ALLEN-BRADLEY

TTL Input Module
Cat. No. 1771-IGD

Installation Instructions

To The Installer

This document provides information on:

- important pre-installation considerations
- power supply requirements
- initial handling
- installing the module
- using the indicators for troubleshooting
- replacing the fuse
- module specifications

Pre-installation Considerations

You can use this module in a Series A or B 1771-A1B, -A2B, -A3B, -A3B1, and -A4B chassis. The module is also compatible in a 1771-AM1 or -AM2 I/O chassis.

You can use any TTL device that meets the output logic level specification of -0.2V dc to +0.8V dc (low), and 2.0V dc to 5.25V dc (high).

This module contains input filtering to limit the effects of voltage transients caused by contact bounce and/or radiated electrical noise. The delay due to filtering is less than 1ms.

For maximum noise immunity, the output of the TTL device should have a pull-up resistor of 1k ohm (typical). Add an external pull-up resistor to the output terminals of the device, if necessary. If you add a pull-up resistor, be sure the TTL device maintains the low state requirement of -0.2V dc to +0.8V dc with the increased load.

Power Requirements

The TTL module requires power from two sources: the I/O chassis backplane, and a +5V dc power supply that you provide for transmission of TTL signals.

Backplane
The TTL module receives its power through the 1771 I/O chassis backplane from the chassis power supply. The module requires 130mA from the output of this supply. Add this to the requirements of all other modules in the I/O chassis to prevent overloading the chassis backplane and/or backplane power supply.

Customer Supply
You must provide a separate +5(±0.25)V dc power supply for the TTL inputs of the module and for your TTL output devices. Your module requires 380mA from the output of your supply. Ripple should not exceed 50mV peak to peak.

Initial Handling

The TTL input module is shipped in a static-shielded bag to guard against electrostatic discharge damage. Observe the following precautions when handling the module.

Electrostatic Discharge Damage

ATTENTION: Under some conditions, electrostatic discharge can degrade performance or damage the module. Observe the following precautions to guard against electrostatic damage.

- Wear an approved wrist strap grounding device, or touch a grounded object to discharge yourself before handling the module.
- Do not touch the backplane connector or connector pins.
- If you configure or replace internal components, do not touch other circuit components inside the module. If available, use a static-free work station.
- When not in use, keep the module in its static-shielded bag.

Installing Your Module

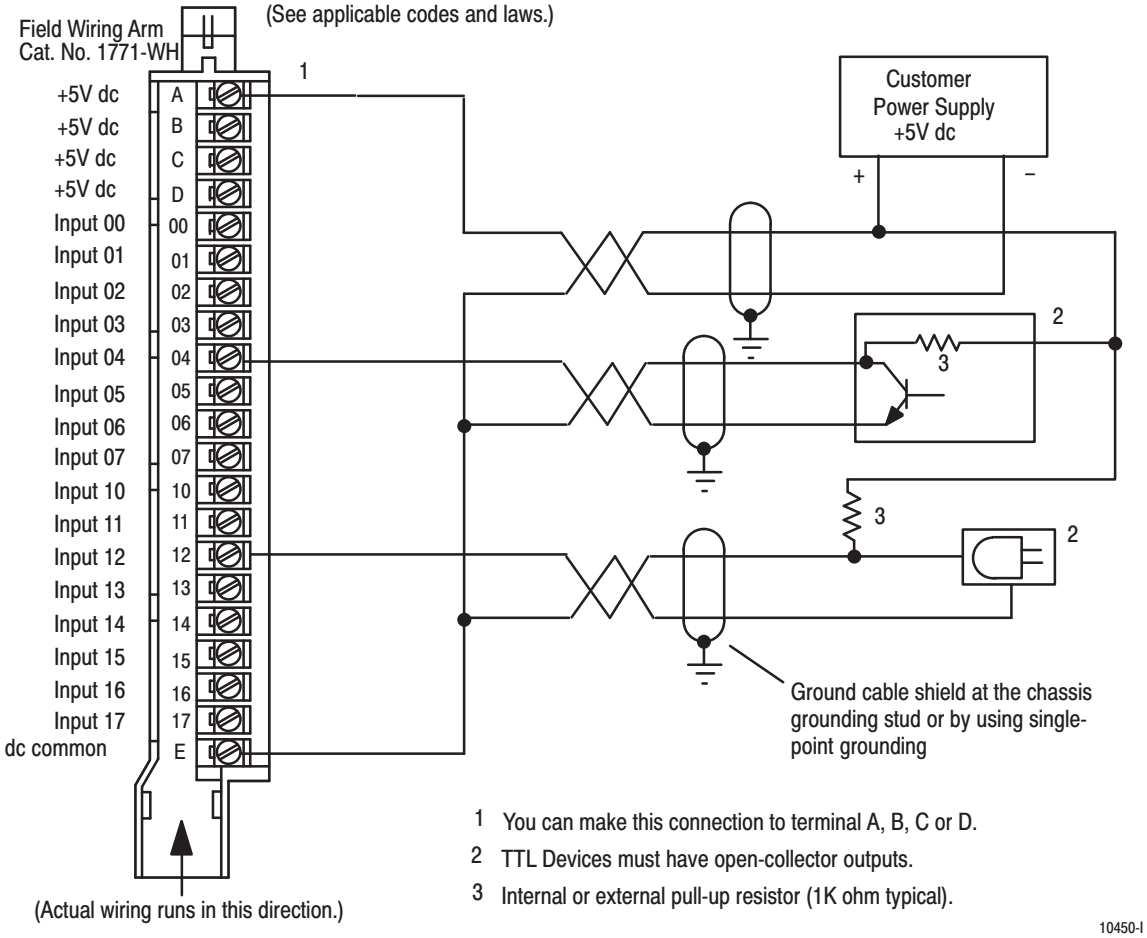
In this section, we tell you how to set the logic level jumper, key your I/O chassis, install your module and make your wiring connections.

