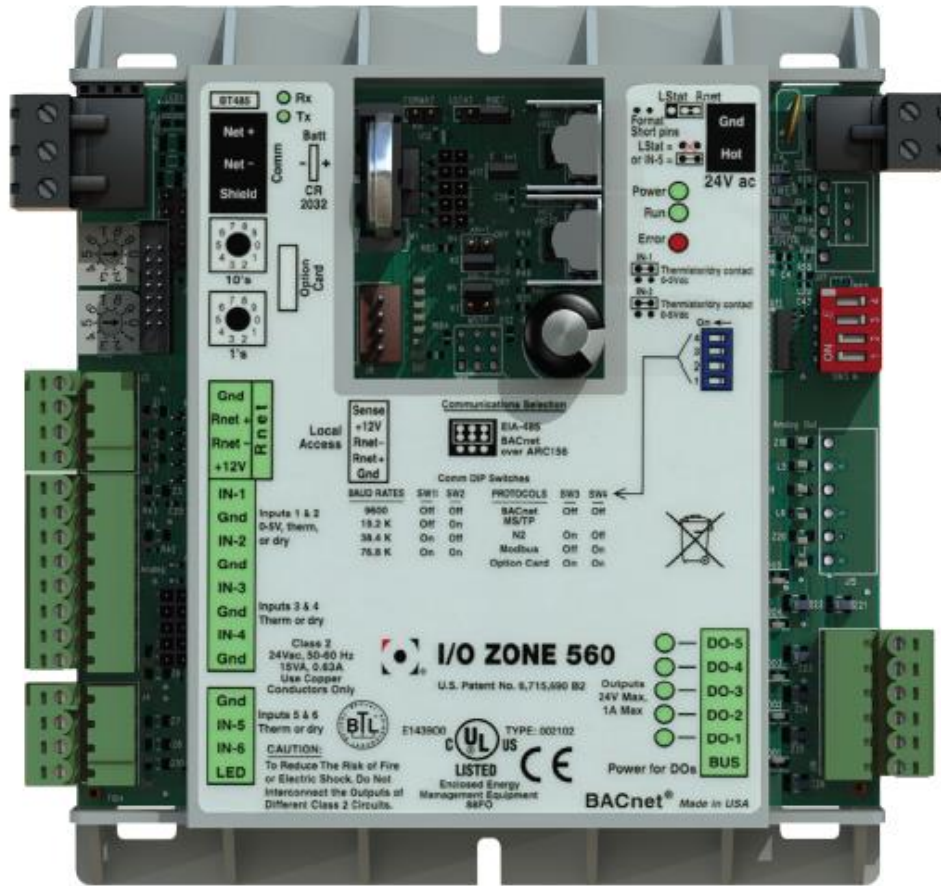# New Paragon^{TM}Slide Valve Controller (PCM)

New Paragon™ Kits

Paragon Capacity Control and Protection Module Kits
**2BSB000928 PCM Controller included in Kit

Part #	Description	Application
2BSB000928	PCM Controller	All Paragon Compressors
**6BSB000929	High Temp Paragon Controller Kit	R134A
**6BSB000930	Low Temp Paragon Controller Kit	R404A
6BSB000931	Transducer Kit	Required if Control Variable is Pressure
USB-L	PCM Interface Cable	Cable Interface between Controller and Laptop.

Paragon™ Slide Valve Controller Package 6BSB000929 & 6BSB000930
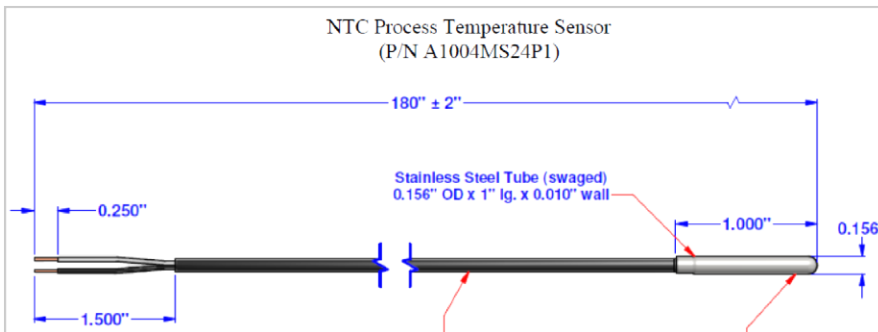
Carlyle Controller Part No. 2BSB000928

