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## **Field Control to VersaMax Migration**

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## Revision History

Table 1 – Revision status lists the latest version and date for the various sections of the specification.

Versions 0.X are pre-release draft versions.

Versions 1.X to X.X are post-release versions.

The number to the left of the decimal in the version number indicates the major version number. The number to the right of the decimal in the version number indicates the minor version number.

The major version number will change for the following reasons:

- Information added to document
- Information removed from document
- Rearrangement of sections in the document
- Revisions to the scope or purpose of the document.

The minor version number will change for the following reasons:

- Spelling corrections
- Page layout or formatting corrections
- Minor changes that do not affect the scope or purpose of the document.

Version	Date	Description
1.0	26/10/2011	Initial Release

Table 0.1 Revision History

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## 1.0 Introduction

Field Control is a distributed I/O product with an option for a Field Processor to provide distributed processing. Field Control was first introduced in the early 1990's. A typical Field Control "stick" or drop consists of the following.

- A Bus Interface Unit (BIU), typically Genius, including BIU carrier and built-in power supply
- One or more I/O module carriers, each holding one or two I/O modules

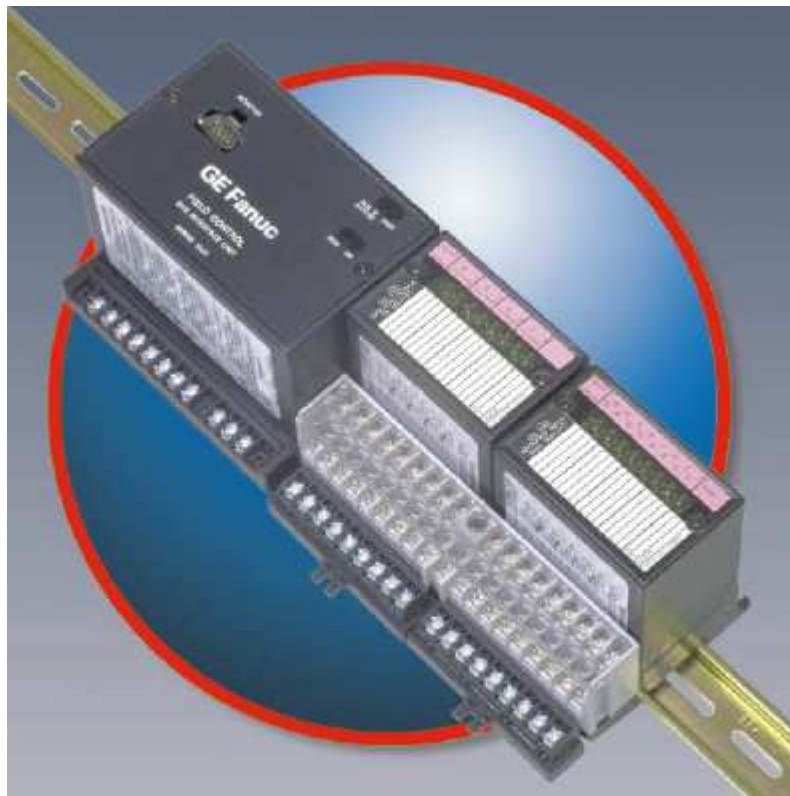


Figure 1.1 Field Control I/O

Field Control was moved to discontinued status at the end of 2008 and no new product is available (repairs to existing modules will be available until 2015. Instead, users are recommended to migrate to VersaMax I/O.

VersaMax I/O is a distributed I/O product with an option for VersaMax controllers to provide distributed processing. VersaMax was first introduced in 1999. A typical VersaMax "stick" or drop consists of the following.

- A Network Interface Unit (BIU), typically Genius or Ethernet, with power supply
- One or more I/O module carriers, each holding one I/O module
- Optional additional power supply carriers, each holding a power supply
- Optional communications carriers, each holding a communications module



Figure 1.2 VersaMax I/O

This document describes how existing Field Control I/O may be migrated to VersaMax I/O.

### ***1.1 Additional Features Provided By VersaMax I/O Over Field Control I/O***

VersaMax provides additional features over Field Control as follows.

