



2 x large displays (0.8")



START/STOP/SPEED
control for VFD



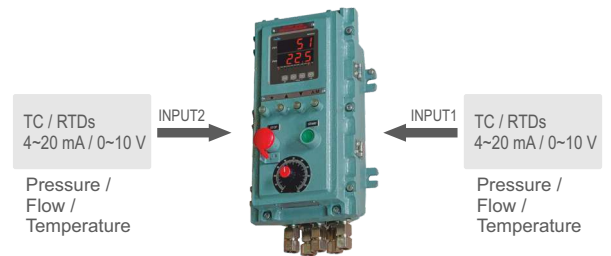
Input from VFD

- Indicator with alarms
- 2 x universal input
- Flameproof, IP65
- Sampling time 50ms / 200ms programmable
- 2 Setpoints
- Isolated 0/4~20 mA or 0~10V DC for control / retransmission output
- Isolated RS485/MODBUS RTU

LARGE PV DISPLAY



UNIVERSAL INPUT



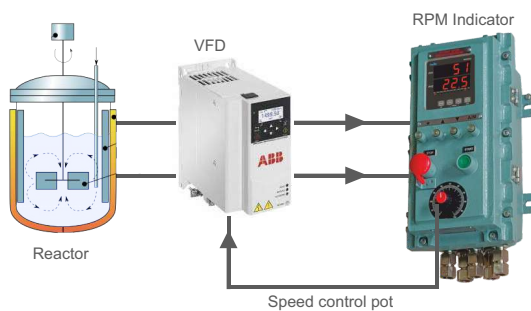
SOFTWARE VERSIONS

- ON/OFF control
- Dual PID loops
- Heat + Cool
- VFD

OUTPUTS

- 2 x isolated analog outputs
- 7 relays for alarm / onoff control
- Programmable alarm types

VFD DRIVE APPLICATION



SPECIFICATIONS

All specifications at ambient of 25 °C, unless specified otherwise

| INPUTS | |
|---------------------------------|---|
| No of input | 2 (Input1, Input2) |
| Input group 1 | |
| Thermocouple | B, E, J, K, N, R, S, T |
| RTD | Pt100 |
| Voltage | 0~50 mV, 0~10 V |
| Current | 4~20 mA |
| Input group 2 | |
| Thermocouple | B, C, D, E, G, J, K, N, R, S, T, L, U, PLII |
| RTD | Pt100, Cu53, JPT100 |
| Current | 0~20 mA, 4~20 mA, 4~20 mA with Square root |
| Voltage | -10~20mV, 0~50 mV, 0~200 mV, 0~2 V, 0~5 V, 0~10V |
| Sampling time | 50 ms / 200 ms programmable |
| Transmitter supply (VTX) | 22 V nominal, 30 mA max |
| Range limits | See Table 1 |
| Accuracy | Thermocouple : $\pm 0.25\%$ of FS $\pm 1^\circ\text{C}$ Pt100 : $\pm 0.05\%$ of FS $\pm 0.5^\circ\text{C}$ Linear inputs : $\pm 0.1\%$ FS or less |
| Cold junction compensation | Automatic/User programmable |
| Sensor break protection | User programmable |
| OUTPUTS | |
| No. of relays | Maximum 2 |
| Relay contact type | NO-C-NC, NO-C |
| Relay contact rating | 7A/230 VAC 5A/230 VAC |
| SSR drive | 12 V DC drive signal for external SSR |
| No. of analog outputs | 0 / 1 / 2 |
| Current output | 4~20 mA / 0~20 mA / 20~4 mA / 20~0 mA isolated from input |
| Maximum load for current output | 500 ohms |
| Voltage output | 0-10 V / user specified |
| Load for voltage output | >10 Kohms |
| INDICATION | |
| Display | 2 x 4 digit, 7-segment 0.8" (20.32 mm), red LED display |

