

# Baseline CH-HP-CR

## Changes history

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Release 2.08.19 06-12-2021

### PLC:

- **Fixed Communication time out on IQ Modules.**  
**Changed retry policy in order to avoid synchronous retry**

Synoptic

Circuit 1

Circuit 2

Setpoints

Alarms

Alarms

Compressor motor 3 circuit 1 016

u3AlarmMotorComp3Circuit1

ALARMACTIVE

Inverter compressor 3 circuit 1 161

u1ATVAlarmComp3Circuit1

21 MOTOR PHASE LOSS

u3AlarmInverterComp3Circuit1

ALARMACTIVE

**Release 2.08.18 29-11-2021**

**HMI:**

- **Fixed Enumerative for inverter compressor.**

## **Release 2.08.17 25-11-2021**

### **PLC:**

- Added dedicated alarm for Inverter compressors.
- Fixed DO (General Alarm), This alarm will be active if a critical alarm blocks the unit.  
In previous version the Digital Output was not working.
- Added parameters to manage circuit rotation in case of Chiller units.
- Added generic regulation description in IO Mapping list.

### **HMI:**

- Added Parameter/Wizard menu available for L3 used to enable /disable inverters.

### **WEB:**

- Updated WebServer Template to version 1.5.0

## **Release 2.08.16 03-11-2021**

### **PLC:**

- Fixed simultaneous start of compressor of different circuit in case of reset of a general alarm.
- Fixed Evaporator pump Flow, now the pump is not switched off in case of flow switch event.
- Removed Low inlet temperature alarm, not necessary.
- Added Antifreeze Low temperature differential.
- Fixed Emergency alarm deadlock, now in case of an emergency alarm is not necessary reboot the PLC.

### **HMI:**

- Added Antifreeze Low temperature differential, parameter 01.218

### **WEB:**

- Added Antifreeze Low temperature differential, parameter 01.218

## Release 2.08.15 27-10-2021

PLC:

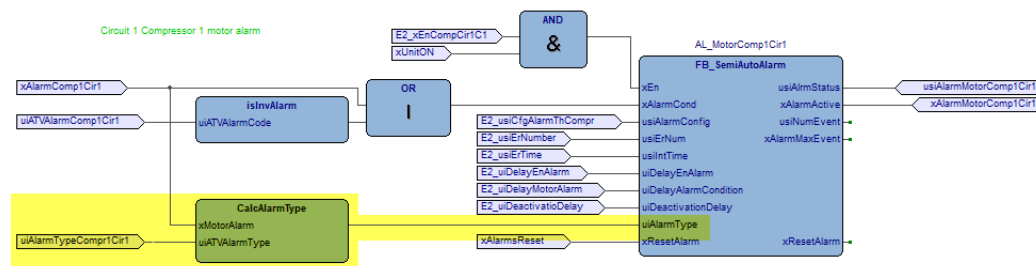
- Fixed Logger array vectors size, regression of the release (2.08.12 15-10-2021)

|    |                       |      |      |    |    |          |                                    |
|----|-----------------------|------|------|----|----|----------|------------------------------------|
| 37 | LOG/EXT/INTERVAL/UNIT | UINT | Auto | No | 60 | CONSTANT |                                    |
| 38 | MAX_LOG_DATA          | UINT | Auto | No | 60 | CONSTANT | TODO : Update if You add Log data  |
| 39 | MAX_LOG_EVENT         | UINT | Auto | No | 60 | CONSTANT | TODO : Update if You add Log event |

Release 2.08.14 27-10-2021

PLC:

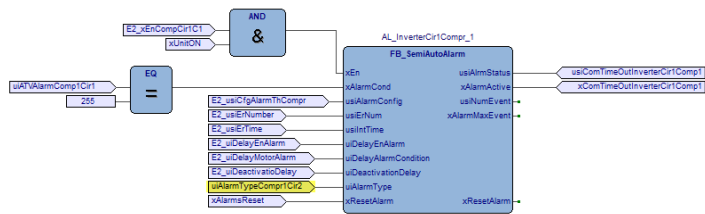
- Fixed Alarm visualization of SE-i1 inverters.



PLC:

- Fixed Alarm Time Out on compressor 1

Inverter Time Out Cntr 1 Compr 1

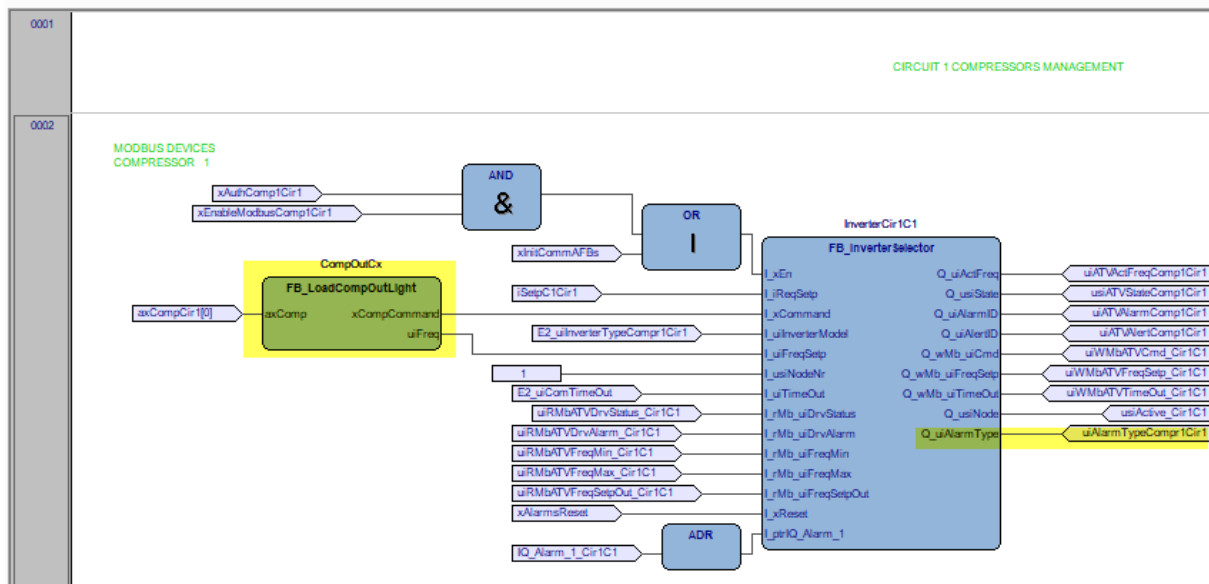


## Release 2.08.12 15-10-2021

PLC:

- Fixed IO Mapping Form, only the available IO will be listed in the IO allocation Map.
- Added Generic regulation probes in the data logger variables.
- Added new alarm form in the web server to be able to show alarm detail of the Generic regulator and of the inverter Alarm.
- Updated translation language; added missing strings.
- Added XVD alarm decoding strings in the local HMI form.
- Fixed save configuration in usb memory, the String parameter is now saved in the PARAM.RAW file.
- Added alarm type management to set alarm action to “Warning” or “Alarm” in case of different inverter type. Inverter SE-I1 has been set to warning in case of any alarms or in case of com time out.

|   |                |                     |      |    |    |    |    |
|---|----------------|---------------------|------|----|----|----|----|
| 5 | CompOutCx      | FB_LoadCompOutLight | Auto | No | .. | .. | .. |
| 6 | FFATV22_Cir1C1 | RS                  | Auto | No | .. | .. | .. |
| 7 | FFATV22_Cir1C2 | RS                  | Auto | No | .. | .. | .. |
| 8 | FFATV22_Cir1C3 | RS                  | Auto | No | .. | .. | .. |
| 9 | FFATV22_Cir1C4 | RS                  | Auto | No | .. | .. | .. |



- Fixed reset History, now the alarms string in case of generic alarm will be cleaned from the reset history button.

NOTE: Compiled with FSP 1.4.0 and BIOS 596.12

## Release 2.08.11 16-09-2021

PLC:

- Fixed Flickering of solenoid valve in case of DL90 Set to EV. The Serial control of the DO out of the XVD is enable only if DL90 and DL91 are set to RS485.





## Release 2.08.10 02-09-2021

### PLC:

- Fixed Discharge temperature alarm in case of XVD expansion valve.
- Fixed Evaporator pump on/off activation in case of Automatic/semiautomatic alarm.
- Fixed Source pump alarm; In case of source pump alarm, the compressor and the evaporator pump will be stopped.
- Added new feature to send mail via SMTP protocol in case of alarm event.

The screenshot displays a web-based configuration interface for a PLC. On the left, a vertical sidebar contains a list of menu items: 'RTC', 'Alarms settings', 'Generic Regulator', 'Inverter', 'Others' (highlighted in orange), 'Password', and 'Bios'. The main content area has a yellow background and is divided into two rows of settings. The first row includes: 'Enable send mail on alarm event' (m1.001) with 'FALSE' and 'TRUE' buttons, 'SMTP port' (m1.002) set to '2525', 'Mail from' (m1.003) and 'Mail to' (m1.004) fields containing email addresses, and 'SMTP user' (m1.005) with a masked field. The second row includes: 'SMTP password' (m1.006) with a masked field and 'SMTP provider' (m1.007) set to 'mail.smtp2go.com'. A red circular button with a right-pointing arrow is located in the bottom right corner of the main area.

| Field                                    | Value             |
|------------------------------------------|-------------------|
| Enable send mail on alarm event (m1.001) | TRUE              |
| SMTP port (m1.002)                       | 2525              |
| Mail from (m1.003)                       | alarm@smtp2go.com |
| Mail to (m1.004)                         | alarm@smtp2go.com |
| SMTP user (m1.005)                       | alarm@smtp2go.com |
| SMTP password (m1.006)                   | [Masked]          |
| SMTP provider (m1.007)                   | mail.smtp2go.com  |

## Release 2.08.9 24-08-2021

PLC:

- Added new parameter 2.121 to enable/disable the feature “always start with compressor 1 and end with compressor 1”

|            | All | General | PID Reg. | N. Zone | Control Mode | Tim |
|------------|-----|---------|----------|---------|--------------|-----|
| Circuit 1  |     |         |          |         |              |     |
| Circuit 2  |     |         |          |         |              |     |
| Setpoints  |     |         |          |         |              |     |
| Alarms     |     |         |          |         |              |     |
| Parameters |     |         |          |         |              | *   |
| Wizard     |     |         |          |         |              |     |
| Compressor |     |         |          |         |              |     |

Time to increase/decrease the setpoint of 10% [s] 0 leave rSp as is

2.037

1 s

Allways start first compressor 1

2.121

FALSE TRUE

Fast shutdown compressors at unit off

2.038

FALSE TRUE

Delay to increment compressors

2.039

10 s

# Changes history

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## Release 2.08.8 23-08-2021

### PLC:

- Fixed IQ Module inverter reset alarm on compressor 5
- Fixed compressor configuration alarm in case of IQ module discharge temperature probe disconnection.
- Fixed communication with IQ modules with application OFF

### WEB:

- Fixed missing RTC setting in webserver.
- Compiled with new webserver template.

## Release 2.08.7 16-08-2021

### PLC:

- Fixed IQ Module inverter Time out, Regression introduced in version 2.8.1

## Release 2.08.6 06-08-2021

### PLC:

- Fixed Discharge temperature probe alarm in case of XVD valve and the Discharge is not assigned to the XVD valve.
- Fixed compressor discharge max temperature alarm of the not used compressors.

### WEB:

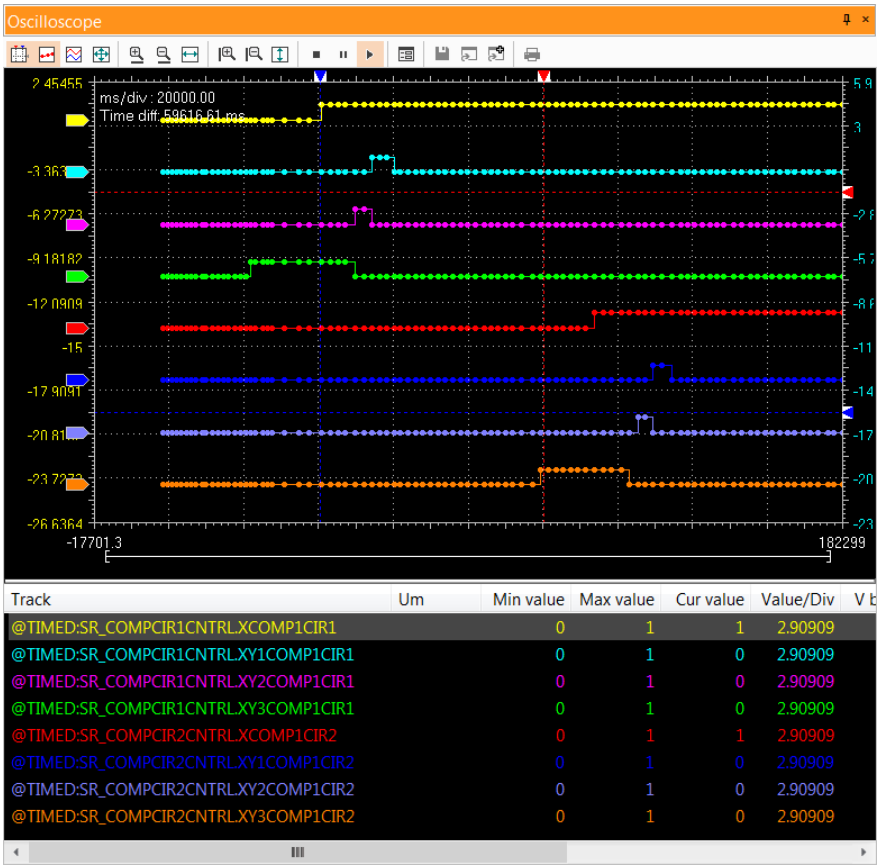
- Added visibility roles to hide unused parameters.

PLC:

- Fixed Min Off Timer in case of compressor alarm the timer always stop the compressor.
- Fixed circuit interlock to avoid starting compressor of the second circuit before start of compressor of first circuit. The algorithm always considers the working hour to select the first circuit.

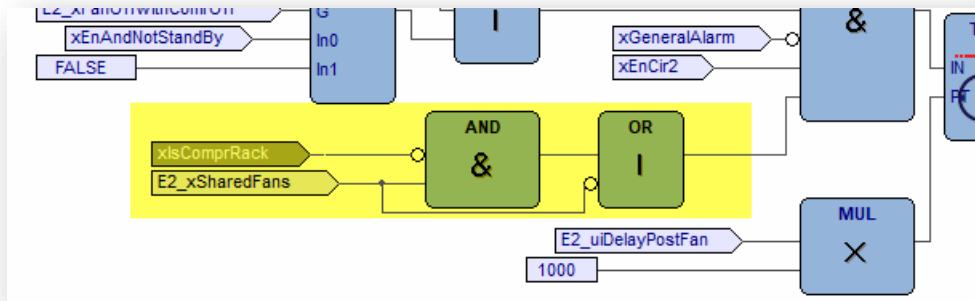
This Feature is available by setting the parameter/compressor/general/2.147 to TRUE.

The time used to delay the compressor of the second circuit is the parameter 2.048 (Delay to increment compressors) and 2.049 (Delay to decrement compressors).



**Release 2.08.4    17-05-2021**

**PLC:** Fixed condensing fan of circuit 2; In case of “Shared Fan” and a “Rack application” the Fan of circuit 2 will be set to disable. This because the twin circuit rack uses a common discharge line and the circuit 2 has no HI pressure probe to calculate the condensing power.



**WEB: Fixed Alarm page regression of the version 2.8.3**

NOTE: Validated with HMI Touch Color 1.15

## Release 2.08.3 14-05-2021

PLC: -Fixed Analog Input configuration of the expansions; now the setting type is correctly sent to the expansion.

IGeneric RegprobePress1 F67

Description: Alarm Gen Reg P 1

Current Val.: 4.69 bar

Override Enable: FALSE TRUE

Override Value: 0.00 Bar

### IO Mapping

| ANSION 1 | DI                 | AI                          |
|----------|--------------------|-----------------------------|
|          | N.C. - HPComp1Cir1 | [4-20mA] - GenRegProbePress |
|          | N.C. - HPComp2Cir1 | (4-20mA) - n.u.             |
|          | N.C. - HPComp3Cir1 | (NTC 103AT) - n.u.          |
|          | N.C. - HPComp1Cir2 | (NTC 103AT) - n.u.          |
|          | N.C. - HPComp2Cir2 | (NTC 103AT) - n.u.          |
|          | N.C. - HPComp3Cir2 | (NTC 103AT) - n.u.          |

-Added new feature in the IO allocation algorithm to check automatically the AI configuration in pair.

If “ODD” AI configuration is not compatible with “EVEN” analog input, it will be automatically forced to the “ODD” Analog input configuration.

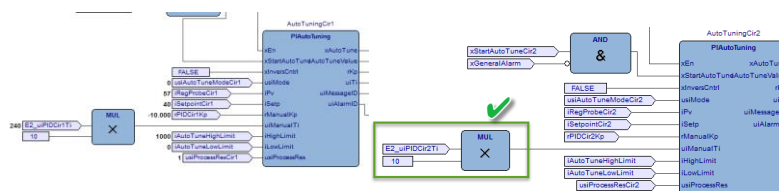
For instance, if Analog input 3 is 4-20mA and Analog Input 4 is set to NTC it will be set automatically to 4-20mA.

-Added detailed information on the IO configuration map

(1)= Digital input polarity, (2)= Analog input type, (3)= Digital output polarity, (4)= Analog output type

| CONTROLLER | DI <span style="color: red;">1</span> | AI <span style="color: red;">2</span> | DO <span style="color: red;">3</span> | AO <span style="color: red;">4</span> |
|------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1          | N.C. - AlarmComp1Cir1                 | [4-20mA] - LowPressCir1               | N.O. - Comp1Cir1                      | [0-10v] - FanCir1                     |
| 2          | N.C. - AlarmComp2Cir1                 | (4-20mA) - HighPressCir1              | N.O. - Comp2Cir1                      | n.u.                                  |
| 3          | N.C. - AlarmComp3Cir1                 | (NTC NK103) - SuctionTempCir1         | N.O. - Comp3Cir1                      | n.u.                                  |

-Fixed integral time factor in PID regulation of circuit 2.



## Release 2.08.2 10-05-2021

PLC: -Fixed proportional band of FAN Factor in case of Temperature regulation.

-Fixed Number of circuits in case of Rack application.

**HMI:** -Fixed missing alarm code in alarm page and in and alarm history.

**WEB:** - Fixed regression of String write.

**Note1:** Validated with HMI Touch color version 1.14

-In HMI Touch color version Fixed Compressor page to see compressors of circuit 2.

-In HMI Touch Color Fixed missing alarm code in alarm page and in and alarm history.



## Release 2.08.1 07-05-2021

PLC: -Added HP compressor alarms for all compressor of the circuit 2.

-Added option to disable delay between Star and Delta in case of Delta starter motor.

-Added new EEVD CANOpen Valve according with the follow table.

The EEV Modbus address had been updated as follow table:

| Valves                         | CAN Address | Dip Switch Configuraiton                                                           |
|--------------------------------|-------------|------------------------------------------------------------------------------------|
| Circuit 1 Valve Bipolar EEV A  | 20          |  |
| Circuit 2 Valve Bipolar EEV A  | 21          |  |
| Circuit 1 Valve Unipolar EEV A | 22          |  |
| Circuit 2 Valve Unipolar EEV A | 23          |  |
| Circuit 1 Valve Bipolar EEV B  | 24          |  |
| Circuit 2 Valve Bipolar EEV B  | 25          |  |
| Circuit 1 Valve Unipolar EEV B | 26          |  |
| Circuit 2 Valve Unipolar EEV B | 27          |  |

-Added option to set a circuit/ unit in maintenance from digital input by using a generic regulator configured as digital input

-Fixed “High Pressure Transducer, also Common High Pressure SW Alarm active, the System only shutdown Compressors Cir1 while the Cir2 still running normally, I think Cir2 should be also shut down since this is Common Discharge line (1x Discharge Line)”

### WEB Server:

-Use last web server template v1.1.5-beta-2021\_05\_04

-Fixed Generic regulator pressure measurement unit and format in IO Value menu.

-Fixed missing BIOS and RTC in Parameter menù.

-Fixed Generic regulator pressure measurement unit and format in visualization menu.

Note1: Validated with HMI Touch color version 1.13

HP C2 cir2 and HP C3 Cir2 is now recorded on the Alarm Hystory when we trigger the Alarm.

Note2: Upload the HMI Touch application will require a fresh bios download!

Used code size: FA270h ( 1000 KByte)  
Free code space: 5D90h ( 23 KByte)  
Total code space: 100000h ( 1024 KByte)

Used data space: 2B4A8h ( 173 KByte)

Free data space: 54B58h ( 338 KByte)  
Total data space: 80000h ( 512 KByte)

## **Release 2.07.18 24-04-2021**

**PLC:** -Added HP compressor alarms for all compressor of the circuit 2.

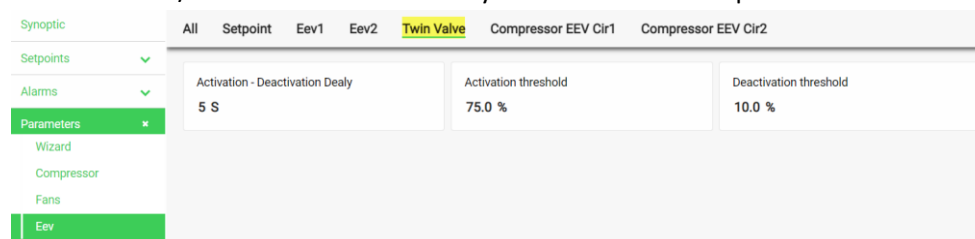
-Added option to disable delay between Star and Delta in case of Delta starter motor.

## Release 2.07.17 07-04-2021

### PLC:

1. Fixed circuit protection delay; now the compressor of different circuit will not be activated simultaneously.
2. Added double circuit valve. The secondary valve (EEV B) will be activated if the opening % of the primary expansion valve (EEV A) exceed the “activation threshold”.  
The EEV B will be deactivated if the opening % of the primary expansion valve (EEV A) exceed the “activation threshold”.

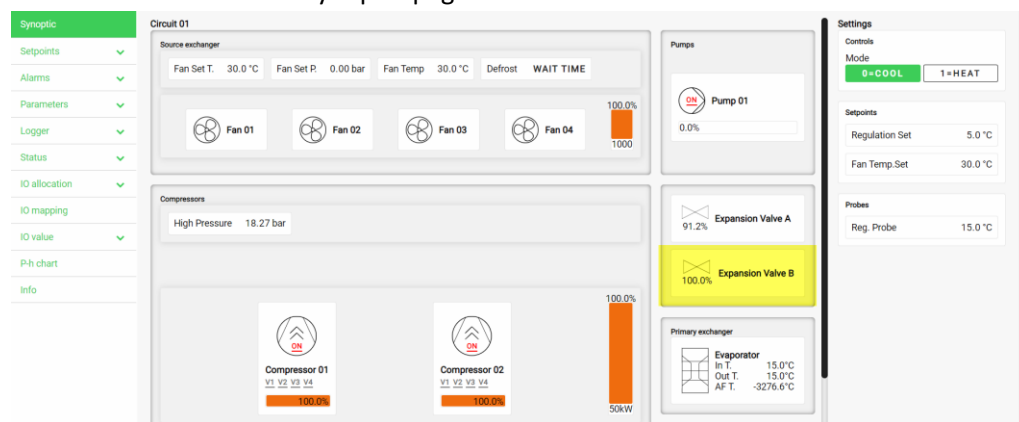
The activation/deactivation can be delayed with a dedicated parameter.



The EEV (XVD V3.0) Modbus address had been updated as follow table:

| Valves                        | Modbus Address |
|-------------------------------|----------------|
| Circuit 1 Valve Bipolar EEV A | 40             |
| Circuit 1 Valve Bipolar EEV B | 41             |
| Circuit 2 Valve Bipolar EEV A | 42             |
| Circuit 2 Valve Bipolar EEV B | 43             |

3. Added status icon in the synoptic page



4. Added option on local HMI to select the EEV A or B in the EEV status information page

```

EEV C1
EEV A
Valve opening 0.0%
Error SH 0.0K
abcdefghijklmnopqrstu
Status
abcdefghijklmnopqrstu

```

- Added source Pump enable parameter

| Synoptic   | All | Evap Pump | Manual Mode | Lock Rotor Prot.     | Sniffing Mode |
|------------|-----|-----------|-------------|----------------------|---------------|
| Setpoints  |     |           |             | pump                 |               |
| Alarms     |     |           |             | 100.0 %              |               |
| Parameters |     |           |             | Run period           | 6.020         |
| Wizard     |     |           |             | 00:00 MIN            |               |
| Compressor |     |           |             | Enable source Pump 2 | 6.024         |
| Fans       |     |           |             | FALSE                | TRUE          |
| Eev        |     |           |             | FALSE                | TRUE          |
| Pumps      |     |           |             | FALSE                | TRUE          |

- Added Source pump Icon in local HMI

```

0.0% 0.0% 0.0% 0.0%
OFF CO HP 0.0% 0.0%
0.0% 0.0% 0.0% 0.0%
0.0% 0.0% 0.0% 0.0%
00/00/00 Bacnet Sun 00:00

```

- Added Source pump Icon synoptic web page

| Circuit 01         |                     |                   |         |                                                 |
|--------------------|---------------------|-------------------|---------|-------------------------------------------------|
| Source exchanger   |                     |                   |         |                                                 |
| Fan Set T. 30.0 °C | Fan Set P. 0.00 bar | Fan Temp. 30.0 °C | Defrost | WAIT TIME                                       |
| Fan 01             | Fan 02              | Fan 03            | Fan 04  | 100.0%<br>1000                                  |
|                    |                     |                   |         | Pumps<br>ON Pump 01<br>0.0%<br>ON Source Pump 1 |

- Removed unused PLC code

Used code size: F9230h ( 996 KByte)  
Free code space: 6DD0h ( 27 KByte)  
Total code space: 100000h ( 1024 KByte)

- Removed unused HMI code

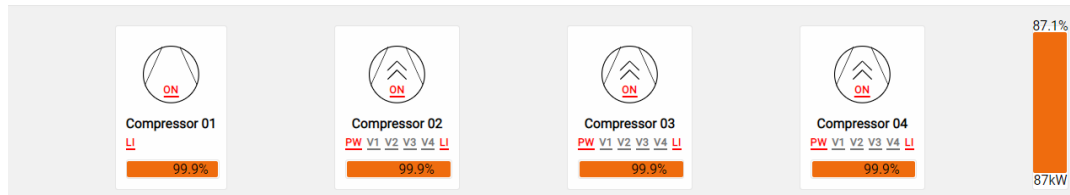
Used code size: 158C3Ch ( 1379 KByte)

Free code space: 273C4h ( 156 KByte)  
Total code space: 180000h ( 1536 KByte)

## Release 2.07.216 19-03-2021

### PLC:

10. Fixed power distribution algorithm, in case of running at 100% the rounded calculating is limited to avoid storing extra power in memory.
- 11.
12. Fixed String "COIL Alarm" in alarm, changed in "Common Oil Alarm".
13. Change the valve color in the main synoptic page from green to red.



## Release 2.07.116 18-03-2021

### PLC:

14. Fixed connection file CONNEC.PAR, now the connection file in folder EXTRA\_NOR is aligned with the compiled file.
15. Fixed power distribution algorithm, the rounded power distributed to the step compressor is now correctly assigned to the inverter compressors.
16. Fixed missing off of screw compressor of the screw compressor if the minimum power is greater than start %.

|                           |       |                                  |       |                                  |       |
|---------------------------|-------|----------------------------------|-------|----------------------------------|-------|
| Compressors nominal speed | 2.043 | Vs compressors minimum frequency | 2.044 | Vs compressors maximum frequency | 2.045 |
| 100.0 HZ                  |       | 25.0 HZ                          |       | 100.0 HZ                         |       |

Start % is considered the same parameter of the inverter 2.044

Now this threshold is not considered in the switch off sequence.

17. Fixed visualization issue on the digital input allocation on expansion 1.

|                                                                                                                  |             |                      |      |              |  |              |
|------------------------------------------------------------------------------------------------------------------|-------------|----------------------|------|--------------|--|--------------|
| <div> <div>IO Mapping</div> <div>IO Mapping</div> <div>ENG</div> <div>OFF</div> <div>ON</div> <div></div> </div> |             |                      |      |              |  |              |
| Synoptic                                                                                                         | EXPANSION 1 | DI                   | AI   | DO           |  | AO           |
| Circuit 1                                                                                                        | 1           | xOilPressSWComp1Cir1 | n.u. | xY1Comp3Cir2 |  | xY4Comp3Cir2 |
| Circuit 2                                                                                                        | 2           | xOilPressSWComp2Cir1 | n.u. | xY2Comp3Cir2 |  | xY4Comp4Cir1 |
| Setpoints                                                                                                        | 3           | xOilPressSWComp3Cir1 | n.u. | xY3Comp3Cir2 |  | n.u.         |
| Alarms                                                                                                           | 4           | xOilPressSWComp4Cir1 | n.u. | xComp4Cir1   |  | n.u.         |
| Parameters                                                                                                       | 5           | n.u.                 | n.u. | xPwComp4Cir1 |  | n.u.         |
| Logger                                                                                                           | 6           | n.u.                 | n.u. | xY1Comp4Cir1 |  | n.u.         |
| Status                                                                                                           | 7           | n.u.                 | n.u. | xY2Comp4Cir1 |  |              |
| IO allocation                                                                                                    | 8           | n.u.                 | n.u. | xY3Comp4Cir1 |  |              |
| IO mapping                                                                                                       | 9           | n.u.                 | n.u. | n.u.         |  |              |
|                                                                                                                  | 10          | n.u.                 | n.u. | n.u.         |  |              |
|                                                                                                                  | 11          | n.u.                 | n.u. | n.u.         |  |              |
|                                                                                                                  | 12          | n.u.                 | n.u. | n.u.         |  |              |

18. Corrected Chinese language translation.



**PLC:**

- 
- The screenshot displays the Pitzer HMI interface for a refrigeration system. The main area shows a schematic diagram with a condenser (red/orange rectangle) and two compressors (grey circles). The condenser is labeled "Total Fans Power: 11.4 %". The compressors are labeled "Total Compressors Power: 124 kW". The left sidebar shows navigation options: Synoptic, Circuit 1 (selected), Circuit 2, Setpoints, Mode, Rack Circuit 1, Rack Circuit 2, Alarms, Parameters, Logger, Status, IO allocation, IO mapping, IO value, P-h chart, and Info. The top right shows language (ENG) and status (OFF, ON) buttons. The right side displays various sensor readings: Cond. Set [°C] (30.0), Cond. Temp [°C] (41.9), High Pressure [Bar] (18.04), Sub Cooling [K] (17.6), Setpoint [°C] (5.0), Reg. Probe [°C] (11.1), Low Pressure [Bar] (7.47), and Super Heat [K] (15.8).

- 
- Synoptic
- Setpoints
- Alarms
- Parameters
- Wizard
- Compressor
- Fans
- Eev
- All General PID Reg. N. Zone Control Mod
- Time to increase/decrease the setpoint of 10% (a) 0 leave r/s as is 2.037
- 1 S
- Enable pulse valve on inverter compressor 2.120
- FALSE TRUE

[illegible]

8. Added compressor active power feedback.

| Synoptic   | All | General | PID Reg. | N. Zone | Control Mode | Timing | Oil | Alarms | Power | Screw | Misc | Economizer | Maintenance | Pressure Limits | Search |  |
|------------|-----|---------|----------|---------|--------------|--------|-----|--------|-------|-------|------|------------|-------------|-----------------|--------|--|
| Circuit 1  | ✓   |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Circuit 2  | ✓   |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Setpoints  | ✓   |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Alarms     | ✓   |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Parameters | ✕   |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Wizard     |     |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |
| Compressor |     |         |          |         |              |        |     |        |       |       |      |            |             |                 |        |  |

|                                                                     |       |                                 |       |                                   |       |                                                     |       |
|---------------------------------------------------------------------|-------|---------------------------------|-------|-----------------------------------|-------|-----------------------------------------------------|-------|
| Time to increase/decrease the setpoint of 10% [s] 0 leave rSp as is | 2.037 | Enable active capacity feedback | 2.117 | Active capacity compensation mode | 2.118 | Active capacity compensation dead zone              | 2.119 |
| 1 S                                                                 |       | 1                               |       | NEGATIVE                          |       | 50                                                  |       |
| Enable pulse valve on inverter compressor                           | 2.120 | Delay to increment compressors  | 2.048 | Delay to decrement compressors    | 2.049 | Compressor control sequence 0:fifo 1:runtime 2:lifo | 2.038 |
| FALSE TRUE                                                          |       | 5 S                             |       | 5 S                               |       | 0=FIFO 1=RUNTIME 2=LIFO                             |       |

The parameter 2.117 will enable the compensation.

The parameter 2.118 will define the compensation strategy, positive gap, negative gap or both (positive and negative). The delta cap is calculated Requested-Actual. The capacity Gap will be added or subtract to the inverter power.