Oil Level Switch/Sensor (115 or 230 Vac)
P/N 8CCB000743 & 8CCB000744
P/N 8CCB000742

115V/230V

Discharge Temperature Sensor
P/N 00PPG000008105

NTC Process Temperature Sensor
(P/N A1004MS24P1)

Reverse Rotation Module
P/N P251-0030

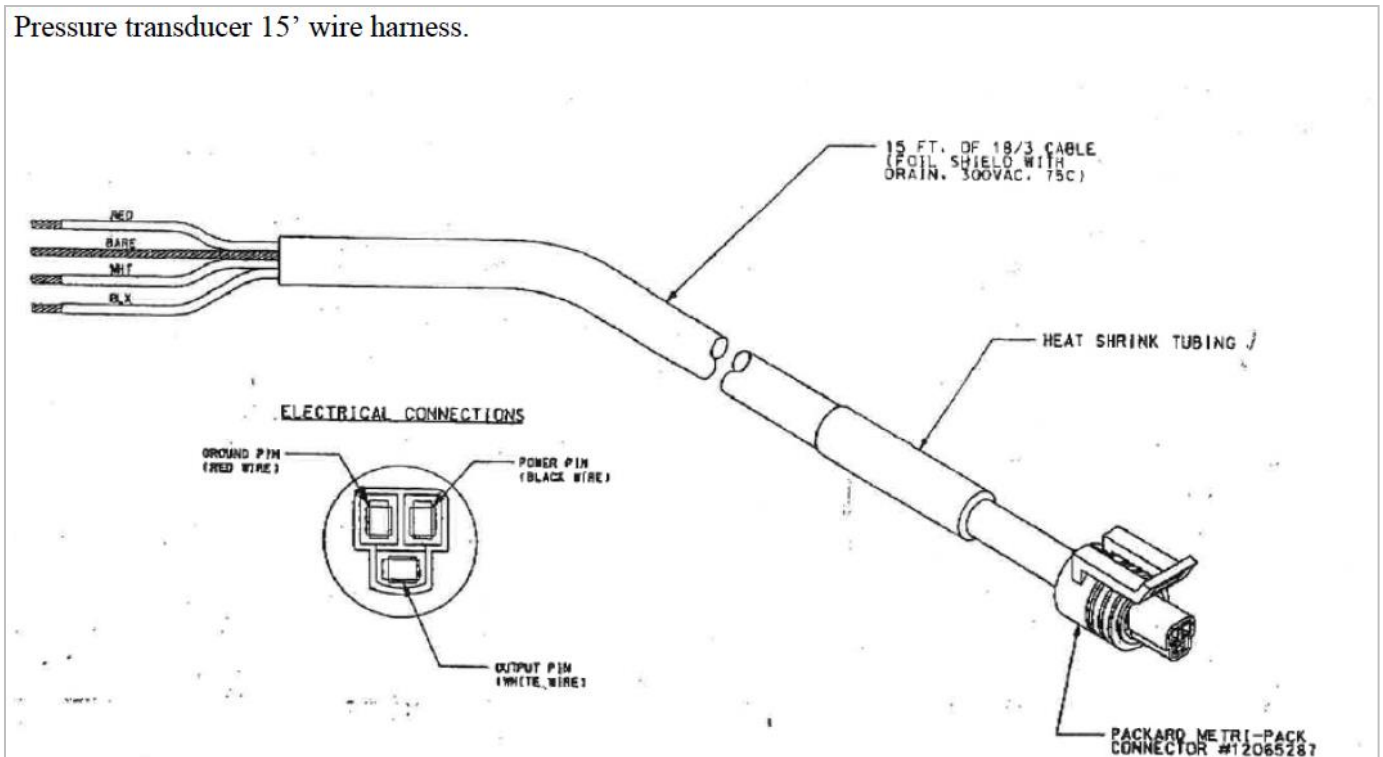Flow Switch
P/N 8BSB000475 and 8BSB000605

Paragon^{TM} Slide Valve Pressure Transducer Kit 6BSB000931

5 VDC Pressure Transducer

P/N: HK05YZ0003

Pressure transducer 15' wire harness.

