

Addendum to:

Series 988 Family

1/8 DIN Microprocessor-Based
Temperature/Process Controllers

User's Manuals

CAUTION:
Refer to the
accompanying
document for wiring
and safety
information.

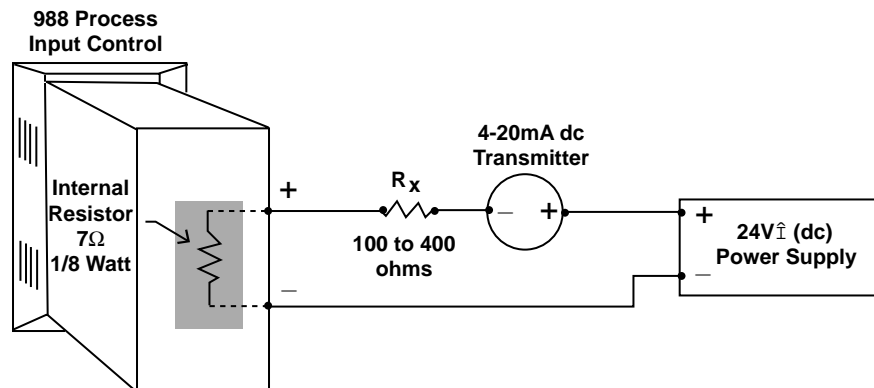
Certain "transmitters" used in process input applications are producing internal resistor failures in the Watlow Series 988 family of controllers. This is only apparent with the Series 988 family 1/8 DIN units with Process Inputs selected (0-20mA or 4-20mA dc only).

We are noticing that an external resistor is required to prevent a high in-rush current which burns out the Series 988 family controllers' 7-ohm internal resistor. This high in-rush current occurs initially on "power-up." If the transmitter turns full on for a split second during power-up, the available current weakens or damages the internal resistor.

Example: $20V / 7 \text{ ohms} = 2,857\text{mA}$ (too much!).

The wiring diagram example below shows an application where a customer is using a 4-20mA dc transmitter and power supply to feed the input of a Series 988 controller. The Rx range (100 to 400 ohms) for the external resistor is recommended. We suggest starting with 250 ohms.

Example: Customer is using a 24V $\hat{=}$ (dc) power supply to power up the 4-20mA dc transmitter that inputs to the Series 988 terminals 8 (-) and 10 (+). To figure out what the internal Series 988's handling current is for the 0-20mA or 4-20mA dc input to the Series 988 controllers, we need to apply Ohm's Law: The square root of Watts divided by Resistance equals Current. Applying that formula to the example below produces the following: Square Root of (0.125 Watts / 7 ohms) = 134 mA dc (handling input current). This is the acceptable input current for the Series 988 universal input board.



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Reminder, the input impedance of 7 ohms handles the majority of our customer applications; the external resistor (Rx) is only for certain transducers/transmitters that spike on power-up or power-down. Please make sure your customer's transmitter / transducer fall within our Series 988 family (1/8 DIN) of controllers' Process Input specification of 7 ohms input impedance.

(1796)

Addendum to:
Series 988 Users Manual - 0600-0009-0001 Rev W
Series 982 Users Manual - 0600-0009-0008 Rev N
Series 98LF Users Manual - 0600-0009-0000 Rev A
Series 998 Users Manual - 0600-0010-0000 Rev F
June, 1999

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