9. Added new option to highlight the configured IOs in the IO Allocation pages.

|           |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Circuit 1 | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Circuit 2 | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Setpoints | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alarms    | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|            |          |        |    |               |               |        |    |              |          |        |  |
|------------|----------|--------|----|---------------|---------------|--------|----|--------------|----------|--------|--|
| xComp1Cir1 | Device   | Number | F1 | xPwComp1Cir1  | Device        | Number | F2 | xY1Comp1Cir1 | Device   | Number |  |
| CONTROLLER | 1=D01 NO |        |    | NOT ALLOCATED | NOT ALLOCATED |        |    | CONTROLLER   | 5=D05 NO |        |  |

10. Added configurable Generic Digital Input.

|               |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Setpoints     | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alarms        | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Parameters    | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Logger        | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Status        | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IO allocation | ✕ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AI allocation |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AO Allocation |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DO allocation |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AO Setup      |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IO mapping    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IO value      | ✓ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| P-h chart     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Info          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                        |               |        |     |                        |               |        |     |                        |               |        |     |
|------------------------|---------------|--------|-----|------------------------|---------------|--------|-----|------------------------|---------------|--------|-----|
| xThSourcePump1Cir2     | Device        | Number | F82 | xThSourcePump2Cir1     | Device        | Number | F83 | xDiGenericRegTempReg1  | Device        | Number | F84 |
| NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     | CONTROLLER             | 5=D15 NO      |        |     |
| xDiGenericRegTempReg2  | Device        | Number | F85 | xDiGenericRegTempReg3  | Device        | Number | F86 | xDiGenericRegTempReg4  | Device        | Number | F87 |
| NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     |
| xDiGenericRegTempReg5  | Device        | Number | F88 | xDiGenericRegTempReg6  | Device        | Number | F89 | xDiGenericRegPressReg1 | Device        | Number | F90 |
| NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     |
| xDiGenericRegPressReg2 | Device        | Number | F91 | xDiGenericRegPressReg3 | Device        | Number | F92 | xDiGenericRegPressReg4 | Device        | Number | F93 |
| NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     |
| xDiGenericRegPressReg5 | Device        | Number | F94 | xDiGenericRegPressReg6 | Device        | Number | F95 |                        |               |        |     |
| NOT ALLOCATED          | NOT ALLOCATED |        |     | NOT ALLOCATED          | NOT ALLOCATED |        |     |                        |               |        |     |

11. Added Generic regulator Digital Input configuration option to configure it as Alarm, Generic Regulator On Off or to activate the Digital Output.

|                   |   |
|-------------------|---|
| Synoptic          |   |
| Circuit 1         | ✓ |
| Circuit 2         | ✓ |
| Setpoints         | ✓ |
| Alarms            | ✓ |
| Parameters        | ✕ |
| Wizard            |   |
| Compressor        |   |
| Fans              |   |
| Rtc               |   |
| Alarms settings   |   |
| Generic Regulator |   |

|                                 |                  |                     |  |
|---------------------------------|------------------|---------------------|--|
| Generic temperature regulator 1 |                  |                     |  |
| Probe configuration             | DI configuration |                     |  |
| DISABLE                         | ALARM            |                     |  |
| Alarm configuration             | Setpoint         | Diff (negativ...)   |  |
| STOP CIRCUIT1                   | 20.0 °C          | 10.0 K              |  |
| Description                     |                  |                     |  |
| GEN REG T 1                     |                  |                     |  |
| Generic temperature regulator 4 |                  |                     |  |
| Probe configuration             | DI configuration | Alarm configuration |  |
| DISABLE                         | DISABLE          | DISABLE             |  |

12. Added Condenser Source pump alarm to manage alarm from thermal protection and from flow switch.

ACTIVE071

Pump Cond circuit 1

|               |            |                      |
|---------------|------------|----------------------|
| Synoptic      | CONTROLLER | DI                   |
| Setpoints     | 1          | xAlarmComp1Cir1      |
| Alarms        | 2          | xAlarmComp2Cir1      |
| Parameters    | 3          | xAlarmComp3Cir1      |
| Logger        | 4          | xLocalStartStop      |
| Status        | 5          | xDIGenericRegTemp1   |
| IO allocation | 6          | n.u.                 |
| IO mapping    | 7          | n.u.                 |
| IO value      | 8          | n.u.                 |
| IO value      | 10         | xFlowSSourcePumpCir1 |
| IO value      | 11         | xThSourcePump1Cir1   |
| IO value      | 12         | n.u.                 |

13. Added Generic regulator Alarm configuration option to select the alarm action: Warning , stop circuit 1, Stop Circuit 2 or stop the unit.

Synoptic

Circuit 1

Circuit 2

Setpoints

Alarms

Parameters

Wizard

Compressor

Fans

Rtc

Alarms settings

Generic Regulator

Generic temperature regulator 1

Probe configuration

DISABLE

DI configuration

ALARM

Alarm configuration

STOP CIRCUIT1

Setpoint

20.0 °C

Diff (negativ...

10.0 K

Description

GEN REG T 1

Generic temperature regulator 4

Probe configuration

DISABLE

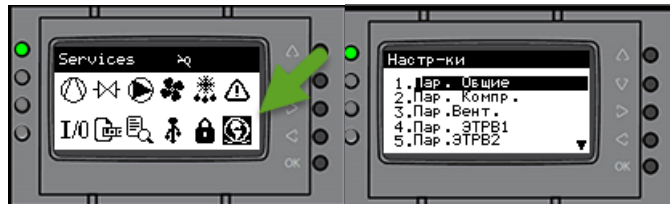
DI configuration

DISABLE

Alarm configuration

DISABLE

14. Added Multilanguage option and Russian language on local HMI.



15. Fixed translation error the Russian languages on the web server.

16. Fixed translation error in Portuguese languages on the web server

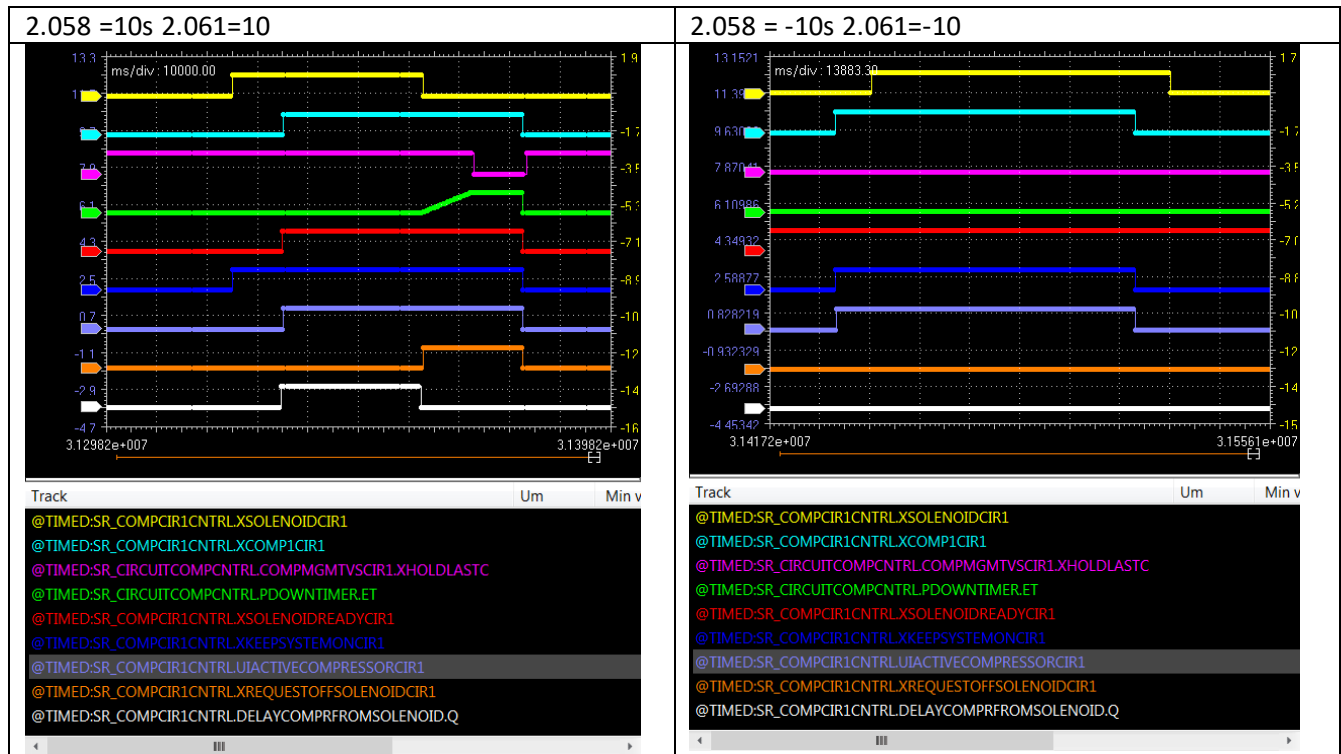
17. Added Hindi languages on the web server.

## Release 2.07.915 11-02-2021

PLC:

Fixed Time Out alarm of Compressor 1 at Unit ON. E2\_uiDelayGenericAlarm

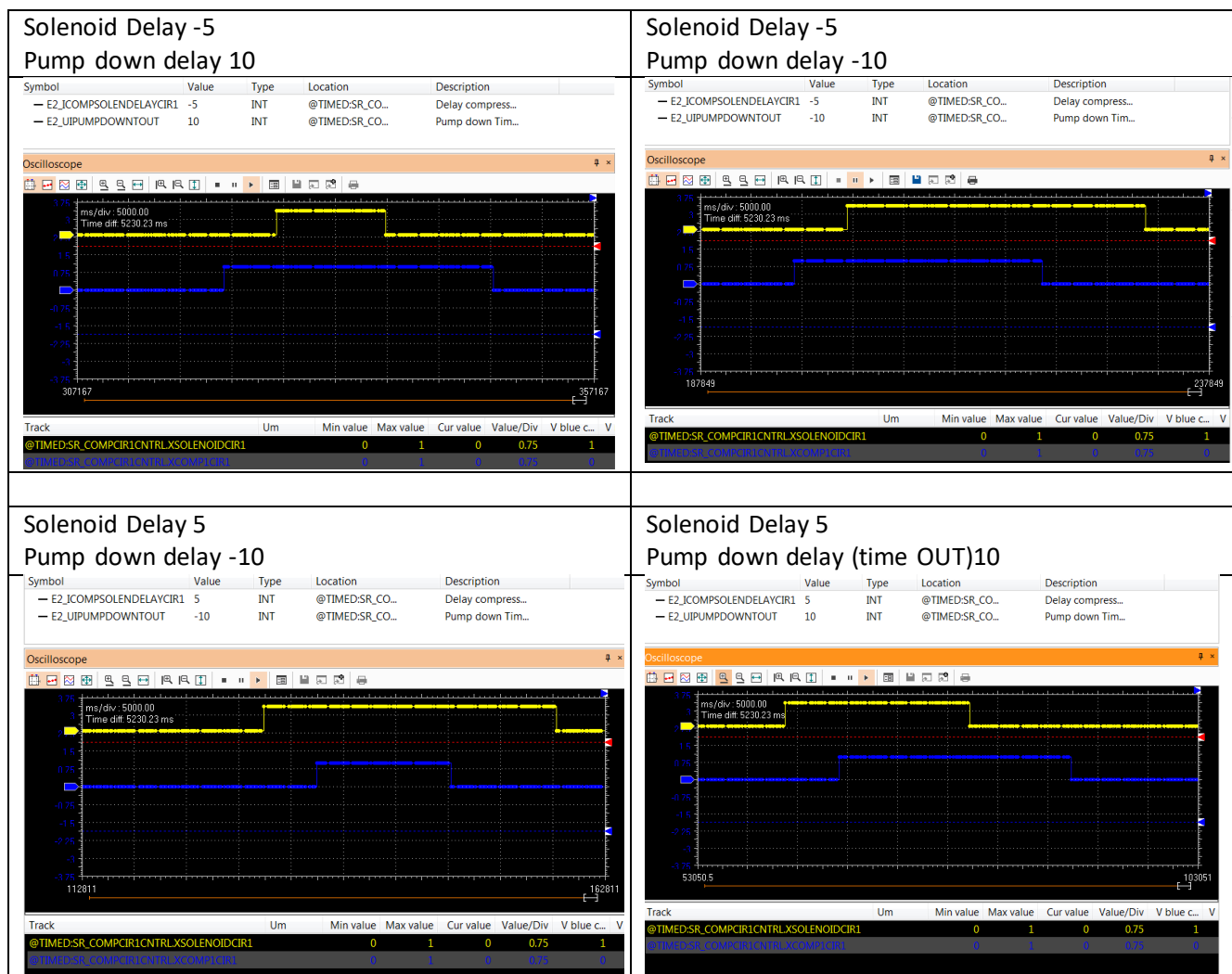
- Fixed solenoid delay, now the compressor driver (PW + unloader ) is synchronized with the solenoid request.



## Release 2.07.815 28-01-2021

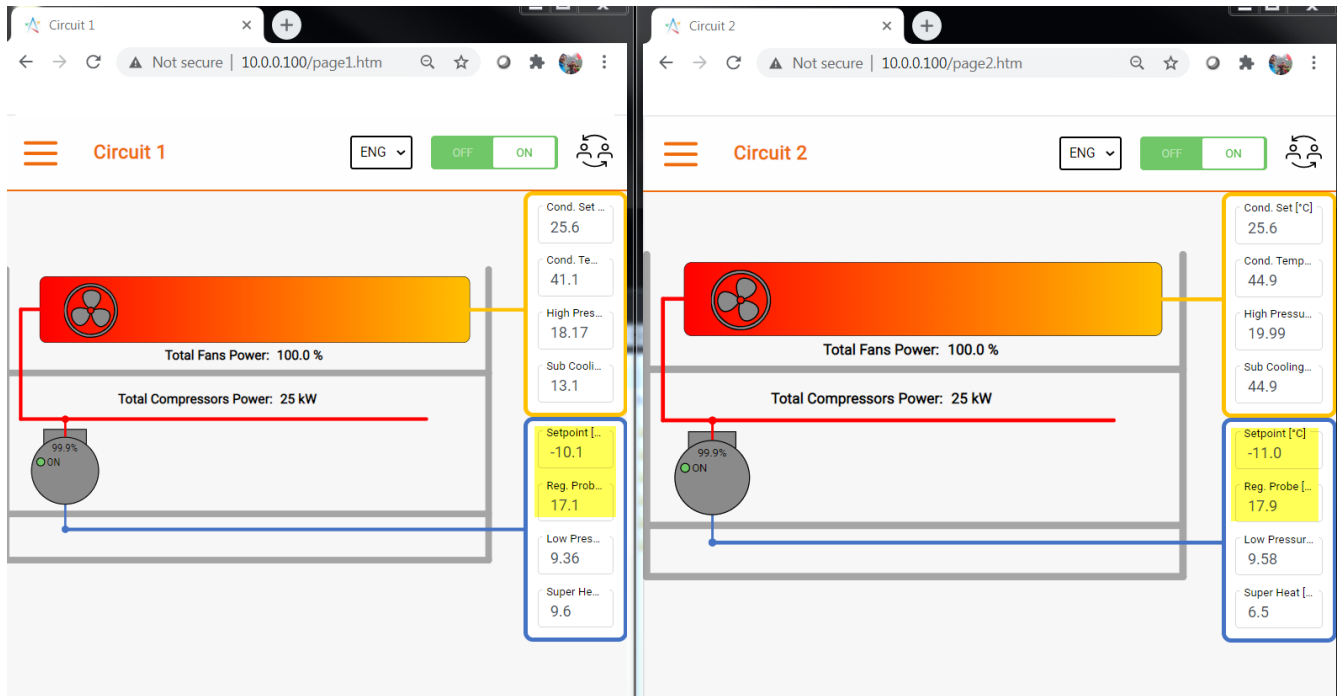
### PLC:

- Fixed Time Out alarm of Compressor 1 at Unit ON.
- Fixed evaporator pump alarm at Unit ON.
- Certification of the Russian language translation.
- Added Positive and negative delay for solenoid valve in case of Chiller configuration



## WEB:

- Fixed Circuit page in case of a Rack with two suction line.



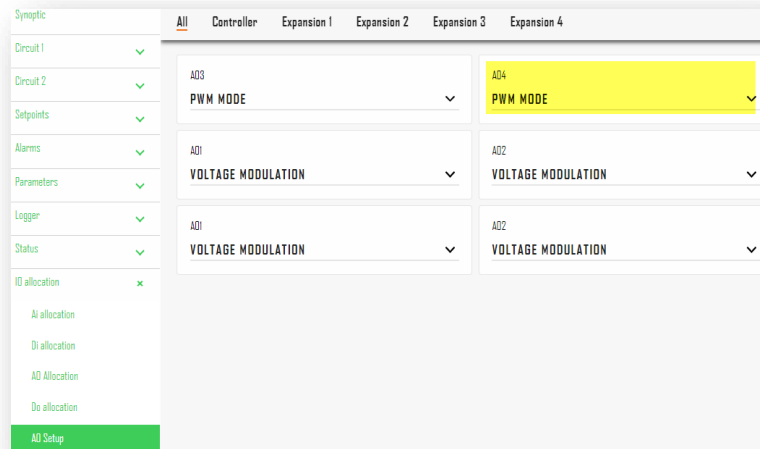
```
Used code size:      F93FCh ( 996 KByte)
Free code space:     6C04h ( 27 KByte)
Total code space:    100000h ( 1024 KByte)

Used data space:      2815Ah ( 160 KByte)
Free data space:      57EA6h ( 351 KByte)
Total data space:     80000h ( 512 KByte)
```

## Release 2.07.615 19-01-2021

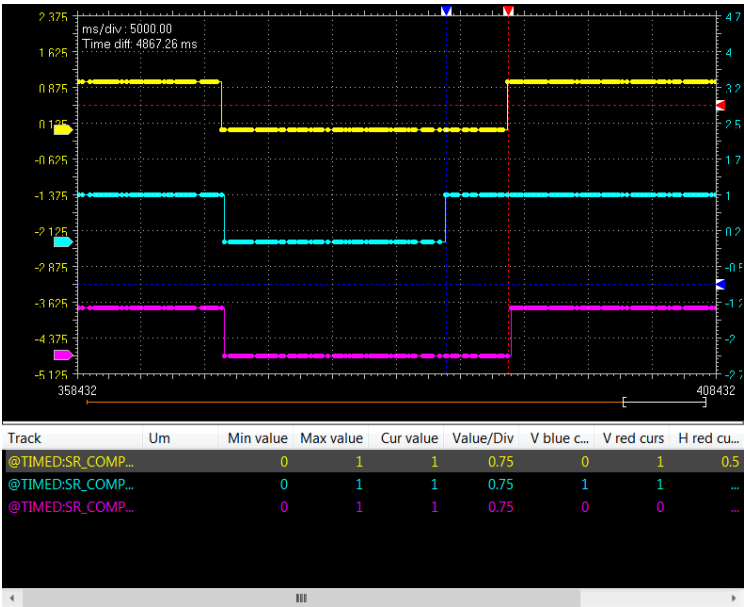
### PLC:

Fixed AO configuration in case od DO configured as AO, in previous version the output was fixed to 1=Current modulation. Now can be selected from the dedicated menu in Commissioning/Web server.



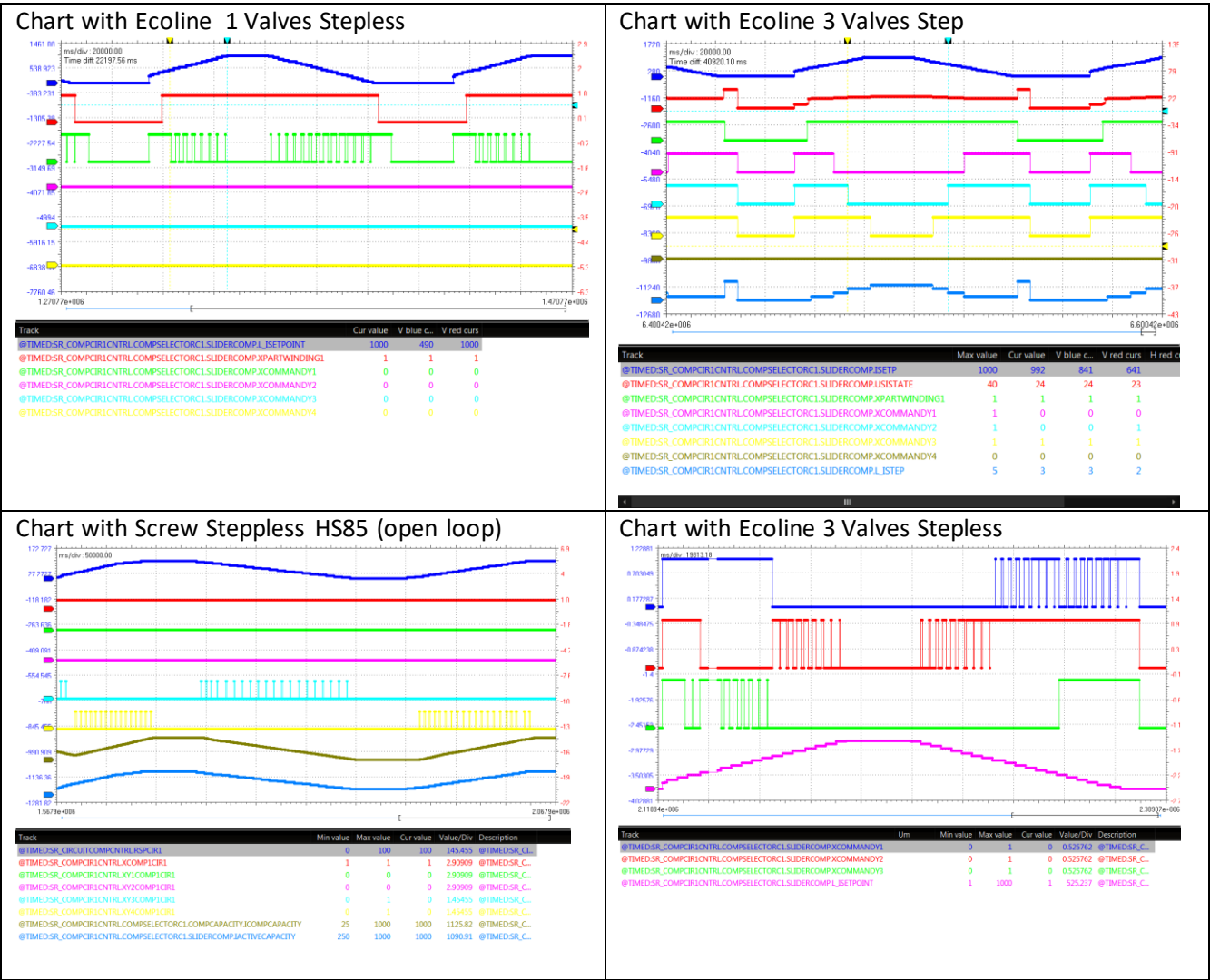


Added configurable delay (2.058) between solenoid valve and compressor start In WEB/Compressor/Timing

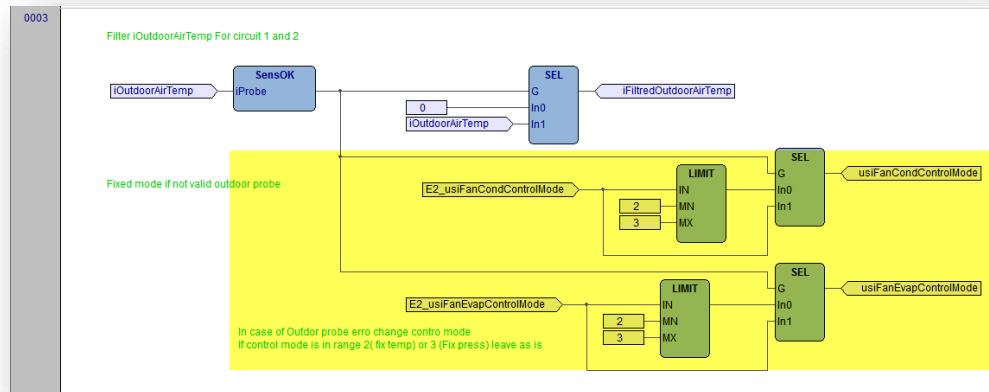


PLC:

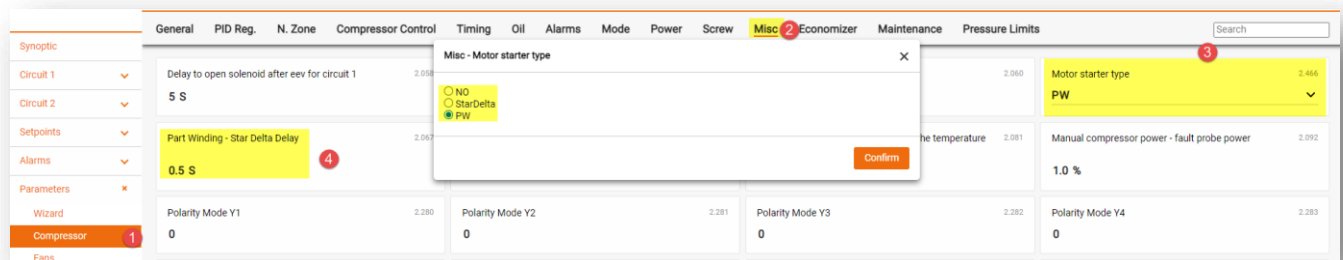
Validation of the Ecoline Step and Stepless compressor with 1, 2, 3 valve



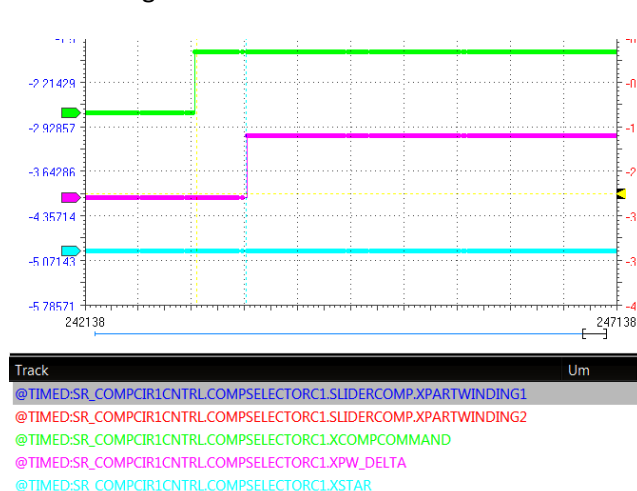
Fixed Auto mode in case of Outdoor Probe failure, now if the mode is Fixed Pressure or Temperature the Mode will be maintained valid, in previous version it was set to fixed in Temperature.



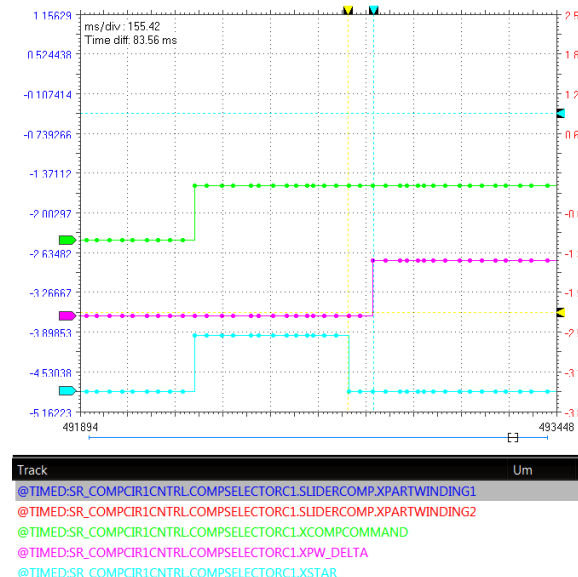
Added Part winding and Delta Star Option for Compressor 1, 2 of circuit 1 and circuit 2



Part winding chart with 500 ms



Delta Star chart with 500ms



Compressor

Fans

Eev

Heat pump

Defrost

Pumps

Rtc

Alarms configuration

Generic Regulator

Generic pressure regulator 1

Mode

HIGHPRESSCIR1

Setpoint

2.00 BAR

Diff (negative = ...)

1.00 BAR

Description

COLD ROOM TEMP!

Generic pressure regulator 4

Mode

DISABLE

Setpoint

20.00 BAR

Diff (negative = he...

10.00 BAR

Description

ALARM GEN REG P 4

```
0324      136:   AlrSubCode:='Motor Freq Hi';
0325      137:   AlrSubCode:='Oil Stop Valve';
0326      145:   AlrSubCode:='HW: 24V sens 1';
0327      146:   AlrSubCode:='HW: 24V sens 2';
0328      150:   AlrSubCode:='Sign.but no run';
0329      152:   AlrSubCode:='No sig. Comr On';
0330      153:   AlrSubCode:='Motor Curr. High';
0331      159:   AlrSubCode:='Undef. C. State';
0332      164:   AlrSubCode:='Oil Filt.Press Hi';
0333      165:   AlrSubCode:='Oil Level Low';
0334      255:   AlrSubCode:='Com. Time Out';
0335 ELSE
0336      AlrSubCode:='Undef. Sub code';
```

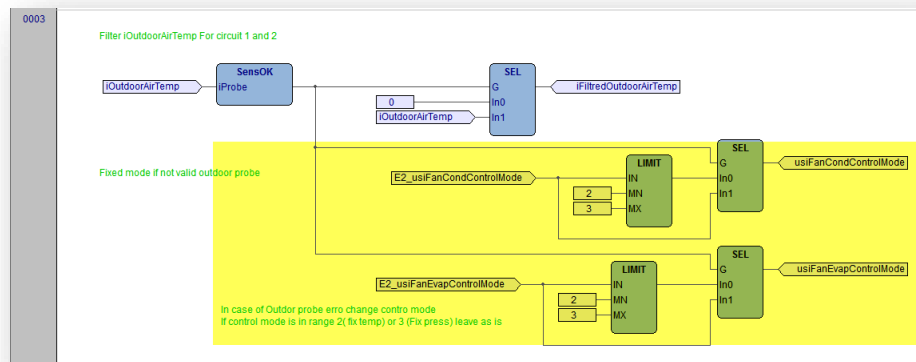
Added Generic regulator alarm description included also in historical alarm on web server and al local HMI

|               |   |
|---------------|---|
| Circuit 2     | ✓ |
| Setpoints     | ✓ |
| Alarms        | ✗ |
| Historical    |   |
| Parameters    | ✓ |
| Logger        | ✓ |
| Status        | ✓ |
| IO allocation | ✓ |

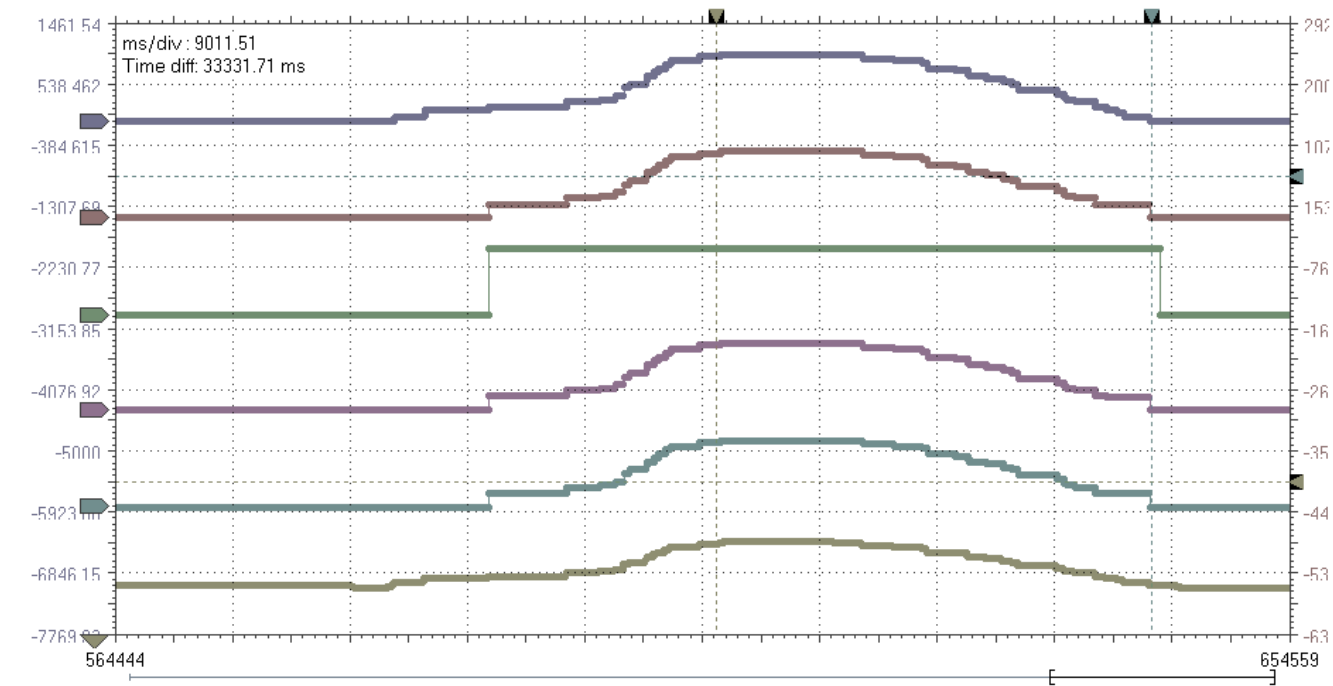
  

| Alarm History                |                   |             |       |       |    |
|------------------------------|-------------------|-------------|-------|-------|----|
| Position (1 the most recent) |                   |             |       |       |    |
| 1                            | 2                 | 3           | 4     | 5     | 6  |
| 7                            | 8                 | 9           | 10    | 11    | 12 |
| 13                           | 14                | 15          | 16    | 17    |    |
| 18                           | 19                | 20          | 21    | 22    | 23 |
| 24                           | 25                | 26          | 27    | 28    | 29 |
| 30                           | 31                | 32          |       |       |    |
| 33                           | 34                | 35          | 36    | 37    | 38 |
| 39                           | 40                | 41          | 42    | 43    | 44 |
| 45                           | 46                | 47          |       |       |    |
| 48                           |                   | 49          |       | 50    |    |
| Description                  | Note              | Status      | Date  | Time  |    |
| 14-MOT. C1 CIR1              | OIL FILT PRESS HI | ALARMACTIVE | 13.01 | 22:24 |    |
| Seconds                      | Alarms st...      |             |       |       |    |
| 12                           | 4                 |             |       |       |    |

Fixed behavior in case of Outdoor temperature probe out of range , Now if the condenser regulator is fixed in Pressure the regulation mode is not forced in Fixed temperature.



