

# Subcool Control

## Electric Expansion Valve Controller



- Monitors and Controls Superheat and Subcooling
- Precise EEV Control
- 16 Different Refrigerants
- Multiple Selectable Sensor and Transducer Curves

Traditional methods of subcooling liquid for refrigeration applications involve multiple valves, complex piping and limited control accuracy. The Subcool Control saves installation cost by reducing and simplifying piping, and controlling more precisely.

In mechanical subcooling systems, typically there are two expansion valves, one evaporator pressure regulator (EPR) and two solenoid valves. Also part of the system is a controller or thermostat to stage the valves.

The Subcool Control requires only an Electric Expansion Valve (EEV), a pressure transducer and two temperature sensors. An EPR is recommended to ensure stable evaporator pressure.

The pressure transducer and one of the temperature sensors is used to measure and maintain a safe superheat level. The second sensor is used to measure and maintain liquid temperature within a much tighter tolerance than available with mechanical controls.

Steady liquid temperatures allow the system to remain stable under changes in loads, suction and head pressure.

Cooler liquid has a higher Net Refrigerating Effect (NRE) and lowers the work the compressors need to do, increasing the efficiency of these large energy consumers.



### Product Benefits:

- Proper subcooling can reduce system energy consumption by reducing the mass flow rate - which means less compressor run time.
- Less compressor run time also means less wear and tear on compressors - thus extending their life.
- Proper subcooling provides a more efficient system which can allow for component downsizing, quick pull-down of temperatures and more uniform refrigerating temperatures.
- Remote access and control via the integrated RS-485 Modbus® connection provides for easier setup and optimum control of the subcooling system.

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## Specifications:

### Electrical

- Supply Voltage:  
20-26VAC 50/60Hz or  
22-26.6VDC; Class II
- Digital Inputs:  
0-5VDC Max Range, Interface to  
dry contact or open collector
- Analog Inputs:  
4X Temperature Sensors 2Kohm  
(3Kohm optional)  
1X Pressure Transducer .5 - 4.5VR
- Digital Display:  
LED - Red, 7 segment, 4 digit
- Indicators: LED - Red, Power
- User Interface: Optical Encoder
- Data Interface: RS-485, Modbus


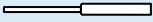


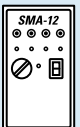
### Mechanical

- Operating Temperature:  
-40°F to 158°F (-40°C to 70°C)
- Humidity:  
0-95%RH (Non-condensing)
- Enclosure: PC - Light Gray
- Wiring: Screw terminal
- Mounting: DIN RAIL - EN 50 022

### Compliance

- Environmental: RoHS, WEEE
- Safety:  
CE, UL/CUL (Recognized per 873)  
FCC (Class A, part 15), C-tick

## Components and Accessories:

Product	Description	Item Number
Subcool Control 	Standalone Subcool Controller	952570
Temperature Surface Sensor 	2K External Sensing Bulb (Used with or without well) Nickel plated brass housing	952662
	3K External Sensing Bulb (Not used with well) Brass housing	952551
Temperature Well Sensor Kit 	2K Internal Sensing Element Brass well with nickel plated brass housing	952795
	3K Internal Sensing Element Brass well with stainless steel housing	953156
	Brass well (no sensor)	952969
Pressure Transducer 	150 psia Pressure Transducer Kit Includes 5 meter cable	952995
	150 psig Pressure Transducer Kit Includes 5 meter cable	953092
	150 psig Pressure Transducer Kit Includes 2 meter cable	953091
	150 psig Pressure Transducer (no cable)	952572
	300 psia Pressure Transducer Kit Includes 2 meter cable (R-410A applications only)	952739
	300 psig Pressure Transducer Kit Includes 2 meter cable (R-410A applications only)	952740
	300 psia Pressure Transducer (no cable) (R-410A applications only)	952574
	500 psia Pressure Transducer (no cable) (R-744 applications only)	952576
	Cable - 5 Meters	953100
	Cable - 2 Meters	953192
SMA-12 	Handheld Digital Test Instrument	953276

Transducer selection is based on which refrigerant is selected.  
(R-744 is 500 psi, R-410A is 300 psi, and all others are 150 psi.)

## Wiring Diagram:

