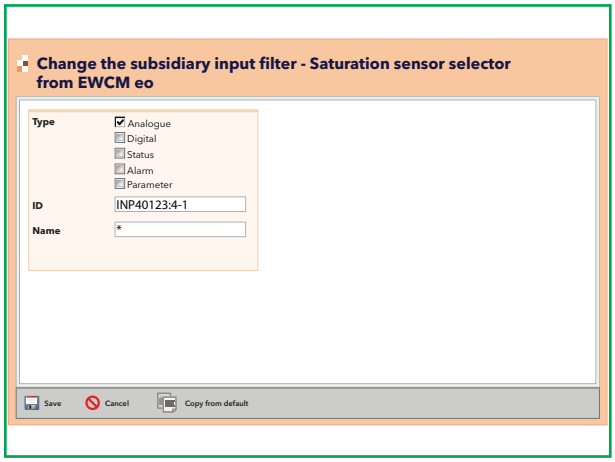
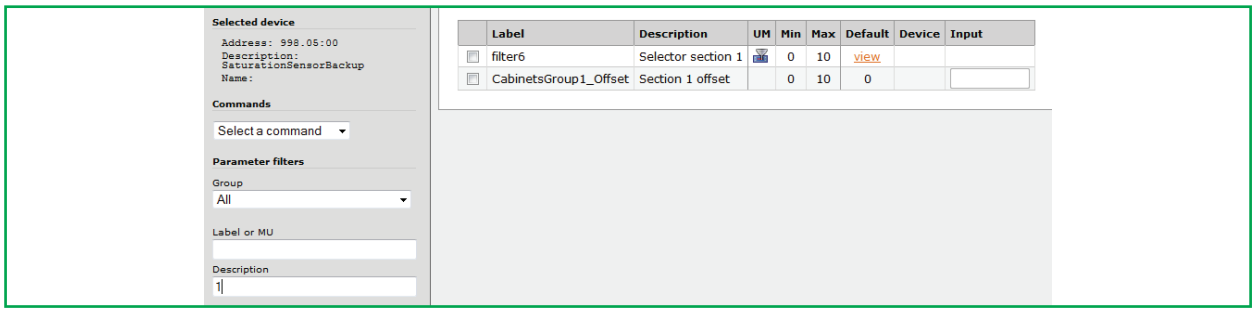




Setting the output resource selectors



The following procedure is suggested to specify to which controllers the **backup pressure** value should be sent and with which **offset**.

1. In the **Description** field on the left, enter value **1** (that is, the first group of controllers to be selected)
2. To the right the list of parameters is reduced to only two parameters:
   - Selector **section**
   - **offset**
3. The selector **section** is changed to specify the destination RT*600/V, using network addresses for example.
   N.B. to add a second address, click on **Add selector** to enter a new selector for each instrument and specify its address.
   A maximum of 10 controls can be associated during each selection.
4. The offset must be set taking the cabinet layout into account. Reference is made to the individual controller section, which will be added to the pressure value read by TelevisIn or EWCM eo. The offset must be set coherently with the input resource selector.