Fixed behavior in case of fan regulation controlled in pressure. Now the Analog output is scaled correctly.

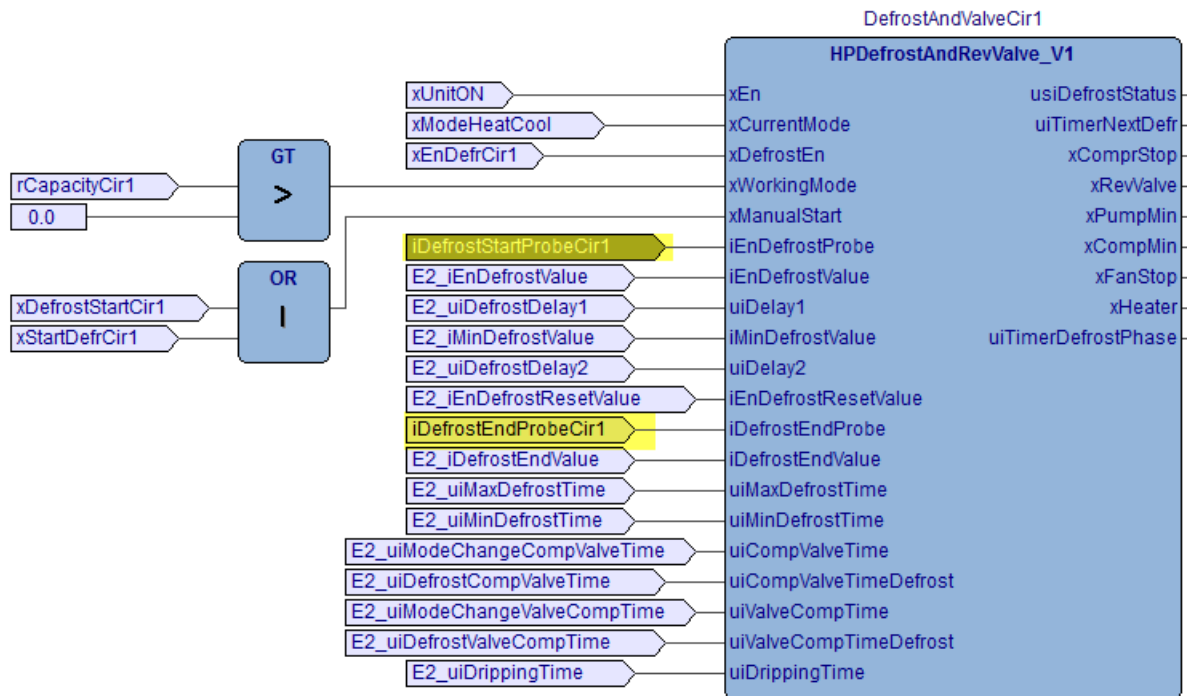


| Track                                     | Um | Min value | Max value | Cur value | Value/Div | V blue c... | V red curs | H r |
|-------------------------------------------|----|-----------|-----------|-----------|-----------|-------------|------------|-----|
| @TIMED:SR_FANCIR1CNTRLUIFANCONTROLSIGN... |    | 0         | 1000      | 0         | 923.077   | 976         | 0          |     |
| @TIMED:SR_FANCIR1CNTRLUIFANFREQSP         |    | 0         | 1000      | 0         | 923.077   | 976         | 0          | €   |
| @TIMED:SR_FANCIR1CNTRLXFAN1CIR1           |    | 0         | 1         | 0         | 0.923077  | 1           | 1          |     |
| @TIMED:SR_FANCIR1CNTRLIFANCIR1            |    | 0         | 1000      | 0         | 923.077   | 976         | 0          |     |
| @TIMED:SR_FANCIR1CNTRLIFANPOWERCIR1       |    | 0         | 1000      | 0         | 923.077   | 976         | 0          |     |
| @TIMED:SR_FANCIR1CNTRLIHIGHPRESSCIR1      |    | 1500      | 1898      | 1595      | 367.385   | 1861        | 1610       |     |

Release 2.07.15 09-12-2020

PLC:

Added Configurable Defrost End Probe For Chiller/HeatPump configurations.

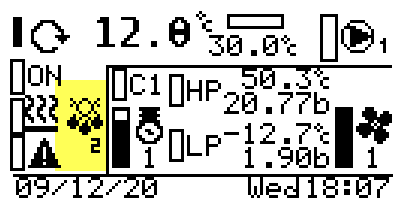


Fixed Defrost Manual start; now in case of synchronous defrost the two circuit will be activated in parallel.

Updated All Pid library with PIIntAdvance Library.

HMI:

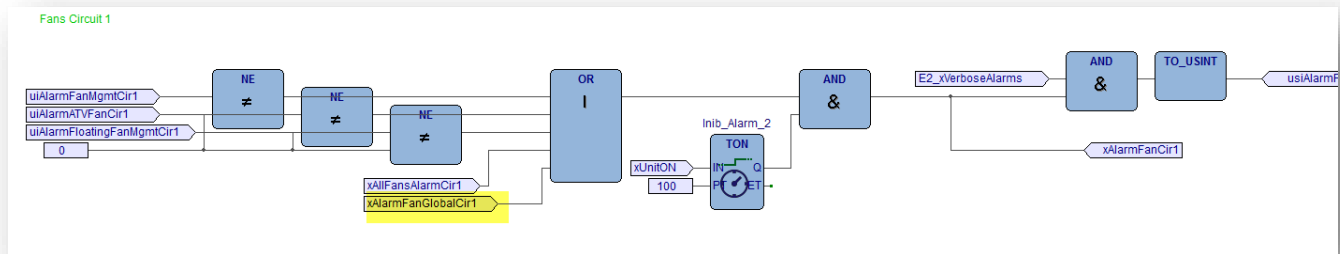
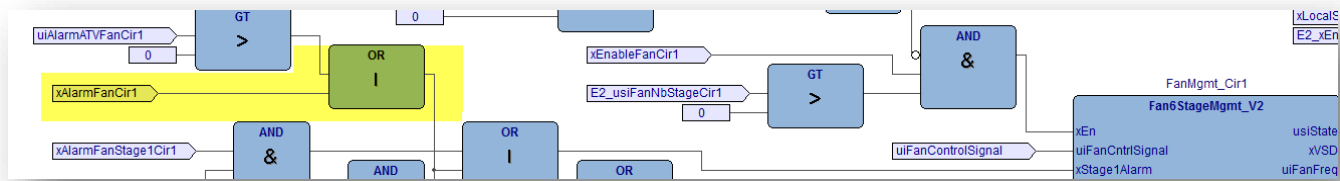
Added defrost icon with the number of the circuit in defrost phase.



Release 2.07.15 26-11-2020

PLC:

Fixed alarm fan global



Added Parameter to disable Bridge between Modbus TCP and Modbus RS485

Available in BIOS/ETHERNE

The screenshot shows the 'ETHERNET' MENU interface. On the left, there's a tree view with categories like RTC, Password, Bios, Ethernet, Status, InverterIQ, and InverterVaripack. The 'Ethernet' category is selected. On the right, there's a table with the following data:

| # | Name        | Description   |
|---|-------------|---------------|
| 1 | E2_EnBridge | Enable Bridge |

Below the table, there are controls: '+ Add', '- Remove', 'Up', and 'Down' buttons.

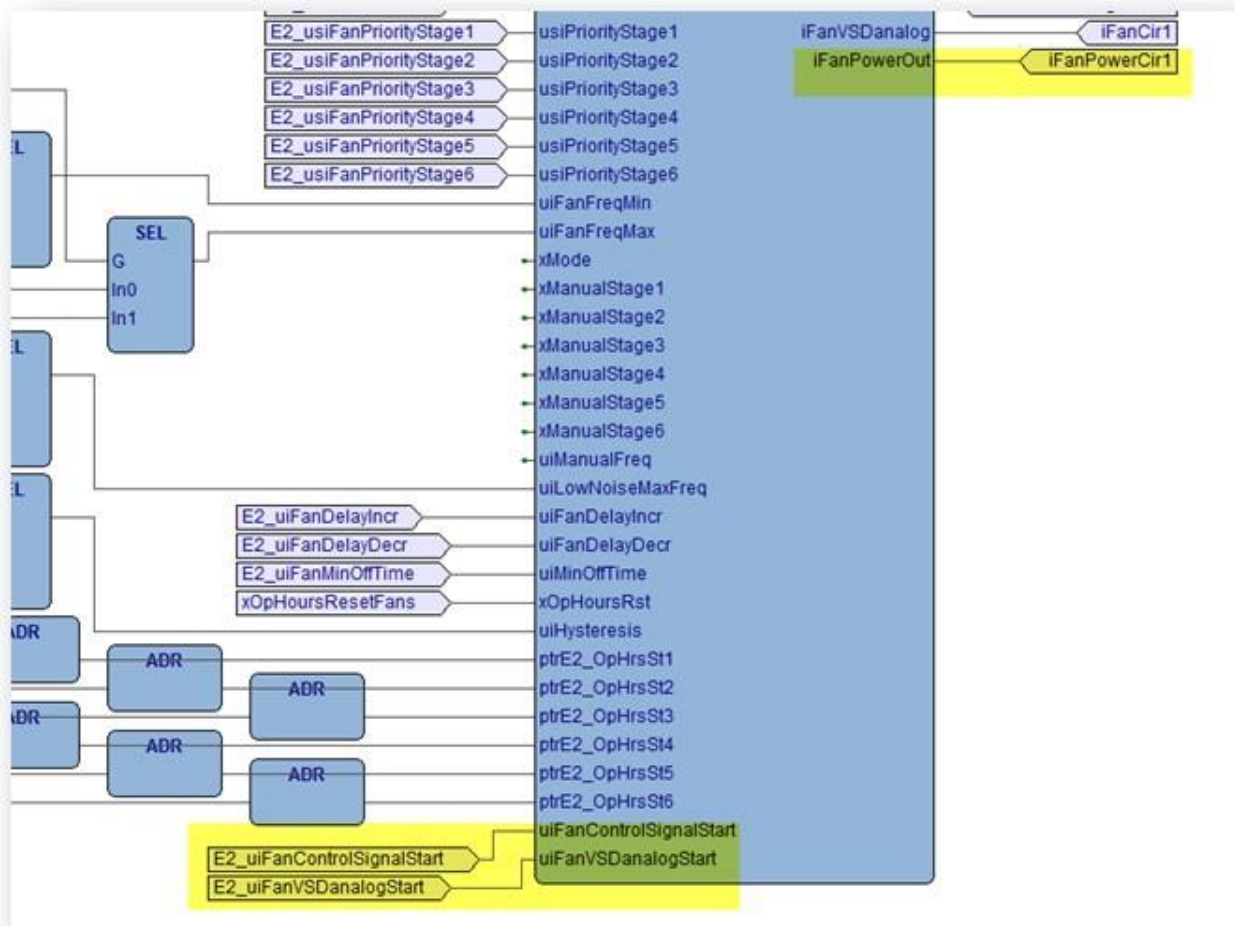


Added New parameter to manage additional Fan feature:

- 5.065 Control signal % to start Fan
- 5.066 Fan speed signal (Analog Out Value) which correspond to the minimum speed uiFanFreqMin

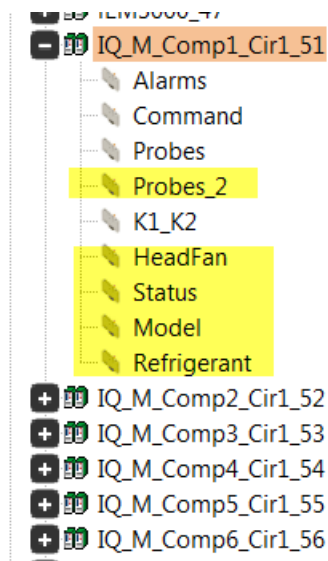
The screenshot shows the 'Fan Configuration' tab with the following settings:

| Parameter                                                     | Value                    |
|---------------------------------------------------------------|--------------------------|
| Fan vs minimum frequency                                      | 5.025                    |
| Fan vs maximum frequency                                      | 5.026                    |
| Control Signal which triggers nominal minimum power available | 5.065                    |
| Fan speed signal to AO VSD corresponding to uiFanFreqMin      | 5.066                    |
| Setpoints                                                     | 5.0 HZ                   |
| Fan vs low noise operation frequency reduction                | 5.027                    |
| Fan type inverter or digital fan                              | 2.077                    |
| Low noise operation t:activates f:deactivates                 | 5.009                    |
| 50.0 HZ                                                       |                          |
| FAN INVERTER                                                  | <input type="checkbox"/> |
| FAN STAGE                                                     | <input type="checkbox"/> |
| FALSE                                                         | <input type="checkbox"/> |
| TRUE                                                          | <input type="checkbox"/> |



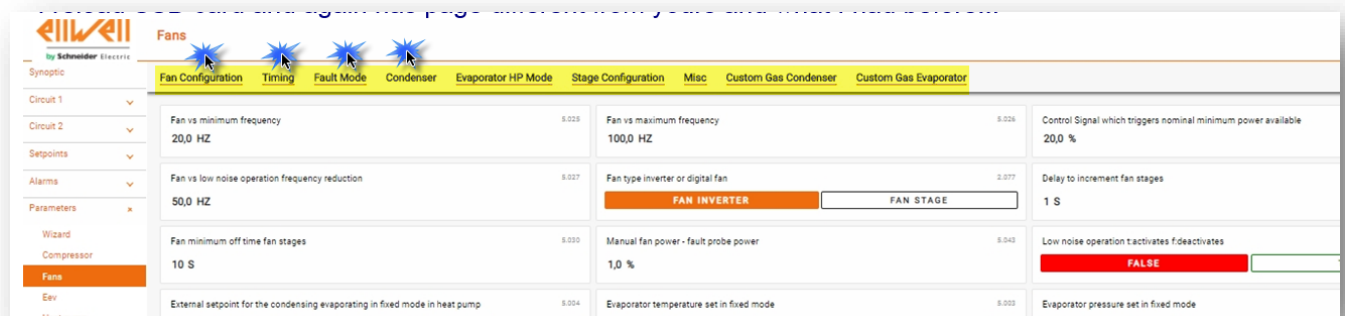
In this version the parameter fan can be updated if the unit is off from Remote button, only the hysteresis can be updated with unit ON.

Added register for Bitzer Digital solution

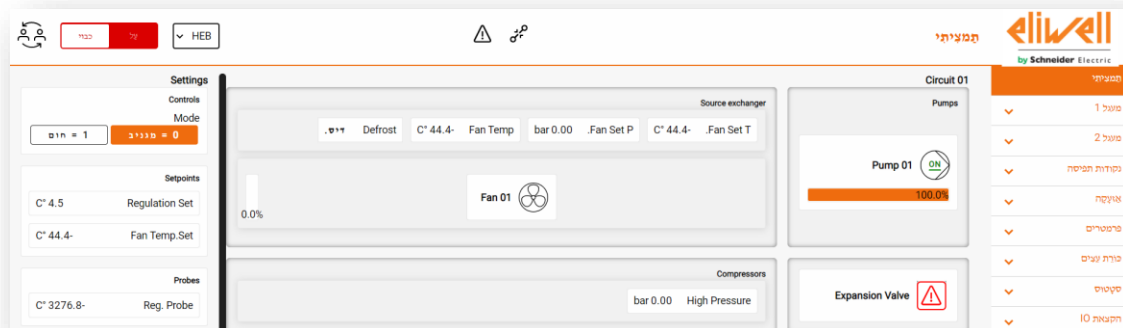


WEB:

Added new option for section, each section can be activated/deactivated in toggle mode



Added Automatic right-aligned languages



Added Unit model and serial number

eliwell

by Schneider Electric

Wizard

ENG

OFF

ON

⚙

⚠

Synoptic

Circuit 1

Circuit 2

Setpoints

Alarms

Parameters

Wizard

Compressor

Fans

1-General

2-Compressors

3-Inverter

4-Mode

5-Fans

6-Cond. Rack-Chiller

7-Evap.HP Mode

8-Expansions

9-Extra

Search

Unit Model

Unit Serial Number

AIR WATER CHILLER

00001

Disable RS485-2

1.099

FALSE

TRUE

Added Fan power in real time logger

Circuit 1

Circuit 2

Setpoints

Alarms

Parameters

Logger

Realtime

Status

IO allocation

IO mapping

IO value

P-h chart

Info

Realtime Series

☐ Generic Temp Regulator 1

☐ Generic Temp Regulator 4

☐ Generic Press Regulator 1

☐ Generic Press Regulator 4

☐ Warning Alarm Relay

☐ EEV1 PB3

☐ EEV1 SH

☐ EEV2 PB2

☐ EEV2 T Evap

☐ Defrost Status Circuit 1

☐ Timer Next Defrost Circuit 2

☐ Next Defrost Timer

☐ Capacity Cir1

☐ Requested Capacity Cir2

☐ Fan Temp Setp. Cir2

☐ Fan Calc. Temp. Cir2

☐ Fan Control Signal Cir1

☐ Cond Temp Setpoint Circuit 2

☒ Fan Power Circuit 1

☐ Generic Temp Regulator 2

☐ Generic Temp Regulator 5

☐ Generic Press Regulator 2

☐ Generic Press Regulator 5

☐ EEV1 PB1

☐ EEV1 PB4

☐ EEV1 Open

☐ EEV2 PB3

☐ EEV2 SH

☐ Defrost Status Circuit 2

☐ Defrost Phase Timer Circuit 1

☐ Reversing Valve Cir1

☐ Capacity Cir2

☐ Fan Temp Setp. Cir1

☐ Fan Press Setp. Cir2

☐ Evap Temp Set Cir1

☐ Fan Control Signal Cir2

☐ Cond Temp Circuit 1

☒ Fan Power Circuit 2

☐ Generic Temp Regulator 3

☐ Generic Temp Regulator 6

☐ Generic Press Regulator 3

☐ Generic Press Regulator 6

☐ EEV1 PB2

☐ EEV1 Tevap

☐ EEV2 PB1

☐ EEV2 PB4

☐ EEV2 Open

☐ Timer Next Defrost Circuit 1

☐ Defrost Phase Timer Circuit 2

☐ Reversing Valve Cir2

☐ Requested Capacity Cir1

☐ Fan Press Setp. Cir1

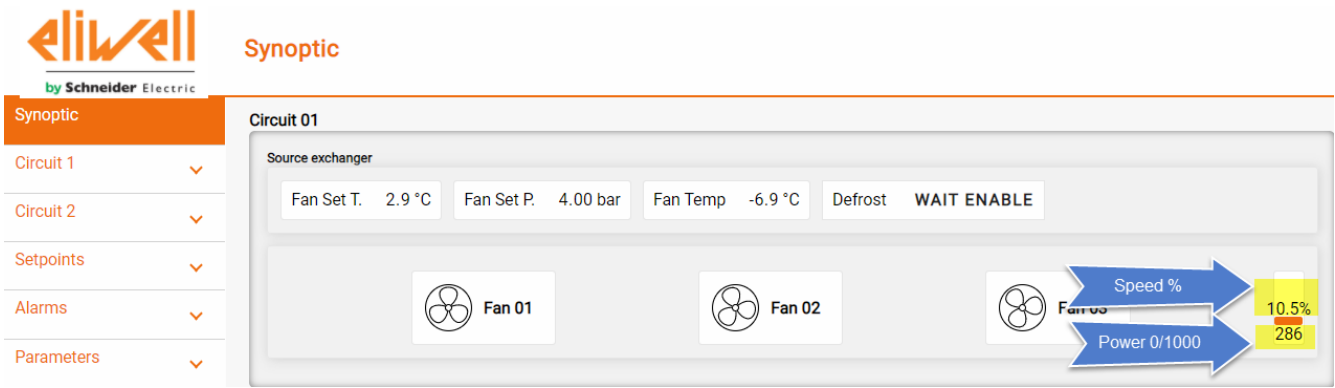
☐ Fan Calc. Temp. Cir1

☐ Evap Temp Set Cir2

☐ Cond Temp Setpoint Circuit 1

☐ Cond Temp Circuit 2

Added Fan Power and fan speed (fan speed is also the fan Analog output)



## Release 2.07.15 03-11-2020

### PLC:

- 1- #issue4 Added E2\_iCondValueForMaxFan E2\_iEvapValueForMaxFan
- 2- #issue4 Added E2\_xHPSwitchFanMax E2\_xLPSwitchFanMax
- 3- Added option to open XVD in manual mode with unit off or stand by. To allow user to better perform vacuum operation.
- 4- Added New library for R454C (refprop10)
- 5- Added New parameter for XVD GAS R454C (refprop10)
- 6- Update custom gas coefficients for GAS R454C Refprop 10

| EEPROM PARAMETERS                |         |                         |                |          |              |               |     |     |       |
|----------------------------------|---------|-------------------------|----------------|----------|--------------|---------------|-----|-----|-------|
| <div>+ Add - Remove Recalc</div> |         |                         |                |          |              |               |     |     |       |
| #                                | Address | Name                    | Installer type | IEC type | Size         | Default value | Min | Max | Scale |
| 1726                             | 17460   | E2_usiPardL91Cir1       | dl90           | USINT    | RS485        |               |     |     | 1     |
| 1727                             | 17461   | E2_usiPardL91Cir2       | dl90           | USINT    | RS485        |               |     |     | 1     |
| 1728                             | 17462   | E2_usiPardL40Cir1       | dl40           | USINT    | NotUsed      |               |     |     | 1     |
| 1729                             | 17463   | E2_usiPardL40Cir2       | dl40           | USINT    | NotUsed      |               |     |     | 1     |
| 1730                             | 17464   | E2_usiPardL41Cir1       | dl40           | USINT    | NotUsed      |               |     |     | 1     |
| 1731                             | 17465   | E2_usiPardL41Cir2       | dl40           | USINT    | NotUsed      |               |     |     | 1     |
| 1732                             | 17466   | E2_rCustomGasCondA1     | Real           | REAL     | -46.07114245 |               |     |     | 1     |
| 1733                             | 17468   | E2_rCustomGasCondB1     | Real           | REAL     | 20.80548824  |               |     |     | 1     |
| 1734                             | 17470   | E2_rCustomGasCondC1     | Real           | REAL     | 2.214615383  |               |     |     | 1     |
| 1735                             | 17472   | E2_rCustomGasCondD1     | Real           | REAL     | 0.222533756  |               |     |     | 1     |
| 1736                             | 17474   | E2_rCustomGasCondE1     | Real           | REAL     | 0.216517931  |               |     |     | 1     |
| 1737                             | 17476   | E2_xEnableCustomGasCond | Boolean        | BOOL     | False        |               |     |     | 1     |
| 1738                             | 17477   | E2_iCustomGasCondMin    | Signed 16-bit  | INT      | -40          |               |     |     | 1     |
| 1739                             | 17479   | E2_iCustomGasCondMax    | Signed 16-bit  | INT      | 3000         |               |     |     | 1     |
| 1740                             | 17481   | E2_rCustomGasEvapA1     | Real           | REAL     | -37.95897005 |               |     |     | 1     |
| 1741                             | 17483   | E2_rCustomGasEvapB1     | Real           | REAL     | 21.04528744  |               |     |     | 1     |
| 1742                             | 17485   | E2_rCustomGasEvapC1     | Real           | REAL     | 2.262725317  |               |     |     | 1     |
| 1743                             | 17487   | E2_rCustomGasEvapD1     | Real           | REAL     | 0.274679266  |               |     |     | 1     |
| 1744                             | 17489   | E2_rCustomGasEvapE1     | Real           | REAL     | -0.005888246 |               |     |     | 1     |

- 7- Added Alarm history in local HMI and Web server pages.
- 8- Added Televis Go driver in release folder TelevisGoDriver\B-CH-HP-CR-2.07.bin .
- 9- Added Progress bar in Configuration manager feature.
- 10- Added Daylight saving time configurable in local HMI and Remote Web server.
- 11- Added "fast start up feature", feature available with new bios (Msk596\_610\_200530\_Mid7.12.1-dev0.bin.
- 12- With this option the controller avoids checking connection with not configured IO expansion.
- 13- Added option to control the defrost with a pressure probe.
- 14- Added option to bypass protection timing with reversing valve changeover.
- 15- Added Liquid injection PID differential, and modify Liquid injection algorithm to consider actual capacity instead Requested Capacity.  
Liquid injection can now be controller with compressor discharge temperature probe or with actual compressor capacity.
- 16- Tested new compressor configuration Screw 50-100, fixed unloader activation sequence.
- 17- Fixed missing Variable iEvapCoilTempCir2 and relative Allocation parameters.
- 18- Fixed limit on parameter dE26 e dE27 for XVD.
- 19- Added EEV Opening preset feature parameter only in webpage.
- 20- Added Compressor Overview in local HMI and Web page:

|             |                   |                   |          |        |
|-------------|-------------------|-------------------|----------|--------|
| Synoptic    | Compressor Circ 1 | Compressor Circ 2 | Overview | Search |
| Setpoints   |                   |                   |          |        |
| Alarms      |                   |                   |          |        |
| Parameters  |                   |                   |          |        |
| Logger      |                   |                   |          |        |
| Status      |                   |                   |          |        |
| Compressors |                   |                   |          |        |
| Fans        |                   |                   |          |        |
| EEVs        |                   |                   |          |        |
| HeatPump    |                   |                   |          |        |
| Sub...      |                   |                   |          |        |

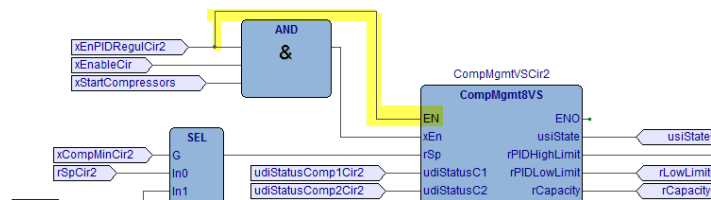
  

|                        |                        |                        |                        |
|------------------------|------------------------|------------------------|------------------------|
| Circuit 1 compressor 1 | Circuit 1 compressor 2 | Circuit 1 compressor 3 | Circuit 1 compressor 4 |
| WAIT ON                | WAIT ON                | NOT USED               | NOT USED               |
| Circuit 1 compressor 5 | Circuit 1 compressor 6 | Circuit 2 compressor 1 | Circuit 2 compressor 2 |
| NOT USED               | NOT USED               | WAIT ON                | WAIT ON                |
| Circuit 2 compressor 3 | Circuit 2 compressor 4 | Circuit 2 compressor 5 | Circuit 2 compressor 6 |
| NOT USED               | NOT USED               | NOT USED               | NOT USED               |



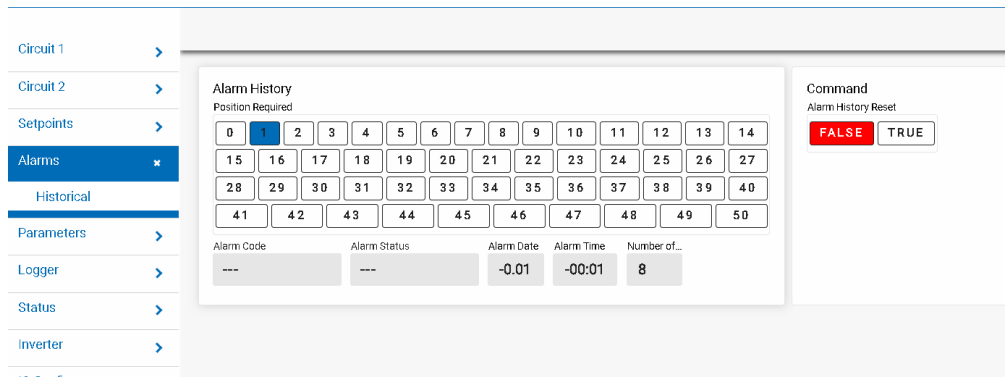
| Compressors Overview |     |      |    |     |      |
|----------------------|-----|------|----|-----|------|
| C1                   | Not | used | C1 | Not | used |
| C2                   | Not | used | C2 | Not | used |
| C3                   | Not | used | C3 | Not | used |
| C4                   | Not | used | C4 | Not | used |
| C5                   | Not | used | C5 | Not | used |
| C6                   | Not | used | C6 | Not | used |

21- Fixed issue compressor start up of the compressor on circuit 2

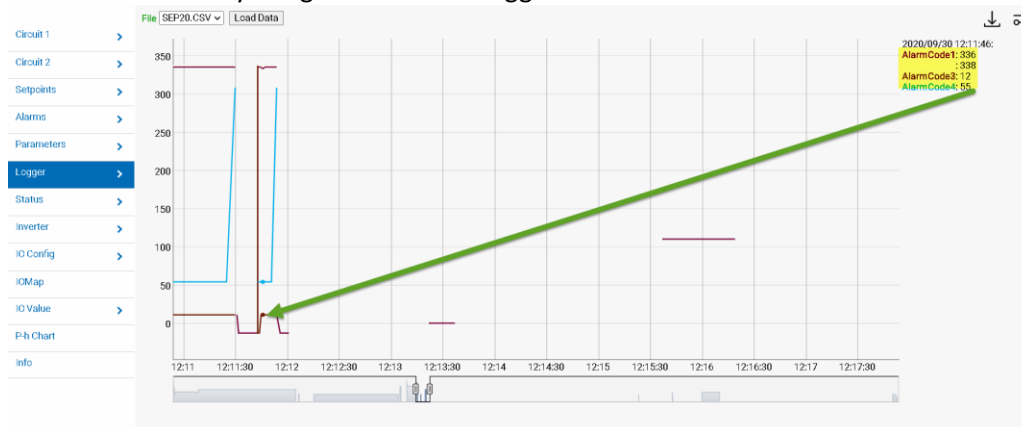


## WEB HMI:

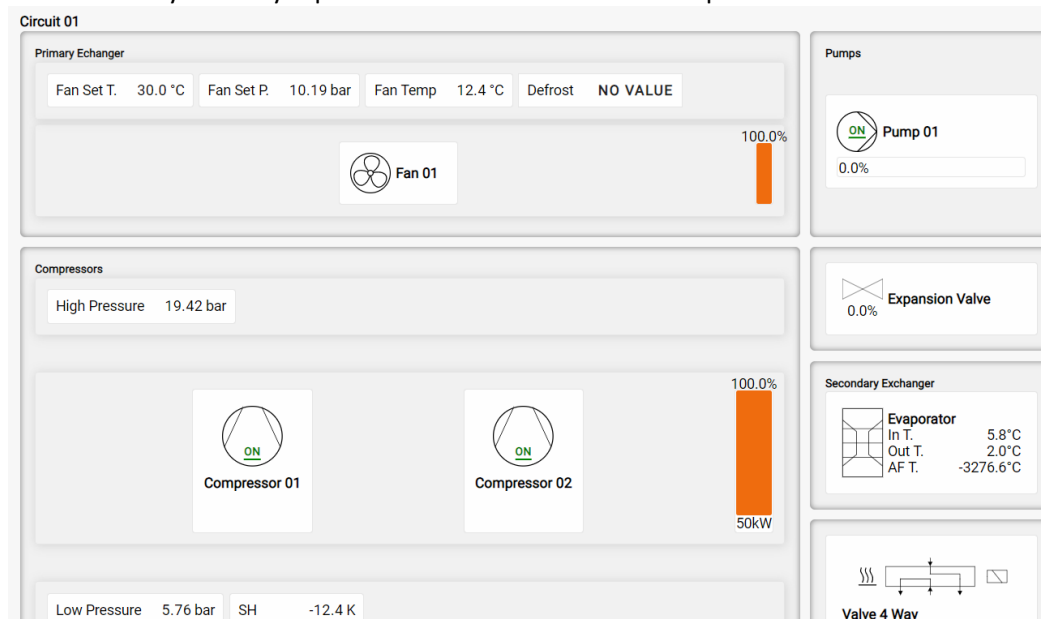
### 1- Added Alarm history



### 2- Added alarm history integration in data logger



### 3- Added New dynamic synoptic for Rack - Chiller – Heat Pump



## Release 2.07.14 03-09-2020

### PLC:

- 1- Added custom refrigerant option for condenser and for evaporator.
- 2- Added new option for defrost probe (pressure probe)
- 3- Update configuration 1 for HP application

### WEB HMI:

- 1- Added Defrost status form

The screenshot shows the 'Defrost Status' form in the HMI interface. The left sidebar contains a menu with options: Circuit 1, Circuit 2, Setpoints, Alarms, Parameters, Logger, Status (selected), Working Hour, ResetWorkingHour, EEV Status, and Defrost. The main content area has tabs: General, Defrost Status (active), Circuit 1, Digital Output, and Circuit 2. The Defrost Status tab displays the following data:

| Manual Defrost Cir1                                          | Manual Defrost Cir2                                          | Defrost Status Cir1                 | Defrost Status Cir2                 |
|--------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> FALSE <input type="checkbox"/> TRUE | <input type="checkbox"/> FALSE <input type="checkbox"/> TRUE | DEFROST                             | DIS.                                |
| Timer Next Defrost Cir1<br>60 MIN                            | Timer Next Defrost Cir2<br>0 MIN                             | Defrost Phase Timer Cir1<br>7 S/MIN | Defrost Phase Timer Cir2<br>0 S/MIN |
| Next defrost Timer<br>0                                      |                                                              |                                     |                                     |

- 2- Added Custom Gas to convert saturated hi pressure and saturated low.

