GENERAL

Model 380C AC Current Converter Modules accept an AC current input and provides current outputs of either 4-20mA dc or 10-50mA dc. Up to 10 of these modules can be mounted in a Series 380 enclosure resulting in substantial space savings as well as providing the flexibility of interconnection with other modules.

These modules have input isolation which allows use of common mode signals up to 100V dc. The output signal common is also the power supply common which maintains an often necessary reference throughout the entire system. Input protection diodes are provided on the input terminals to protect the user's current transformer. The diodes are mounted on the enclosure barrier strip so that the removal of a module does not damage the current transformer.

The input span range can be adjusted from 2-5 amps with the zero capable of being suppressed up to 3 amps. Larger span ranges can be accommodated by using an external current transformer. The two standard process current outputs are field selectable by cutting a jumper on the circuit board.

SPECIFICATIONS

Input: AC current, 50/60 Hz from a current transformer

Span Adjustment: 2-5 amps

Zero Adjustment: 0-3 amps

Input Impedance: 0.03 Ohms

Input Burden: 0.75 Volt amps
Note: If the 380C card is removed, the burden will increase to 5.00V amps

Input Overload:
Withstands 100 amp overload for 0.01 Sec, a 50 amp overload for 0.1 Sec overload and a 25 amp overload for 1 Sec.

Input Isolation:
The input circuit is electrically isolated from the output and power circuits allowing the input to operate up to 100V dc off ground.

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Output:
4-20mA into 0-900 Ohms (0-700 Ohms for 24V dc powered cages)
10-50mA into 0-360 Ohms (0-280 Ohms for 24V dc powered cages)

Note: The negative output lead is common with the cage DC power supply.

Load Effect:
The output current will change less than 0.1% as load resistance is changed over entire range.

Current Limiting:
The output current will limit at approx. 150% of full scale when input is overdriven.

Accuracy:
Std conditions: ±0.5% test limit
0-50°C (32-122°F): ±0.35% test limit

Std test conditions: 0-5 amps AC input, 4-20mA dc output, room temp of 25°C, 500 Ohm resistive load, 100 Ohm resistive source, 24V & 15V dc supply.

Response Time:
150mSec to reach 98% of output span - typical

INSTALLATION
Using the card cage enclosure instructions as a reference (Service Instructions, SD3801), set the keys as follows:

Left Key: H (horizontal)
Right Key: V (vertical)

Input protection diodes are provided with each AC current transmitter. Remove the screws from terminals 1 and 2 on the barrier strip and mount the diode assembly. Failure to use the protection diodes could result in a serious accident when the card is removed. The voltage across these terminals will be unexpectedly high (even if the primary current is low) if the protection diodes are not used. The diodes prevent an open circuit between the input terminals, protecting both the card cage enclosure and the current transformer.

If the transmitter module is factory calibrated, insert the module into the proper slot in the card cage enclosure. If it is not factory calibrated, refer to the CALIBRATION section of this instruction. The transmitter module accepts 0-5A AC input signals.

CALIBRATION

OUTPUT RANGE

Determine which output range is required in your application, 4-20 or 10-50mA. A jumper wire located on the foil side of the circuit board determines the output range.

Output 4-20mA: J1 out
Output 10-50mA: J1 in
ADJUSTMENT PROCEDURE

1. To calibrate, connect the transmitter as shown in the connection diagram.

2. Your input source must be adjustable over the entire input range of your unit, and setable to an accuracy of 0.25% or better. Load the transmitter within the limitations listed under OUTPUT in the SPECIFICATIONS section of this instruction. The output current must be measured to 0.25% accuracy or better for proper results.

3. Set the input source to minimum value for application and adjust the 20-turn pot marked ZERO to give minimum output of your transmitter.

4. Set the input source to maximum value for application and adjust the 20-turn pot marked SPAN to give maximum output of your transmitter.

5. Repeat steps 3 and 4 until readings converge. Instrument is now calibrated.

MAINTENANCE

These instruments are solid state and require no maintenance on a regular basis, except for annual cleaning, blowing out dirt, and verifying calibration. If the transmitter is not operating properly, remove it and give it a full bench check-out. Most problems are in field wiring or peripheral circuitry. If the problem is traced to the unit itself, conventional electronic troubleshooting methods suffice.

CONNECTION DIAGRAM

Terminal strip on Series 380 rack enclosures. IMPORTANT: Add external diodes (furnished with card) to protect current transformer if plug-in card is removed.

0-5 Amps AC INPUT

OUTPUT R_L (Note 1)

NOTE 1: See output specification for load limits.