- Lower cost
- High density I/O
- Additional I/O carrier and power supply options
- Additional diagnostics
- Auto-configuration or software configuration via Machine Edition, no special tools required
- Support for Ethernet Network Interface Unit supporting Modbus TCP and Ethernet Global Data (EGD)
- Open communications using PROFINET
- Platform for future support

## 2.0 Migrating Field Control I/O To VersaMax I/O

This section details what is involved in migrating a Field Control I/O “stick” or drop to VersaMax I/O.

### 2.1 Network Interface

The Field Control BIU must be replaced with the equivalent VersaMax NIU. For many applications, this will be Genius, so the Field Control Genius BIU (IC670GBIx02) may be replaced by the VersaMax Genius NIU (IC200GBI001). For some applications, upgrading Field Control may offer an opportunity to also upgrade to Ethernet using the VersaMax Ethernet NIU (ENIU). Rewiring of the Genius network cable will be straightforward, involving either two shielded twisted pair cables or one shielded twisted pair cable and a terminating resistor.

### 2.2 Power Supply

The VersaMax NIU does not include a power supply, so once the I/O modules are chosen and the final power consumption is known a suitable power supply must be selected.

### 2.3 I/O Modules

For the I/O modules, the VersaMax range offers many similar modules to Field Control. VersaMax also offers modules with twice the density of Field Control, potentially allowing some cost savings. So, we can replace, for example, two IC670MDL640 with one IC200MDL650. Table 2.1 shows typical Field Control I/O modules with VersaMax equivalents. VersaMax also offers mixed I/O modules but the modules listed in table 2.1 will be easiest to manage and will simplify the re-wiring as it will result in similar modules in the same location.

Original Field Control I/O Module	First Choice For Replacement VersaMax I/O Module	Alternative Choices For Replacement VersaMax I/O Module	Notes
IC670MDL640 DI 16pt	IC200MDL640 16pt	IC200MDL650 32pt	
IC670MDL740 DO 16pt	IC200MDL740 16pt	IC200MDL750 32pt	
IC670MDL930 Relay 8pt	IC200MDL930 8pt	IC200MDL940 16pt	
IC670ALG230 AI 8ch	IC200ALG230 8ch	IC200ALG240 16ch	
IC670ALG240 AI 16ch	IC200ALG240 16ch		
IC670ALG620 RTD 4ch	IC200ALG620 4ch		
IC670ALG630 TC 8ch	IC200ALG630 7ch		Check CJC
IC670ALG320 AO 4ch	IC200ALG320 4ch	IC200ALG326 8ch IC200ALG328 12ch	
IC670ALG330 AO 8ch	IC200ALG326 8ch	IC200ALG328 12ch	

Table 2.1 Typical Field Control I/O Modules With VersaMax Equivalents

### 2.4 I/O Module Carriers And Field Wiring

Once the I/O modules are chosen, suitable I/O module carriers may be chosen, typically IC200CHS022. It is not possible to plug VersaMax modules into Field Control I/O module



carriers so re-wiring of the I/O to the new VersaMax carriers will be required. A comparison of Field Control module wiring diagrams with equivalent VersaMax module wiring diagrams is provided as follows.