The screenshot shows the 'Custom Gas' form in the HMI interface. The left sidebar contains a menu with options: Circuit 1, Circuit 2, Setpoints, Alarms, Parameters (selected), Wizard, Compressor, and Condenser. The main content area has tabs: Pump, Periodic Run, Misc, and Custom Gas (active). The Custom Gas tab displays the following data:

| Enable Custom Gas                                            | A1             | B1               | C1               |
|--------------------------------------------------------------|----------------|------------------|------------------|
| <input type="checkbox"/> FALSE <input type="checkbox"/> TRUE | -37.98050      | 21.23007         | 2.35837          |
| D1<br>0.28802                                                | E1<br>-0.05166 | Min<br>-0.40 BAR | Max<br>30.00 BAR |

This is a duplicate of the previous screenshot, showing the 'Custom Gas' form in the HMI interface. The left sidebar contains a menu with options: Circuit 1, Circuit 2, Setpoints, Alarms, Parameters (selected), Wizard, Compressor, and Condenser. The main content area has tabs: Pump, Periodic Run, Misc, and Custom Gas (active). The Custom Gas tab displays the following data:

| Enable Custom Gas                                            | A1             | B1               | C1               |
|--------------------------------------------------------------|----------------|------------------|------------------|
| <input type="checkbox"/> FALSE <input type="checkbox"/> TRUE | -37.98050      | 21.23007         | 2.35837          |
| D1<br>0.28802                                                | E1<br>-0.05166 | Min<br>-0.40 BAR | Max<br>30.00 BAR |



## Release 2.07.12 10-06-2020

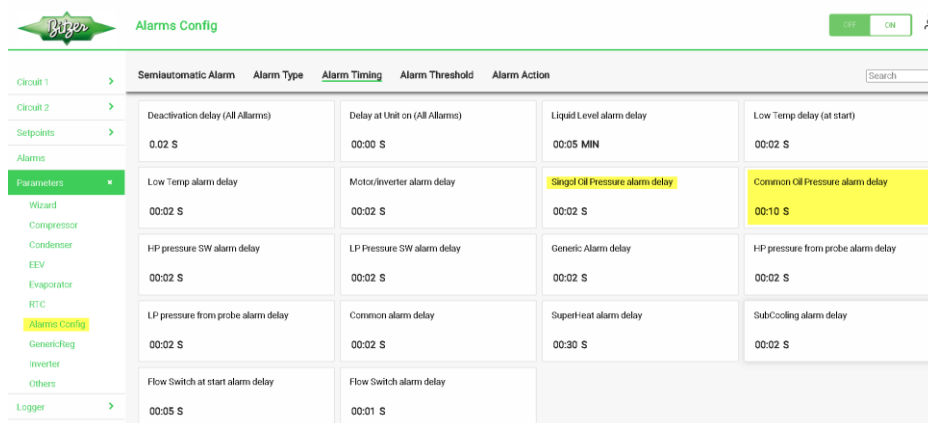
Validated for HMI Touch Color **Version 1.9**

### PLC:

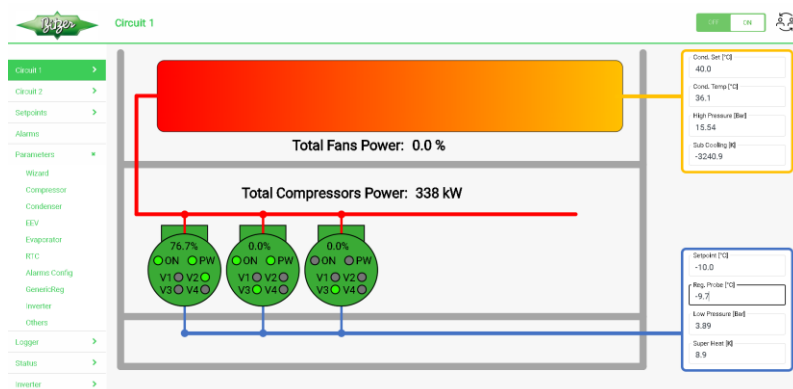
- 3- Added New parameter to separate the behavior of the common oil alarm delay respect to the compressor oil alarm delay.
- 4- Changed the feature to Save/Load the IO- Configuration: Now all the configuration (Factory file ) are saved and not only the IO configuration
- 5- Update the default configuration 9 with the file HP603-M-HSK8561-375-BP Sn 2198100051.zip
- 6- Update the default configuration 11 with the file HP503-M-HSK6451-150-BP Sn 2198100044.zip

### WEB HMI:

- 1- Added New parameter to separate the behavior of the common oil alarm delay respect to the compressor oil alarm delay and fixed timing measurement units.



- 2- Changed the Compressor LED color according with the electrical panel lights.

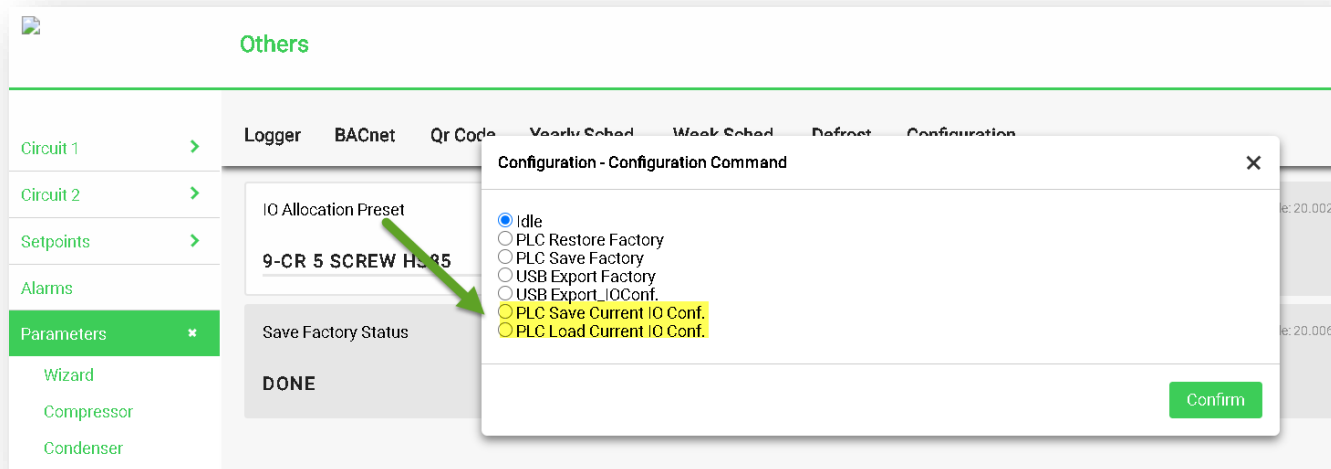


## Release 2.07.11 09-06-2020

Validated for HMI Touch Color Version 1.8

### PLC:

- 1- Changed behavior of CR3 in case of Screw Compressor in Alarm. It will be set to OFF instead Fixed ON.
- 2- Added new feature to Save/Load the IO- Configuration Preset in the internal NOR Flash.



The Admin user can modify the IO-Configuration Preset and save the configuration.

The current configuration can be restored.

As soon the user changes the configuration from a preset to another, the new configuration will be automatically uploaded.

## **Release 2.07.10 03-06-2020**

**Validated for HMI Touch Color Version 1.8**

### **PLC:**

- 1- Fixed export parameter: in case of USB missing with export command is not needed a PLC reboot to recover the error. The file 00PARAM.DAT is always exported in the USB.

## Release 2.07.09 27-05-2020

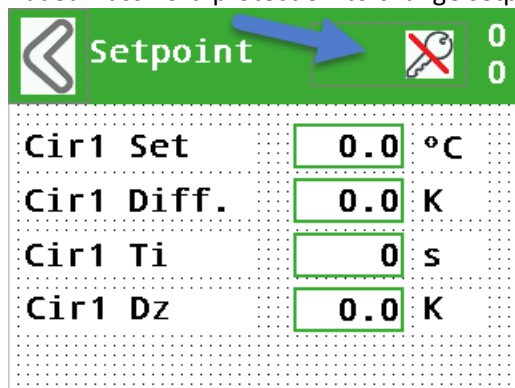
Validated for HMI Touch Color Version 1.8

### PLC:

- 2- Fixed alarm visualization in HMI remote due to an error in the alarm word calculation.

### Local HMI:

- 3- Added Alarm option in Compressor parameter form
- 4- Added Dead zone for compressor and Condenser in quick set form
- 5- Added Password protection to change setpoint in



The screenshot shows a green header bar with a left arrow icon, the text "Setpoint", and a key icon with a red 'X' over it. A blue arrow points from the "Setpoint" text to the key icon. To the right of the key icon are two stacked "0" characters. Below the header is a table with four rows of parameters, each with a text label, a numeric input field, and a unit. The input fields for "Cir1 Set", "Cir1 Diff.", and "Cir1 Dz" are highlighted with green boxes.

| Parameter  | Value | Unit |
|------------|-------|------|
| Cir1 Set   | 0.0   | °C   |
| Cir1 Diff. | 0.0   | K    |
| Cir1 Ti    | 0     | s    |
| Cir1 Dz    | 0.0   | K    |

### Web Server

- 6- Added User Account Password visible only for Admin User.

## Release 2.07.08 27-05-2020

Validated for HMI Touch Color Version 1.7

### PLC

- 7- set TRUE as default value of Compressor Maintenance parameters.

**EEPROM PARAMETERS**

| #   | Address | Name             | Installer type | IEC type | Size | Default value | Min | Max |
|-----|---------|------------------|----------------|----------|------|---------------|-----|-----|
| 320 | 16756   | E2_xEnCompCir1C3 | Boolean        | BOOL     |      | True          |     |     |
| 321 | 16757   | E2_xEnCompCir1C4 | Boolean        | BOOL     |      | True          |     |     |
| 322 | 16758   | E2_xEnCompCir1C5 | Boolean        | BOOL     |      | True          |     |     |
| 323 | 16759   | E2_xEnCompCir1C6 | Boolean        | BOOL     |      | True          |     |     |
| 324 | 16760   | E2_xEnCompCir2C1 | Boolean        | BOOL     |      | True          |     |     |
| 325 | 16762   | E2_xEnCompCir2C2 | Boolean        | BOOL     |      | True          |     |     |
| 326 | 16761   | E2_xEnCompCir2C3 | Boolean        | BOOL     |      | True          |     |     |
| 327 | 16763   | E2_xEnCompCir2C4 | Boolean        | BOOL     |      | True          |     |     |
| 328 | 16765   | E2_xEnCompCir2C5 | Boolean        | BOOL     |      | True          |     |     |
| 329 | 16764   | E2_xEnCompCir2C6 | Boolean        | BOOL     |      | True          |     |     |
| 574 | 17134   | E2_xEnDIStandby  | Boolean        | BOOL     |      | False         |     |     |

- 8- Removed alert in case of parameter change in Fan Condenser.

EvapTempCntrl\_V1.xplc

FloatingCondTempCntrl\_V1.xplc

- 9- Added Low Superheat Limit in commissioning menu

### WebServer

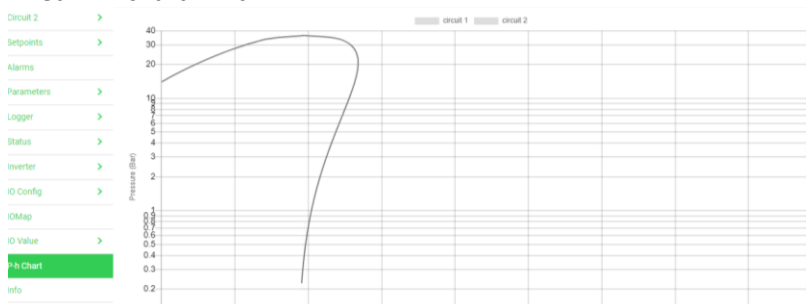
- 10- Changed description of Fan setpoint to "Fixed Setpoint condenser Fan"

- 11- Changed Shorted setpoint parameter with a priority order (Set, Prop.Band , Integral, Dead Band)

- 12- Fixed measurement unit of condensing set parameter from °C to K

|            |                                |                                |                               |                                                             |
|------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------------------------------------|
| Circuit 1  | Compressor Main PID            | Condenser PID                  | Search                        |                                                             |
| Circuit 2  | Fixed Setpoint condenser Fan   | Fan PID proportional band      | Fan PID integral time         | Fan PID dead Band                                           |
| Setpoints  | 40.0 °C                        | 16.0 K ✓                       | 58.0 S                        | 2.0 K ✓                                                     |
| Alarms     | Minimum condensing temperature | Minimum condensing temperature | Condensing temperature offset | Condensing temperature offset at min condensing temperature |
| Parameters | 30.0 °C                        | 50.0 °C                        | 10.0 K ✓                      | 15.0 K ✓                                                    |
| Logger     |                                |                                |                               |                                                             |

- 13- Fixed P-H chart limit



## Release 2.07.07 18-05-2020

Validated for HMI Touch Color Version 1.7

### CHANGES:

1. Compressor Parameter navigation:

To simplify the parameter selection, the parameter section has been added

Circuit 1

>

Circuit 2

>

Setpoints

>

Alarms

>

Parameters

✕

Wizard

>

Compressor

>

Condenser

>

EEV

>

General

PID Reg.

N. Zone

Comp Control

Protection

Oil

Alarms

Mode

Power

Screw

Misc

Economizer

Maintenance

Search

Circuit Mode

code: 2.001

0=FIFO

1=RUNTIME

2=LIFO

Priority for circuit 1

code: 2.003

1

Priority for circuit 2

code: 2.004

2

Circuit regulation strategy

code: 2.002

0=saturation

1=balance

0=SATURATION

1=BALANCED

Modulating Compressor Capacity mode

code: 2.095

BALANCED

SATURATED

Hysteresis to start next circuit

code: 2.005

0.0 %

Time to increase/decrease compressors setpoint of 10 %

code: 2.006

0 s

Compressor Regulation (PID - Neutral Zone - Proportional)

code: 2.002

PID

PROPORTIONAL MODE

NEUTRAL MODE

## PID:

Circuit 1

>

Circuit 2

>

Setpoints

>

Alarms

>

Parameters

✕

Wizard

>

Compressor

>

General

PID Reg.

N. Zone

Comp Control

Protection

Oil

Alarms

Mode

Power

Screw

Misc

Economizer

Maintenance

Search

Compressors PID proportional band in Cool mode

code: 2.007

20.0 K

Compressors PID proportional band in Heat mode

code: 2.008

10.0 K

Compressors PID integral time

code: 2.009

60.0 s

Compressors PID derivative time

code: 2.010

0.0 s

## NZone (only for ON/OFF Compressor)

Circuit 1

>

Circuit 2

>

Setpoints

>

Alarms

>

Parameters

✕

Wizard

>

Compressor

>

General

PID Reg.

N. Zone

Comp Control

Protection

Oil

Alarms

Mode

Power

Screw

Misc

Economizer

Maintenance

Search

Band low for neutral zone

code: 2.050

20.0 °C

Band high for neutral zone

code: 2.051

40.0 °C

Delay to increment compressors band 1

code: 2.052

60 s

Delay to decrement compressors band 1

code: 2.053

30 s

Delay to increment compressors band 2

code: 2.054

30 s

Delay to decrement compressors band 2

code: 2.055

15 s

- In the HMI Touch Project the user level 3 will be able to reset the Compressor Working Hour

**Cir1-Compr.1** 00

ON PW V1 V2 V3 V4 0.0%  
 0.0Amp  
 0.0Bar  
 #####

OnOffCycling 0.0SHK  
 0 0 0 0 0.0EV%

working hour 0

Reset

- Added new parameters to disable for maintenance each compressor (alarms of the selected compressor will be disable, the circuit capacity will be distributed to other available compressor).

**Maintenance**

|                                                        |                                                        |                                                        |                                                        |
|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Enable Compressor 1 Circuit1 code: 2.113<br>FALSE TRUE | Enable Compressor 2 Circuit1 code: 2.114<br>FALSE TRUE | Enable Compressor 3 Circuit1 code: 2.115<br>FALSE TRUE | Enable Compressor 4 Circuit1 code: 2.116<br>FALSE TRUE |
| Enable Compressor 5 Circuit1 code: 2.117<br>FALSE TRUE | Enable Compressor 6 Circuit1 code: 2.118<br>FALSE TRUE | Enable Compressor 1 Circuit2 code: 2.119<br>FALSE TRUE | Enable Compressor 2 Circuit2 code: 2.120<br>FALSE TRUE |
| Enable Compressor 3 Circuit2 code: 2.121<br>FALSE TRUE | Enable Compressor 4 Circuit2 code: 2.122<br>FALSE TRUE | Enable Compressor 5 Circuit2 code: 2.123<br>FALSE TRUE | Enable Compressor 6 Circuit2 code: 2.124<br>FALSE TRUE |

- Review Web server style.
- Added Parameter to select Fan Type. The user can specify if the fan are only digital stage or Fan + Inverter.

Fan type inverter or digital Fan code: 2.077  
 FAN INVERTER  
 FAN STAGE

Fan VS minimum frequency code: 5.025  
 25.0 HZ

Fan VS maximum frequency code: 5.026  
 100.0

Low noise operation T:activates F:deactivates code: 5.009  
 FALSE TRUE

Fan VS low noise operation frequency reduction code: 5.027  
 100.0 HZ

FIX:

- Admin and user account access has been fixed
- Fan can be resettled by "reset" Button instead of Switch Off Power.





## Release 2.07.06 13-05-2020

Validated for HMI Touch Color Version 1.6

CHANGES:

New feature has been implemented:

1. Added Web server user manager.

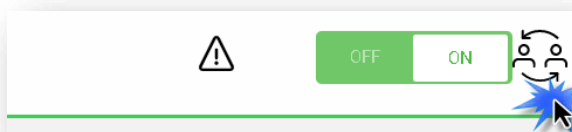
The follow user is supported:

| User  | Password (default) | Resctrictions  |           |                        |
|-------|--------------------|----------------|-----------|------------------------|
| admin | admin              | No restriction |           |                        |
| tec   | 3                  | P-H chart      | IO config |                        |
| oper2 | 2                  | P-H chart      | IO config | IO Test (read Only)    |
| oper1 | 1                  | P-H chart      | IO config | Parameters (read Only) |

The follow restriction has been applied

| tec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | oper2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | oper1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>read: [   'page1.htm', 'page10.htm', 'page11.htm',   'page12.htm', 'page13.htm', 'page14.htm',   'page15.htm', 'page16.htm', 'page17.htm',   'page18.htm', 'page19.htm', 'page2.htm',   'page20.htm', 'page21.htm', 'page22.htm',   'page23.htm', 'page24.htm', 'page25.htm',   'page26.htm', 'page27.htm', 'page28.htm',   'page29.htm', 'page3.htm', 'page30.htm',   'page31.htm', 'page32.htm', 'page33.htm',   'page34.htm', 'page35.htm', 'page36.htm',   'page37.htm', 'page38.htm', 'page39.htm',   'page4.htm', 'page40.htm', 'page41.htm',   'page42.htm', 'page43.htm', 'page44.htm',   'page45.htm', 'page5.htm', 'page6.htm',   'page7.htm', 'page8.htm', 'page9.htm' ] write: [   'page1.htm', 'page10.htm', 'page11.htm',   'page12.htm', 'page14.htm', 'page15.htm',   'page16.htm', 'page17.htm', 'page18.htm',   'page19.htm', 'page2.htm', 'page20.htm',   'page21.htm', 'page22.htm', 'page23.htm',   'page24.htm', 'page25.htm', 'page26.htm',   'page27.htm', 'page28.htm', 'page29.htm',   'page3.htm', 'page30.htm', 'page31.htm',   'page32.htm', 'page33.htm', 'page34.htm',   'page35.htm', 'page36.htm', 'page37.htm',   'page38.htm', 'page39.htm', 'page4.htm',   'page40.htm', 'page41.htm', 'page42.htm',   'page43.htm', 'page44.htm', 'page45.htm',   'page5.htm', 'page6.htm', 'page7.htm',   'page8.htm', 'page9.htm' ]</pre> | <pre>read: [   'page1.htm', 'page10.htm', 'page11.htm',   'page12.htm', 'page13.htm', 'page14.htm',   'page15.htm', 'page16.htm', 'page17.htm',   'page18.htm', 'page19.htm', 'page2.htm',   'page20.htm', 'page21.htm', 'page22.htm',   'page23.htm', 'page24.htm', 'page25.htm',   'page26.htm', 'page27.htm', 'page28.htm',   'page29.htm', 'page3.htm', 'page30.htm',   'page31.htm', 'page32.htm', 'page33.htm',   'page34.htm', 'page35.htm', 'page36.htm',   'page37.htm', 'page38.htm', 'page39.htm',   'page4.htm', 'page40.htm', 'page41.htm',   'page42.htm', 'page43.htm', 'page44.htm',   'page45.htm', 'page6.htm', 'page7.htm',   'page8.htm', 'page9.htm' ] write: [   'page1.htm', 'page12.htm',   'page19.htm', 'page2.htm',   'page20.htm', 'page24.htm',   'page25.htm', 'page3.htm',   'page4.htm', 'page6.htm',   'page7.htm', 'page8.htm',   'page9.htm' ]</pre> | <pre>read: [   'page1.htm', 'page10.htm', 'page11.htm',   'page12.htm', 'page13.htm', 'page14.htm',   'page15.htm', 'page16.htm', 'page17.htm',   'page18.htm', 'page19.htm', 'page2.htm',   'page20.htm', 'page21.htm', 'page22.htm',   'page23.htm', 'page24.htm', 'page25.htm',   'page26.htm', 'page27.htm', 'page28.htm',   'page29.htm', 'page3.htm', 'page30.htm',   'page31.htm', 'page32.htm', 'page33.htm',   'page34.htm', 'page4.htm', 'page40.htm',   'page41.htm', 'page42.htm', 'page43.htm',   'page44.htm', 'page45.htm', 'page6.htm',   'page7.htm', 'page8.htm', 'page9.htm' ] write: [   'page1.htm',   'page12.htm',   'page2.htm',   'page24.htm',   'page25.htm',   'page4.htm' ]</pre> |

The User can be changed with the switch button on the top right



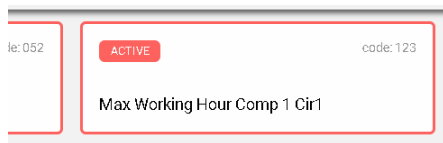
2. Measurement unit on compressor probe in Absolute BAR.

|          |                          |                    |                     |                             |
|----------|--------------------------|--------------------|---------------------|-----------------------------|
| Inverter | IQ_SerialSetpoint_Cir1C1 | IQ_Setpoint_Cir1C1 | IQ_ComprLoad_Cir1C1 | IQ_ActualControlWord_Cir1C1 |
|          | 0.00 %                   | 0 %                | — %                 | 0                           |
|          | IQ_StatusWord_Cir1C1     | IQ_Alarm_Cir1C1    | iLowPressCir1C1     | iHiPressCir1C1              |
|          | 0                        | 0                  | 3.59 bar[A]         | 7.56 bar[A]                 |

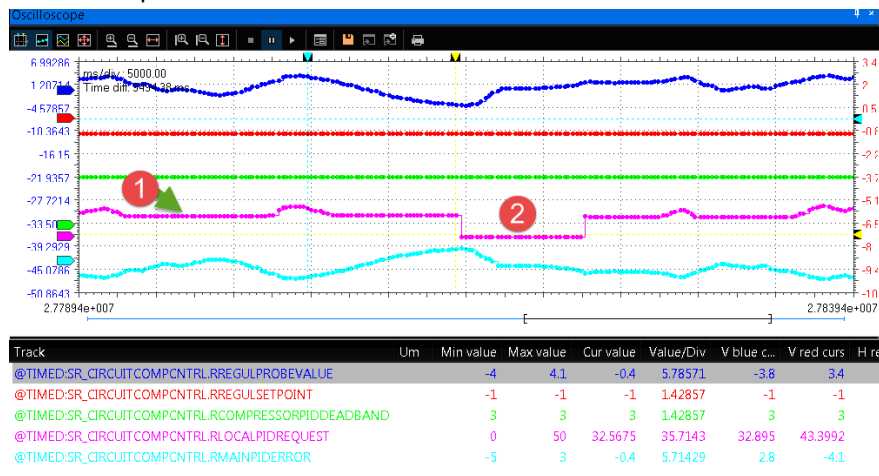
3. Added Working Hours alarm threshold (configurable as warning only or stopping related compressor)

|            |                          |                                   |                             |                                    |
|------------|--------------------------|-----------------------------------|-----------------------------|------------------------------------|
| Parameters | HP Maximum value         | LP Minimum value                  | Discharge Temp Alarm set    | Discharge Temp Alarm differential  |
|            | 100.00 bar               | 0.00 bar                          | 0.0 °C                      | 0.0 °C                             |
|            | Low Superheat Alarm set  | Low Superheat Alarm differential  | High Superheat Alarm set    | High Superheat Alarm differential  |
|            | 1.0 K                    | 1.0 K                             | 50.0 K                      | 1.0 K                              |
|            | Low Subcooling Alarm set | Low Subcooling Alarm differential | Max Compressor Working hour | Alarm type HP Probe                |
|            | -50.0 K                  | 1.0 K                             | 1 h                         | Warning                            |
| Logger     | Alarm type LP Probe      | Alarm type Low Super-heat         | Alarm type Fan General      | Alarm type Compressor Working Hour |
| Status     | Warning                  | Warning                           | Warning                     | Alarm                              |

In case of a compressor excee the working Hour an alarm will be generated



4. Added new parameter to manage the Dead Band in the compressor main PID, it is in Kelvin as offset +/- respect to the set.



Here is the test result using 3.0 K

- 1- Effect of the Dead band
- 2- Stop compressor below (set – dead band)

Bug FIX:

1. Compressor icons not updated in unit off.
2. Added CREDEN.DAT file in USB folder.
5. Fixed Menus on the webserver Cir1C1, Cir1C2, Cir1C3, Cir1C4, Cir1C5
6. Fixed Description of Maximum Range of Condenser Set Point on the Webserver (Please check)

## **Release 2.07.05 30-04-2020**

### **Validated for HMI Touch Color Version 1.4**

#### CHANGES:

New feature has been implemented:

1. Added configurable differential for Low SH Alarm
2. Added SH action (off compressor Or warning only)
3. Added SH High temperature alarm
4. Added Sub Cooling Low temperature alarm
5. Added 6+6 Condenser fan alarm one for each stage
6. Added new option to disable the unnecessary alarm

#### Bug FIX:

In this version has been fixed the follow issue

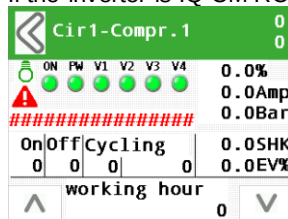
3. Measurement unit on local display ( Bug added in version 2.7.4)
4. SH measurement unit in Kelvin
5. Working hour in (Touch HMI)

## Release 2.07.04 30-04-2020

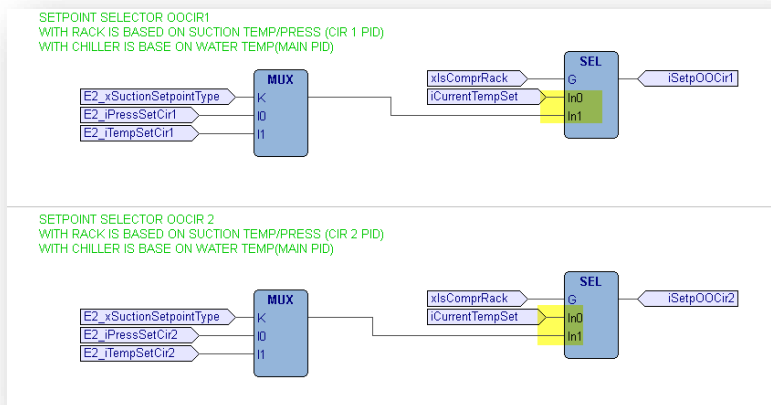
### Validated for HMI Touch Color Version 1.4

#### CHANGES:

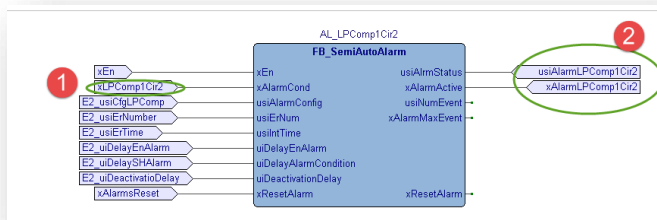
- Added New Modbus Option to read the Part winding and Compressor On status from IQ modules  
If the inverter is IQ CM RC 01 or IQ CM SW 01.



- Fixed setpoint selection in case of Dead Zone regulation

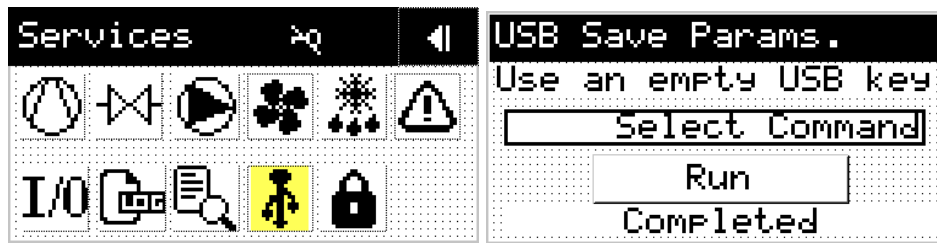


- Fixed circuit 2 compressor 1 low pressure alarm.



5. Fixed Factory Save option:

Now is possible save in NOR and export a in an empty USB the EEPROM parameter to “clone” a PLC configuration. The configuration saved in the internal NOR can also be restored.



6. Compiled with multifile option.

7. Update Varipack Parameter Management

With Varipack firmware 1.23 is possible to write parameters as configuration preset.

Reset alarm and Remote control still not available due to a Varipack firmware limitation.

Here is the test result, from commissioning menu is possible to set the preset value that will be send at every OFF to ON operation.

