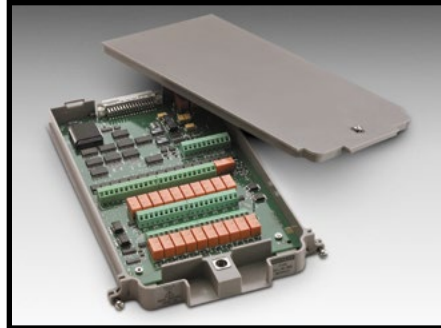


# 7706

# All-in-One I/O Module

20-channel Differential Multiplexer w/Automatic CJC, 16 Digital Outputs, 2 Analog Outputs, a Counter/Totalizer, and Screw Terminals

- 20 channels of analog input (w/automatic CJC) for general-purpose measurements
- 16 channels of digital output
- 2 analog outputs ( $\pm 12V$ , 5mA)
- 300V, 1A capacity; 60W, 125VA maximum
- Configurable as two independent banks of multiplexers
- Relay closures stored in onboard memory



The Model 7706 plug-in module offers 20 channels of 2-pole or 10 channels of 4-pole multiplexer switching with automatic CJC, as well as two analog output channels, 16 digital outputs, and one event counter/totalizer. The event counter/totalizer can be used to monitor and control system components, such as fixtures, limit switches, pass/fail indicators, external voltage sources, loads, door closures, revolutions, etc., while performing mixed signal measurements. The Model 7706 is ideal for RTD, thermistor, and thermocouple temperature applications.

## CAPABILITIES

**CHANNELS 1–20:** Multiplex one of 20 2-pole or one of 10 4-pole signals into DMM.  
**Channels 21–25** are referenced to chassis ground.  
**CHANNELS 21–22:** 16 Digital Outputs.  
**CHANNELS 23–24:** Analog Voltage Output (2).  
**CHANNELS 25:** Totalize Input.

## INPUTS

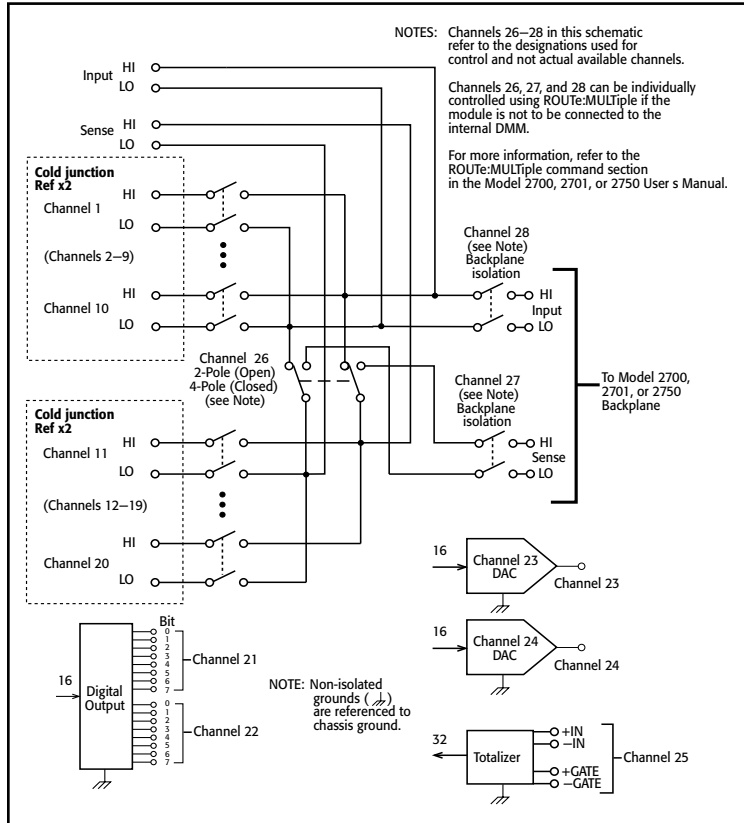
**MAXIMUM SIGNAL LEVEL (Channels 1–20):** 300V DC or rms, 1A switched, 60W, 125VA maximum.  
**CONTACT LIFE (typ.):**  $>10^5$  operations at max. signal level;  $>10^8$  operations no load<sup>1</sup>.  
<sup>1</sup>Minimum signal level 10mV, 10 $\mu$ A.  
**CONTACT RESISTANCE:**  $<1\Omega$  at end of contact life.  
**CONTACT POTENTIAL:**  $\leq \pm 2\mu V$  typical per contact, 3 $\mu V$  max.  
**OFFSET CURRENT:**  $<100pA$ .  
**CONNECTOR TYPE:** Screw terminal, #20 AWG wire size.  
**ISOLATION BETWEEN ANY TWO TERMINALS:**  $>10^9\Omega$ ,  $<100pF$ .  
**ISOLATION BETWEEN ANY TERMINAL AND EARTH:**  $>10^9\Omega$ ,  $<200pF$ .  
**CROSS TALK (10MHz, 50 $\Omega$  Load):**  $<-35dB$ .  
**INSERTION LOSS (50 $\Omega$  Source, 50 $\Omega$  Load):**  $<0.1dB$  below 1MHz.  $<3dB$  below 2MHz.  
**COMMON MODE VOLTAGE:** 300V between any terminal and chassis.  
**TEMPERATURE ACCURACY USING INTERNAL CJC:** 1.0°C (see mainframe specification for details).

