Setup Page

| Order in Setup Menu | Series 93 or 965 Parameter | Series 93 or 965 Parameter Name | Default | Range | User Value | Order in Setup Menu | PM Express Control Parameter | PM Express Control Parameter Name | Default | Range | User Value | Notes or differences in PM Express Control to Series 93 or 965 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LOC | Lock | 0 | 0 | | 1 | LOC | Lock | 5 | 5 | | |
| | | | | 1 | | | | | | 4 | | The order to specify security is reversed from Series 93 to PM. Settings of 5 = 0, 4 = 1, … |
| | | | | 2 | | | | | | 3 | | |
| | | | | 3 | | | | | | 2 | | |
| | | | | 4 | | | | | | 1 | | |
| | | | | | | | 2 SEn | Sensor Type | tc | tc | | Choose sensor type, then linerization. No DIP switch required in PM. Series 93 used DIP switches rather than parameter. |
| | Series 93 uses DIP switch to select sensor type. | | | | | | | | | volt | | Supports 0 to 10 VDC analog input only. |
| | | | | | | | | | | mA | | Supports 4 to 20 mA analog input only. |
| | | | | | | | | | | ro.1H | | Setting of ro.1H is same as rtd (100 ohm Platinum, DIN curve) |
| 2 | In | Input | J | J | | 3 | L in | Linearization | J | J | | |
| | | | | H | | | | | | H | | H is choice for Type K t/c |
| | | | | t | | | | | | t | | |
| | | | | n | | | | | | n | | |
| | | | | S | | | | | | S | | |
| | | | | rtd | | | | | | b | | |
| | | | | rtd | | | | | | c | | |
| | | | | | | | | | | d | | Thermocouple types b, c, d, E and F were not available in Series 93. |
| | | | | | | | | | | E | | |
| | | | | | | | | | | F | | |
| 3 | dEC | Decimal | 0 | 0 | | 4 | dEC | Decimal | 0 | 0 | | |
| | | | | 0.0 | | | | | | 0.0 | | Use decimal setting to get tenths for RTD. Series 93 could only display in whole units for thermocouples. |
| | | | | 0.00 | | | | | | 0.00 | | |
| 4 | C-F | Celsius - Fahrenheit | F | F | | 5 | C-F | Celsius - Fahrenheit | F | F | | |
| | | | | C | | | | | | C | | |
| 5 | rL | Range Low | varies | varies | | 6 | rL | Range Low | 0 | -1999 to 9999 | | |
| 6 | rh | Range High | varies | varies | | 7 | rh | Range High | 9999 | -1999 to 9999 | | |
| 7 | Ot1 | Output 1 | ht | ht | | 8 | Fn1 | Function of Output 1 | HEAt | HEAt | | |
| | | | | CL | | | | | | Cool | | |
| | | | | | | | | | | oFF | | Series 93 cannot disable output 1. |
| | | | | | | | | | | ALM | | Series 93 cannot program output 1 as alarm. |
| 8 | HSC | Hysteresis-Control | 2 | varies | | | See parameter 11 below. | | | | | See parameter Hysteresis (Heat & Cool) later in PM Setup Menu. |
| | | | | | | 9 | oty | Output Type | volt | volt | | Series 93 used DIP switch to select. |
| | | | | | | | | | | mA | | |
| 9 | Ot2 | Output 2 | Con | Con | | 10 | Fn2 | Function of Output 2 | oFF | oFF | | |
| | | | | | | | | | | | | Select Alarm type (Process or Deviation) and Alarm Display later in Setup Page to match requirement. |
| | | | | PrA | | | | | | ALM | | |
| | | | | Pr | | | | | | HEAt | | Con on Series 93 means opposite of output 1. If output 1 was heat, then cool. If output 1 was cool, then heat. |
| | | | | dEA | | | | | | Cool | | |
| | | | | dE | | | | | | | | |
| | | | | no | | | | | | | | |
| | Series 93 used a setting of 0 for proportional band 1 to affect algorithm. | | | | | 11 | h.Ag | Heat Algorithm | P id | P id | | |