RED
BARE
WHT
BLK

15 FT. OF 18/3 CABLE
(FOIL SHIELD WITH
DRAIN. 300VAC. 75C)

HEAT SHRINK TUBING

ELECTRICAL CONNECTIONS

GROUND PIN
(RED WIRE)

POWER PIN
(BLACK WIRE)

OUTPUT PIN
(WHITE WIRE)

PACKARD METRI-PACK
CONNECTOR #12065287

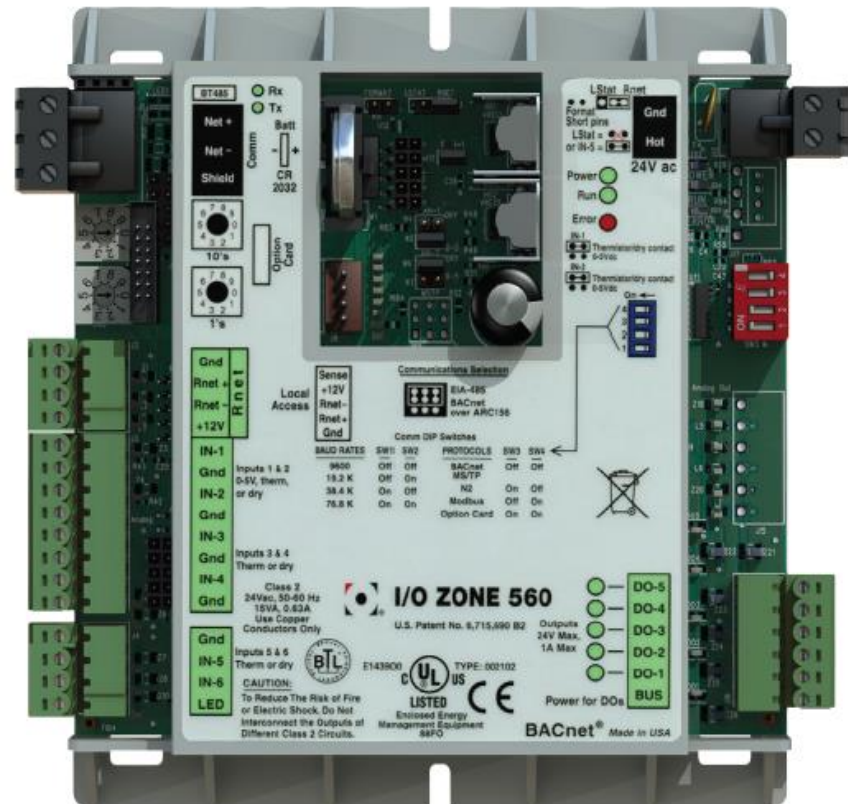# *Paragon^{TM} Slide Valve Controller*

General Description

➢ The Paragon Control Module (PCM) will function to control compressor capacity by operating the compressor unloading slide valve as directed by a pressure transducer or NTC temperature sensor input (control variable) to the PCM.

➢ The PCM will have functionality to protect the compressor from high motor and discharge temperatures and loss of oil flow to the compressor.

➢ The PCM will provide LED fault status indication to the end user.

➢ The PCM is Network capable to communicate to the System Controller using MODBUS, LonWorks, BacNet, or N2. These network parameters are all preconfigured and setup in the PCM.