#### 2.4.1 IC670MDL640 To IC200MDL640 Wiring

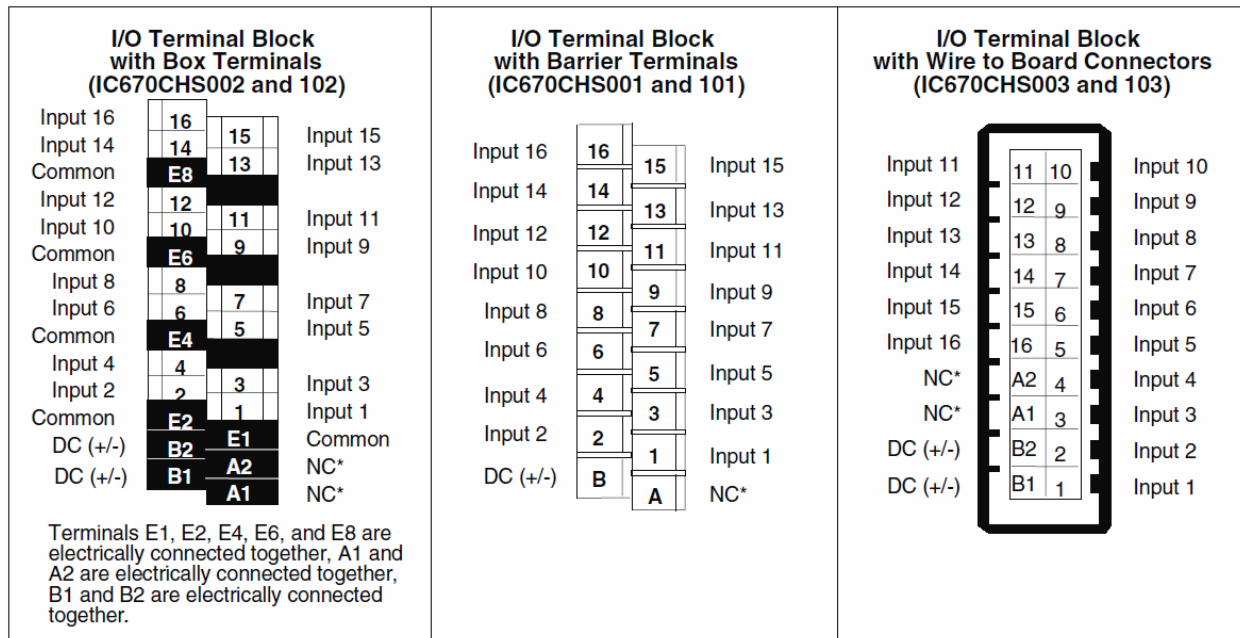


Figure 2.1 IC670MDL640 Wiring

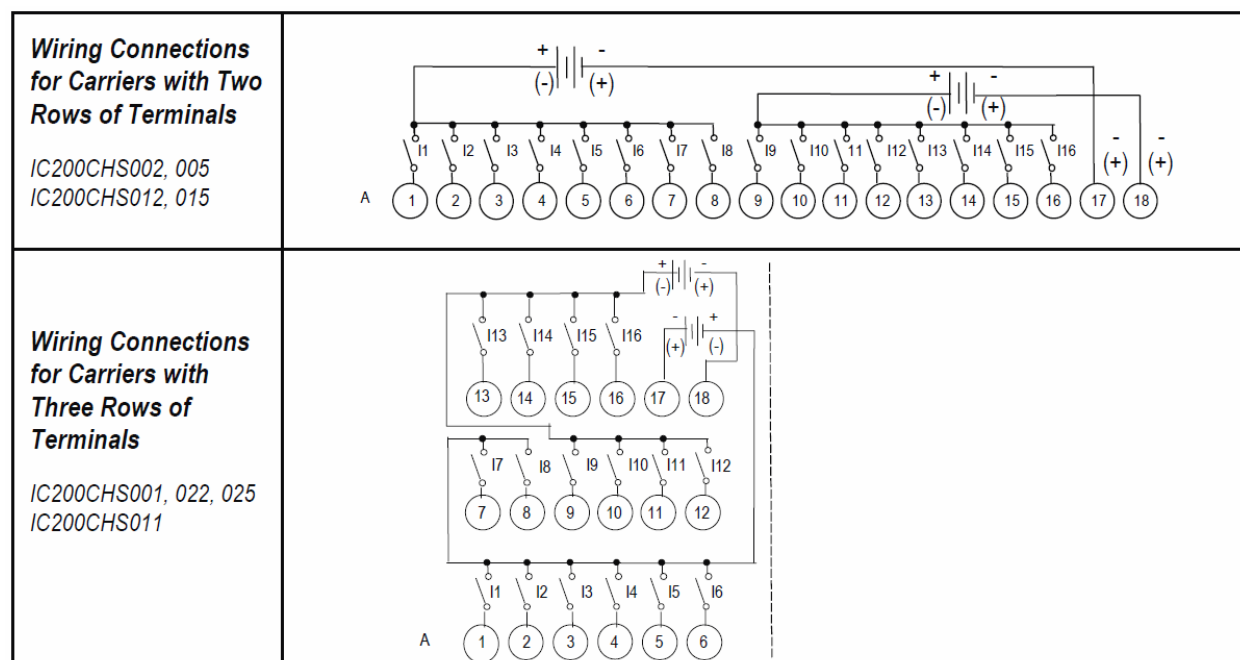


