FORM AND FIT REPLACEMENT FOR THE 
MOORE PRODUCTS 350 SERIES SINGLE AND DUAL BARGRAPH

- Black Anodized 6061-T6 Aluminum Machined Bezel
- Single or Dual Tri-color Bargraph with 51 or 101 Segments
- 4 (0.3" Tall) Digits with Decimal Points in Red, Amber or Green
- Choice of Power Input, 9-36VDC or 90-265VAC/110-370VDC
- DC and RMS Analog Inputs with support for Strain-Gage, RTD, Thermocouple, Potentiometer, Volts and Amps
- 5, 10, 12, 24VDC or 10uA to 1.5mA DC Programmable Excitation
- Isolated ModBus, USB, RS232C or RS485 communications with dual RJ45-8 jack for simplified installation wiring
- 2 piece pluggable screw connectors for all Signal and Power lines
- Plastic Acrylic front plate with anti-reflective coating
- 100% True redundant design
- Conformal Coated Boards

ORDERING INFORMATION

P350- A B C D E F G H I

A Display Style
- Single 51 Segment Bar and 4 Digit Numeric .....0
- Single 101 Segment Bar and 4 Digit Numeric......1
- Dual 51 Segment Bar and 4 Digit Numeric.......2
- Dual 101 Segment Bar and 4 Digit Numeric....3

B Temperature Range
- Standard 0-60C.....................................0
- Extended -40 to +85C..............................E
- Special............................................S

C Power Input
- 90-265VAC/110-370VDC.........................0
- 9-36VDC...........................................1
- Special..............................................S

D Communications
- RS232C.............................................232
- RS485..............................................485
- USB Communication............................USB
- Modbus RTU......................................MOD

E Analog Input (See note 1)
- Not required..............................................0
- DC Volts and Amps, 1 Channel..............DC1
- DC Volts and Amps, 2 Channel..............DC2
- RMS Volts and Amps, 1 Channel............RMS1
- RMS Volts and Amps, 2 Channel............RMS2

F Relay Output
- Not required...........................................0
- 4 each 5 amp relays..............................1
- Dual MIL-PRF-28750 Solid State Relays....2

G Analog output
- Not required..............................................0
- Single channel.................................1
- Dual Channel......................................2

H Panel Mounting
- Front Panel Mounting............................0
- Rear Panel Mounting.............................1

I External Intensity Control
- Not required..............................................0
- PWM, TTL Level Signal.........................P
- Voltage Input Intensity Control..........V

Part Number Example
P350-000-232DC1-111 calls for a single 51 segment tri-color bargraph display with a 4 digit numeric, standard 0-60 deg C operating temperature range, AC power input, single DC analog input, 4 relay output, single analog output and rear panel mounting hardware. Intensity is controlled through the serial port.

Note 1:
DC analog inputs support ranges from mVDC to 300VDC and from 0.01mADC to 3 AMPS DC (including 1-SVDC, 4-20mA DC) as well as RTD Thermocouple and Strain-Gage. Excitation is standard. RMS inputs only support True RMS with levels up to 300V and 3 AMPS RMS.
**Power Input**
- 5 Watts Maximum per Channel
- 9-36VDC, Isolated to 1500VDC, UL Listed
- 90-265VAC or 110-370VDC, Isolated to 3000VDC, UL Listed
- External fuse should be installed, Rated at 4 Amps

**Environmental**
- Operating Temp 0 to 60 Degrees C Standard
- Operating Temp -40 to 85 Degrees C Optional
- Storage Temp -55 to 95 Degrees C
- Humidity 5% to 95% Non-Condensing

**Analog Input (Typical at 25C, per channel)**
- 24 BIT Low Noise Delta-Sigma A/D converter
- ANSI C39.1 standard Field selectable inputs support mADC, mVDC, ADC, VDC, RTD, Strain-Gage and Thermocouples. Input impedance is 1 Meg ohm minimum for voltage inputs
- Field selectable Excitation of 5V, 10V, 12V or 24VDC with 50mA source current as well as a constant current source up to 1.5mA with 2VDC of maximum compliance voltage
- Isolation 1500 VDC to all other I/O
- Accuracy 0.05% +/- 2 counts for DC voltage or current
- Accuracy 0.2 deg C for RTD (10 ohm copper 0.00427, pt100 0.00385 and 0.00392, pt1000 0.00385, 120 ohm nickel 0.00672)
- Accuracy 0.8 deg C for Thermocouple inputs
- Linearity 0.01%
- Accuracy 0.1% +/- 2 counts for AC voltage or current, Crest Factor of 1
- Drift Approximately +/- 100 ppm per degree C from -40 to +85C
- Concurrent 50Hz and 60Hz noise rejection
- Front end Instrumentation Amplifier offers best noise immunity
- Programmable gain up to 128 for those really small signals
- NMRR, PSRR and CMRR Attenuation 100dB minimum
- Internal Noise 1.5mVRMS maximum
- Exclusive Internal Health subroutines monitor A/D performance as well as Sensor open or short conditions
- Programmable sampling rate and smart filtering
- User programmable 9th order Polynomial and 25 point X-Y table Linearization
- Thermocouple Cold Junction Compensation accuracy +/- 0.5C
- Protected from external Transients to ANSI/IEEE C37.90.1