SPECIFICATIONS

All specifications at ambient of 25 °C, unless specified otherwise

| COMMUNICATION | |
|---|--|
| Port | RS485 |
| Protocol | MODBUS RTU |
| Slave ID | User programmable (1~247) |
| Baud rate | User programmable (2.4K, 4.8K, 7.2K, 9.6K, 19.2K, 38.4K, 57.6K) |
| POWER SUPPLY | |
| Supply voltage | a. 85~265V AC, 50/60hz |
| | b. 18~30V DC |
| AUTO/MANUAL OPERATION | |
| Function | Output power is increased/decreased by UP/DOWN keys in manual mode |
| Auto / Manual transfer | Bumpless |
| ISOLATION | |
| Mutual isolation between input, supply, relays, analog output, digital input, RS485 | 1500 VAC RMS, 50hz / 1minute |
| ENCLOSURE | |
| Enclosure | Certified flameproof for gas groups IIA & IIB |
| Material | Aluminium alloy |
| Dimensions (in mm) | 355(H) x 185(W) x 165(D) |
| Protection | IP66 |
| Keyboard | 4 Pushbuttons |
| Mounting | Wall mount |
| Mounting accessories | Included |
| Cable entries* | 1 x 1 "NPT and 4 x 1/2" NPT |
| * Cable glands to be ordered separately | |
| TEMPERATURE, HUMIDITY | |
| Ambient operating temperature | -10 to 50 °C |
| Ambient operating humidity | Below 90% RH, non-condensing |

PROGRAMMABLE PARAMETERS

| | |
|----------------------------|---|
| User key / Digital input | Programmable function such as start, stop, run, hold profile, autotune, etc |
| Setpoint lock | ON, OFF |
| Power on delay | 0~999 seconds |
| Soft start function | Timer / setpoint / % output |
| Time out for run mode | None / 10 seconds / 1 min / 9 min |
| Input type | TC/RTD/Linear input |
| High/Low scales of input | Full range (See Table 1) |
| Setpoint | Full range (See Table 1) |
| Resolution | User selectable |
| | 0.001, 0.01, 0.1 or 1 for linear input, |
| | 0.1 or 1 for temperature |
| Unit | °C, °F, EU |
| Digital filter | None / low / high |
| CJC | Auto / off / -10 to 60°C |
| PID groups | 1-4 |
| Control type | Heat/Cool/Heat+Cool |
| Band (P) | 0.1~999.9, 0~100% of span |
| Integral time (I) | Off, 1~6000 seconds |
| Derivative time (D) | Off, 1~6000 seconds |
| Cycle time | 1~1000 second |
| Manual reset | -99 to 99 °C |
| High/low limits of power | -3~103% |
| Dead band for heat+cool | -50~50% |
| Cool coefficient heat+cool | 0~100% |
| Cool Compressor delay | 0~999 min |
| Alarm logic | a. Fullscale high alarm |
| | b. Full scale low alarm |
| | c. Deviation high alarm |
| | d. Deviation low alarm |
| | e. Inband alarm |
| | f. Outband alarm |
| | g. Heat |
| | h. Cool |
| Alarm delay | 0~999 second/minute |
| Alarm acknowledge | Reset alarm through user key / digital input |
| Relay action | Reverse / direct |
| Single ramp/soak | Ramp: 0~999.9 °C / min or hour |
| | Soak time : 0~999 minutes |