Commissioning

| Address | Name                     | Value     |      |
|---------|--------------------------|-----------|------|
| 17393   | E2_VPK_EvapTemp_1        | -10.2     | °C   |
| 17408   | E2_VPK_Condensing_1      | -5.1      | °C   |
| 17391   | E2_VPK_EvapTemp_PD       | -15.1     | °C   |
| 17410   | E2_VPK_Condensing_2      | 0.6       | °C   |
| 17412   | E2_VPK_LimiterFreq       | 5.1       | °C   |
| 17414   | E2_VPK_HiPressSwitc      | 30.1      | °C   |
| 17416   | E2_VPK_P_Gain_Cond       | 45.1      | °C   |
| 17418   | E2_VPK_switchOnDelay     | 436.54    | s    |
| 17419   | E2_VPK_switchOffDelay    | 283.08    | s    |
| 17420   | E2_VPK_HoldTimeFMin      | 873.49    | s    |
| 17400   | E2_uiCompressorProbe     |           |      |
| 17401   | E2_xInvCapMode           | Saturated |      |
| 17422   | E2_VPK_TimeResetInterval | 873.49    | s    |
| 17421   | E2_VPK_HoldTimeF50       | 281.12    | s    |
| 17430   | E2_VPK_InvMaxFreq        | 5.1       | Hz   |
| 17432   | E2_VPK_InvFreqStart_1    | 10.1      | Hz   |
| 17434   | E2_VPK_InvFreqStop_1     | 21.1      | Hz   |
| 17436   | E2_VPK_InvFreqStart_2    | 62.1      | Hz   |
| 17438   | E2_VPK_InvFreqStop_2     | 0.1       | Hz   |
| 17402   | E2_VPK_EvapTemp_2        | 100.1     | °C   |
| 17423   | E2_VPK_Do1Logic          |           | s    |
| 17424   | E2_VPK_RumpUpTime        | 0.0       | Hz/s |
| 17426   | E2_VPK_RumpDownTime      | 0.0       | Hz/s |

Modbus tool to verify parameter

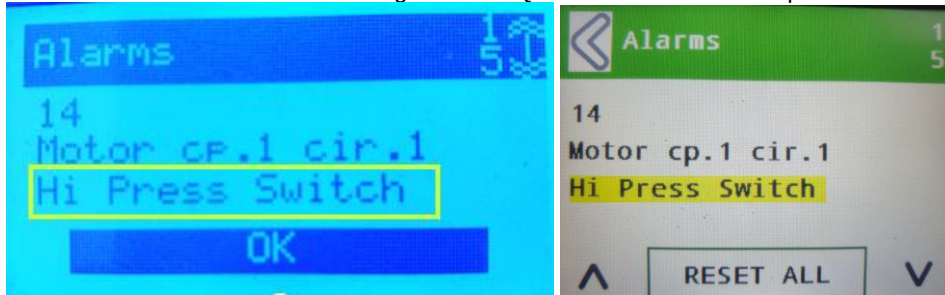
| Alias                       | 4x0001   |
|-----------------------------|----------|
| 1 E2_VPK_EvapTemp_1         | -10.2 ✓  |
| 2 E2_VPK_Condensing_1       | -5.1 ✓   |
| 3 E2_VPK_EvapTemp_PD        | -15.1 ✓  |
| 4 E2_VPK_Condensing_2       | 0.6 ✓    |
| 5 E2_VPK_LimiterFreq        | 5.1 ✓    |
| 6 E2_VPK_HiPressSW          | 30.1 ✓   |
| 7 E2_VPK_P_Gain_evap        | 45.1 ✓   |
| 8 E2_VPK_switchOnDelay      | 436.54 ✓ |
| 9 E2_VPK_switchOffDelay     | 283.08 ✓ |
| 10 E2_VPK_HoldTimeFMin      | 873.49 ✓ |
| 11 E2_VPK_Do1Logic          |          |
| 12 E2_VPK_TimeResetInterval | 873.49 ✓ |
| 13 E2_VPK_HoldTimeF50       | 281.12 ✓ |
| 14 E2_VPK_InvMaxFreq        | 5.1 ✓    |
| 15 E2_VPK_InvFreqStart_1    | 10.1 ✓   |
| 16 E2_VPK_InvFreqStop_1     | 21.1 ✓   |
| 17 E2_VPK_InvFreqStart_2    | 62.1 ✓   |
| 18 E2_VPK_InvFreqStop_2     | 0.1 ✓    |
| 19 E2_VPK_EvapTemp_2        | 100.1 ✓  |
| 20 E2_VPK_Do1Logic          |          |
| 21 E2_VPK_RumpUpTime        | 0.0 ✓    |
| 22 E2_VPK_RumpDownTime      | 0.0 ✓    |

## Release 2.07.03 15-04-2020

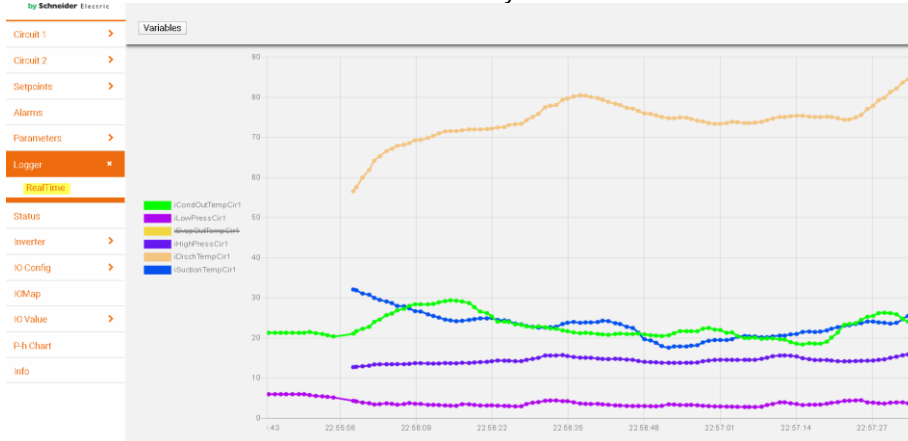
### Validated for HMI Touch Color Version 1.3

#### CHANGES:

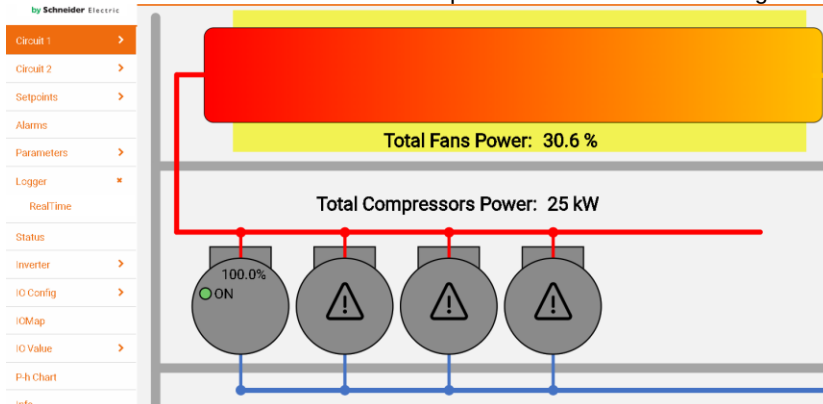
- Added new alarms for inverter communication Time Out.
- Added New Alarm information coming from the IQ module in case of Compressor Alarm.



- Added Web server Feature Real time data analysis:



- allow "No Fans in condenser section" Set parameter Number of fan stages circuit 1 (code: 5.010) to 0



- New Option for Digital input **StartStopCmd** (F4), now can be used as start stop Button (with same priority of the Web or Local HMI button)

Circuit 2 >  
Setpoints >  
Alarms  
Parameters >  
Logger >  
Status  
Inverter >  
**IO Config** x  
AI Allocation  
DI Allocation

xAlarmThermBlockPump1 code: F1  
Device Not Allocated Number 0=Not Allocated  
xAlarr Device Not.

xDIStartStopCmd code: F4  
Device Controller Number 5=D15 NO  
xAlarr Device Con

xAlarmComp3Cir1 code: F8  
Device Controller Number -3=D13 NC  
xAlarr Device Con

xAlarmComp6Cir1 code: F47  
Device Number  
xAlarr Device

### 13. New Option for developer available only in commissioning to simulate the behavior of the Probe

Logger  
01.ParGeneral  
+ 02.ParCompressors  
03.ParEEVCir1  
04.ParEEVCir2  
05.ParCond  
06.ParEvap  
07.ParYearlyScheduler  
08.ParWeeklyScheduler  
10.ParDefrost  
11.ParQRCode  
12.ParLogger  
14.ParBACnet  
15.RemoteCap  
16.ParAlarmConfig  
17.ParGenericRegulator  
+ 18.ParVaripack  
+ 19.IQ\_Mocules  
+ IO\_Configuration  
+ IO\_Allocation  
+ **IO\_Test**  
+ IO\_Value  
+ IO\_Status  
+ Inverter

IO\_TEST

| Address | Name             | Value | Um | Default | Min | Max |       |
|---------|------------------|-------|----|---------|-----|-----|-------|
| 10669   | uiSimulationMode | Rack  |    | Disable |     |     | Simul |

### 14. Fixed Web cache issue for IO MAP and data logger chart

Known issue (Varipack):

- How to reset inverter?
- How to change parameter via Modbus?
- How to contro inverter via Modbus?



## Release 2.07.02 3-04-2020

### Version compiled for Free Studio Plus 1.2

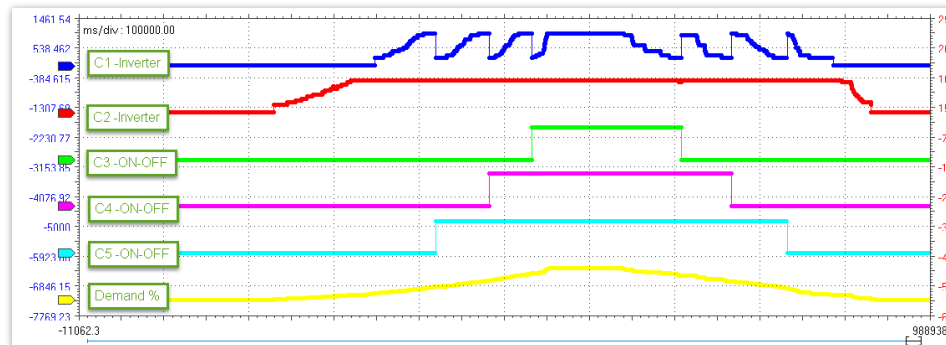
#### CHANGES:

15. Added new regulation mode to manage the modulating compressor in saturated or Balancing Mode:
  - a. Added dedicated parameter to switch the power calculation strategy.

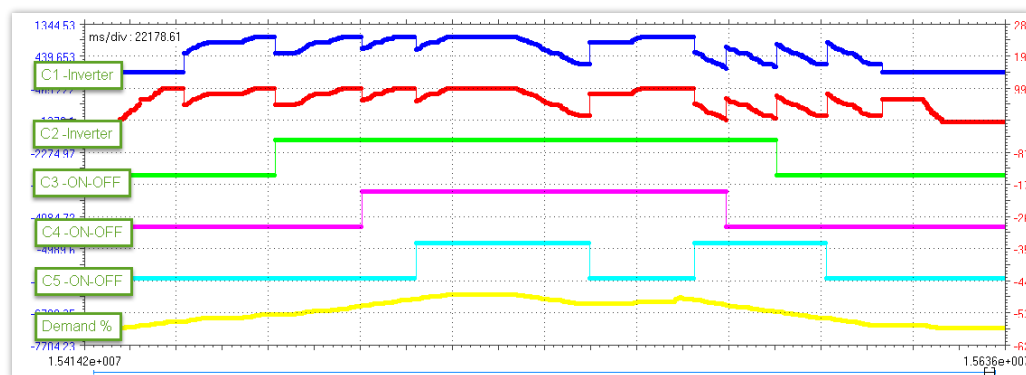
| Parameter                                              | Value        |
|--------------------------------------------------------|--------------|
| Type of input A13 exp.                                 | 0=F1G        |
| Circuit regulation strategy                            | 0=Saturation |
| Modulating Compressor Capacity mode                    | BALANCED     |
| Priority for circuit 2                                 | 2            |
| Hysteresis to start next circuit                       | 0.0 %        |
| Time to increase/decrease compressors setpoint of 10 % | 0 s          |

- b. Test with 2 modulating compressor and 3 on off compressor

#### Behavior of a system configured as **Saturated Mode**

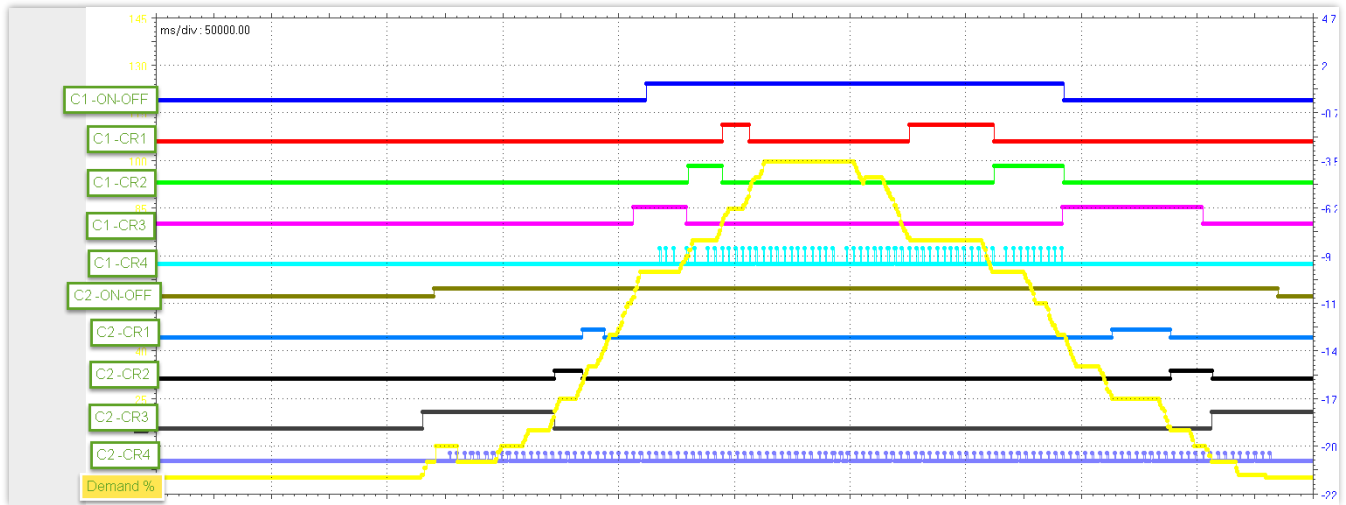


#### Behavior of a system configured as **Balanced Mode**

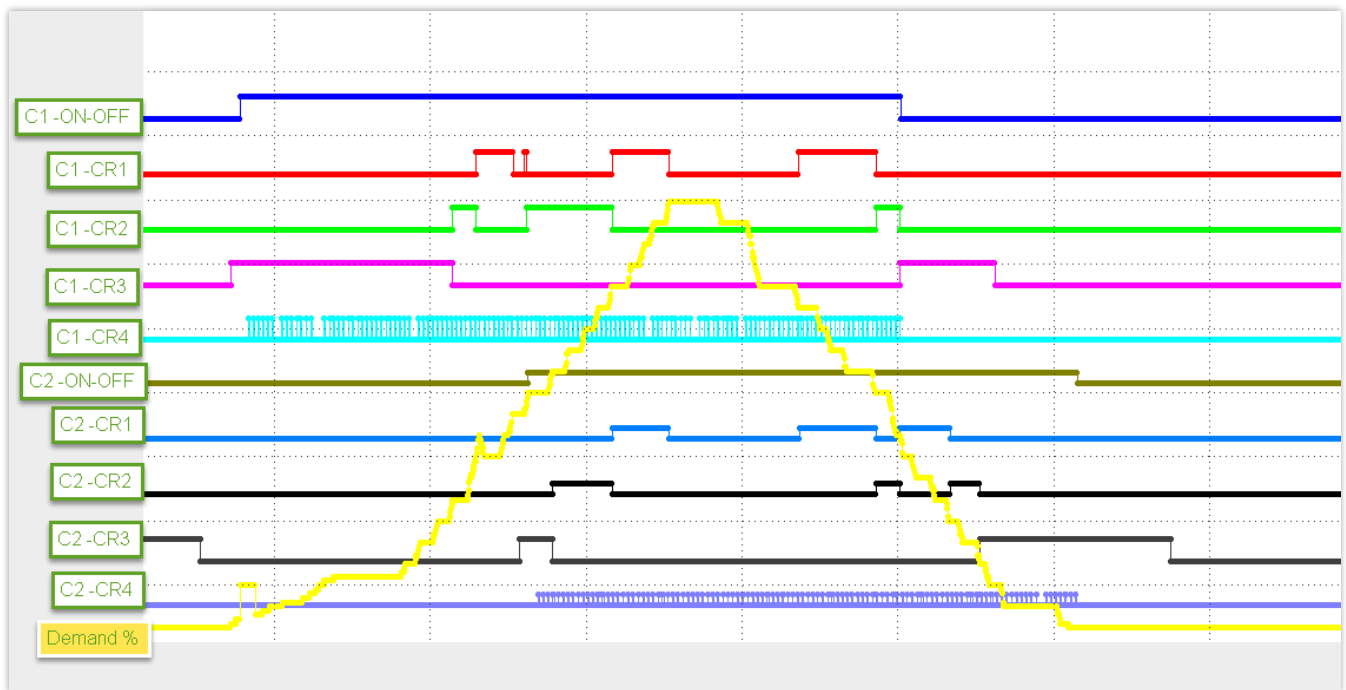


- c. Test with 2 Compressor HS85 compressor and 3 on off compressor

Behavior of a system configured as **Saturated Mode**

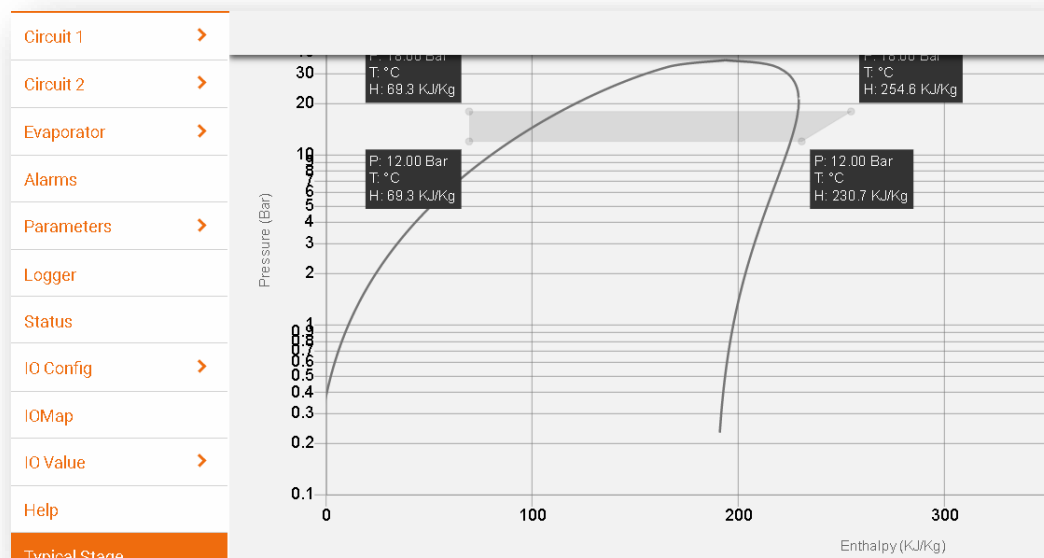


Behavior of a system as **Balanced Mode**



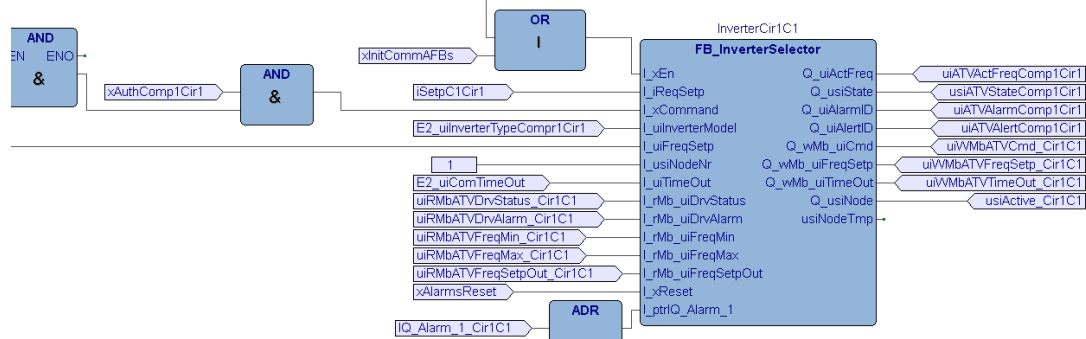
16. Added Pressure-Enthalpy diagram for circuit 1 and circuit 2.  
To enable the P-H chart the follow variable shall be assigned to the IO configuration.

|                  |                            |      |            |
|------------------|----------------------------|------|------------|
| iLowPressCir1    | Low Pressure               | Text | Circuit 01 |
| iHighPressCir1   | High Pressure              | Text | Circuit 01 |
| iEvapOutTempCir1 | Evaporator Out Temperature | Text | Circuit 01 |
| iCondOutTempCir1 | Condensing Out Temperature | Text | Circuit 01 |
| iDischTempCir1   | Discharge Temperature      | Text | Circuit 01 |



17. Added Varipack Integration:

New program will manage read and write a to Varipack in IEC code in task Background.  
Up to 12 Varipack (6 in circuit 1 and 6 for circuit 2) can be configured.  
The register are configurable in the init program  
The inverter type can be change with Unit OFF.



- Added new webserver page to browse the inverter parameter

Note: Varipack setting are send but inverter is not updating (probably a password has to be send in the init process)

The screenshot shows the 'Parameters' webserver page. The sidebar on the left includes options like Circuit 1, Circuit 2, Evaporator, Alarms, Parameters (selected), Wizard, Compressor, Condenser, EEV, Evaporator, RTC, Alarms Config, GenericReg, Others, and Inverter. The main area has tabs for Modbus Master Setup, Inverter Type, Address - No Change, and Varipack Setup. The grid displays various parameters such as E2\_xEnableConfig, E2\_xEnableModbusPolling, E2\_uiInverterTypeCompr1Cir1, and E2\_uiInverterAddCompr3Cir1, with values like FALSE, TRUE, and Varipack.

- Added new webserver page to browse the inverter status

The inverter status is divide in page and, Compressor Inverter can be grouped with a subcategory (Circuit 1 C1)

The screenshot shows the 'Inverter' webserver page. The sidebar on the left includes options like Circuit 1, Circuit 2, Evaporator, Alarms, Parameters, Logger, Status, Inverter (selected), Fan, Pump, ALT, ATV, IQModules, Varipack, and IO Config. The main area has tabs for Circuit 1 C1, Circuit 1 C2, Circuit 1 C3, Circuit 1 C4, Circuit 1 C5, Circuit 1 C6, Circuit 2 C1, Circuit 2 C2, Circuit 2 C3, Circuit 2 C4, Circuit 2 C5, and Circuit 2 C6. The grid displays various status parameters such as uiATVActFreqComp1Cir1, uiATVStateComp1Cir1, uiATVAlarmComp1Cir1, and uiATVAlertComp1Cir1, with values like 0, 45, 100, 500, and 0.

## 20. Alarm code normalization between IQCMRC1 - SE-i1 - Varipack (VPK)

```

CASE uiAlarm1 OF
1:   AlrDescription:='Serial TimeOut'
3:   AlrDescription:='Env.SSTL SDT L'
4:   AlrDescription:='Env.SST L'
5:   AlrDescription:='Env.SST L SDTH'
6:   AlrDescription:='Env.SDT H'
7:   AlrDescription:='Env.SST H SDT H'
8:   AlrDescription:='Env.SST H'
9:   AlrDescription:='Env.SST H SDT L'
10:  AlrDescription:='Env.SDT L'
11:  AlrDescription:='Env. Env T Out'
12:  AlrDescription:='Env. Config'
15:  AlrDescription:='Oil Lev Low'
17:  AlrDescription:='32-Power Loss Stope' // VPK31
18:  AlrDescription:='21-Motor Phase Loss' // VPK21
19:  AlrDescription:='Motor Phase seq.'
20:  AlrDescription:='Motor Temp. High'
21:  AlrDescription:='1-Over Voltage' // VPK1
22:  AlrDescription:='2-Under Voltage' // VPK2
23:  AlrDescription:='3-Over Current' // VPK3
24:  AlrDescription:='4-Stack Fault Current' // VPK4
25:  AlrDescription:='5-StackOver Current' // VPK5
26:  AlrDescription:='6-Current Limit' // VPK6
27:  AlrDescription:='7-CMotor Stall' // VPK7
28:  AlrDescription:='8-Inverse Time' // VPK8
29:  AlrDescription:='9-Motor I2T' // VPK9
30:  AlrDescription:='10-Low Speed' // VPK10
31:  AlrDescription:='11-Heatsink Hi Temp' // VPK11
32:  AlrDescription:='12-Internal Hi Temp' // VPK12
33:  AlrDescription:='13-Motor Hi Temp' // VPK13
34:  AlrDescription:='14-Start Fail' // VPK14
35:  AlrDescription:='15-Brake Short' // VPK15
36:  AlrDescription:='16-Brake Resistor' // VPK16
37:  AlrDescription:='17-Brake Switch' // VPK17
38:  AlrDescription:='18-Local Control' // VPK18
39:  AlrDescription:='19-Coms Breack' // VPK19
40:  AlrDescription:='20-Line Contactor' // VPK20
41:  AlrDescription:='22-VDC Ripple' // VPK22
42:  AlrDescription:='23-Base MB Breack' // VPK23
43:  AlrDescription:='25-PMCK Speed' // VPK25
44:  AlrDescription:='26-OverSpeed' // VPK26
45:  AlrDescription:='27-STO Active' // VPK27
46:  AlrDescription:='28-FBK Missing' // VPK28
47:  AlrDescription:='29-Int. Fan Fail' // VPK29
48:  AlrDescription:='30-Current Sensor' // VPK30
49:  AlrDescription:='Config. No File'
50:  AlrDescription:='Config. CRC Er.'
52:  AlrDescription:='Config. Red Only'
54:  AlrDescription:='HW: 3.3V'
55:  AlrDescription:='HW: 5V'
62:  AlrDescription:='Sensor Motor Temp'
68:  AlrDescription:='Suct Press Low'
69:  AlrDescription:='Disch Press Hi'
70:  AlrDescription:='24-HW: 24V' // VPK24
78:  AlrDescription:='Disch. Temp. HI'
84:  AlrDescription:='Motor Temp. coolDw'
85:  AlrDescription:='Sensor Disch Temp'
86:  AlrDescription:='Sensor AUX Temp'
90:  AlrDescription:='Hi Press Switch'
94:  AlrDescription:='Sensor Suct P Low'
95:  AlrDescription:='Sensor Suct P Hi'
96:  AlrDescription:='Sensor Disch P Low'
97:  AlrDescription:='Sensor Disch P Hi'
102: AlrDescription:='Oil Inj no effect'
119: AlrDescription:='Excide Fault/24 h'
120: AlrDescription:='Excide Reset/24 h'
133: AlrDescription:='Oil Flow Low'
134: AlrDescription:='Oil Pres Low'
135: AlrDescription:='Motor Freq Low'
136: AlrDescription:='Motor Freq Hi'
137: AlrDescription:='Oil Stop Valve'
145: AlrDescription:='HW: 24V sens 1'
146: AlrDescription:='HW: 24V sens 2'
150: AlrDescription:='Sign.but no run'
152: AlrDescription:='No sig. Comr On'
153: AlrDescription:='Motor Curr. High'
159: AlrDescription:='Undef. C. State.'
ELSE
    AlrDescription:='Undefined Alarm code';

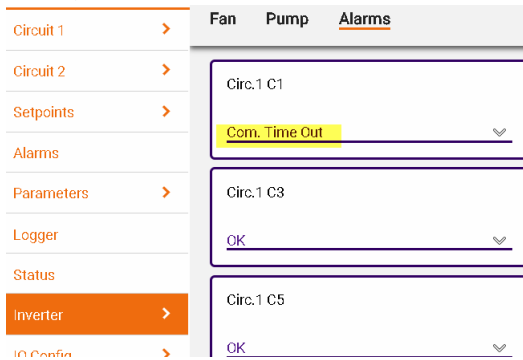
```

END\_CASE;

a. Varipack Alarm Test Under Voltage Alarm:



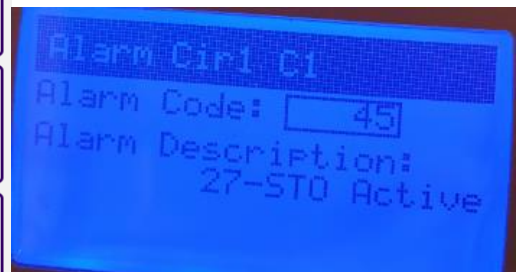
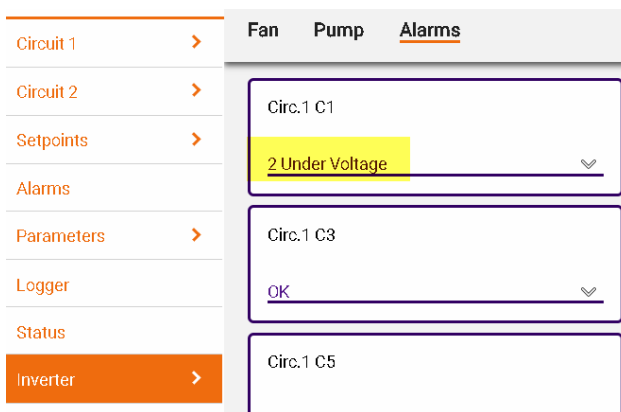
Local/remote HMI or webserver



b. Varipack Alarm Test Under Voltage Alarm:



Local/remote HMI or webserver



21. Added **keep alive** and **Node manger** for all the inverter to manage difference priority in read/ write message.

22. Added Warning relay DO active if any alarm out is active.

The screenshot shows a web interface for 'inverter' configuration. On the left is a sidebar with links: 'IO Config' (selected), 'AI Allocation', 'DI Allocation', 'AO Allocation', 'DO Allocation', 'IOMap', and 'IO Value'. The main content area has three sections, each with 'Device' and 'Number' dropdown menus, both currently set to 'Not Allocated':

- Top section: Device: Not Allocated, Number: 0=Not Allocated
- Middle section (labeled xDGenericRegPressReg5): Device: Not Allocated, Number: 0=Not Allocated
- Bottom section (labeled xWarningRele, highlighted in yellow): Device: Not Allocated, Number: 0=Not Allocated

The URL at the bottom left is 0.0.0.100/page36.htm.

23. Added New option for alarm management  
Active alarm and Resettable alarm has now different color

The screenshot shows an 'Alarms' management page. On the left is a sidebar with links: 'Circuit 1', 'Circuit 2', 'Evaporator', and 'Alarms' (selected). The main content area has tabs for 'Alarms' and 'Wiring Faults'. At the top right are 'Show All' and 'RESET' buttons. Two alarm entries are displayed:

- Left entry: 'Motor compressor 1 circuit 1' with a yellow background and 'code: 014'.
- Right entry: 'Motor compressor 2 circuit 1' with a red background, a red 'ACTIVE' label, and 'code: 015'.

24. Added Generic Regulator 6+6 configurable for temperature and pressure probe  
Each Generic Regulator can be configure with a dedicated probe or can be connected to an existing probe.

The screenshot shows the 'Generic Temperature Regulator' and 'Generic Pressure Regulator' configuration screens. The interface is divided into two main sections: 'Generic Temperature Regulator' and 'Generic Pressure Regulator'. Each section contains a 4x2 grid of configuration parameters. The left sidebar lists various system components, with 'GenericReg' highlighted under 'Parameters'. The right sidebar shows 'Alarms', 'Parameters', 'Logger', 'Status', and 'IO Config'.

| Generic Temperature Regulator       |                                     | Generic Pressure Regulator          |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Mode: Disable                       | Setpoint: 20.0 °C                   | Diff (negative = Heat Mode): 10.0 K | Mode: Disable                       |
| Setpoint: 20.0 °C                   | Diff (negative = Heat Mode): 10.0 K | Mode: Disable                       | Setpoint: 20.0 °C                   |
| Diff (negative = Heat Mode): 10.0 K | Mode: Disable                       | Setpoint: 20.0 °C                   | Diff (negative = Heat Mode): 10.0 K |
| Mode: Disable                       | Setpoint: 20.0 °C                   | Diff (negative = Heat Mode): 10.0 K | Mode: Disable                       |

25. Added Alarm Configuration Menu to setup alarm type and alarm delay.

The screenshot shows the 'Alarm Configuration' menu. The interface is divided into three main sections: 'Semiautomatic Alarm', 'Alarm Timing', and 'Alarm Type'. The 'Alarm Type' section is currently selected, showing a 4x4 grid of alarm types. The left sidebar lists various system components, with 'Alarms Config' highlighted under 'Parameters'. The right sidebar shows 'Alarms', 'Parameters', 'Logger', 'Status', and 'IO Config'.

| Alarm Type                    |                                |                                      |                               |
|-------------------------------|--------------------------------|--------------------------------------|-------------------------------|
| E2_usiOutLowTempCfg: SemiAuto | E2_usiCfgAlrHPsw: SemiAuto     | E2_usiCfgAlrLPsw: SemiAuto           | E2_usiCfgAlrHPProbe: SemiAuto |
| E2_usiCfgAlrLPProbe: SemiAuto | E2_usiCfgAlrLowSH: SemiAuto    | E2_usiCfgAlrLowLiquidLevel: SemiAuto | E2_usiCfgAlrRefLeak: SemiAuto |
| E2_usiCfgPhaseError: SemiAuto | E2_usiCfgComOilAlarm: SemiAuto | E2_usiCfgHPCComp: SemiAuto           | E2_usiCfgLPCComp: SemiAuto    |
| E2_usiCfgGenComp: SemiAuto    | E2_usiCfgOilLevComp: SemiAuto  | E2_usiCfgOilTempComp: SemiAuto       | E2_usiCfgOilSWComp: SemiAuto  |

26. Added new parameter to use the compressor probe:  
Low and HI Pressure, Condenser and evaporator temperature are read from the IQ modules

The screenshot shows a dialog box titled 'Enable Compressor Probe'. It contains a 'code: 2.094' field and three buttons: 'DISABLE', 'GAUGE', and 'ABSOLUTE'. The 'ABSOLUTE' button is highlighted with a red border.

NOTE: If not disable also the Condenser temperature and evaporator temperature are read from the Compressor Module



## 27. New default value for Configuration 10 as below screen shot

|              |            |                 |                  |              |          |
|--------------|------------|-----------------|------------------|--------------|----------|
| Circuit 1 >  | CONTROLLER | DI              | AI               | DO           | AO       |
| Circuit 2 >  | 1          | xAlarmComp1Cir1 | iLowPressCir1    | xComp1Cir1   | iFanCir1 |
| Setpoints >  | 2          | xAlarmComp2Cir1 | iHighPressCir1   | xComp2Cir1   | n.u.     |
| Alarms       | 3          | xAlarmComp3Cir1 | iSuctionTempCir1 | xComp3Cir1   | n.u.     |
| Parameters > | 4          | xAlarmComp4Cir1 | n.u.             | xComp4Cir1   | n.u.     |
| Logger       | 5          | n.u.            | n.u.             | n.u.         | n.u.     |
| Status       | 6          | n.u.            | n.u.             | n.u.         | n.u.     |
| Inverter >   | 7          | n.u.            | n.u.             | xFan1Cir1    |          |
| IO Config >  | 8          | n.u.            | n.u.             | xFan2Cir1    |          |
| IOMap        | 9          | n.u.            | xLPSWCir1        | xFan3Cir1    |          |
| IO Value >   | 10         | xAlarmLowLiquid | n.u.             | xFan4Cir1    |          |
| P-h Chart    | 11         | n.u.            | xHPSWCir1        | n.u.         |          |
| Info         | 12         | xLocalStartStop | n.u.             | xWarningRele |          |

### Known issue (Varipack):

- How to reset inverter?
- How to change parameter via Modbus?
- How to contro inverter via Modbus?