**Analog Output**
- 16 BIT Low Noise Monotonic D/A Converter
- Isolation 1500 VDC to all other I/O
- Accuracy 0.05%
- Linearity 0.08%
- Programmable voltage and current output
- -10V to +10V and 0-24mA (and anything in between)
- Output can be set for non-linear function using a 25 point user definable X-Y table
- 10mA drive current in Voltage mode, 22VDC sourcing Excitation in current mode
- Protected from external Transients to ANSI/IEEE C37.90.1

**Relay Outputs**
- 4 Relays, Normally Open (Form A)
- Rated to 5A at 250VAC / 30VDC Resistive
- Programmable hysteresis
- Can be set for normally closed or open in software
- 300,000 cycle life rating at 2 amps
- Dielectric strength between coil and contacts 2000VAC/60Hz
- Surge Withstand rated to 6000VAC for 50uSec
- MOV's across all contacts for protection

**MIL-PRF-28750 Solid State Relay Outputs**
- Tested to MIL-PRF-28750 per DESC 90091-004
- Rated to 400mA at 60VDC maximum
- Programmable hysteresis
- Can be set for normally closed or open in software
- Internally fused with PTCC rated 400mA hold, 800mA trip
- Dielectric strength 1000VAC between input and output
- Surge Withstand rated to 600VDC for 50uSec
- MOV's across all contacts for protection

**Display**
- 4 Full LED Digits with Decimal Point 8.8.8.8.
- Display Range: -1999 to 9999
- Choice of Red, Green or Amber Color
- Superb Visibility 7 Segment 0.30” High LEDs
- 51 or 101 Segment Tri-Color LED Bargraph
- Face Plate: Plastic Acrylic with non-reflective coating,
- Front Panel servicable scale plates
- Front or Rear panel mounting

**Screw Connections**
- 2 piece screw connectors for power, signal I/O and relays
- 3.5mm spacing between terminals, accepts AWG# 16-26
- Connectors rated to 10 amps, 300VAC
- 2.5KV Withstand between terminals
- UL, CSA and VDE approved

**Serial Communications**
- Dual RJ45-8 connectors for simplified wiring
- ModBus RTU over serial RS485, USB, RS232C or RS485
- 1/8th unit load allows up to 256 nodes on the RS485 bus
- 8 data bits, no parity, 1 stop bit
- Baud rates from 1200 to 38400
- Can be set as a silent monitor or to echo incomming commands out its transmit line
- ESD protected to +/-25KV using the human body model
- Transient protected to ANSI/IEEE C37.90.1
- Isolation 1500 VDC to all other I/O

**EMI Characteristics (Pending qualification)**

**SPECIFICATIONS**

**9-36VDC power input version**
- Radiated Emissions EN55022 Class B
- Radiated Susceptibility EN61000-4-3 Criteria A;10V/m
- Conducted Emissions EN55022 class B
- Conducted Susceptibility EN61000-4-6 Criteria A; 3VRMS
- EFT ; EN61000-4-4 +/- 4KV
- Surge ; EN61000-4-5 to +/- 2KV
- ESD ; EN61000-4-2 Criteria B +/- 4KV
Power on

Perform lamp test (all segments on) and read eeprom data/checksum, compare. If good then use stored settings. If not good, retry read up to 3 times to insure corruption.

After 4 unsuccessful reads force unit to default mode CA=001, CB=9600, CI=100, mode PI bus, CR=OFF, CT=0 then display Err1 on numeric LED’s. For the Bargraph settings, DT=1, DP=3, BM=E, BS=0, BE=0.1, BC=A, BC=N, BA=OFF, BO=D, AC=N, ACn=A for all four alarms and A1-A4 values are all set to 0.

If checksum match is successful, turn on all DP’s to indicate a power on state. Note this will be affected by the CT command if no data is received within the timeout period.