| | | | | | | | | | | on.oF | | Setting of the Pb1 to 0 in Operations Menu on Series 93 is same as on/off on PM. |
| | | | | | | | | | | oFF | | Series 93 does not provide method to disable heat agorithm. |
| | | | | | | 12 | h.SC | Hysteresis (Heat & Cool) | 3 | 0 to 9999 | | See HSC in Series 93 Setup Menu |

| Order in Setup Menu | Series 93 or 965 Parameter | Series 93 or 965 Parameter Name | Default | Range | User Value | Order in Setup Menu | PM Express Control Parameter | PM Express Control Parameter Name | Default | Range | User Value | Notes or differences in PM Express Control to Series 93 or 965 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 13 | CAG | Cool Algorithm | oFF | oFF<br>P id<br>on.oF | | Series 93 does not provide method to disable cool agorithm.<br><br>Setting of the Pb1 to 0 in Operations Menu on Series 93 is same as on/off on PM. |
| | Series 93 sets alarm type by output function. | | | | | 14 | AtY | Alarm Type<br>PM sets alarm type independently of output function. | oFF | oFF<br>Pr.AL<br>dEAL | | |
| 10 | HSA | Hysteresis-Alarm | 2 | varies | | 15 | AhY | Alarm Hysteresis | 1 | 0 to 9999 | | |
| | Series 93 used open on alarm. | | | | | 16 | ALG | Alarm Logic | ALC | ALC<br>ALo | | Series 93 did not provide alarm logic settings. Set A.Lo to be the same. |
| 11 | LAt | Latching | nLA | nLA<br>LAt | | 17 | ALA | Alarm Latching | nLAt | nLAt<br>LAt | | |
| | Series 93 combined this function with alarm silencing. | | | | | 18 | AbL | Alarm Blocking | oFF | oFF<br>Str<br>StPt<br>both | | Series 93 combined alarm blocking and alarm silencing. Set to both if Alarm Silencing is On. |
| 12 | SIL | Silencing | OFF | OFF<br>On | | 19 | S iL | Alarm Silencing | oFF | oFF<br>on | | Series 93 combined alarm blocking and alarm silencing. |
| 13 | rtd | RTD | d in | d in<br>J iS | | | | | | | | PM does not offer JIS support for RTD sensors so this parameter is not available. |
| | Series 93 does not provide alarm display. | | | | | 20 | AdSP | Alarm Display | on | on<br>oFF | | Series 93 did not offer Alarm Display. Set to ON to match the behavior of the Series 93. |
| 14 | rP | Ramping | OFF | OFF<br>Str<br>On | | 21 | rP | Ramp Action | oFF | oFF<br>Str<br>StPt<br>both | | PM uses the choice Both where the Series 93 used the choice On. |
| 15 | rt | Rate in degrees / hr | 100 | 0 to 9999 | | 22 | r.rt | Ramp Rate | 1.0 | 0 to 9999 | | |
| 16 | P L | Power Limiting | 100 | 0 to 100 | | 23 | SLo | Scale Low Output 1 | 0.0 | -100.0 to 100.0 | | Sets low range of electrical units. Ex. 4.00 mA or 0.0V. See Output Type above. |
| Series 93 used power limit to restict PID power to physical output. PM uses electrical Scale for process or Power scale for time proportioning output types. | | | | | | 24 | Sh i | Scale High Output 1 | 10.0 | -100.0 to 100.0 | | Sets high range of electrical units. Ex. 20.00 mA or 5.0V. See Output Type above. |
| | | | | | | 25 | oh i1 | Power Scale High Output 1 | 0.0 | 0.0 to 100.0 | | Set power in percent for time proportioning output types (switched dc or relays) |
| | | | | | | 26 | oh i2 | Power Scale High Output 2 | 100.0 | 0.0 to 100.0 | | |
| 17 | dSP | Display | nor | nor<br>SEt<br>Pro | | 27 | PAr 1 | Upper or Left Display | AC.Pu | AC.Pu<br>nonE | | Set what is to be displayed in upper and lower displays. Series 93 when set to nor, matches PM default. |
