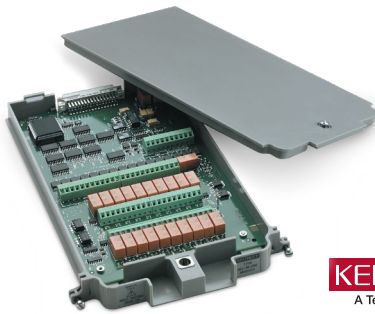


# 7706 All-in-One I/O Module

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

## Datasheet

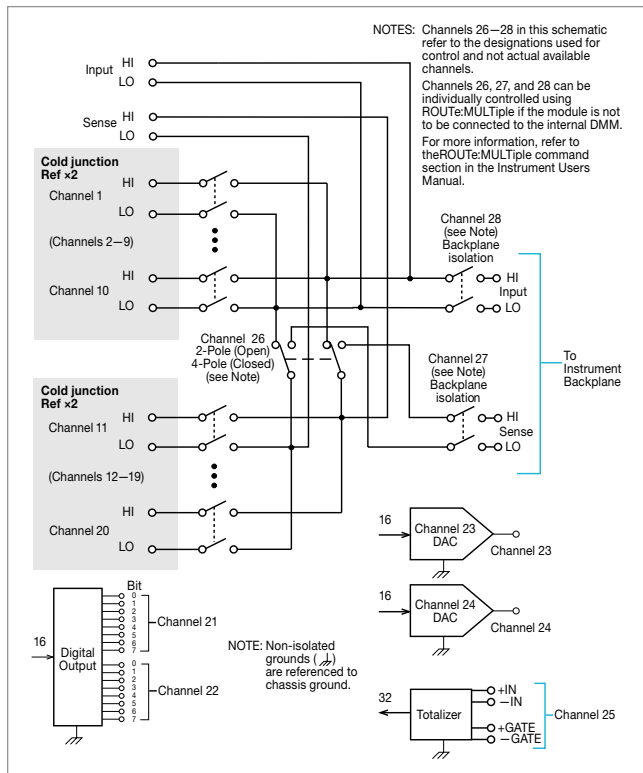


**KEITHLEY**  
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The 7706 plug-in module offers 20 channels of 2-pole or 10 channels of 4-pole multiplexer switching with automatic CJC, as well as two analog output channels, 16 digital outputs, and one event counter/totalizer. The event counter/totalizer 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 7706 is ideal for RTD, thermistor, and thermocouple temperature applications.

### Key Features

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



### Specifications

#### Capabilities

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

Channels 21–25 are referenced to chassis ground.

#### Inputs (Channels 1–20)

<b>Maximum Signal Level (Channels 1–20)</b>	300 V DC or rms, 1 A switched, 60 W, 125 VA maximum.
<b>Safety Category</b>	CAT 1
<b>Contact Life (typ.)</b>	>10 <sup>9</sup> operations at max. signal level; >10 <sup>8</sup> operations no load <sup>1</sup> .
<b>Contact Resistance</b>	<1 $\Omega$ at end of contact life.
<b>Contact Potential</b>	$\leq \pm 2$ $\mu$ V typical per contact, 3 $\mu$ V max.
<b>Offset Current</b>	<100 pA.
<b>Connector Type</b>	Screw terminal, #22 AWG wire size.
<b>Isolation Between Any Two Terminals:</b>	>10 <sup>9</sup> $\Omega$ , <100 pF.
<b>Isolation Between Any Terminal and Earth:</b>	>10 <sup>9</sup> $\Omega$ , <200 pF.
<b>Cross Talk (10MHz, 50 <math>\Omega</math> Load):</b>	<-35 dB.
<b>Insertion Loss (50 <math>\Omega</math> Source, 50 <math>\Omega</math> Load)</b>	<0.1 dB below 1 MHz. <3 dB below 2 MHz.

**Common Mode Voltage: 300 V between any terminal and chassis.**

#### Digital Output (Channels 21 and 22)

<b>V<sub>out(L)</sub></b>	<0.8 V @ I <sub>out</sub> = 400 mA.
<b>V<sub>out(H)</sub></b>	>2.4 V @ I <sub>out</sub> = 1 mA.
<b>V<sub>out(H)Max.</sub></b>	<42 V with external open drain pull-up.
<b>Write Speed</b>	50/s.
<b>Analog Voltage Output (Channels 23 and 24)</b>	
<b>DAC 1, 2</b>	$\pm 12$ V @ 1 mA max, non-isolated, $\pm 10$ V @ 5 mA max.
<b>Resolution</b>	1 mV.
<b>I<sub>out</sub></b>	5 mA max.
<b>Settling Time</b>	1 ms to 0.01% of output.
<b>Accuracy <math>\pm</math>(% of output + mV)</b>	1 year $\pm 5^\circ\text{C}$ : 0.15% + 19 mV; 90 day $\pm 5^\circ\text{C}$ : 0.1% + 19 mV; 24 hour $\pm 1^\circ\text{C}$ : 0.04% + 19 mV.

**Temperature Coefficient:**  $\pm(0.015\% + 1 \text{ mV}/^\circ\text{C})$ .

<b>Write Speed</b>	50/s.
<b>Totalize Input (Channel 25)</b>	
<b>Maximum Count</b>	232–1.
<b>Totalize Input</b>	100 kHz (max), rising or falling edge, programmable.
<b>Signal Level</b>	1 Vp-p (min), 42 Vpk (max).
<b>Threshold</b>	0 V or TTL, jumper selectable.
<b>Gate Input</b>	TTL-Hi, TTL-Lo, or none.
<b>Count Reset</b>	Manual or Read+Reset.
<b>Read Speed</b>	50/s.

### General

<b>20 Channels</b>	20 channels of 2-pole relay input. All channels configurable to 4-pole.
<b>Relay Type</b>	Latching electromechanical.
<b>Actuation Time</b>	<3 ms.

### Environmental and Safety

<b>Operating Environment:</b>	Specified for 0° to 50°C. Specified to 80% R.H. at 35°C.
<b>Storage Environment:</b>	-25° to 65°C.
<b>EMC:</b>	Conforms to European Union EMC Directive.
<b>Safety:</b>	Conforms to European Union Low Voltage Directive
<b>RoHS:</b>	Conforms to European Union RoHS Directive

<b>Weight</b>	0.5 kg (1.1 lbs).
<b>Supplied Accessories</b>	
<b>CC-92-1</b>	Set of 20 Cable Ties
<b>TL-23</b>	Screwdriver

### Available Services

<b>7706-3Y-EW</b>	1-year factory warranty extended to 3 years from date of shipment
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### Ordering Information

<b>7706</b>	All-in-One I/O Module
<b>Warranty</b>	1 year

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