SEC61X-R6 – Superheat Controller

Technical Bulletin – 2409

By the present technical bulletin, we would like to inform you about the release of the R6 version of SEC61X superheat controller range. The release of this version mark also the phase out of the R4 version. Below you will find all the updates in details.

1) Standardization of the range

To limit the number of references, the European and US version will share the same reference. On the display both unit (metric & imperial) will be available.

R4 version	R6 version
SEC611-R4 (metric), SEC613-R4 (imperial)	SEC611-R6 (metric + imperial, metric as default)
SEC612-R4 (metric), SEC614-R4 (imperial)	SEC612-R6 (metric + imperial, metric as default)

Unit display:



2) Power supply

Until now SEC612-R4 version had to be supplied with 24Vdc only, with the new R6 version it can also accept 24Vac.



TECHNICAL BULLETIN



3) EBV controls

With the R6 version, it is now possible to controls the Electric ball valve. R&D have included the possibility to change via parameters the direction of the valve, which was mandatory when selecting the custom mode (2-2 Phase EEV controls). With R4 version we had to use a different coil otherwise the valve would run in opposite direction. With R6 version it is now possible to use the same coil as DPF(TS) or LPF for EBV when we try to control it with SEC.

4) Refrigerant

The following refrigerants have been added in the menu, which bring the total amount of refrigerant available to 36.

R600, R1270, R1233zdE, R1234zeZ, R452C, R454A, R457A

There is also the possibility to customize the refrigerant through Modbus.

5) 0,5-4,5V Pressure sensor

On SEC611-R4 it was only possible to use ratiometric YCQB pressure transducers with 0,5-3,5V signal which is an issue when customer must find a solution of replacement. Today with the R6 version, it is also possible to use standard YCQB with 0,5-4,5V signal. Longer cable length will be proposed with Packard connectors. Default value still remains with 0,5-3,5V type.

6) Super capacitor SP02

The supercapacitor SP02 is replacing SP01. The new supercap is more compact, indeed, it will be proposed with the SEC6 housing and will be more competitive in term of price. Additionally, to this, SP02 will allow to close 2 EEVs or close 1 EEV 2 times in case of repeating power failure. SP02 will also be used on other controllers from Sanhua such as the REVO range. SP01 is therefore phased out.



TECHNICAL BULLETIN

SANHUA

7) Front panel print

The version will not be shown at the front but only laser printed on the back side, to make the sticker standard (stock issue)



8) Pressure regulation

With the R6 version it is now possible to control the pressure from a single sensor input signal. The new version is capable of regulating Condensing/Suction/Evaporating Pressure or hot gas bypass. A dedicated dip switch has been added to the controller to manage this function

ON 1 2 3 4 5	↓						
	ON	1	2	3	4	5	

9) Additional changes

In the table below you will find the additionnal changes included in the R6 version.

Function	R4 version	R6 version
Algorithm		Improved superheat algorithm especially adapted for rack and CDU application where unequal liquid distribution happened to the evaporators. The improvement has been successfully tested.
NTC sensor	Only 1 choice of temperature sensor NTC 5K(β=3970K)(-40~105)°C	3 choices of temperature sensor NTC 5K (β =3970K) (-40~105) °C NTC 10K (β =3977K) (-40~150) °C NTC 10K (β =3435K) (-50~110) °C (typical Copeland/Emerson one)
Modbus	15 different RS485 communication protocols	30 different RS485 communication protocols new function: enable to run 0x10 batch write instructions
SH alarm	Low SH alarm: default value is 1 = active	Low SH alarm: default value is 0 = Not active
Sensor alarm	Alarm of pressure sensor short cut is not availlable	Alarm of pressure sensor short cut is available, by default is Not active

3

TECHNICAL BULLETIN

SANHUA

Sensor failure	Sensor failure safe (Temperature, Pressure): Not available	Sensor failure safe (Temperature, Pressure): yes by default, is to open the EEV at 50% (configurable)
RS485	Cannot drive the EEV via PS485 in drive mode	
controls		Optional to drive the EEV via RS485 in drive mode
Step rate	EEV closing speed at power failure is 30pps (need	EEV closing speed at power failure is 90pps (to work with
	UltraCap.)	SP02)
Fastening	When user was removing the controller from the	Improved design allowing to reinstall easily the controller
	rail, it was not possible to put it again.	on the rail.

If you need more support, please contact your local TM.

At your disposal, TM team.