High Resolution Thermocouple/Millivolt Input Module

(Catalog Number 1771-IXHR Series C)

Contents

This icon is used when additional information is available in the *High Resolution Thermocouple/Millivolt Input Module User Manual,* publication 1771-6.5.131.

Use this document as a guide when installing the 1771-IXHR/C High Resolution Thermocouple/mV input module.

Prevent Electrostatic Discharge

The High Resolution Thermocouple/Millivolt input module is sensitive to electrostatic discharge.

ATTENTION: Electrostatic discharge can damage integrated circuits or semiconductors if you touch backplane connector pins. Follow these guidelines when you handle the module:

- Touch a grounded object to discharge static potential
- Wear an approved wrist-strap grounding device
- Do not touch the backplane connector or connector pins
- Do not touch circuit components inside the module
- If available, use a static-safe work station
- When not in use, keep the module in its static-shield bag

Connect Wiring to the Field Wiring Arm

Connect your I/O devices to the field wiring arm (cat. no. 1771-WI) shipped with the module.

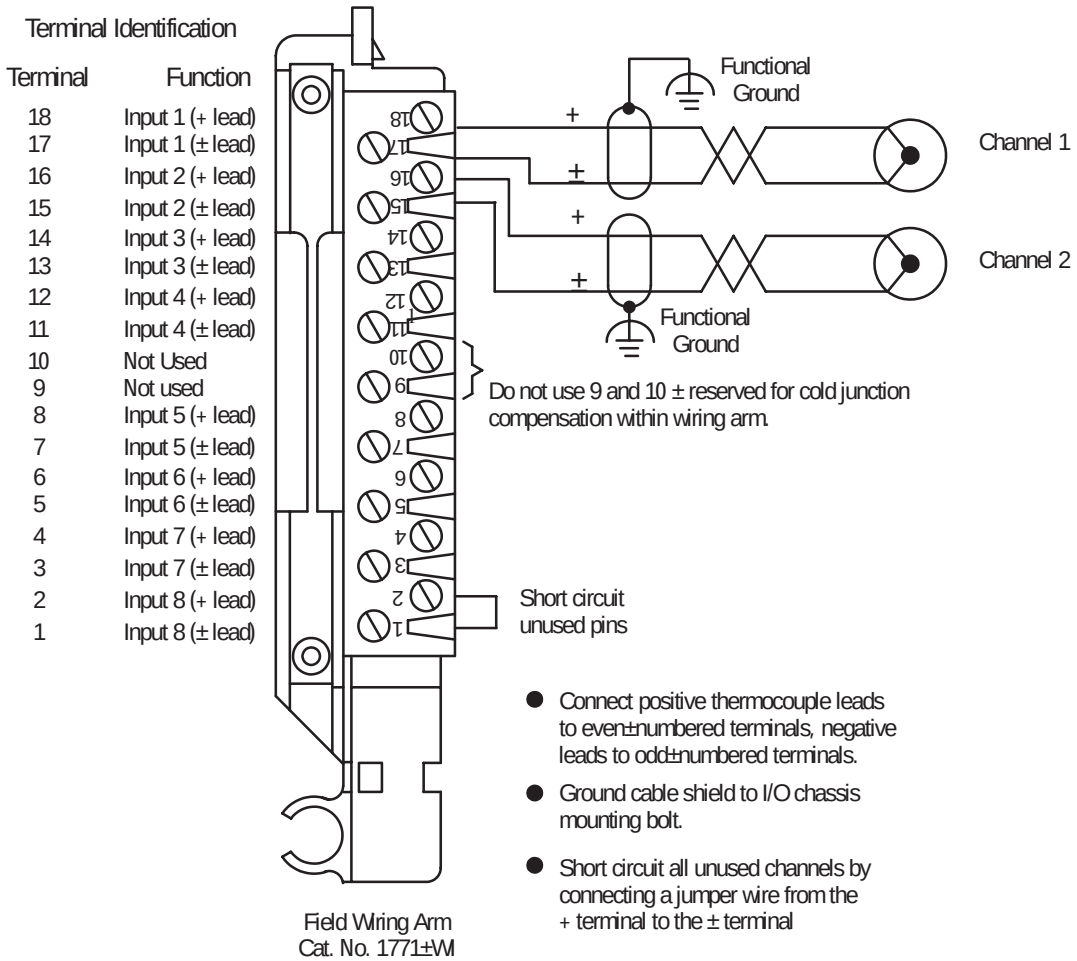
ATTENTION: Remove power from the 1771 I/O chassis backplane and field wiring arm before removing or installing an I/O module.