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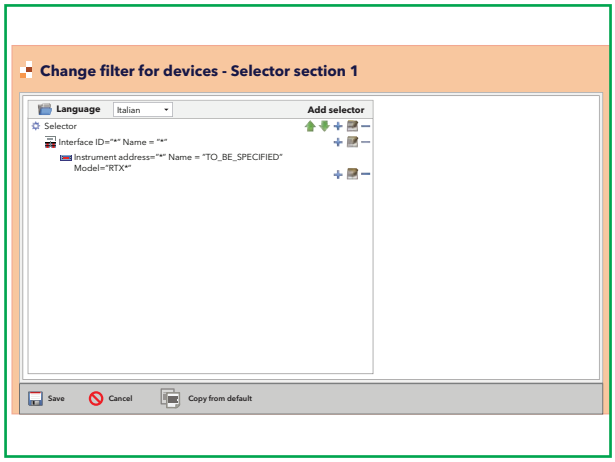
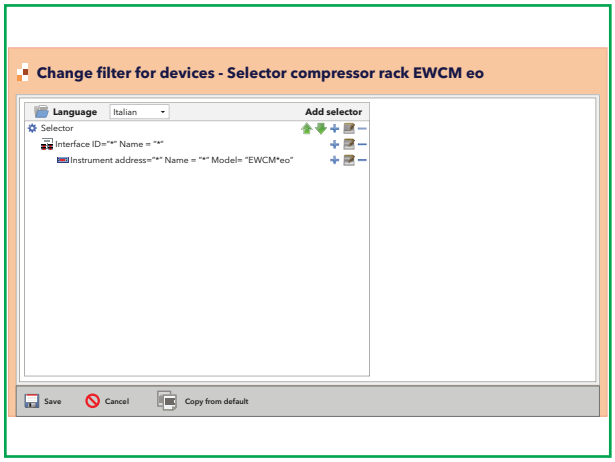
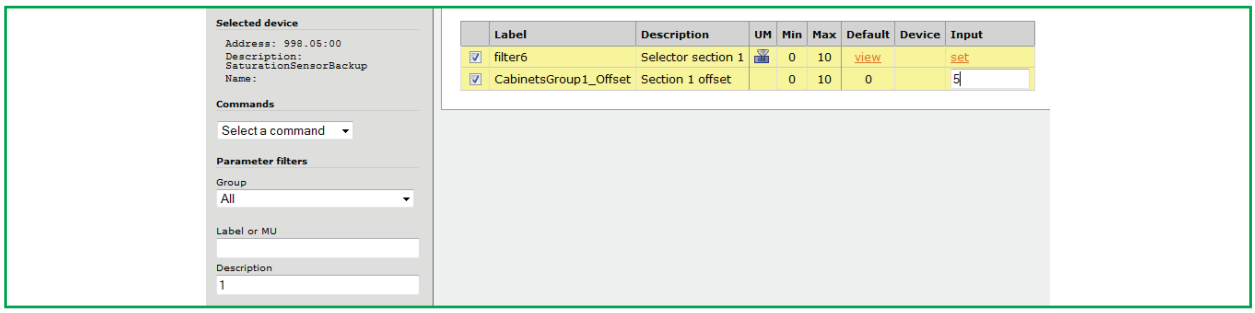




Once the algorithm has calculated the SaturationSensorBackup, it writes the resulting remote SaturationSensorBackup value on all selected **RTX** cabinets using the selector
The value of the backup probe is compensated by the offset.



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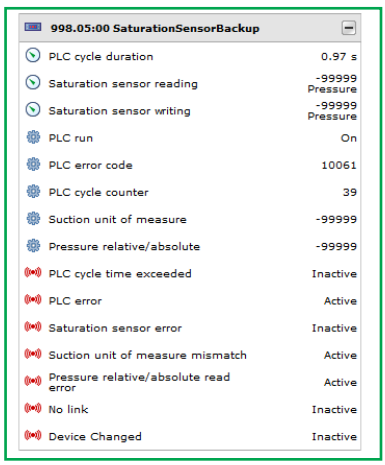
STATUS DISPLAY

Description	Notes
SaturationSensorBackup algorithm statuses	
Saturation sensor reading	Pressure value acquired from EWCM eo or TelevisIn in the unit specified on the controller
Saturation sensor writing	Pressure value sent to the RTX, less the offset (in PSI absolute)
Suction unit of measure	EWCM eo working unit of measure (0=°C,1=Bar, 2=°F, 3=Psi)
Pressure relative/absolute	Selects EWCM eo pressure relative/absolute (0=abs, 1=rel)
Suction unit of measure mismatch	Active if the EWCM eo working unit of measure is out of range. The algorithm is blocked.
Pressure relative/absolute read error	Active if the EWCM eo working absolute/relative selection is out of range. The algorithm is blocked. N.B. For example, some EWCM eo may not be present in the network, there is an incorrect reading of the pressure value, etc. Typically, these errors are presented in the initial configuration of the algorithm.
PLC prefix: Preset algorithm diagnostics	
PLC cycle duration	During algorithm run
PLC run	Algorithm running
PLC error code	Algorithm error code
PLC cycle counter	Algorithm run cycle counter
PLC cycle time exceeded	Active if the cycle time of the algorithm exceeds the set value
PLC error	Active if the PLC error code is not 0 * (check)
Default resources associated to all instruments	
No - Link	The algorithm does not function in case of an internal blocking error (contact technical support)
Device changed	not used

The commands **Start PLC** and **Stop PLC** are available and always present and visible in the panel **Functions » Commands**
From the menu **Data » Table in real time** it is possible to check the status of the resources:



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