➢ PCM comes pre-loaded with Carlyle Software

➢ PCM is part of a Carlyle Controls Package Kit that provides the user with all necessary hardware to install the PCM and Protection Components.
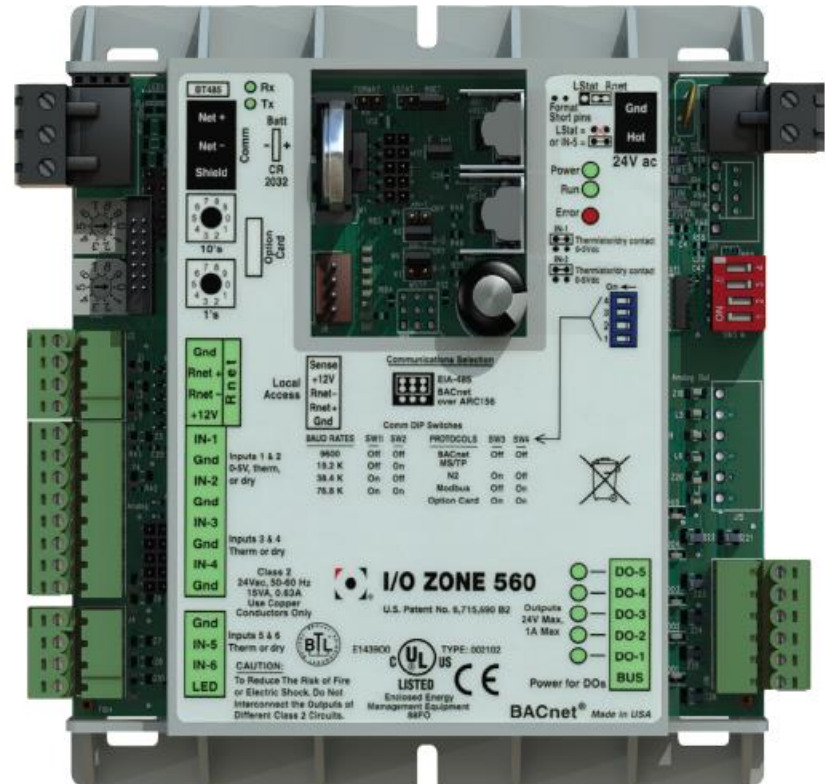
Paragon™ Slide Valve Controller

Features

- User Configurable:
    - Slide Valve & Compressor Protection
    - Slide Valve control only
    - Compressor protection only
    - Control set-point – Pressure or Temperature

- PCM Inputs:
    - Controller Set-point – Suction Pressure Transducer or temperature sensor
    - Motor Temperature Sensor
    - Discharge Temperature Sensor
    - Oil Flow
    - Oil level

- PCM Outputs:
    - Slide Valve unloader Coils #1 and #2
    - Motor Cooling Valve
    - Compressor start/stop circuit
    - LED Fault Code outputs for:
        - High Motor Temp
        - High Discharge Temp
        - Loss of oil flow to compressor
        - Low oil level in Oil Separator
        - Faulty sensor

- Network capable – ModBus, BacNet, LonWorks, N2 Open, and RS485 Communication Port

Paragon^{TM} Slide Valve Controller

LED Fault Indication

The PCM will provide an LED alarm output signal to the System Controller when a compressor fault condition arises. This signal is through Output #4 and or the Communication Port.

Fault Description	LED Indication (Output #4)	Output #5	Compressor	Manual Reset Required
High Discharge Temperature Trip	Solid Red	Opens/De-energized	OFF	Yes
High Motor Temperature Trip	Constant Blinking	Opens/De-energized	OFF	Yes
Compressor Oil Trip	One blink & 2 second pause	Opens/De-energized	OFF	Yes
Faulty Transducer/Thermistor Slide Valve Sensor	Two blinks & 2 second pause	Opens/De-energized	OFF	Yes
Faulty Motor Temperature Thermistor	Three blinks & 2 second pause	Opens/De-energized	OFF	Yes
Faulty Discharge Temperature Thermistor	Four blinks & 2 second pause	Opens/De-energized	OFF	Yes

Paragon^{TM} Slide Valve Controller

PCM Control Points

Motor and Discharge Temperature Control Points

ALC Controller	Injection On (°F)	Injection Off (°F)	Shutdown Compressor (°F)	Manually Reset Compressor (°F)	Time Delay required before manual reset (sec)
Discharge Temp (Td)	NA	NA	Td > 225	Td < 175	30
Motor Cooling Temp (Tm)	Tm > 240	Tm < 225	Tm > 270	Tm < 225	30

Slide Valve Override Control Points

ALC Controller	Restrict Further Compressor Unloading Energized SV Coil #2 continuously (°F)	Fully Load Compressor and restrict unloading below 100% Energize SV Coil #1 and Coil #2 continuously (°F)
*SV – Discharge Temp (Td)	200 < Td < 215 (discontinue SV override when Td < 198F)	Td > 215F (discontinue SV override when Td < 213F)
*SV – Motor Cooling Temp (Tm)	245 < Tm < 260 (discontinue SV override when Tm < 243F)	Tm > 260F (discontinue SV override when Tm < 258F)

*SV – Slide Valve