- Failure to remove power from the backplane or wiring arm could cause module damage, degradation of performance, or injury.
- Failure to remove power from the backplane could cause injury or equipment damage due to possible unexpected operation.

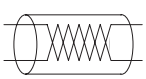
Connection Diagram for the High Resolution Thermocouple/mV Input Module (cat. no. 1771-IXHR/D)

Terminal Identification

Terminal	Function
18	Input 1 (+ lead)
17	Input 1 (± lead)
16	Input 2 (+ lead)
15	Input 2 (± lead)
14	Input 3 (+ lead)
13	Input 3 (± lead)
12	Input 4 (+ lead)
11	Input 4 (± lead)
10	Not Used
9	Not used
8	Input 5 (+ lead)
7	Input 5 (± lead)
6	Input 6 (+ lead)
5	Input 6 (± lead)
4	Input 7 (+ lead)
3	Input 7 (± lead)
2	Input 8 (+ lead)
1	Input 8 (± lead)



- Connect positive thermocouple leads to even±numbered terminals, negative leads to odd±numbered terminals.
- Ground cable shield to I/O chassis mounting bolt.
- Short circuit all unused channels by connecting a jumper wire from the + terminal to the ± terminal



The sensor cable must be shielded. The shield must:

- extend the length of the cable, but be connected only at the 1771 I/O chassis
- extend up to the point of termination

Important: The shield should extend to the termination point, exposing just enough cable to adequately terminate the inner conductors. Use heat shrink or another suitable insulation where the wire exits the cable jacket.

10527±I

CSA Hazardous Location Approval	Approbation d'utilisation dans des emplacements dangereux par la CSA
CSA® certifies products for general use as well as for use in hazardous locations. Actual CSA certification is indicated by the product label as shown below, and not by statements in any user documentation.	La CSA® certifie les produits d'utilisation générale aussi bien que ceux qui s'utilisent dans des emplacements dangereux. La certification CSA en vigueur est indiquée par l'étiquette du produit et non par des affirmations dans la documentation à l'usage des utilisateurs.
Example of the CSA certification product label 	Exemple d'étiquette de certification d'un produit par la CSA 
To comply with CSA certification for use in hazardous locations, the following information becomes a part of the product literature for CSA-certified Allen-Bradley industrial control products. • This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations only. • The products having the appropriate CSA markings (that is, Class I Division 2, Groups A, B, C, D), are certified for use in other equipment where the suitability of combination (that is, application or use) is determined by the CSA or the local inspection office having jurisdiction.	Pour satisfaire à la certification de la CSA dans des endroits dangereux, les informations suivantes font partie intégrante de la documentation des produits industriels de contrôle Allen-Bradley certifiés par la CSA. • Cet équipement convient à l'utilisation dans des emplacements de Classe 1, Division 2, Groupes A, B, C, D, ou ne convient qu'à l'utilisation dans des endroits non dangereux. • Les produits portant le marquage approprié de la CSA (c'est à dire, Classe 1, Division 2, Groupes A, B, C, D) sont certifiés à l'utilisation pour d'autres équipements où la convenance de combinaison (application ou utilisation) est déterminée par la CSA ou le bureau local d'inspection qualifié.
Important: Due to the modular nature of a PLC® control system, the product with the highest temperature rating determines the overall temperature code rating of a PLC control system in a Class I, Division 2 location. The temperature code rating is marked on the product label as shown.	Important: Par suite de la nature modulaire du système de contrôle PLC®, le produit ayant le taux le plus élevé de température détermine le taux d'ensemble du code de température du système de contrôle d'un PLC dans un emplacement de Classe 1, Division 2. Le taux du code de température est indiqué sur l'étiquette du produit.
Temperature code rating 	Taux du code de température 
The following warnings apply to products having CSA certification for use in hazardous locations.	Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour leur utilisation dans des emplacements dangereux.
ATTENTION: Explosion hazard — • Substitution of components may impair suitability for Class I, Division 2. • Do not replace components unless power has been switched off or the area is known to be non-hazardous. • Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous. • Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on an Allen-Bradley product using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.	AVERTISSEMENT: Risque d'explosion — • La substitution de composants peut rendre ce matériel inacceptable pour lesemplacements de Classe I, Division 2. • Couper le courant ou s'assurer quel'emplacement est désigné non dangereux avant de remplacer lescomposants. • Avant de débrancher l'équipement, couper le courant ou s'assurer que l'emplacement est désigné non dangereux. • Avant de débrancher les connecteurs, couper le courant ou s'assurer que l'emplacement est reconnu non dangereux. Attacher tous connecteurs fournis par l'utilisateur et reliés aux circuits externes d'un appareil Allen-Bradley à l 'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens permettant aux connexions de résister à une force de séparation de 15 newtons (3,4 lb. - 1,5 kg) appliquée pendant au moins une minute.