Figure 2.2 IC200MDL640 Wiring

## 2.4.2 IC670MDL740 To IC200MDL740 Wiring

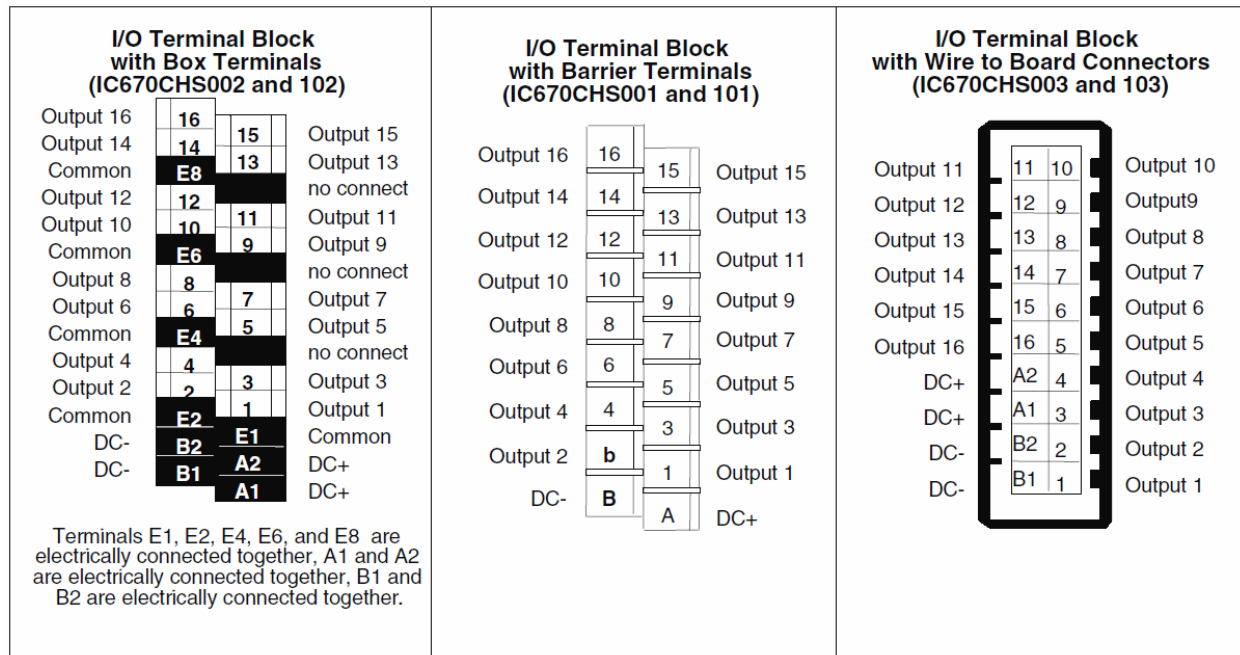


Figure 2.3 IC670MDL740 Wiring

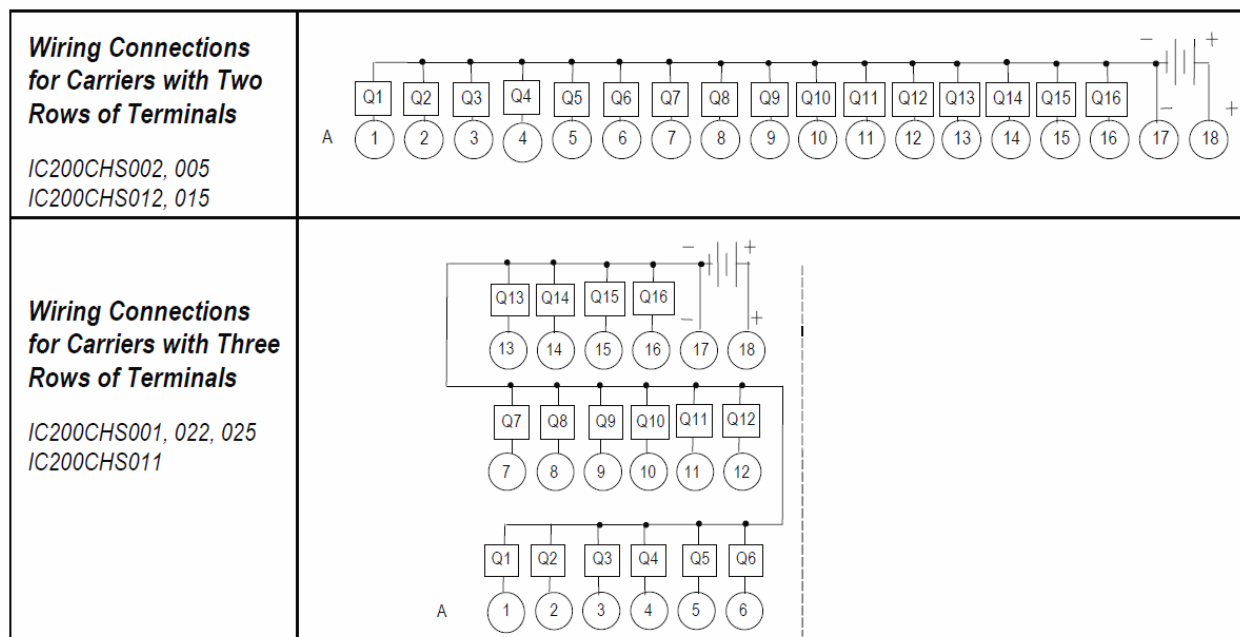