## Release 2.07.01 26-03-2020

Compiled for FSP 1.2

CHANGES:

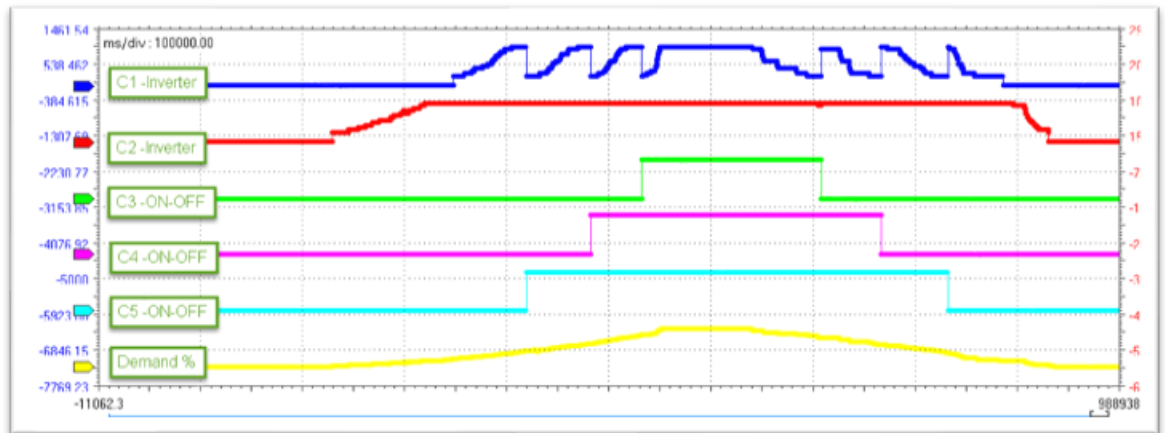
28. Added new regulation mode to manage the modulating compressor:

The screenshot shows a control interface with a sidebar on the left containing 'Alarms', 'Parameters', 'Wizard', 'Compressor', and 'Condenser'. The main area displays several parameters in a grid:

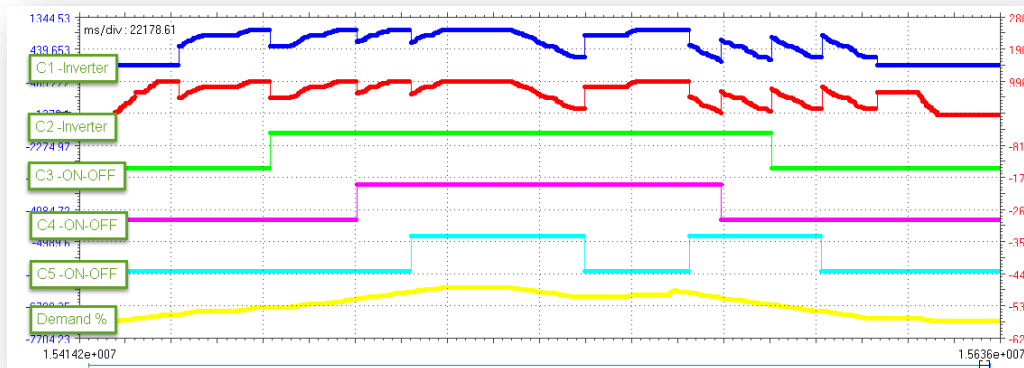
|                                                |                                                        |                                       |                                                           |
|------------------------------------------------|--------------------------------------------------------|---------------------------------------|-----------------------------------------------------------|
| 0.0 °C                                         | 0.0 °C                                                 | 0                                     | 0                                                         |
| Manual Compressor power - Fault probe<br>1.0 % | Regulation Probe Filter<br>0=Disable 10000=Mx<br>90.00 | Enable Compressor Probe<br>FALSE TRUE | Modulating Compressor Capacity mode<br>BALANCED SATURATED |

- a. Test with 2 modulating compressor and 3 on off compressor

Behavior of a system configured as **Saturated Mode**

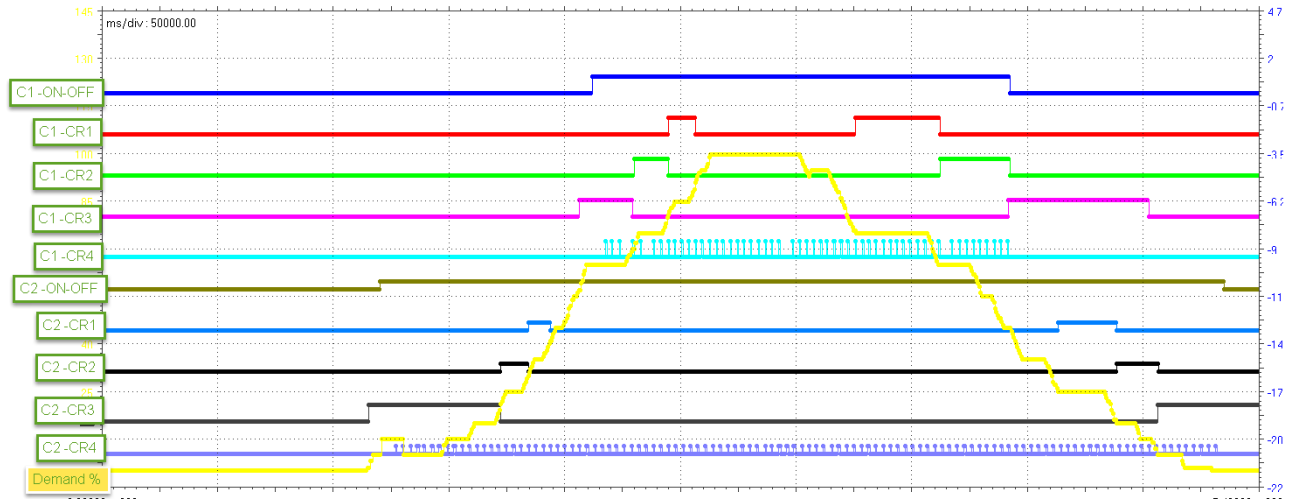


Behavior of a system configured as **Balanced Mode**

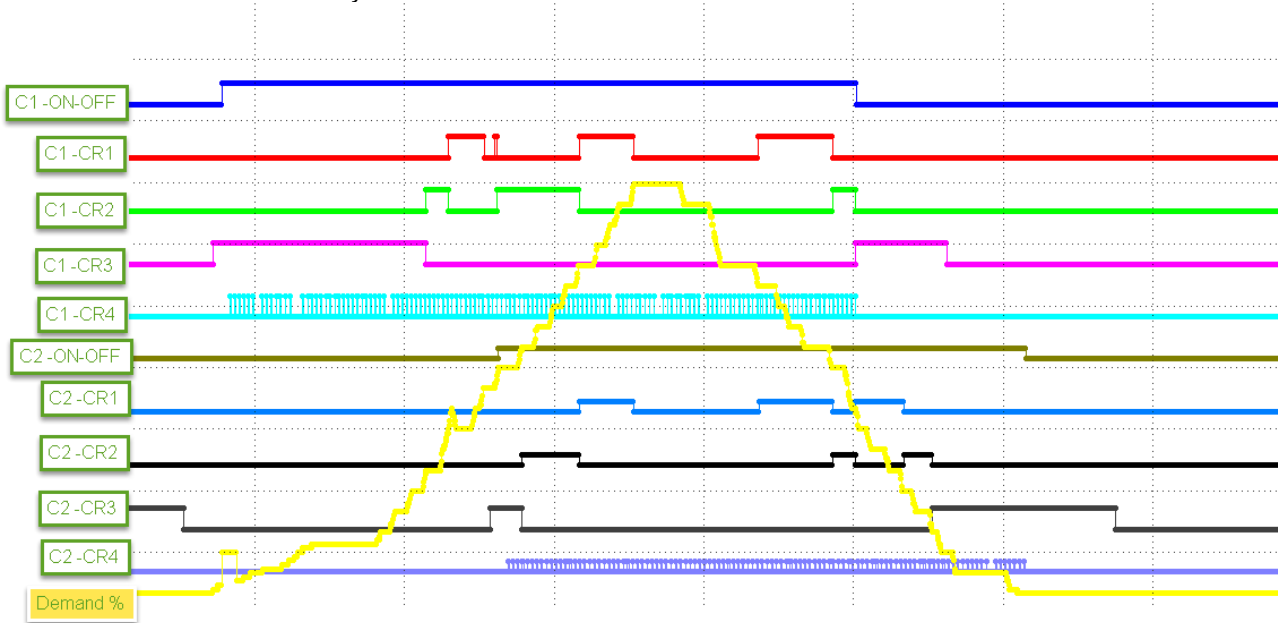


- b. Test with 2 Compressor HS85 compressor and 3 on off compressor

Behavior of a system configured as **Saturated Mode**



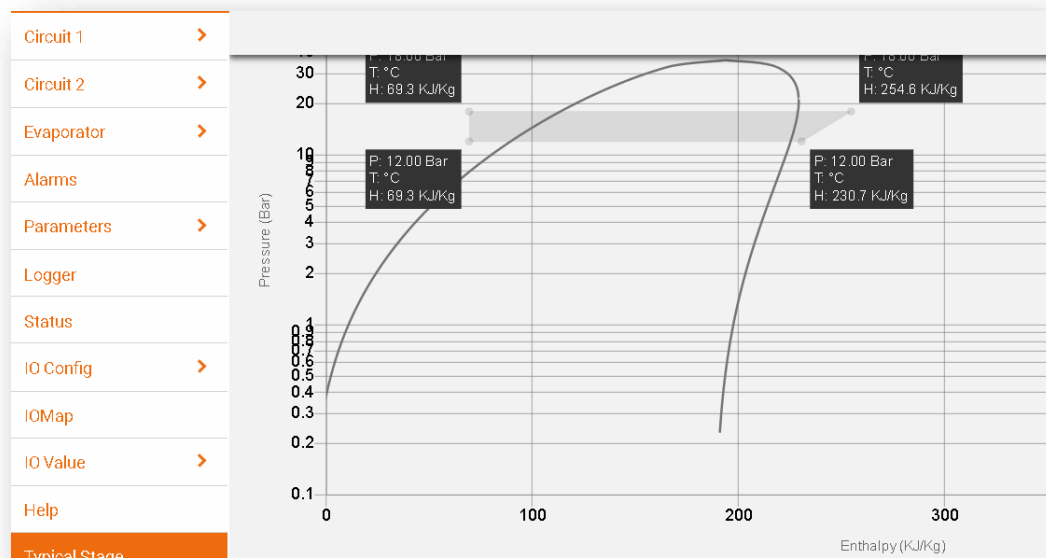
Behavior of a system as **Balanced Mode**



29. Added Pressure-Enthalpy diagram for circuit 1 and circuit 2.

To enable the P-H chart the follow variable shall be assigned to the IO configuration.

|                  |                            |      |            |
|------------------|----------------------------|------|------------|
| iLowPressCir1    | Low Pressure               | Text | Circuit 01 |
| iHighPressCir1   | High Pressure              | Text | Circuit 01 |
| iEvapOutTempCir1 | Evaporator Out Temperature | Text | Circuit 01 |
| iCondOutTempCir1 | Condensing Out Temperature | Text | Circuit 01 |
| iDischTempCir1   | Discharge Temperature      | Text | Circuit 01 |



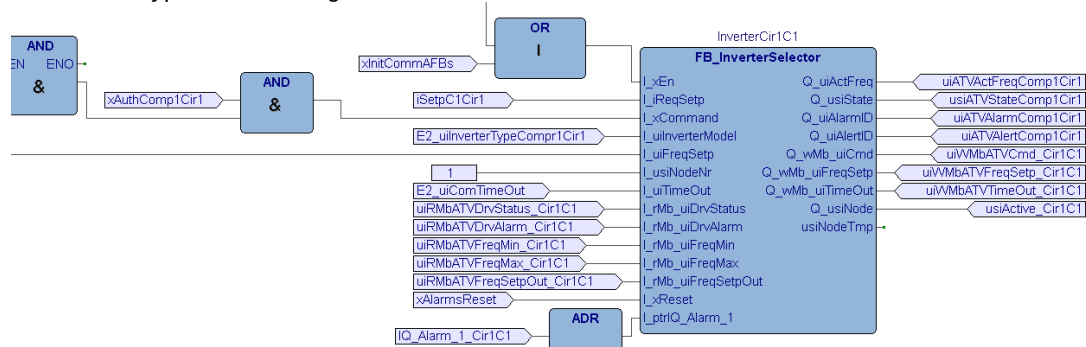
30. Added Varipack Integration:

New program will manage read and write a to Varipack in IEC code in task Background.

Up to 12 Varipack (6 in circuit 1 and 6 for circuit 2) can be configured.

The register are configurable in the init program

The inverter type can be change with Unit OFF.



### 31. Added new webserver page to browse the inverter parameter

Note: Varipack setting are send but inverter is not updating (probably a password has to be send in the init process)

| Parameter Name              | Value        | Parameter Name              | Value        | Parameter Name              | Value        |
|-----------------------------|--------------|-----------------------------|--------------|-----------------------------|--------------|
| E2_xEnableConfig            | FALSE        | E2_xEnableModbusPolling     | FALSE        | E2_uiInverterTypeCompr1Cir1 | Varipack     |
| E2_uiInverterTypeCompr3Cir1 | Varipack     | E2_uiInverterTypeCompr4Cir1 | Varipack     | E2_uiInverterTypeCompr5Cir1 | Varipack     |
| E2_uiInverterTypeCompr1Cir2 | Inv. Disable | E2_uiInverterTypeCompr2Cir2 | Inv. Disable | E2_uiInverterTypeCompr3Cir2 | Inv. Disable |
| E2_uiInverterTypeCompr5Cir2 | Inv. Disable | E2_uiInverterTypeCompr6Cir2 | Inv. Disable | E2_uiInverterAddCompr1Cir1  | 51           |
| E2_uiInverterAddCompr3Cir1  |              | E2_uiInverterAddCompr4Cir1  |              | E2_uiInverterAddCompr5Cir1  |              |

### 32. Added new webserver page to browse the inverter status

The inverter status is divide in page and, Compressor Inverter can be grouped with a subcategory (Circuit 1 C1)

| Parameter Name              | Value  | Parameter Name             | Value | Parameter Name             | Value | Parameter Name              | Value |
|-----------------------------|--------|----------------------------|-------|----------------------------|-------|-----------------------------|-------|
| uiATVActFreqComp1Cir1       | 0      | usiATVStateComp1Cir1       | 0     | uiATVAlarmComp1Cir1        | 45    | uiATVAlertComp1Cir1         | 0     |
| uiRMbATVDrvStatusAS_Cir1_C1 | 0      | uiRMbATVDrvAlarmAS_Cir1_C1 | 0     | uiRMbATVDrvStatus_Cir1C1   | 0     | uiRMbATVDrvAlarm_Cir1C1     | 0     |
| uiRMbATVFreqMin_Cir1C1      | 100    | uiRMbATVFreqMax_Cir1C1     | 500   | uiRMbATVFreqSetpOut_Cir1C1 | 0     | IQ_SerialControlWord_Cir1C1 | 0     |
| IQ_SerialSetpoint_Cir1C1    | 0.00 % | IQ_Setpoint_Cir1C1         | 0 %   | IQ_ComprLoad_Cir1C1        | ----  | IQ_ActualControlWord_Cir1C1 | 0     |
| IQ_StatusWord_Cir1C1        | 0      | IQ_Alarm_1_Cir1C1          | 0     | IQ_Alarm_2_Cir1C1          | 100   | IQ_Alarm_3_Cir1C1           | 0     |

### 33. Alarm code normalization between IQCMRC1 - SE-i1 - Varipack (VPK)

```

CASE uiAlarm1 OF
1:   AlrDescription:='Serial TimeOut'
3:   AlrDescription:='Env.SSTL SDTL'
4:   AlrDescription:='Env.SST L'
5:   AlrDescription:='Env.SST L SDTH'
6:   AlrDescription:='Env.SDT H'
7:   AlrDescription:='Env.SST H SDTH'
8:   AlrDescription:='Env.SST H'
9:   AlrDescription:='Env.SST H SDT L'
10:  AlrDescription:='Env.SDT L'
11:  AlrDescription:='Env. Env T Out'
12:  AlrDescription:='Env. Config'
15:  AlrDescription:='Oil Lev Low'
17:  AlrDescription:='32-Power Loss Stope' // VPK31
18:  AlrDescription:='21-Motor Phase Loss' // VPK21
19:  AlrDescription:='Motor Phase seq.'
20:  AlrDescription:='Motor Temp. High'
21:  AlrDescription:='1-Over Voltage' // VPK1
22:  AlrDescription:='2-Under Voltage' // VPK2
23:  AlrDescription:='3-Over Current' // VPK3
24:  AlrDescription:='4-Stack Fault Current' // VPK4
25:  AlrDescription:='5-StackOver Current' // VPK5
26:  AlrDescription:='6-Current Limit' // VPK6
27:  AlrDescription:='7-CMotor Stall' // VPK7
28:  AlrDescription:='8-Inverse Time' // VPK8
29:  AlrDescription:='9-Motor I2T' // VPK9
30:  AlrDescription:='10-Low Speed' // VPK10
31:  AlrDescription:='11-Heatsink Hi Temp' // VPK11
32:  AlrDescription:='12-Internal Hi Temp' // VPK12
33:  AlrDescription:='13-Motor Hi Temp' // VPK13
34:  AlrDescription:='14-Start Fail' // VPK14
35:  AlrDescription:='15-Brake Short' // VPK15
36:  AlrDescription:='16-Brake Resistor' // VPK16
37:  AlrDescription:='17-Brake Switch' // VPK17
38:  AlrDescription:='18-Local Control' // VPK18
39:  AlrDescription:='19-Coms Breack' // VPK19
40:  AlrDescription:='20-Line Contactor' // VPK20
41:  AlrDescription:='22-VDC Ripple' // VPK22
42:  AlrDescription:='23-Base MB Breack' // VPK23
43:  AlrDescription:='25-PMCK Speed' // VPK25
44:  AlrDescription:='26-OverSpeed' // VPK26
45:  AlrDescription:='27-STO Active' // VPK27
46:  AlrDescription:='28-FBK Missing' // VPK28
47:  AlrDescription:='29-Int. Fan Fail' // VPK29
48:  AlrDescription:='30-Current Sensor' // VPK30
49:  AlrDescription:='Config. No File'
50:  AlrDescription:='Config. CRC Er.'
52:  AlrDescription:='Config. Red Only'
54:  AlrDescription:='HW: 3.3V'
55:  AlrDescription:='HW: 5V'
62:  AlrDescription:='Sensor Motor Temp'
68:  AlrDescription:='Suct Press Low'
69:  AlrDescription:='Disch Press Hi'
70:  AlrDescription:='24-HW: 24V' // VPK24
78:  AlrDescription:='Disch. Temp. HI'
84:  AlrDescription:='Motor Temp. coolDw'
85:  AlrDescription:='Sensor Disch Temp'
86:  AlrDescription:='Sensor AUX Temp'
90:  AlrDescription:='Hi Press Switch'
94:  AlrDescription:='Sensor Suct P Low'
95:  AlrDescription:='Sensor Suct P Hi'
96:  AlrDescription:='Sensor Disch P Low'
97:  AlrDescription:='Sensor Disch P Hi'
102: AlrDescription:='Oil Inj no effect'
119: AlrDescription:='Excide Fault/24 h'
120: AlrDescription:='Excide Reset/24 h'
133: AlrDescription:='Oil Flow Low'
134: AlrDescription:='Oil Pres Low'
135: AlrDescription:='Motor Freq Low'
136: AlrDescription:='Motor Freq Hi'
137: AlrDescription:='Oil Stop Valve'
145: AlrDescription:='HW: 24V sens 1'
146: AlrDescription:='HW: 24V sens 2'
150: AlrDescription:='Sign.but no run'
152: AlrDescription:='No sig. Comr On'
153: AlrDescription:='Motor Curr. High'
159: AlrDescription:='Undef. C. State.'
ELSE
    AlrDescription:='Undefined Alarm code';

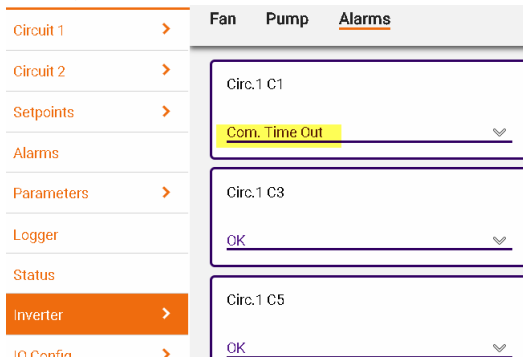
```

END\_CASE;

a. Varipack Alarm Test Under Voltage Alarm:



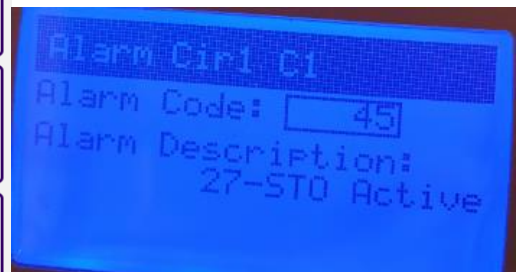
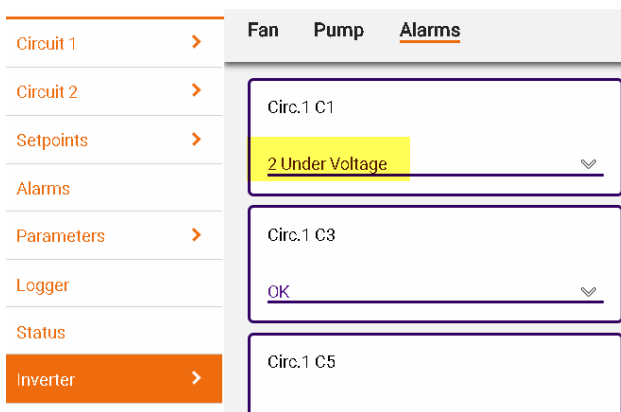
Local/remote HMI or webserver



b. Varipack Alarm Test Under Voltage Alarm:



Local/remote HMI or webserver



34. Added **keep alive** and **Node manger** for all the inverter to manage difference priority in read/ write message.

35. Added Warning relay DO active if any alarm out is active.

The screenshot shows a web-based configuration interface for an inverter. On the left is a sidebar menu with options: 'inverter', 'IO Config', 'AI Allocation', 'DI Allocation', 'AO Allocation', 'DO Allocation' (highlighted in orange), 'IOMap', and 'IO Value'. The main content area displays three configuration sections, each with 'Device' and 'Number' dropdown menus. The first section is for 'xDOGenericRegPressReg5'. The second section, 'xWarningRele', is highlighted in yellow and shows both dropdowns set to 'Not Allocated'. The browser address bar at the bottom left shows '0.0.0.100/page36.htm'.

36. Added New option for alarm management  
Active alarm and Resettable alarm has now different color

The screenshot displays the 'Alarms' section of the inverter's management interface. A sidebar on the left lists 'Circuit 1', 'Circuit 2', 'Evaporator', and 'Alarms' (highlighted in orange). The main panel has tabs for 'Alarms' and 'Wiring Faults'. At the top right of the panel are 'Show All' and 'RESET' buttons. Two alarm entries are visible: 'Motor compressor 1 circuit 1' with a yellow 'RESETTABLE' status label and code '014', and 'Motor compressor 2 circuit 1' with a red 'ACTIVE' status label and code '015'.



37. Added Generic Regulator 6+6 configurable for temperature and pressure probe  
Each Generic Regulator can be configure with a dedicated probe or can be connected to an existing probe.

The screenshot shows the 'Generic Temperature Regulator' and 'Generic Pressure Regulator' configuration screens. The left sidebar contains a menu with 'Parameters' selected, showing options like Wizard, Compressor, Condenser, EEV, Evaporator, RTC, Alarms Config, GenericReg (highlighted), and Others. The main area displays a 4x2 grid of configuration parameters for each regulator type. The 'Generic Temperature Regulator' parameters are: Mode (Disable), Setpoint (20.0 °C), Diff (negative = Heat Mode) (10.0 K), Setpoint (20.0 °C), Diff (negative = Heat Mode) (10.0 K), Mode (Disable), Setpoint (20.0 °C), and Diff (negative = Heat Mode) (10.0 K). The 'Generic Pressure Regulator' parameters are: Mode (Disable), Setpoint (20.0 °C), Diff (negative = Heat Mode) (10.0 K), Setpoint (20.0 °C), Diff (negative = Heat Mode) (10.0 K), Mode (Disable), Setpoint (20.0 °C), and Diff (negative = Heat Mode) (10.0 K).

38. Added Alarm Configuration Menù to setup alarm type and alarm delay.

The screenshot shows the 'Alarm Configuration' screen. The left sidebar contains a menu with 'Parameters' selected, showing options like Wizard, Compressor, Condenser, EEV, Evaporator, RTC, Alarms Config (highlighted), GenericReg, and Others. The main area displays a 4x4 grid of configuration parameters for the 'Alarm Type' tab. The parameters are: E2\_usiOutLowTempCfg (SemiAuto), E2\_usiCfgAlrHPsw (SemiAuto), E2\_usiCfgAlrLPsw (SemiAuto), E2\_usiCfgAlrHPProbe (SemiAuto), E2\_usiCfgAlrLPProbe (SemiAuto), E2\_usiCfgAlrLowSH (SemiAuto), E2\_usiCfgAlrLowLiquidLevel (SemiAuto), E2\_usiCfgAlrReflLeak (SemiAuto), E2\_usiCfgPhaseError (SemiAuto), E2\_usiCfgComOilAlarm (SemiAuto), E2\_usiCfgHPCComp (SemiAuto), E2\_usiCfgLPCComp (SemiAuto), E2\_usiCfgGenComp (SemiAuto), E2\_usiCfgOilLevComp (SemiAuto), E2\_usiCfgOilTempComp (SemiAuto), and E2\_usiCfgOilSWComp (SemiAuto).

Known Varipack issue:

- How to reset inverter ?
- How to change parameter via Modbus ?
- How to contro inverter via Modbus ?

## Release 2.07.00 12-02-2020

### CHANGES:

- Added new configuration to manage the Model ASK 64xx

#### 1.1 Configuration 11 ( 3 Screw HSK 64xx) – Compressor Rack / Inverter SE-I1

| Digital Input          | Analog Input            | Digital Output     | Analog Output         |
|------------------------|-------------------------|--------------------|-----------------------|
| Controller –           |                         |                    |                       |
| DI1 ALARM THER. COMP1  | AI1 HIGH PRESSURE CIR 1 | DO1 COMP1          | AO1 INV COND FAN CIR1 |
| DI2 ALARM THER. COMP2  | AI2 LOW PRESSURE CIR 1  | DO2 COMP2          | AO2                   |
| DI3 ALARM THER. COMP3  | AI3                     | DO3 COMP3          | AO3                   |
| DI4                    | AI4                     | DO4                | AO4                   |
| DI5 ALARM HP. COMP1    | AI5                     | DO5 COMP1 CR2      | AO5                   |
| DI6 ALARM HP. COMP2    | AI6                     | DO6 COMP1 CR1      | AO6                   |
| DI7 ALARM HP. COMP3    | AI7                     | DO7 COMP2 CR2      |                       |
| DI8                    | AI8                     | DO8 COMP2 CR1      |                       |
| DI9                    | AI9                     | DO9 COMP3 CR2      |                       |
| DI10 LIQUID LEVEL (DI) | AI10                    | DO10 COMP3 CR1     |                       |
| DI11 COMMON OIL ALARM  | AI11 HP SWITCH CIR.1    | DO11               |                       |
| DI12 ON OFF REMOTE     | AI12 LP SWITCH CIR.1    | DO12 GENERAL ALARM |                       |

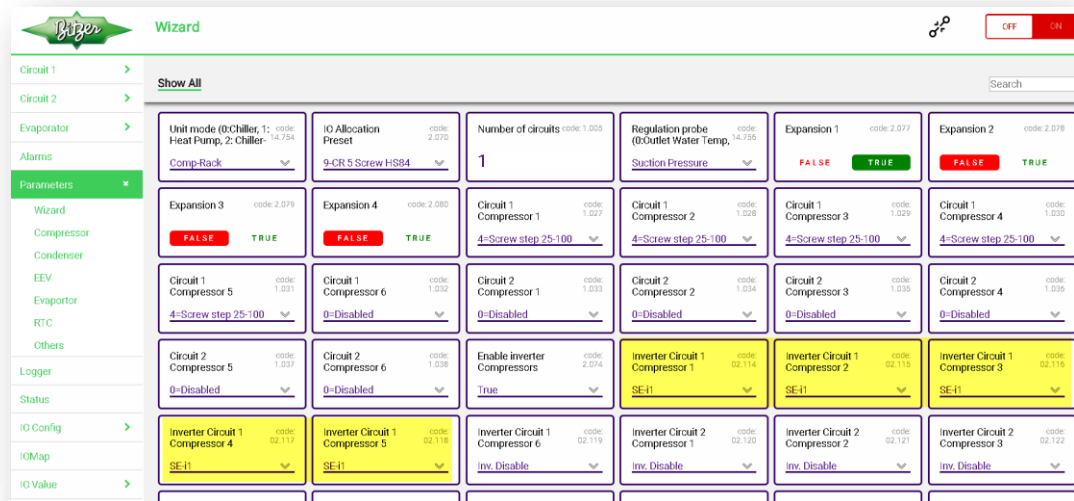
- Added new register for Alarm management optimization
  - This versions has been tested test with new application HMI Touch rev 1.0
  - Added New option to read HP LP value from IQ CM RC1 or SE-i1
- If local Probe Low Pressure and Hi pressure are not defined the lowest compressor value is used for Low pressure and the highest value is used for Hi pressure of the circuit.

|               |        |         |  |
|---------------|--------|---------|--|
| Circ1-Compr.1 |        |         |  |
| Off           | 0.0%   | 0.0HMP  |  |
| Y             | 0.0Bar | 0.0Bar  |  |
| On            | 0.0SHK | 0.0EU%  |  |
| Cy            | 0.0HP  | 0.00Bar |  |
| Of            | 0.0LP  | 0.00Bar |  |

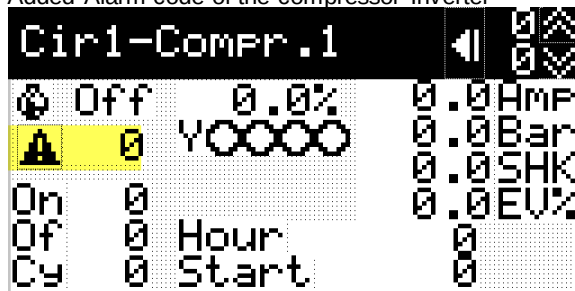
## Release 2.06.02 30-01-2020

### CHANGES:

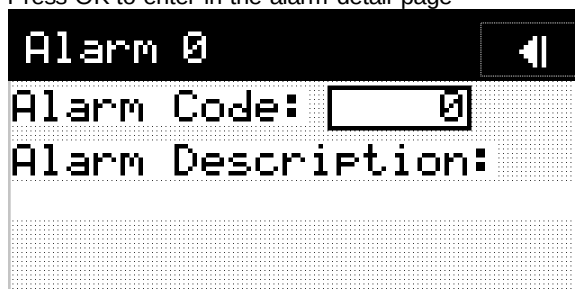
- Added SE-i1 integration for the compressor C1 to C6  
the Modbus address of the devices SE-i1 Or CM RC 01 or CM SW 01 shall be set in as in the follow list:
  - C1: Modbuss Address 51
  - C2: Modbuss Address 52
  - C3: Modbuss Address 53
  - C4: Modbuss Address 54
  - C5: Modbuss Address 55
  - C6: Modbuss Address 56
- Added Inverter selector in the wizard configuration page



Added Alarm code of the compressor Inverter



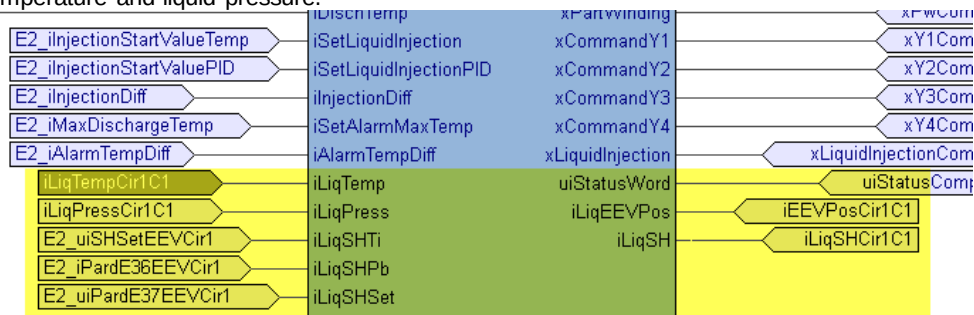
Press OK to enter in the alarm detail page



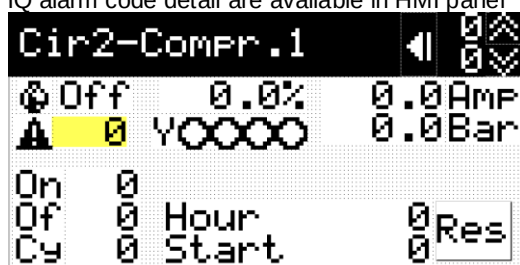
## Release 2.06.01 15-01-2020

### CHANGES:

- Added compressor liquid injection valve with SH control.  
The activation of the EEV is based on the compressor temperature;  
If the compressor temperature is over the setpoint the EEV will follow the SH calculated base on the liq temperature and liquid pressure.