Selecting the Logic Level

Your module is preset to the positive-logic level. Use the following table to choose between the two logic levels:

If you choose:	Then:	Jumper Position
HIGH = TRUE logic (positive)	2.0 to 5.25V dc corresponds to logic “1” (on)	Toward rear of module
LOW = TRUE logic (negative)	–0.2 to 0.8V dc corresponds to logic “1” (on)	Toward front of module
Note: Selecting positive logic automatically enables the HIGH (positive logic) indicator.		

6. You must connect both ends of the insulated signal return wire in each transmission cable as follows:
   - connect one end to the dc common terminal of your +5V dc power supply
   - connect the other end to the dc common terminal of the field wiring arm



7. Connect TTL output devices using Belden 8761 shielded cable as shown in the connection diagram. Do not exceed 50 cable feet for any output device. Connect the insulated wires to their respective terminals on the field wiring arm.

Driving Inputs with Outputs

Input terminals of the TTL input module (cat. no. 1771-IGD) may be directly driven by the outputs of a TTL output module (cat. no. 1771-OGD). Connect the cable shield between modules at one end only.

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Specifications

Inputs per Module	16
Module Location	Series A or B 1771-A1B, -A2B, -A3B, -A3B1, or -A4B I/O chassis. Other locations include 1771-AM1, and -AM2 I/O chassis.
Input Voltage Rating HIGH = TRUE LOW = TRUE	 ON: 2.0 to 5.25V dc OFF: –0.2 to +0.8V dc ON: –0.2 to +0.8V dc OFF: 2.0 to 5.25V dc
Customer Supply Voltage	5.0V dc (±0.25V) 50mV peak-to-peak ripple max.
Customer Current Sink Requirements	7mA maximum (source per input) 0.8mA maximum (sink per input)
Customer Supply Current per Module	380mA max.
Input Signal Delay	Less than 1ms
Power Dissipation	2.7 Watts (max.); 0.4 Watts (min.)
Thermal Dissipation	9.2 BTU/hr (max.); 1.4 BTU/hr (min.)
Backplane Current	130mA max.
Isolation Voltage	Tested at 1500V ac (rms) for 1 second
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity	 0° to 60°C (32° to 140°F) –40° to 85°C (–40° to 185°F) 5 to 95% (without condensation)
Fuse	0.5A 250V normal blow
Conductors Wire Size Cable Category	14 gauge stranded maximum 3/64 inch insulation maximum Shielded (Belden 8761) 2[1]
Keying	Between 16 and 18 Between 24 and 26
Field Wiring Arm	Catalog Number 1771-WH
Wiring Arm Screw Torque	7-9 inch-pounds

[1] Refer to publication 1770-4.1, Programmable Controller Wiring and Grounding Guidelines.

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