Le sigle CSA est la marque déposée de l'Association des Standards pour le Canada.

PLC est une marque déposée de Allen-Bradley Company, Inc.

CSA logo is a registered trademark of the Canadian Standards Association

PLC is a registered trademark of Allen-Bradley Company, Inc.

Specifications

Description	Value
Number of Inputs	8, all of the same type or 4 each of 2 different types
Module Location	1771 I/O chassis ± 1 module slot
Type of Input (Selectable)	Type B, Pt±30% Rh/Pt±6% Rh (320 to 1800ºC) Type E, chromel/constantan (±270 to 1000ºC) Type J, iron/constantan (±210 to 1200ºC) Type K, chromel/alumel (±270 to 1380ºC) Type R, Pt/Pt±13% Rh (±50 to 1770ºC) Type S, Pt/Pt±10% Rh (±50 to 1770ºC) Type T, copper/constantan (±270 to 400ºC) Millivolt (±100 to +100mV dc)
Thermocouple Linearization	IPTS±68 standard, NBS MN±125
Cold Junction Compensation	Range: 0 to 60ºC Accuracy: ±0.5ºC
Temperature Scale (Selectable)	ºC or ºF
Input Resolution	3.2328µV
Display Resolution	0.1ºC, 0.1ºF; or 1.0µV, 10µV
Isolation Voltage	This isolation meets or exceeds the requirements of UL Standard 508, and CSA Standard C22.2 No. 142.
Common Mode Rejection	120dB at 60Hz, up to 1000V peak
Common Mode Impedance	Greater than 10 megohms
Normal Mode Rejection	60dB at 60Hz over ±100mV
Input Overvoltage Protection	120V rms, continuous
Open Input Detection	Open input produces an overrange in less than 10 seconds
Data Format	2's complement binary
Calibration Methods	Auto ± Auto-calibration for offset and gain Manual ± Zero offset and gain adjustment for each channel via programming terminal Verify every six months for maintaining absolute accuracy
Processor Compatibility	PLC-3 or PLC-5 family processor using the 1771 I/O structure and block transfer. (Not recommended for use with PLC-2 family processors.)
Backplane Power Consumption	850mA @ 5V
Power Dissipation	4.25 Watts maximum
Thermal Dissipation	14.5 BTU/hr
Environmental Conditions Operating Temperature: Rate of Change: Storage Temperature: Relative Humidity:	 0 to 60ºC (32 to 140ºF) Ambient changes greater than 0.5ºC per minute may temporarily degrade performance during periods of change ±40 to 85ºC (±40 to 185ºF) 5 to 95% (without condensation)
Keying	Between 20 and 22 Between 24 and 26

Specifications continued on next page