Figure 2.4 IC200MDL740 Wiring

## 2.4.3 IC670MDL930 To IC200MDL930 Wiring

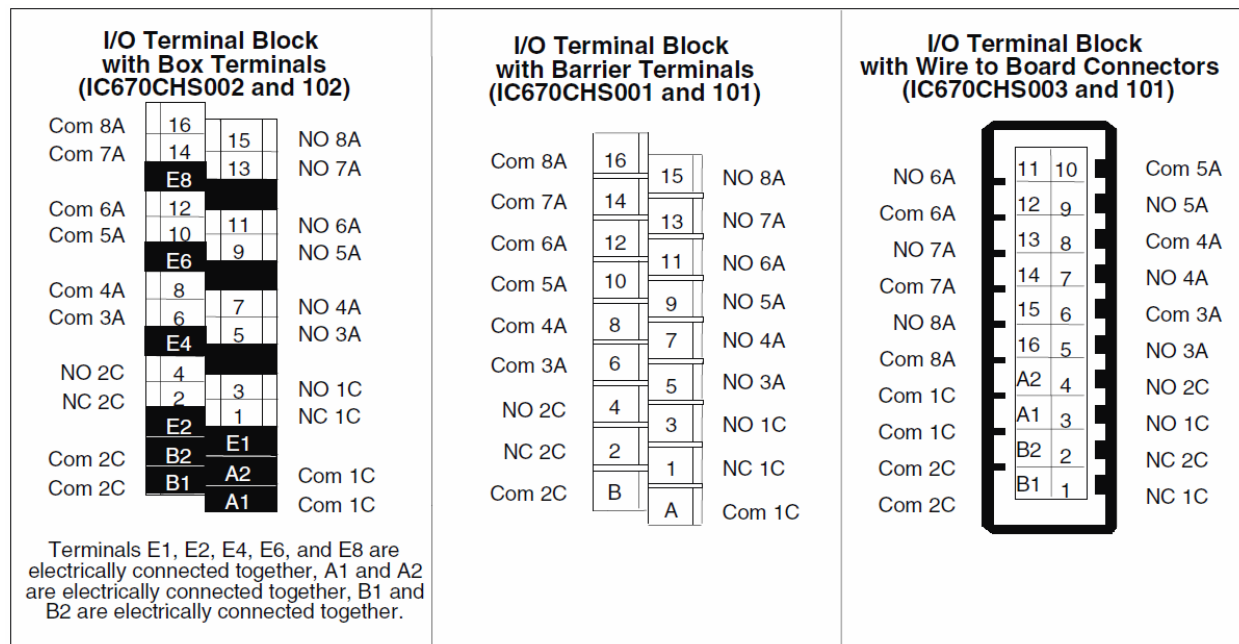


Figure 2.5 IC670MDL930 Wiring