- Added IQ inverter communication to manage the follow feature:  
Each compressor can be managed as a IQ module  
IQ alarm detection, any IQ **fault** will stop the compressor.  
Send Control Word and setpoint  
IQ alarm code detail are available in HMI panel



Send reset command to the inverter

- Minor Fix on the webserver
- Added Configuration 10 Configuration 10 ( 5 Screw Compressors HS85 ) – Compressor Rack / IQ CM SW01

## Release 2.06 18-12-2019

### CHANGES: Added XVD custom gas refrigerant parameter

13=R448A  
14=R427A  
15=R450(N13)  
16=R513A  
17=R449A  
18=R1234yf  
19=R454B  
20=R454C  
21=R455A  
22=R434A Missing Coefficient for XVD valve  
23=R442A Missing Coefficient for XVD valve  
24=R32

Added EEV for liquid injection and discharge temperature control.  
Added configuration 7-8-9 (see user manual 1.9)  
Validation of Compressor HS64 and HS 85  
Added limitation option for suction temperature disable as default

missioning

Energy

Logger

PIDCompressorsTest

VarComprSelector

01.ParGeneral

02.ParCompressors

ChillerSetpoint

RackSetpoint

03.ParEEVCir1

04.ParEEVCir2

05.ParCond

06.ParEvap

07.ParYearlyScheduler

08.ParWeeklyScheduler

10.ParDefrost

11.ParQRCode

12.ParLogger

14.ParBACnet

15.RemoteCan

</

New HMI form for Chiller

Added second circuit in case of Rack application

## Release 2.05 09-10-2019

### CHANGES:

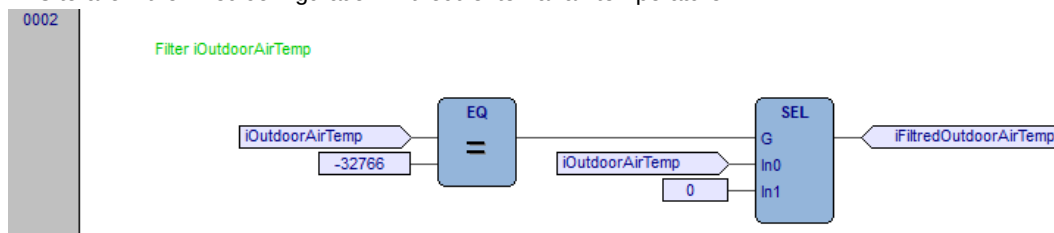
- Added Parameter Fan alarm type 05.042 to configure the Alarm Fan action
- New default for RS485 -1

## BIOS PARAMETERS

+ Add - Remove

| # | Name              | Default value | Description                         |
|---|-------------------|---------------|-------------------------------------|
| 1 | Addr_RS485_OB1    | 1             | RS485-1 On Board address            |
| 2 | Proto_RS485_OB1   | 3=Modbus/RTU  | Select RS485-1 On Board protocol    |
| 3 | DataBit_RS485_OB1 | 8             | RS485-1 On Board Data bit number    |
| 4 | StopBit_RS485_OB1 | 1             | RS485-1 On Board stop bit number    |
| 5 | Baud_RS485_OB1    | 0=9600        | RS485-1 On Board baud rate protocol |

- Added Parameter 02.088 configure Alarm Config for Compressor (Auto Manual SemiAuto)
- Removed default configuration
- Removed from wizard menu E2\_usiProbeHP + E2\_usiProbeLP now are specified in the IO configuration.
- Minor changed the menu General
- Add a new net in SR\_FanCir1Cntrl + replace in SR\_FanCirXCntrl iOutdoorTemp by iFiltredOutdoorTemp  
This to allow the fixed configuration without external air temperature.



- Manage up to 6 compressors per circuits with PID regulator.
- Remove Bacnet element: BAI\_FullScallMinLP, BAI\_FullScallMaxLP, BAI\_FullScallMinHP, BAI\_FullScallMaxHP
- Delete menu ParExpert not used and replace from the wizard menu
- Add new inputs iAntifreezeWaterTemp, xAlarmLowLiquid, xAlarmRefrigerantLeak, (DO) xSHAlarm
- SH alarm will stop all the active compressors and after 3 times in a hour become manual.
- Added new refrigerants from 13=R448A to 24=R32
- New HMI page for Compressor Rack



- New HMI page IO Configuration

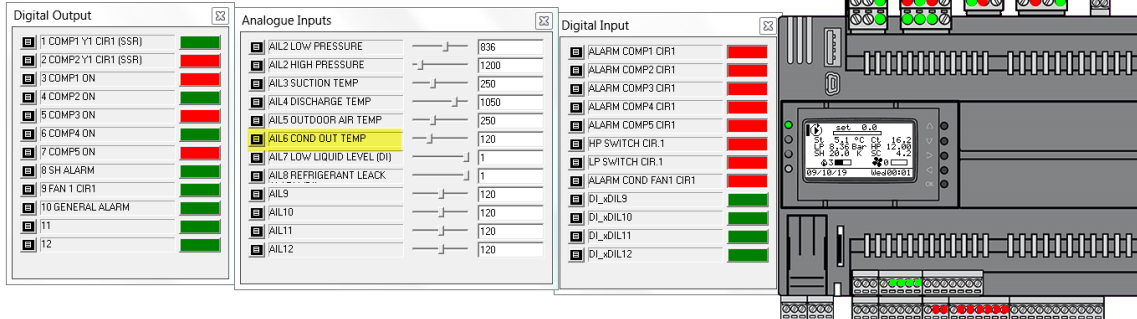


### FIXED:

- Code review of CR11 compressor, fixed valve rotation
- Add Alarm deactivated = -32766 + Function SensorStatus

- Correct FB\_AppendLog for data login
- Change the default value of xLocalStartStop; if it is not allocated by the configurable IO is set to TRUE.
- Fixed IO Polarity of the Analog Input used as Digital input.

Validation Test : The configuration 6 (1 CR11 steppless + 4 On off compressor ) has been used to validate the version.



KNOWN ISSUES: Web server for Compressor Rack will be update in the next released;

Missing new refr. In EEV.

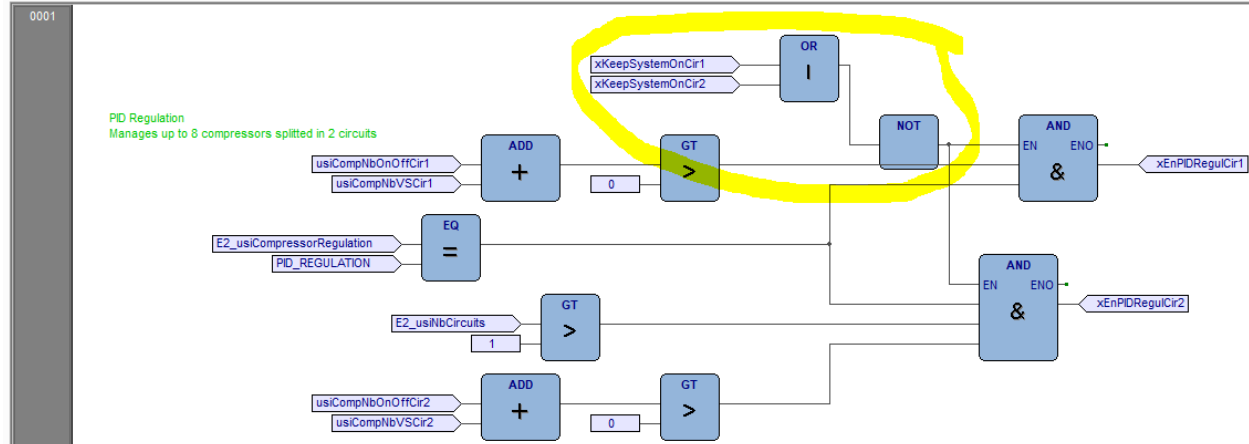
## Release 2.04 04-07-2019

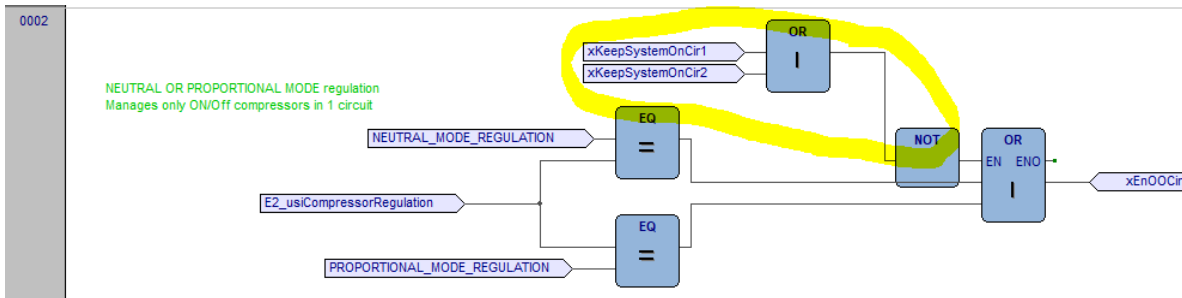
### CHANGES:

- Add Saving of IOMap in a CSV file in the program IO\_Mng\_Setup

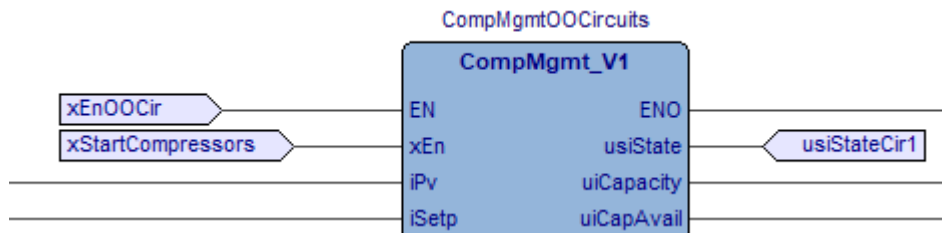


- Remove GV xKeepOnSystem, replace by xKeepOnSystemCir1 and xKeepOnSystemCir2
- Remove the reboot in the wizard
- The regulation mode can be changed only when the unit (compressor included) are off. Cf program SR\_CircuitCompCntl

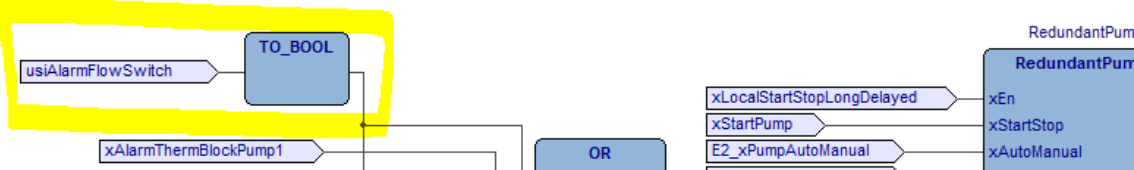




- In SR\_CircuitCntrl,
  - o change the input iPv (iOutletTemp) with iRegulProbe
  - o change fb

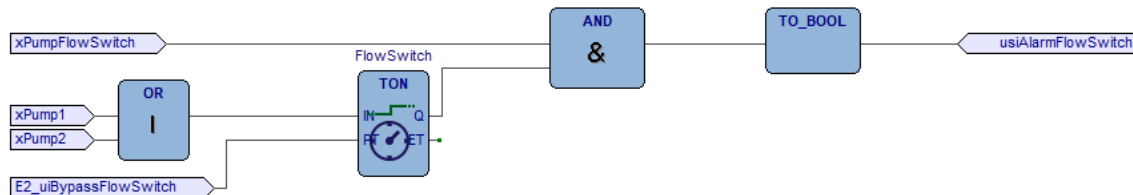


- Add 2 new alarms: xAlarmPump1+ xAlarmPump2
- Replace xEnableModbusPump by E2\_xEnablePumpMB
- Replace xEnableModbusFansCir1 and xEnableModbusFansCir2 by E2\_xEnableModbusFanX
- Change program SR\_PumpCntrl



- Add E2\_uiBypassFlowSwitch to set the bypass of xFlowSwitch + Change the net

Flow switch



- Transfer the project on FSPlus
- Change the target (AVD6200)
- Add Configurable IO
  - o IO\_Mngm\_Init
  - o IO\_Mng\_Runtime (Timed)
  - o IO\_Local\_Update (Timed)
  - o IO\_Mng\_Setup (Bkg): set default configuration register address
  - o IO\_Mng\_E2Config (Bkg): load data from EEPROM to configuration structure
  - o IO\_ConfigurationManager (Bkg): allocate the IOs according to the chosen configuration
- Add new menus linked to the configurable IO
  - o IO\_config
  - o IO\_Allocation
  - o IO\_Function
- Add Saving of IOMap in a CSV file in the program IO\_Mng\_Setup
- Remove programs: SR\_Phys2Log, SR\_Log2Phy
- Add a new digital input **xAlarmFanGlobalCir1** which activate a global fan alarm
- Add programs SR\_ResetTrigger + SR\_SetTrigger (to set/reset the triggers)
- GV **xEnableExpansion** not used in the program
- Modify SR\_EEVCir1Cntrl and SR\_EEVCir2Cntrl (add in these programs the driver data reading)



How does the Configurable IO work?

When **LoadIOConfigRemote** is set at TRUE from the menu IO\_Status or at the BOOT (not the first BOOT)

| STEP | TRIGGER                     | DESCRIPTION                                                                                                                                                  | PROGRAMM                         |
|------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1    | IO_Status.xLoadCfg          | Init pointers with variables EEPROM address                                                                                                                  | IO_Mng_E2Config                  |
| 2    | IO_Status.xAllocationUpdate | Allocate in a virtual IO Map matrix<br>Phy --> Log<br>Log --> Phy<br>According to the configuration set by the user<br>IN COMMISSIONING (Menu IO_Allocation) | IO_Mng_Runtime                   |
| 3    | IO_Status.xConfigUpdate     | Update the BIOS parameters of the Device according to the virtual matrix configuration                                                                       | IO_Mng_Setup<br>(FB_IOMng_Setup) |
| 4    | LoadIOConfigRemote          | Save the IO Map in a CSV file                                                                                                                                | IO_Mng_Setup<br>(FB_IOSaveMap)   |

When the configuration is changed from the Wizard menu **usiConfigIO\_Old <> E2\_usiConfigIO**

| STEP | TRIGGER                                                                     | DESCRIPTION                                                                                           | PROGRAMM                         |
|------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------|
| 1    | IO_Status.xInitPointer                                                      | Init pointers with variables EEPROM address                                                           | IO_Mng_E2Config                  |
| 2    | usiConfigIO_Old <><br>E2_usiConfigIO<br>AND NOT<br>(IO_Status.xInitPointer) | Set automatically a configuration MAP                                                                 | IO_ConfigurationManager          |
| 3    | IO_Status.xAllocationUpdated                                                | Allocate in a virtual IO Map matrix<br>Phy --> Log<br>Log --> Phy<br>According to the IO Map selected | IO_Mng_Runtime                   |
| 4    | IO_Status.xConfigUpdate                                                     | Update the BIOS parameters of the Device according to the virtual matrix configuration                | IO_Mng_Setup<br>(FB_IOMng_Setup) |
| 5    | LoadIOConfigRemote                                                          | Save the IO Map in a CSV file                                                                         | IO_Mng_Setup<br>(FB_IOSaveMap)   |

- Add FB\_ReadEEVDriverCir1 + FB\_ReadEEVDriverCir2

KNOWN ISSUES:

- FB CompMgmt should manage 8 compressors in the same circuit
- ~~— Check the default value of each variables (Set default configuration)~~
- No starting time available for Bitzer stepless
- Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- Thermal power calculation: add subset of parameter to manage different compressor
- Disable page Energy Menu Description if COP is not enabled
- **Dynamic configuration of the frequency for the CR11 compressor**
- ~~— Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)~~
- Add keep alive function block
- Icon optimum start active
- When the scheduler is set, add on the Homepage the scheduler status
- Add a web page to set the dynamic IO allocation
- To evaluate if we add an alert for a wrong allocation setting
- **Remove the program SR\_Init**
- **Alarms**

FIXED:

- In SR\_CircuitCompCntrl, exchange inputs EN/xEN in FB CompMgmt
- Digital Scroll compressor: modify the pulsing valve exit (~~xY1comp1Cir1~~ and not ~~xComp1Cir1~~) + default value for EEPROM parameters
- Change configuration menu: correct the list of compressors ~~On Off 2 step, On Off 3 step, On Off 4~~ → On Off 1 step, On Off 2 step, On Off 3 step
- Modify the separator in Logger files ("," end not ",")

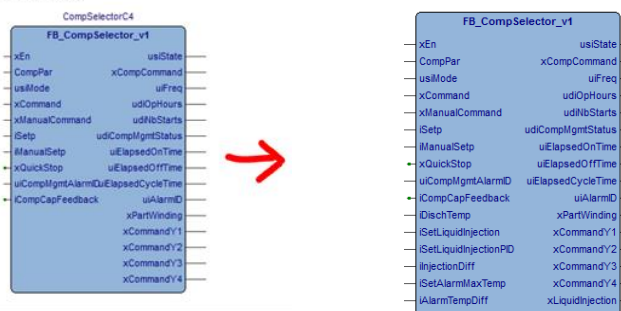
## Release 2.00 19-11-2018

### CHANGES:

Nb: Suggested E2\_usiModeType: =0;

- Update TM171VEV Firmware
- Add dE14, dE15, dE25, dE26, dE27, dE28, dE29, dE36, dE55, dE50, dE66, dE54, dE37, dE38
- Change EEV for the last release
- Remove FB\_CompMngtStatusDecoder, FB\_CompMngtAlertDecoder, FB\_CompMngtAlarmDecoder, FB\_OnOffAlarmDecode, FB\_rSpAutomatisation, FB
- Remove OptiStartScheduler
- Remove FB\_EvapPressCntrl because EvapPressCntrl in the library
- Remove FB\_FloatingWaterTempSet because FloatingWaterTempSet in the library
- Remove FB\_HPDefrostAndRevValve because HPDefrostAndRevValveis in the library
- Remove FB\_CircuitMgmt because CircuitMgmt is in the library
- Update library Display.
- Update Regul and Control.plclib with the last release 1.1.1
- Update Application.plclib with the last release 1.2
- Change FB\_CompSelector
  - o 6 new inputs: To manage Temperature alarm ( $iAlarmTempDiff + iSetAlarmMaxTemp$ ) and to manage liquid injection ( $iSetLiquidInjection + iSetLiquidInjectionPID + iInjectionDiff$ ) depending on the value of  $iDischTemp$
  - o 1 outputs: To enable liquid injection ( $xLiquidInjection$ )
  - o If Temperature alarm is enabled → new bit (bit 4) in  $uiAlarmID$  linked to this alarm

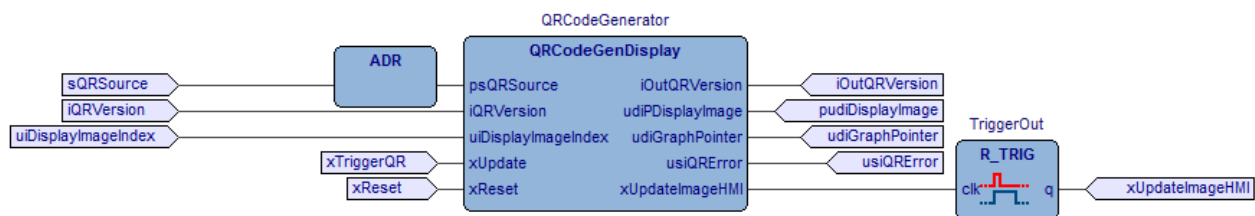
#### Previous



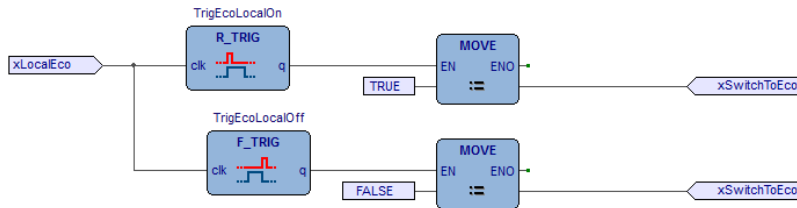
- Add new IOs Configuration (config 5), 1 circuit - 2 Digital Scroll Compressor
- Add input  $iDigitalScrollPulsePeriod$  to the FB  $FB\_LoadCompln$  (**\*Default value of Period\_Pulse\_DigitalScroll need to be fixed\***)
- Change enumeration compressor CR11 (BITZER CR11 start at 11, 10= DIGITAL SCROLL)

| Compressor                    | ID            |
|-------------------------------|---------------|
| COMP_DISABLED                 | 0             |
| COMP_ON_OFF                   | 1             |
| VS_COMP                       | 2             |
| BITZER_SCREW_STEPLESS_25TO100 | 3             |
| BITZER_SCREW_STEP_25TO100     | 4             |
| BITZER_SCREW_STEPLESS_50TO100 | 5             |
| BITZER_SCREW_STEP_50TO100     | 6             |
| ONOFF_1STEP                   | 7             |
| ONOFF_2STEP                   | 8             |
| ONOFF_3STEP                   | 9             |
| DIGITAL_SCROLL                | 10 (new)      |
| BITZER_CR11                   | 11 (modified) |
| BITZER_ECOLINE4_STEP          | 12 (modified) |
| BITZER_ECOLINE4_STEPLESS      | 13 (modified) |
| BITZER_ECOLINE6_STEP          | 14 (modified) |
| BITZER_ECOLINE6_STEPLESS      | 15 (modified) |
| BITZER_ECOLINE8_STEP          | 16 (modified) |
| BITZER_ECOLINE8_STEPLESS      | 17 (modified) |

- 
- Add digital scroll compressor in the FB **GenericSliderCompCntrl**
- Change Homepage (on User Interface)
- Add E2\_usiUnitOperationMode, it uses everywhere in the code instead of: xSwitchToEco
- Remove network 004 (Manage Eco Without a scheduler from SR\_WaterSetAndScheduler)
- Update BACnet library
- xSwitchToEco set as a status variable
- Change BACnet code
- Icon comfort
- Add sysbridge
- o Add library sysbridge extension
- Add a new configuration (2 circuits, 2 compressors on/off per circuit, no expansion)
- Manage the sharing of fans between two circuits
- o Add 2 status variable uiFanControlSignalC1 and uiFanControlSignalC2 instead of uiFanControlSignal
- o Add E2\_xSharedFans (add this parameter in Wizard)
- o Add 2 nets (in SR\_FanCir2Cntrl to assign uiFanControlSignalC2→ uiFanControlSignal and SR\_FanCir1Cntrl to select the max between uiFanControlSignalC2 and uiFanControlSignalC1 if E2\_xSharedFans = TRUE)
- Add Low pressure in BACnet Variables
- Restrict access to "Reset" button on pages Fan, Defrost, Pumps
- Add menu Expert on Configuration
- Add in Logger: Heating resistor, Reversing valve status
- Add E2\_usiDefrostProbe to select the defrost probe (0: Outdoor Air Temp, 1: Sat Suction Temp, 2: Sat Evap temp)
- Add element of enum
- Manage suction
- o Add regulation probe selection in the Wizard menu
- o Add In SR\_CircuitCompCntrl a net which convert the suction pressure in temperature
- o Add Regulation probe selection (inlet water, outlet water, suction probe): E2\_usiRegulProbe, usiRegulProbe
- Add pop-up message "Access Denied" when the access to the page PasswordEdit is not allowed
- Add the password before the access to the wizard page. If the level access is <3, access not allowed → return to the Flash page + Pop-up message "Access Denied"
- In HMI side, type of compressor E2\_uiCompModelCompXCirX can't no more be changed from the menu par General, they are only visible but not selectable.
- Add new network (position 2) in SR\_SystemStatus to force the value of the change mode
- Change wizard menu in Commissioning
- Add in HMI wizard page.
- Add parameter in SR\_Wizard to set the type of machine: usiUnitModel
- Add in in SR\_Wizard global variable xEnHeatCoolSwitching to enable the switching only if the unit is a Chiller-HeatPump
- Add **SR\_Wizard** in Init Tasks
- Sampling time option add to index.page
- Add E2\_xEnDIStandby in parGeneral
- Add xRemoteStandby, xDIStandby and change xLocalStandby in xStandby
- Remove request **switch off?** instead of it put a pop-up page which request if stand-by mode or off is request.
- Change web page: add pages Defrost, Optimum start
- Move xHPLimiterActiveCir1, xLPLimiterActiveCir1, xHPLimiterActiveCir2, xLPLimiterActiveCir2 in alerts.
- Icon HEAT/COOL blink until reversing valve is set at TRUE/FALSE
- Remove from status variables: *udiGraphPointer2*, *pudiDisplayImage2*, *xUpdateImageHMI2*, *uiDisplayImageIndex*, *iDisplayImageIndex*, *xUpdateImageHMI*, *iCountHMIClients*, *pudiDisplayImage*, *xUpdateImageHMIREM*, *uiFree21*, *uiFree22*, *uiFree23*
- QRCode not manage in application but in user interface, change display code (add management of QRString)



- Remove icon PID Limiter from the main page → Add Limiter in the wiring alarms list
- In SR\_CircuitCompCntrl FB\_CircuitMgmt AND PIDAdvanced FB are enable by xEn and xEnPIDRegulCir1 + xEnPIDRegulCir2 (no anymore by the NB of Variables speed compressor usiNbVSCir1 or usiNbVSCir2)
- Add status variable xNbFanActive for hmi
- Add E2\_iWaterSetEcoOffsetCool and E2\_iWaterSetEcoOffsetHeat
- Add management of Local Eco in SR\_WaterSetAndScheduler
- Add as BACnet variables: BAV\_WaterSetEcoOffsetCool, BAV\_WaterSetEcoOffsetHeat, BAV\_WaterSetHeatMode, BAV\_WaterSetCoolMode



#### KNOW ISSUES:

- FB CompMgmt should managed 8 compressors in the same circuit
- Check the default value of each variables (Set default configuration)
- No starting time available for Bitzer stepless
- Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- Thermal power calculation: add subset of parameter to manage different compressor
- Disable page Energy Menu Description if COP is not enabled
- **Dynamic configuration of the frequency for the CR11 compressor**
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block
- Icon optimum start active
- When the scheduler is set, add on the Homepage the scheduler status

#### FIXED:

- Modify in SR\_unit value of the constant CONFIG\_3
- Change in Defrost page, the address of defrost cmd
- In Homepage change GETPARAM function in OnTimerScript, for a USINT variable usiDefrostStatus, use tyUINT instead of tyUSINT
- Page DefrostCir1 and DefrostCir2 add call on the button defrost
- HMI page compressors fixed **reset hours button** for comp 2 in local procedure OnResetCp2Hours
- SR\_FanCir2Cntrl net 0002 replace uiFanControlSignal → uiFanCondControlSignal

| HMI Project                                                                                                                                                                                                                                                                                                                                                    |                             |        |            |     |     |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------|------------|-----|-----|---------|
| <div> <div> <div>Image lists</div> <div>Sets</div> </div> <div> <div>Set_AIFunction</div> <div>Set_AIPosition</div> <div>Set_AIUM</div> <div>Set_AIValue</div> <div>Set_AlarmsName</div> <div>Set_AlarmsNumber</div> <div>Set_AOFunction</div> <div>Set_AOPosition</div> <div>Set_AOUM</div> <div>Set_AOValue</div> <div>Set_CnfAlarmsName</div> </div> </div> |                             |        |            |     |     |         |
| <div> <div>VARIAN</div> <div>STRING</div> <div>Dynamic</div> <div>Array</div> </div>                                                                                                                                                                                                                                                                           |                             |        |            |     |     |         |
| Variable/Parameter                                                                                                                                                                                                                                                                                                                                             |                             | Format | Text align | Min | Max | Visible |
| 1                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp1Cir1 | % 1d   | Right      |     |     | TRUE    |
| 2                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iFanCir1   | % 1d   | Right      |     |     | TRUE    |
| 3                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iPump      | % 1d   | Right      |     |     | FALSE   |
| 4                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp2Cir1 | % 1d   | Right      |     |     | TRUE    |
| 5                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp3Cir1 | % 1d   | Right      |     |     | TRUE    |
| 6                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp4Cir1 | % 1d   | Right      |     |     | TRUE    |
| 7                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp1Cir2 | % 1d   | Right      |     |     | TRUE    |
| 8                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iFanCir2   | % 1d   | Right      |     |     | TRUE    |
| 9                                                                                                                                                                                                                                                                                                                                                              | @LocalParameters.iComp2Cir2 | % 1d   | Right      |     |     | TRUE    |
| 10                                                                                                                                                                                                                                                                                                                                                             | @LocalParameters.iComp3Cir2 | % 1d   | Right      |     |     | TRUE    |
| 11                                                                                                                                                                                                                                                                                                                                                             | @LocalParameters.iComp4Cir2 | % 1d   | Right      |     |     | TRUE    |

## Release 1.07 23-07-2018

### CHANGES:

- Alarms reorganized (it starts at the 12 000 for alarms, it starts at the address 12300 for wiring alarms)
- Add the new parameters in the menu
- Add the last updates of FB HPDefrostAndrRevValve, QRCodeGenerator
- Add SR\_SystemStatus

### HMI Project

- Add new enum (GenModeTypeEnum)
- Update ParGen menus
- Add ParDefrost
- Update Set\_ParFan (@Chiller.E2\_iEvapTempOffsetAtMax, @Chiller.E2\_iEvapTempMin, @Chiller.E2\_iEvapTempMax, @Chiller.E2\_iEvapTempOffsetAtMin doesn't exist)
- Change address of the constant: ADDR\_CP1CIR1\_MOT\_AL, ADDR\_CP1CIR2\_MOT\_AL, ADDR\_CP1CIR1\_OIL\_AL, ADDR\_CP1CIR2\_OIL\_AL, ADDR\_NBONOFFCIR1, ADDR\_NBONOFFCIR2, ADDR\_NBVSCIR1, ADDR\_NBVSCIR2

### KNOW ISSUES:

- FB CompMgmt should managed 8 compressors in the same circuit
- Check the default value of each variables (Set default configuration)
- Manage Alarms
- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- Manage pump suction pressure probe

Set iCurrentWaterTempSet as iSetpoint

Set iChilledWaterTemp as RegulationProbe

- Thermal power calculation: add subset of parameter to manage different compressor
- Disable page Energy Menu Description if COP is not enabled
- Dynamic configuration of the frequency for the CR11 compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block

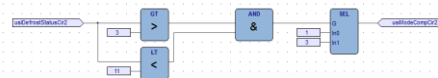
## Release 1.07 12-06-2018 (Chiller-Heat Pump)

### CHANGES:

- Add Programs SR\_EEVCir1Cntrl and SR\_EEVCir2Cntrl
- Changed: iHotWaterTemp → iInletWaterTemp and iChilledWaterTemp → iOutletWaterTemp
- In SR\_Alarms, net 00037, remove uiAlertIDPIDPump
- Updated BACnet Library
- Add the program SR\_DefrostAndrRevValves
- Add parameters E2\_uiDefrostDelay1, E2\_uiDefrostDelay2, E2\_uiDefrostCompValveTime, E2\_uiDefrostValveCompTime, E2\_uiDefrostCpCapCir1, E2\_uiDefrostCpCapCir2
- SR\_CircuitCompCntrl



- Add in the FB\_CompSelector the input usiMode + iManualSetp
- Remove from the FB\_LoadCompln the input usiMode + iManualSetp
- Remove usiModeComp1Cir1, usiModeComp2Cir1, usiModeComp3Cir1, usiModeComp1Cir2, usiModeComp2Cir2, usiModeComp3Cir2
- Add in SR\_CompCir1Cntrl



- In SR\_COPCALCULATION (Probe errors disable COP Calculation)



- ```

- In SR_COPCALCULATION (COP Calculation)
  Change rThermalPower input, rReset input, rThermalEnergy input
- ADD GLOBAL Vars: xDefrostStartCir1, xDefrostStartCir2, iFanCalcEvapTempCir1, iFanCalcEvapTempCir2
- Delete in SR_EEVCir1Cntrl iLocalTEvap1
- Add status variable: iFanEvapTempSetpCir1, iFanEvapTempSetpCir2
- iCurrentWaterTempSet replace E2_iWaterTempSetPoint (FB_AppendLog)
- ADD in SR_Phy2Log
  IF xReversingValveCir1 THEN      (* heat mode *)
      iCondOutTempCir1            := iRMbTM171VEVPb4Cir1;
  ELSE                                (* cool mode *)
      iCondOutTempCir1            := AI_iAIL4;
  END_IF;
- Change SR_Phy2log and SR_Log2Phy

```

- FB CompMgmt should managed 8 compressors in the same circuit
- Check the default value of each variables (Set default configuration)
- Manage Alarms
- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- split initialization of IOs PLC and expansions
- Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- Manage pump suction pressure probe

## Set iChilledWaterTemp as RegulationProbe

- Thermal power calculation: add subset of parameter to manage different compressor
- Disable page Energy Menu Description if COP is not enabled
- Dynamic configuration of the frequency for the CR11 compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block

## Release 1.06 06-06-2018

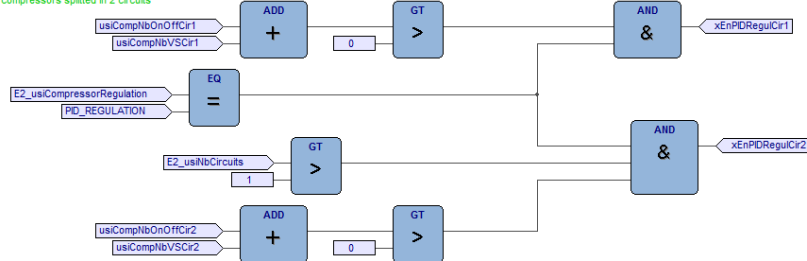
### CHANGES:

- Add FB Pressure Limiter in the program SR\_CircuitCompCntrl
- Add Limiter in the user manual
- Change the icon PID (HMI project, page circuit 1 and circuit 2). Replace it by an animation which displays if the PID is TUNE, LIMITED by HP or LP.