TABLE 1

Input group 1

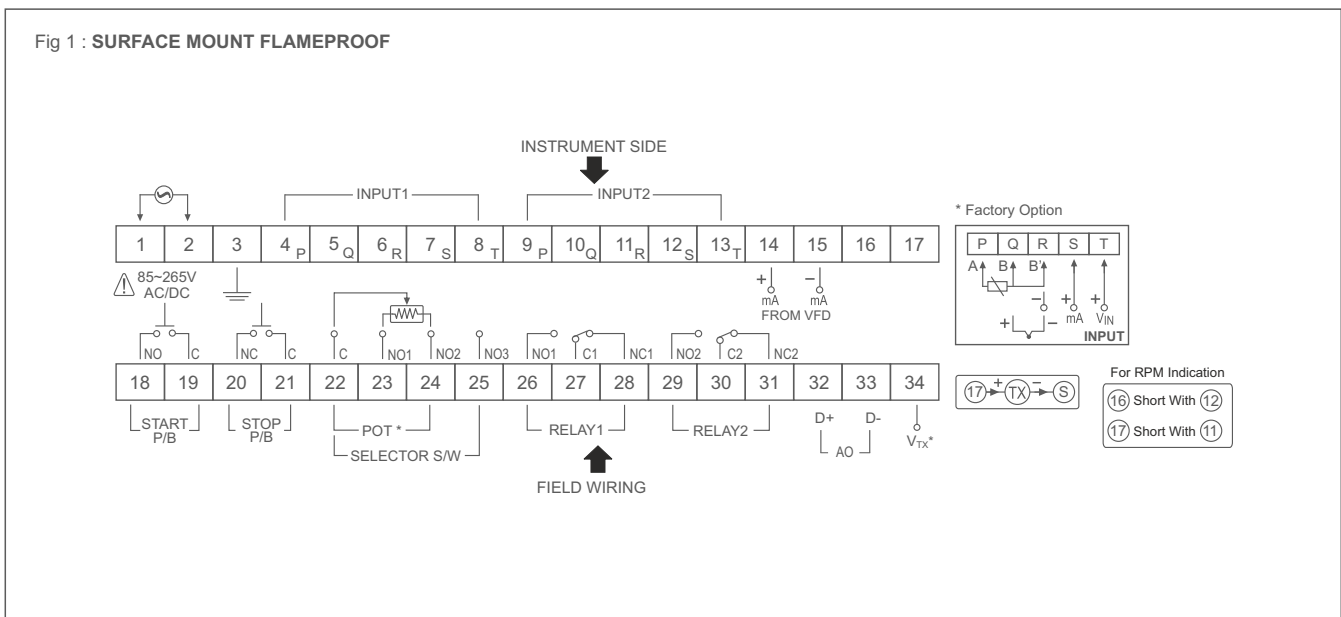
| SENSOR / INPUT | RANGE LIMITS (°C / EU) | |
|-----------------------------------|------------------------|------------|
| | LOW SCALE | HIGH SCALE |
| Pt - 6% Rh / Pt - 30% Rh (B) | 400 | 1800 |
| Chromel / Constantan (E) | -200 | 850 |
| Iron / Constantan (J) | -200 | 760 |
| Chromel / Alumel (K) | -200 | 1370 |
| Nicrosil / Nisil (N) | -200 | 1300 |
| Pt / Pt - 13% Rh (R) | 0 | 1700 |
| Pt / Pt - 10% Rh (S) | 0 | 1700 |
| Copper / Constantan (T) | -200 | 400 |
| Pt100, 3-wire | -200 | 850 |
| Linear (0~50 mV, 4~20 mA, 0~10 V) | -1999 | 9999 |