## Ordering Information

7706 All-in-One I/O Module

## SERVICES AVAILABLE

7706-3Y-EW 1-year factory warranty extended to 3 years from date of shipment



## TOTALIZE INPUT

**MAXIMUM COUNT:**  $2^{32}-1$ .  
**TOTALIZE INPUT:** 100kHz (max), rising or falling edge, programmable.  
**SIGNAL LEVEL:** 1Vp-p (min), 42Vpk (max).  
**THRESHOLD:** 0V or TTL, jumper selectable.  
**GATE INPUT:** TTL-Hi, TTL-Lo, or none.  
**COUNT RESET:** Manual or Read+Reset.  
**READ SPEED:** 50/s.

## ANALOG VOLTAGE OUTPUT

**DAC 1, 2:**  $\pm 12V$  in 1mV increments, non-isolated.  
**RESOLUTION:** 1mV.  
 **$I_{OUT}$ :** 5mA max.  
**SETTLING TIME:** 1ms to 0.01% of output.  
**ACCURACY  $\pm$ (% of output + mV):**  
 1 year  $\pm 5^\circ C$ : 0.15% + 19mV;  
 90 day  $\pm 5^\circ C$ : 0.1% + 19mV;  
 24 hour  $\pm 1^\circ C$ : 0.04% + 19mV.  
**TEMPERATURE COEFFICIENT:**  $\pm(0.015\% + 1mV)^\circ C$ .

## DIGITAL OUTPUT

**$V_{OUT(L)}$ :**  $<0.8V$  @  $I_{out} = 400mA$ .  
 **$V_{OUT(H)}$ :**  $>2.4V$  @  $I_{out} = 1mA$ .  
 **$V_{OUT(H)MAX}$ :**  $<42V$  with external open drain pull-up.  
**WRITE SPEED:** 50/s.

## GENERAL

**20 CHANNELS:** 20 channels of 2-pole relay input. All channels configurable to 4-pole.  
**RELAY TYPE:** Latching electromechanical.  
**ACTUATION TIME:**  $<3ms$ .  
**FIRMWARE:** Specified for Model 2700 rev. A02 or B01, 2701 rev. A01, and 2750 rev. A01 or higher.

## ENVIRONMENTAL

**OPERATING ENVIRONMENT:** Specified for  $0^\circ$  to  $50^\circ C$ . Specified to 80% R.H. at  $35^\circ C$ .  
**STORAGE ENVIRONMENT:**  $-25^\circ$  to  $65^\circ C$ .  
**WEIGHT:** 0.5kg (1.1 lbs).

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