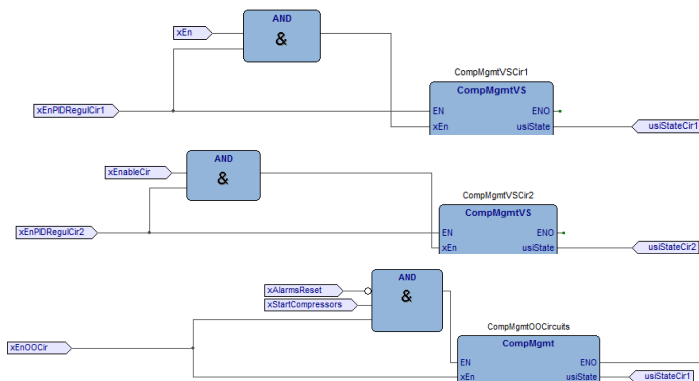
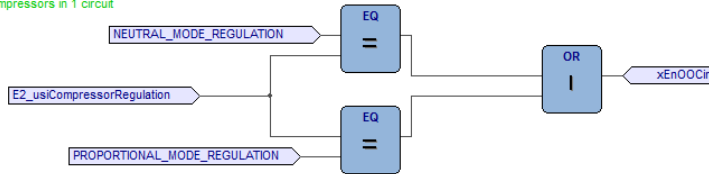
**PID**  
TUNE, LimH, LimL

- Add in the logger file: PID limiter % Cir1, PID limiter % Cir2, LP limits PID Cir1, LP limits PID Cir2, HP limits PID Cir1, HP limits PID Cir2
- Add in the menu Param general: LP limiter diff, HP limiter diff, Enable press Limiter
- Modify QRCode with a string
- Add parameter do disable/enable web - FTP (FOR CYBERSECURITY)
- Logger file header is the same for all configuration (remove the input iconfig from FB AppendData)
- Add E2\_usiCompressorRegulation (values: PID, Neutral Mode, Proportional Mode)
- Add xEnPIDRegulCir1, xEnPIDRegulCir2 and xEnOOCir to enable compressors management circuit FB

**PID Regulation**  
Manages up to 8 compressors splitted in 2 circuits



**NEUTRAL OR PROPORTIONAL MODE regulation**  
Manages only ON/Off compressors in 1 circuit



- FB CompMgmt can managed 4 compressors ON/OFF

### FIXED:

- Alarms displayed on the HMI project

### KNOWN ISSUES:

- FB CompMgmt should managed 8 compressors in the same circuit
- Check the default value of each variables (Set default configuration)
- Manage Alarms

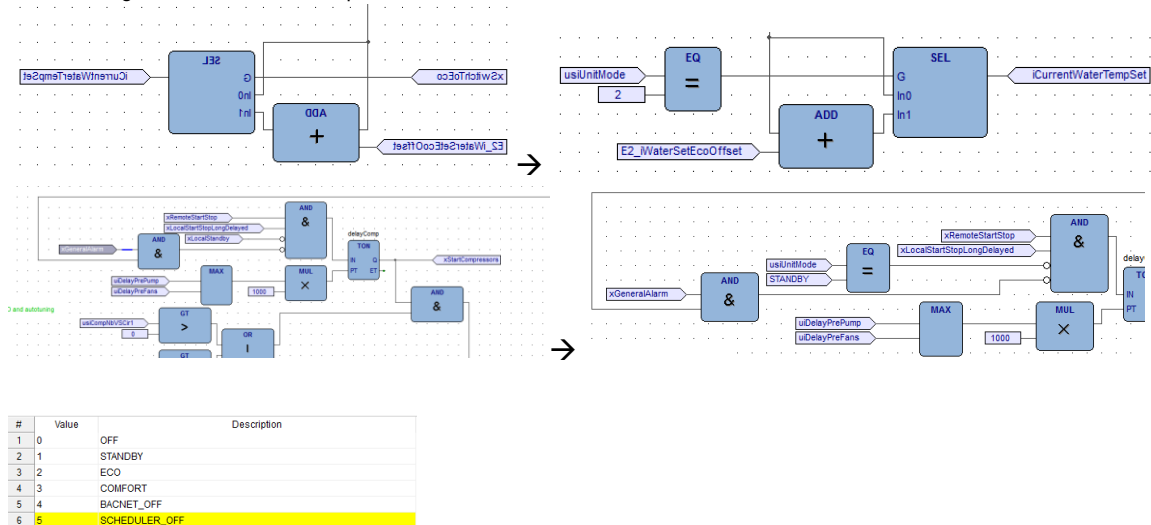


- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- split initialization of IOs PLC and expansions
- Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- Manage pump suction pressure probe
- Set iCurrentWaterTempSet as iSetpoint
- Set iChilledWaterTemp as RegulationProbe
- Thermal power calculation: add subset of parameter to manage different compressor
- Disable page Energy Menu Description if COP is not enabled
- Dynamic configuration of the frequency for the CRII compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block

## Release 1.05 29-05-2018

### FIXED:

- Fixed communication with Nodes and expansions not configured
- In HMI change fixed alarm link to expansions



### CHANGES:

- xSwitchToEco set as global variable (previously a local variable)
- Add E2\_RemoteStartStop, xRemoteStartStop (not an input for all configuration → Only xLocalStartStop assigned as an input)
- Add in menu General usiUnitMode and xPriorityActive
- Add a new Param menu 9. ParBACnet
- Manage Operating mode via an EEPROM Parametes and BACnet Multistate Value
  - o OFF, STANDBY, ECO and ON are managed
  - o On HMI Eco Mode, Standby Mode are now added as icons
  - o Standby mode is now managed by the chiller application.
- Add menu BACnet in submenu Expert
- Add on user interface Machine Status, BACnet Status, Economy comfort
- Add basic BACnet integration (setpoint, on/off scheduler)

### KNOWN ISSUES:

- Check the default value of each variables (Set default configuration)
- Manage Alarms
- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- split initialization of IOs PLC and expansions
- Add parameter do disable/enable web - FTP (FOR CYBERSECURITY)

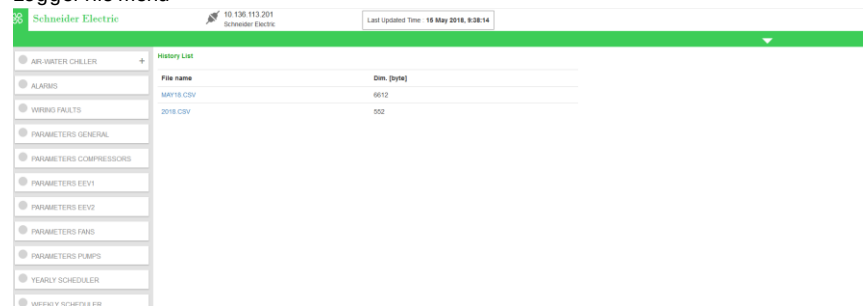
Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)

- Manage pump suction pressure probe
- Set iCurrentWaterTempSet as iSetpoint
- Set iChilledWaterTemp as RegulationProbe
- Thermal power calculation: add subset of parameter to manage different compressor
- Modify QRCode with a string
- Disable page Energy Menu Description if COP is not enabled
- Validate CMP Management OOPCircuit (8 compressor in 1 circuit)
- Dynamic configuration of the frequency for the CR11 compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block

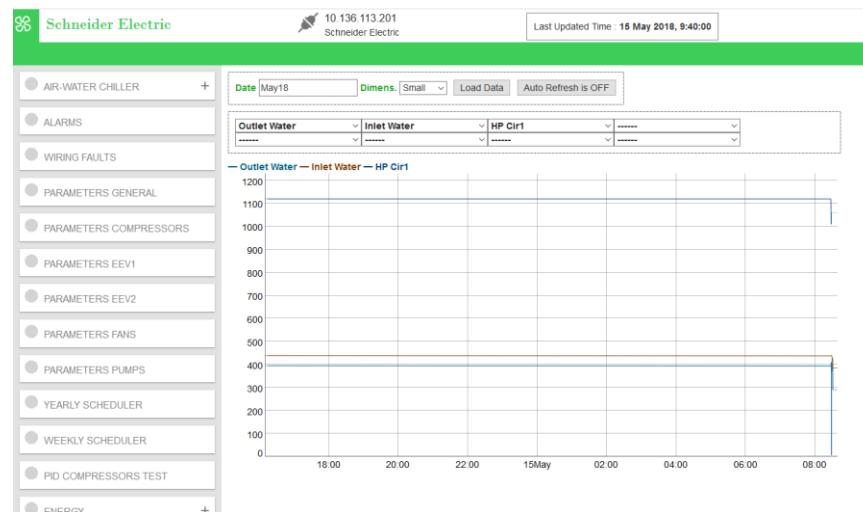
## Release 1.04 13-04-2018

### CHANGES:

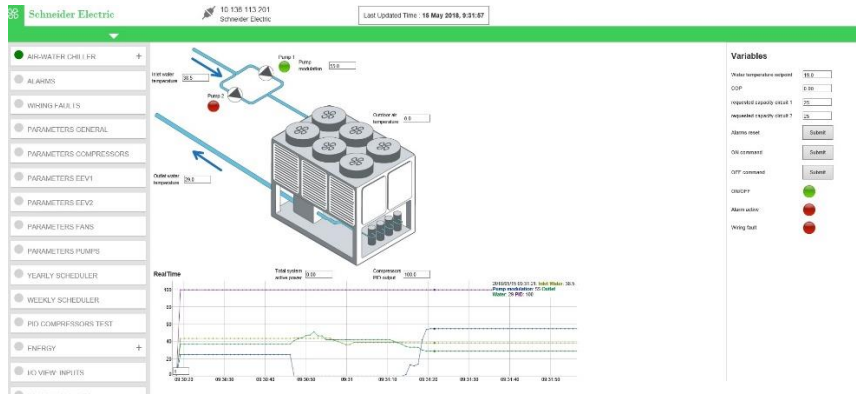
- Update the HMI project, and in particular the name of the variable displayed on the PLC + the menu
- Update Web Server.
- Red LED Signal: when is on → at least one alarm active, when is flashing → at least one re-settable alarm and no alarm active
- In logger status variable LoggerError indicates the state of logger FB instead of the red led
- Add Logger menu in HMI project + Application
- Logger file menu



- Logger menu



- Add a real-time graph plot in page web index



#### Known Issues:

- Check the default value of each variables (Set default configuration)
- Manage Alarms
- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- split initialization of IOs PLC and expansions
- Add parameter do disable/enable web - FTP (FOR CYBERSECURITY)

Enter SoMachine HVAC default credentials (**Username:** administrator, **Password:** password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)

- Manage pump suction pressure probe
- Set iCurrentWaterTempSet as iSetpoint
- Set iChilledWaterTemp as RegulationProbe
- Thermal power calculation: add subset of parameter to manage different compressor
- Modify QRCode with a string
- Disable page Energy Menu Description if COP is not enabled
- Validate CMP Management OOPCircuit (8 compressor in 1 circuit)
- Add basic Bacnet integration (setpoint, onoff scheduler)
- Dynamic configuration of the frequency for the CR11 compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)
- Add keep alive function block
- Add on user interface Machine Status, BACnet Status, Economy comfort

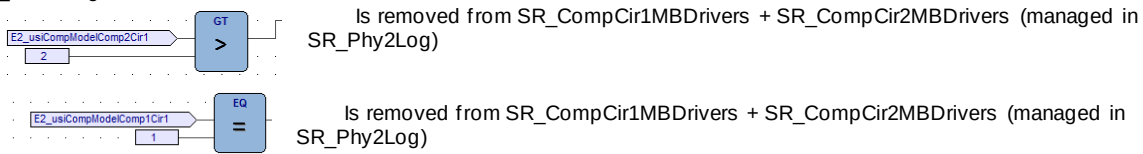
## Release 1.03

12-04-2018

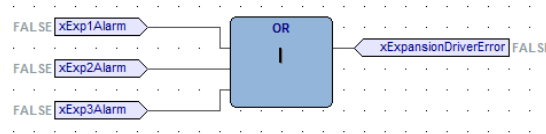
### CHANGES:

- Add a new compressor (Generic Compressor slide FB can manage Bitzer compressor with CRII system, step + stepless)
- iHys input is added in **FB\_CompCtrlGenericSlider**
- Remove Capacity Stage inputs (iLevelStep1, iLevelStep2 and iLevelStep3) from **FB\_Load\_CompIn** + **FB\_GenericSlider**, it's now preset in the function block according to the model
- Update compressor structure stSliderCompIn:
  - o remove capacity stage inputs: iLevelStep1, iLevelStep2 and iLevelStep3
  - o Add iHys + iMinDuty
- Add web server files
- ~~Change SR\_FanCtrl uifanLowNoiseMaxFreq default value~~
- Set default FullScaleMax and FullScaleMin value according to the probe model (E2\_usiProbe)
- Add new menu (Probe) which contains:
  - o Probe Model (E2\_usiProbe)
  - o Max value (E2\_Cfg\_FullScaleMax)
  - o Min value (E2\_Cfg\_FullScaleMin)
- Add in SR\_init program the setting of PLC EEPROM parameters according to the IOs config + Probes model
- Add new I/O configuration, config 1 and default config modes (the previous one implemented) are available + EEPROM Parameter E2\_usiConfigIO
- Change bloc 0067 in the program SR\_Alarm: change OR in AND to disable the alarm when the energy meter is not present
- xEnergyMeterPresence Enable/disable FB EnergyTrend + COPCalculation

- Add EEPROM parameter E2\_xEnergyMeterPresence
- Add EEPROM parameter E2\_xEnableInverterMB
- Add EEPROM parameter E2\_xEnableSoftStartMB
- Add EEPROM parameter E2\_xEnableFanMB
- Add EEPROM parameter E2\_xEnableTM171VEV
- USER INTERFACE\ ENERGY TREND: replace ~~Daily~~ with Daily
- USER INTERFACE\ ENERGY TREND: replace ~~Monthly~~ with Monthly
- Enable/Disable Expansion Valve calculation parameters (xExpansionValvePresenceCir1 + xExpansionValvePresenceCir2)
- Change default values of xEnableModbusCompXcirX in FALSE (For each compressor per circuit)
- Variable added in the menu ParComp:
  - o E2\_xEnableInverterMB
  - o E2\_xEnableSoftStartMB
  - o E2\_xEnergyMeterPresence
  - o E2\_xEnableTM171VEV
  - o E2\_usiConfigIO



- xTEvapFromTM171VEV not a constant anymore: disabled if the expansion valve is not used
- Update connection File
- Modify IOs position in **default configuration** for PLC and EXPANSION 1
- Change in LoadCompIn assignation of @compIn.usiCompModel
- Add Hysteresis in Generic Compressor Slider FB
- It manages for each circuit:
  - a) 1 On/Off step compressor + 1 On/Off compressor
  - b) 2 On/Off Compressor
  - c) 1 VS
  - d) 1 vs + 1 On/Off
- Add the variable xExp1Alarm, xExp2Alarm, xExp3Alarm... xExp12Alarm
- Add EEPROM Parameters E2\_xExp1Used, E2\_xExp2Used... E2\_xExp12Used + in the menu ParComp
- Add SR\_ExpManager Program. It switches on alarms xExp1Alarm (for each expansion from 1 up to 12) if E2\_xExp1Used (from 1 to 12) is True and the corresponding expansion (in this case Expansion 1) is connected
- In config 1 xAlarmThermBlockPump2 set automatically to TRUE
- In config 1 **LOCAL START STOP (DI)** set automatically to TRUE
- Add in Config 1 xAlarmComp2Cir1(Expansion DI2) + xAlarmComp2Cir2 (Expansion DI3) in SR\_Phy2Log
- Change E2\_uiPauseTimeY3 and E2\_uiPauseTimeY4 in E2\_uiPeriodTimeY3 and E2\_uiPeriodTimeY4
- Change unit of E2\_uiValve100Time, E2\_uiDelayPartWinding, E2\_uiPeriodTimeY3, E2\_uiPeriodTimeY4, E2\_uiPulseTimeY3, E2\_uiPulseTimeY4
- Replace Compgmt with the last update as in SOM 2.4
- Change IO forms from physical to logical.
- Remove local var name in setting menu and replace with parameter codes.
- Added Compressor selector parameter (Forms Par Compressor)
- Create the variable xExpansionDriverError (Below, alarm expansion management)



**Config 2**

| Logical ID | DIGITAL OUTPUTS | DIGITAL INPUTS           | ANALOG INPUTS                     | ANALOG OUTPUTS    |
|------------|-----------------|--------------------------|-----------------------------------|-------------------|
| 1          | PUMP1           | ALARM COMP1 CIR1         | CHILLED WATER TEMP (Water outlet) | INV COND FAN CIR1 |
| 2          | PUMP2           | ALARM COMP2 CIR1         | HOT WATER TEMP (Water inlet)      | INV PUMP          |
| 3          | GENERAL ALARM   | ALARM COMP3 CIR1         | OUT DOOR AIR TEMP                 | COMP1 Y3 CIR1     |
| 4          | FAN 1 CIR1      | ALARM COMP4 CIR1         | COND OUT TEMP CIR1                | COMP1 Y4 CIR1     |
| 5          | FAN 2 CIR1      | HP SWITCH CIR.1          | EMERGENCY STOP (DI)               | INV COMP1 CIR1    |
| 6          | FAN 3 CIR1      | LP SWITCH CIR.1          | LOCAL START STOP (DI)             | Not Used          |
| 7          | FAN 4 CIR1      | ALARM THERM BLOCK PUMP 1 | XREMOTESTARTSTOP (DI)             |                   |
| 8          | SOLENOID CIR1   | ALARM THERM BLOCK PUMP 2 | PUMP FLOW SWITCH (DI)             |                   |
| 9          | COMP1 CIR1      | ALARM COND FAN1 CIR1     | EVAP OUT TEMP CIR1                |                   |
| 10         | COMP2 CIR1      | ALARM COND FAN2 CIR1     | Not Used                          |                   |
| 11         | COMP3 CIR1      | ALARM COND FAN3 CIR1     | HIGH PRESSURE CIR 1               |                   |
| 12         | COMP4 CIR1      | ALARM COND FAN4 CIR1     | LOW PRESSURE CIR 1                |                   |

If the Evaporating Valve is not present, these values (EVAP OUT TEMP CIR1 and LOW-PRESSURE CIR 1) are set from AIs.

**Default config**

| Logical ID | DIGITAL OUTPUTS | DIGITAL INPUTS           | ANALOG INPUTS                     | ANALOG OUTPUTS    |
|------------|-----------------|--------------------------|-----------------------------------|-------------------|
| 1          | PUMP1           | ALARM COMP1 CIR1         | CHILLED WATER TEMP (Water outlet) | INV COND FAN CIR1 |
| 2          | PUMP2           | ALARM COMP2 CIR1         | HOT WATER TEMP (Water inlet)      | INV PUMP          |
| 3          | GENERAL ALARM   | ALARM COMP3 CIR1         | OUT DOOR AIR TEMP                 | COMP1 Y3 CIR1     |
| 4          | FAN 1 CIR1      | ALARM COMP4 CIR1         | COND OUT TEMP CIR1                | COMP1 Y4 CIR1     |
| 5          | FAN 2 CIR1      | HP SWITCH CIR.1          | EMERGENCY STOP (DI)               | INV COMP1 CIR1    |
| 6          | FAN 3 CIR1      | LP SWITCH CIR.1          | LOCAL START STOP (DI)             | Not Used          |
| 7          | FAN 4 CIR1      | ALARM THERM BLOCK PUMP 1 | XREMOTESTARTSTOP (DI)             |                   |
| 8          | SOLENOID CIR1   | ALARM THERM BLOCK PUMP 2 | XCOMMON ALARM (DI)                |                   |
| 9          | COMP1 CIR1      | ALARM COND FAN1 CIR1     | PUMP FLOW SWITCH (DI)             |                   |
| 10         | COMP2 CIR1      | ALARM COND FAN2 CIR1     | Not Used                          |                   |
| 11         | COMP3 CIR1      | ALARM COND FAN3 CIR1     | HIGH PRESSURE CIR 1               |                   |
| 12         | COMP4 CIR1      | ALARM COND FAN4 CIR1     | LOW PRESSURE CIR 1                |                   |
| 1          | COMP1 CIR2      | ALARM COMP1 CIR2         | Not Used                          | COND FAN CIR2     |
| 2          | COMP2 CIR2      | ALARM COMP2 CIR2         | COND OUT TEMP CIR2                | INV COMP1 CIR2    |
| 3          | COMP3 CIR2      | ALARM COMP3 CIR2         | ALARM COND FAN1 CIR2 (DI)         |                   |
| 4          | COMP4 CIR2      | ALARM COMP4 CIR2         | ALARM COND FAN2 CIR2 (DI)         |                   |

|    |               |                 |                           |  |
|----|---------------|-----------------|---------------------------|--|
| 5  | SOLENOID CIR2 | HP SWITCH CIR.2 | ALARM COND FAN3 CIR2 (DI) |  |
| 6  | FAN 1 CIR2    | LP SWITCH CIR.2 | ALARM COND FAN4 CIR2 (DI) |  |
| 7  | FAN 2 CIR2    |                 | HIGH PRESSURE CIR 2       |  |
| 8  | FAN 3 CIR2    |                 | LOW PRESSURE CIR 2        |  |
| 9  | FAN 4 CIR2    |                 | EVAP OUT TEMP CIR1        |  |
| 10 | Not Used      |                 | Not Used                  |  |

### Config 1

- It manages for each circuit
  - o 2 ON/OFF
  - o 1 VS + 1 OFF
  - o 1 Screw step (25-100 or 50-100) (+ 1 ON/OFF)
  - o 1 Screw Stepless (+ 1 ON/OFF)

| Logical ID | DIGITAL OUTPUTS    | DIGITAL INPUTS                      | ANALOG INPUTS                       | ANALOG OUTPUTS    |
|------------|--------------------|-------------------------------------|-------------------------------------|-------------------|
| 1          | COMP1 CIR1         | ALARM COMP1 CIR1                    | CHILLED WATER TEMP                  | INV COMP1 CIR1    |
| 2          | COMP.1 STEP 1 CIR1 | ALARM COMP1 CIR2                    | HOT WATER TEMP                      | INV COMP1 CIR2    |
| 3          | COMP.1 STEP 2 CIR1 | ALARM COND FAN1 CIR1                | HIGH PRESSURE CIR.1                 | COMP1 CR3 CIR1    |
| 4          | COMP.1 STEP 3 CIR1 | ALARM COND FAN2 CIR1                | HIGH PRESSURE CIR.2                 | COMP1 CR4 CIR1    |
| 5          | COMP1 CIR2         | ALARM COND FAN3 CIR1                | LOW PRESSURE CIR.1                  | INV COND FAN CIR1 |
| 6          | COMP.2 STEP 1 CIR2 | ALARM COND FAN4 CIR1                | LOW PRESSURE CIR.2                  | INV COND FAN CIR2 |
| 7          | COMP.2 STEP 2 CIR2 | ALARM COND FAN1 CIR2                | ALARM THERM BLOCK PUMP 1 (DI)       |                   |
| 8          | COMP.2 STEP 3 CIR2 | ALARM COND FAN2 CIR2                | PUMP FLOW SWITCH (DI)               |                   |
| 9          | FAN 1 CIR1         | ALARM COND FAN3 CIR2                | HP SWITCH CIR.2 (DI)                |                   |
| 10         | FAN 2 CIR1         | ALARM COND FAN4 CIR2                | LP SWITCH CIR.2 (DI)                |                   |
| 11         | FAN 3 CIR1         | HP SWITCH CIR.1                     | OIL PRESSURE SWITCH COMP1 CIR1 (DI) |                   |
| 12         | FAN 4 CIR1         | LP SWITCH CIR.1                     | OIL PRESSUR SWITCH COMP1 CIR2 (DI)  |                   |
| 1          | FAN 1 CIR2 (EXP.)  | XREMOTESTARTSTOP                    | Not Used                            | COMP1 CR3 CIR2    |
| 2          | FAN 2 CIR2 (EXP.)  | ALARM COMP2 CIR1                    | Not Used                            | COMP1 CR4 CIR2    |
| 3          | FAN 3 CIR2(EXP.)   | ALARM COMP2 CIR2                    | Not Used                            |                   |
| 4          | FAN 4 CIR2(EXP)    | OIL PRESSURE SWITCH COMP2 CIR1 (DI) | Not Used                            |                   |
| 5          | PUMP 1(EXP)        | OIL PRESSUR SWITCH COMP2 CIR2 (DI)  | Not Used                            |                   |
| 6          | COMP2 CIR1(EXP)    | Not Used                            | Not Used                            |                   |
| 7          | COMP2 CIR2(EXP)    |                                     | Not Used                            |                   |
| 8          | GENERAL ALARM      |                                     | Not Used                            |                   |
| 9          | Not Used           |                                     | Not Used                            |                   |
| 10         | Not Used           |                                     | Not Used                            |                   |

|  |             |
|--|-------------|
|  | PLC         |
|  | Expansion 1 |

### Known Issues:

- Check the default value of each variables (Set default configuration)
- Update the HMI project, and in particularly the name of the variable displayed on the PLC + the menu
- Manage Alarms
- No starting time available for Bitzer stepless
- General Alarm not active when alarm Low pressure cir1 and 2 are set on
- Update Web Server as in HMI prj.
- split initialization of IOs PLC and expansions
- Add parameter do disable/enable web

- TODO for Red LED Signal: when is on → at least one alarm active, when is flashing → at least one re-settable alarm and no alarm active
- Manage pump suction pressure probe
- Set iCurrentWaterTempSet as iSetpoint
- Set iChilledWaterTemp as RegulationProbe
- Thermal power calculation: add subset of parameter to manage different compressor
- Modify QRCode with a string
- Disable page Energy Menu Description if COP is not enabled
- Validate CMP Management OOPCircuit (8 compressor in 1 circuit)
- Enter SoMachine HVAC default credentials (**Username**: administrator, **Password**: password): the web site main page is displayed. (TODO modify the string Username Password: with a parameter)
- TODO add a subset of parameter to manage different compressor
- (TODO change to setpoint to do abstraction Pressure/temperature)
- (TODO change to regulation probe to do abstraction Pressure/temperature)
- (TODO change Status Variable)
- Add basic BACnet integration (setpoint, onoff scheduler)
- Dynamic configuration of the frequency for the CRII compressor
- Config 1, move DO8 GENERAL ALARM from the expansion to the PLC (To be confirmed)

## Release 1.02      21-02-2018

### CHANGES:

- HMI project updated:
- Add new compressor in the enum usiCompModel (BITZER\_CRII)
- Add in the existing HMI project all changes (Variables) made on the Application project
- Update web template IOs (but not generate)
- Review I/O base configuration and update connection file able to manage for each circuit
  - a) 4 On/Off compressors
  - b) 1 VS or Screw stepless + 3 or less on/Off

| Logical ID | DIGITAL OUTPUTS | DIGITAL INPUTS                  | ANALOG INPUTS                     | ANALOG OUTPUTS    |
|------------|-----------------|---------------------------------|-----------------------------------|-------------------|
| 1          | PUMP1           | ALARM COMP1 CIR1                | CHILLED WATER TEMP (Water outlet) | INV COND FAN CIR1 |
| 2          | PUMP2           | ALARM COMP2 CIR1                | HOT WATER TEMP (Water inlet)      | INV PUMP          |
| 3          | GENERAL ALARM   | ALARM COMP3 CIR1                | HIGH PRESSURE CIR 1               | COMP1 Y3 CIR1     |
| 4          | FAN 1 CIR1      | ALARM COMP4 CIR1                | OUT DOOR AIR TEMP                 | COMP1 Y4 CIR1     |
| 5          | FAN 2 CIR1      | HP SWITCH CIR.1                 | COND OUT TEMP CIR1                | INV COMP1 CIR1    |
| 6          | FAN 3 CIR1      | LP SWITCH CIR.1                 | EMERGENCYSTOP (DI)                | Not Used          |
| 7          | FAN 4 CIR1      | ALARM THERM BLOCK PUMP 1        | LOCAL START STOP (DI)             |                   |
| 8          | SOLENOID CIR1   | ALARM THERM BLOCK PUMP 2        | XREMOTESTARTSTOP (DI)             |                   |
| 9          | COMP1 CIR1      | ALARM COND FAN1 CIR1            | XCOMMONALARM (DI)                 |                   |
| 10         | COMP2 CIR1      | ALARM COND FAN2 CIR1            | PUMP FLOW SWITCH (DI)             |                   |
| 11         | COMP3 CIR1      | ALARM COND FAN3 CIR1            | Not Used                          |                   |
| 12         | COMP4 CIR1      | ALARM COND FAN4 CIR1            | Not Used                          |                   |
| 1          | COMP1 CIR2      | ALARM COMP1 CIR2                | HIGH PRESSURE CIR 2               | COND FAN CIR2     |
| 2          | COMP2 CIR2      | ALARM COMP2 CIR2                | COND OUT TEMP CIR2                | INV COMP1 CIR2    |
| 3          | COMP3 CIR2      | ALARM COMP3 CIR2                | ALARM COND FAN1 CIR2 (DI)         |                   |
| 4          | COMP4 CIR2      | ALARM COMP4 CIR2                | ALARM COND FAN2 CIR2 (DI)         |                   |
| 5          | SOLENOID CIR2   | HP SWITCH CIR.2                 | ALARM COND FAN3 CIR2 (DI)         |                   |
| 6          | FAN 1 CIR2      | LP SWITCH CIR.2                 | ALARM COND FAN4 CIR2 (DI)         |                   |
| 7          | FAN 2 CIR2      |                                 | Not Used                          |                   |
| 8          | FAN 3 CIR2      |                                 | Not Used                          |                   |
| 9          | FAN 4 CIR2      |                                 | Not Used                          |                   |
| 10         | Not Used        |                                 | Not Used                          |                   |
| 1          | PW COMP1 CIR1   | OIL PRESSURE SWITCH COMP1 CIR.1 | Not Used                          | Not Used          |
| 2          | COMP1 Y1 CIR1   | OIL PRESSURE SWITCH COMP2 CIR.1 | Not Used                          | Not Used          |



|    |               |                                    |          |               |
|----|---------------|------------------------------------|----------|---------------|
| 3  | COMP1 Y2 CIR1 | OIL PRESSURE SWITCH<br>COMP3 CIR.1 | Not Used |               |
| 4  | PW COMP2 CIR1 | OIL PRESSURE SWITCH<br>COMP4 CIR.1 | Not Used |               |
| 5  | COMP2 Y1 CIR1 |                                    | Not Used |               |
| 6  | COMP2 Y2 CIR1 |                                    | Not Used |               |
| 7  | COMP2 Y3 CIR1 |                                    | Not Used |               |
| 8  | COMP2 Y4 CIR1 |                                    | Not Used |               |
| 9  | Not Used      |                                    | Not Used |               |
| 10 | Not Used      |                                    | Not Used |               |
| 1  | PW COMP1 CIR2 | OIL PRESSURE SWITCH<br>COMP1 CIR.2 | Not Used | COMP1 Y3 CIR2 |
| 2  | COMP1 Y1 CIR2 | OIL PRESSURE SWITCH<br>COMP2 CIR.2 | Not Used | COMP1 Y4 CIR2 |
| 3  | COMP1 Y2 CIR2 | OIL PRESSURE SWITCH<br>COMP3 CIR.2 | Not Used |               |
| 4  | PW COMP2 CIR2 | OIL PRESSURE SWITCH<br>COMP4 CIR.2 | Not Used |               |
| 5  | COMP2 Y1 CIR2 | Not Used                           | Not Used |               |
| 6  | COMP2 Y2 CIR2 | Not Used                           | Not Used |               |
| 7  | COMP2 Y3 CIR2 |                                    | Not Used |               |
| 8  | Not Used      |                                    | Not Used |               |
| 9  | Not Used      |                                    | Not Used |               |
| 10 | Not Used      |                                    | Not Used |               |

|  |             |
|--|-------------|
|  | PLC         |
|  | Expansion 1 |
|  | Expansion 2 |
|  | Expansion 3 |

#### KNOWN ISSUES:

- Manage Hysteresis for Compressor Generic slider (step transition)

## **Release 1.01      15-02-2018**

### CHANGES:

- Add program SR\_CompCir2Config, SR\_CompCir2MBDrivers and SR\_InitCompCir2
- Add the possibility to enable/disable oil recovery management

### BUG FIXES:

- Use of a second circuit

### Known Issues:

- Digitals and analogs, I/O must be reviewed

## **Release 1.00      30-08-2017**

### CHANGES:

- Add FB Compressor selector
- Add compressor structures
- Add usiCompModel (enum of compressors models)
- Add parameters for oil management (Parameters uiOilRecoveryPeriod, uiOilRecoveryTime)
- Add FB\_LoadCompIn
- Add FB\_LoadCompOut
- Add program SR\_CompCir1Config, SR\_CompCir1MBDrivers and SR\_InitCompCir1
- Add FB\_CompCounterType