Additional Inputs for Input group 2

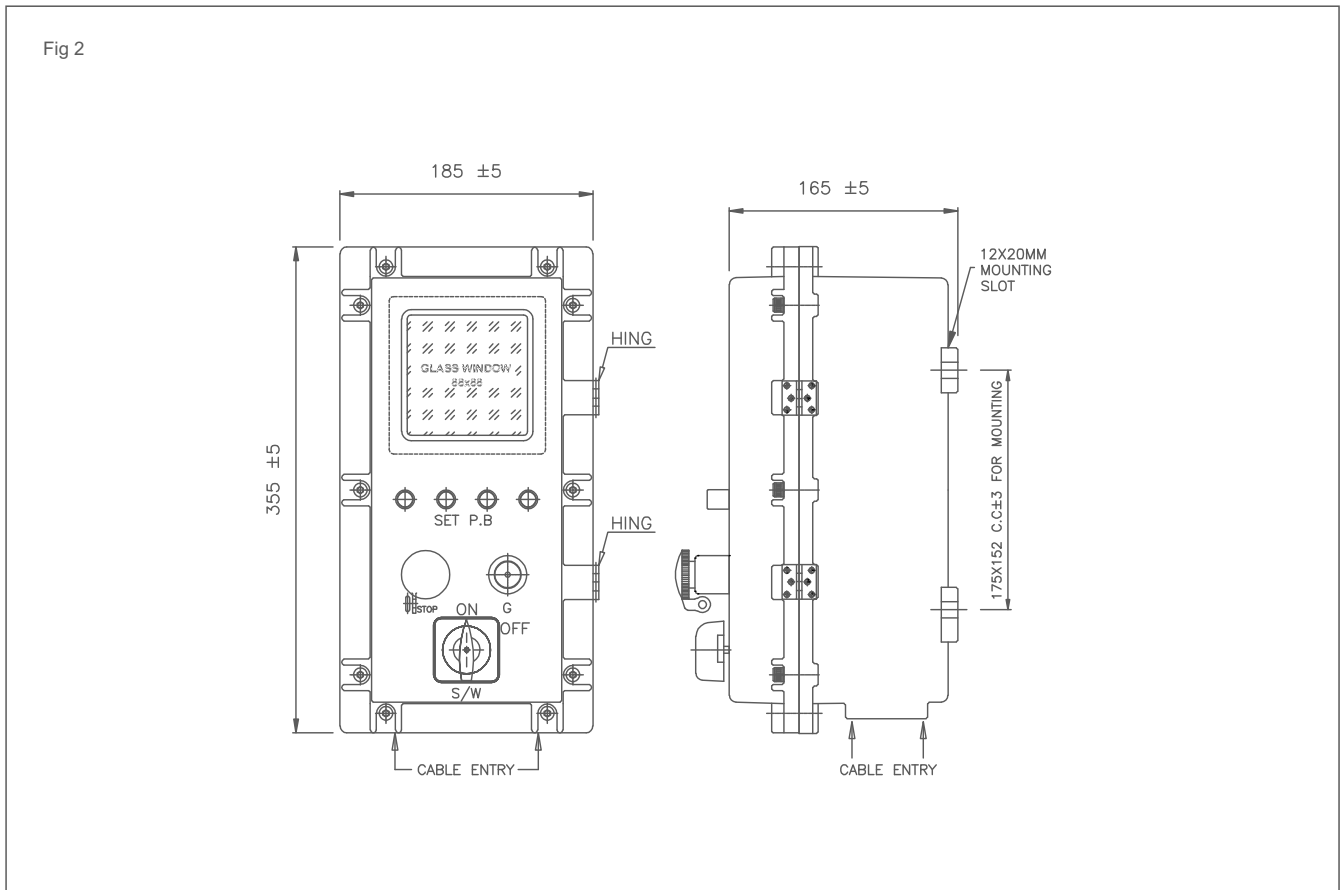
| SENSOR / INPUT | RANGE LIMITS (°C / EU) | |
|---|------------------------|------------|
| | LOW SCALE | HIGH SCALE |
| Tungsten - 5% Rh / Tungsten - 26% Rh (C) | 0 | 2300 |
| Tungsten - 3% Rh / Tungsten - 25% Rh (D) | 0 | 2000 |
| Tungsten / Tungsten - 26% Rh (G) | 0 | 2310 |
| Iron / Constantan (L) | -200 | 900 |
| Copper / Constantan (U) | -200 | 600 |
| Platinum - 40% Rh / Platinum - 20% Rh (2040) | 0 | 1880 |
| JPT100 | -200 | 600 |
| Cu53 | 0 | 150 |
| Linear (-10~20mV, 0~50 mV, 0~200 mV, 0~2 V, 0~5 V, 0~10V) | -1999 | 9999 |
| Linear (4~20 mA) with square root | 0 | 9999 |

CONNECTION DIAGRAM

Fig 1 : SURFACE MOUNT FLAMEPROOF



DIMENSIONS mm



ORDERING INFORMATION

| CODE | SPECIFICATION | 1 | 2 | 3 | 4 |
|------|-------------------------------------|---|---|---|---|
| 2992 | | | | | |
| 1 | Relay outputs | | | | |
| | None | N | | | |
| | 2 Relays - (NO1-C1-NC1, NO2-C2-NC2) | 2 | | | |
| 2 | Analog outputs | | | | |
| | None | | N | | |
| | 1 x 4~20 mA | | A | | |
| | 1 x 0~10V | | B | | |
| | 2 x 4~20 mA | | C | | |
| | 2 x 0~10 V DC | | D | | |
| 3 | RS485 | | | | |
| | None | | | N | |
| | RS485 / MODBUS RTU | | | A | |
| 4 | Power supply | | | | |
| | 85~265 VAC | | | | 1 |
| | 20VDC - 55VDC | | | | 2 |

Note1 : Relay outputs : Contact sales for SSR drive outputs.

See Preferred Order Codes list. For order codes outside this list, larger MOQ will apply. Contact sales.

PREFERRED ORDER CODES

| Sr. No. | Order Code | Version | Brief Specification | Power Supply |
|---------|------------|--|-------------------------|--------------|
| 1 | 2992 2NN1 | Process Controller with RPM Indication | 2 Inputs+2 Relays | SMPS |
| 2 | 2992 2NA1 | Process Controller with RPM Indication | 2 Inputs+2 Relays+RS485 | SMPS |
| 3 | 2992 NNN1 | Process Controller with RPM Indication | 2 Inputs, Indicator | SMPS |

ENQUIRIES

Instruments : sales@radix.co.in • + 91 9324934061
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