| | | | | | | 28 | PAr2 | Lower or Right Display | AC.SP | AC.SP<br>Ah i<br>ALo<br>nonE | | |
| | | | | | | 29 | Ad.S | Zone Address - Std Bus | | | | Series 93 did not support serial communications and therefore has no address to set. |

# Operations Page

| Order in Oper Menu | Series 93 or 965 Parameter | Series 93 or 965 Parameter Name | Default | Range | User Value | Order in Oper Menu | PM Express Control Parameter | PM Express Control Parameter Name | Default | Range | User Value | Notes or differences in PM Express Control to Series 93 or 965 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | AUt | Autotune | no | no<br>YES | | PM allows autotune to be requested. No option for tuning aggressiveness. |
| Series 93 showed % indicator for manual mode. No parameter to view active control mode. | | | | | | 2 | C.mA | Control Mode Active | Auto | oFF<br>Auto<br>mAn | | |
| 1 | Pb 1 | Proportional Band 1 | varies | varies | | 3 | h.Pb | Heat Proportional Band | varies | varies | | Enter PM proportional band value based on function of Series 93 output selected. |
| Series 93 sets proportional band based on output, not algorithm. | | | | | | 4 | C.Pb | Cool Proportional Band | varies | varies | | |
| 2 | rE 1 | Reset 1 | 0.00 | 0.00 to 9.99 | | 5 | t i | Time Integral | 180 | 0 to 9999 | | If Series 93 uses reset, take reciprocal of setting and multiply by 60. Enter in Ti. |
| 3 | It 1 | Integral 1 | 0.00 | 0.00 to 9.99 | | | PM only uses Integral in seconds per repeat. | | | | | If Series 93 uses integral, take setting and multiply by 60. Enter in Ti. |
| 4 | rA 1 | Rate 1 | 0.00 | 0.00 to 9.99 | | 6 | td | Time Derivative | 0 | 0 to 9999 | | Multiply by 60 and enter in Td. |
| 5 | dE 1 | Derivative 1 | 0.00 | 0.00 to 9.99 | | | PM uses Derivative in seconds. | | | | | |
| 6 | Ct 1 | Cycle Time 1 | 5.0 | 0.1 to 999.9 | | 7 | ot.b 1 | Time Base Output 1 | varies | varies | | Set time base for Output 1 - was Ct1 in Series 93 |
| | | | | | | 8 | ot.b2 | Time Base Output 2 | varies | varies | | Set time base for Output 2 - was Ct2 in Series 93 |
| 7 | AL0 | Alarm Low | -999 | varies | | 9 | A.Lo | Alarm Low Set Point | 32 | varies | | |
| 8 | AH 1 | Alarm High | 999 | varies | | 10 | A.H i | Alarm High Set Point | 300 | varies | | |
| 9 | Pb2 | Proportional Band 2 | varies | varies | | | See Heat and Cool Proportional Band in parameters 3 & 4 above. | | | | | |
| 10 | rE2 | Reset 2 | 0.00 | 0.00 to 9.99 | | | See Ti in parameter 5 above. Only one integral setting in PM product. | | | | | If Series 93 uses reset, take reciprocal of setting and multiply by 60. Enter in Ti. |
| 11 | It2 | Integral 2 | 0.00 | 0.00 to 9.99 | | | | | | | | If Series 93 uses integral, take setting and multiply by 60. Enter in Ti. |
| 12 | rA2 | Rate 2 | 0.00 | 0.00 to 9.99 | | | See Td in parameter 6 above. Only one derivative setting in PM product. | | | | | Multiply by 60 and enter in Td. |
| 13 | dE2 | Derivative 2 | 0.00 | 0.00 to 9.99 | | | | | | | | |
| 14 | Ct2 | Cycle Time 2 | 5.0 | varies | | | See ot.b2 in parameter 8 above. | | | | | |
| 15 | CAL | Calibration Offset | 0 | +/-180 | | 11 | i.CA | Calibration Offset | 0 | varies | | |
| 16 | AUt | Autotune | 0 | 0, 1, 2, 3 | | | See Autotune in parameter 1 above. | | | | | |