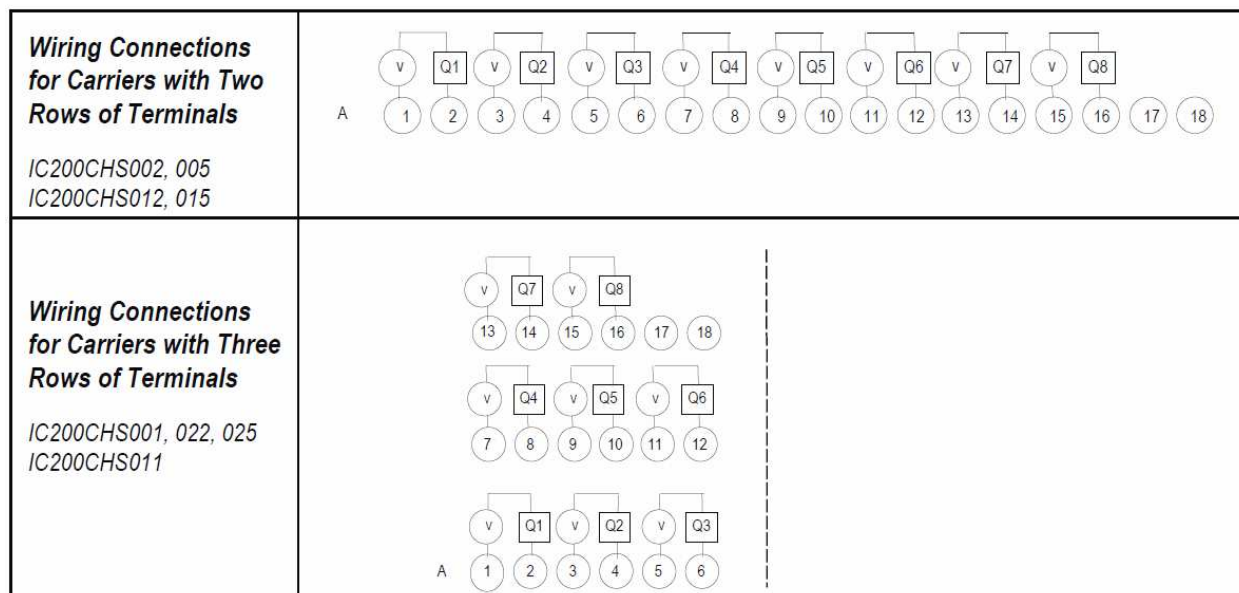


Figure 2.6 IC200MDL930 Wiring

## 2.4.4 IC670ALG230 To IC200ALG230 Wiring

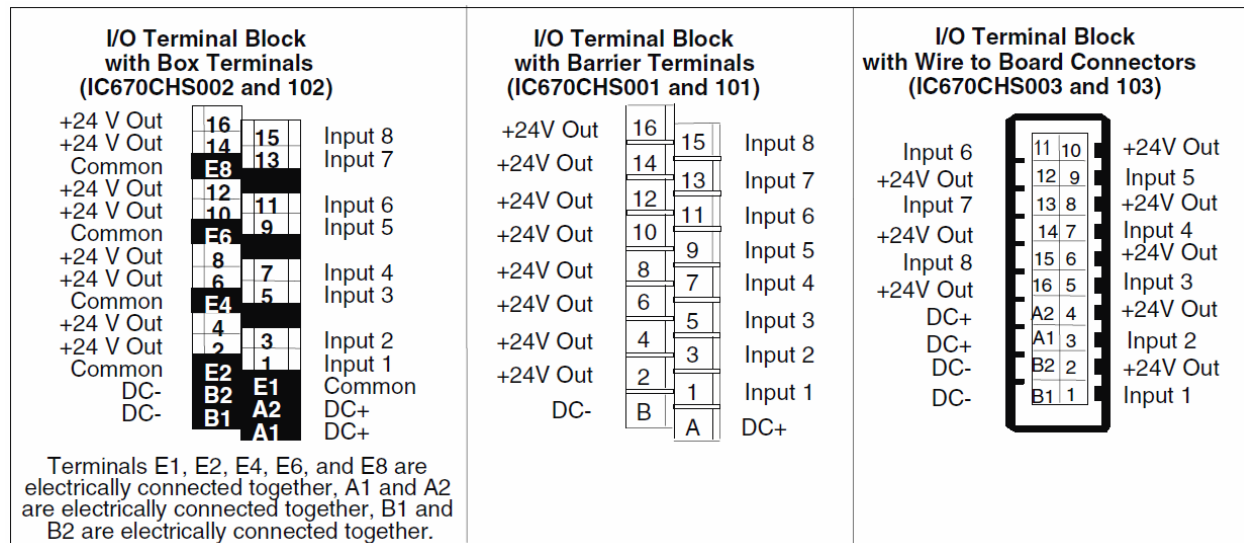


Figure 2.7 IC670ALG230 Wiring

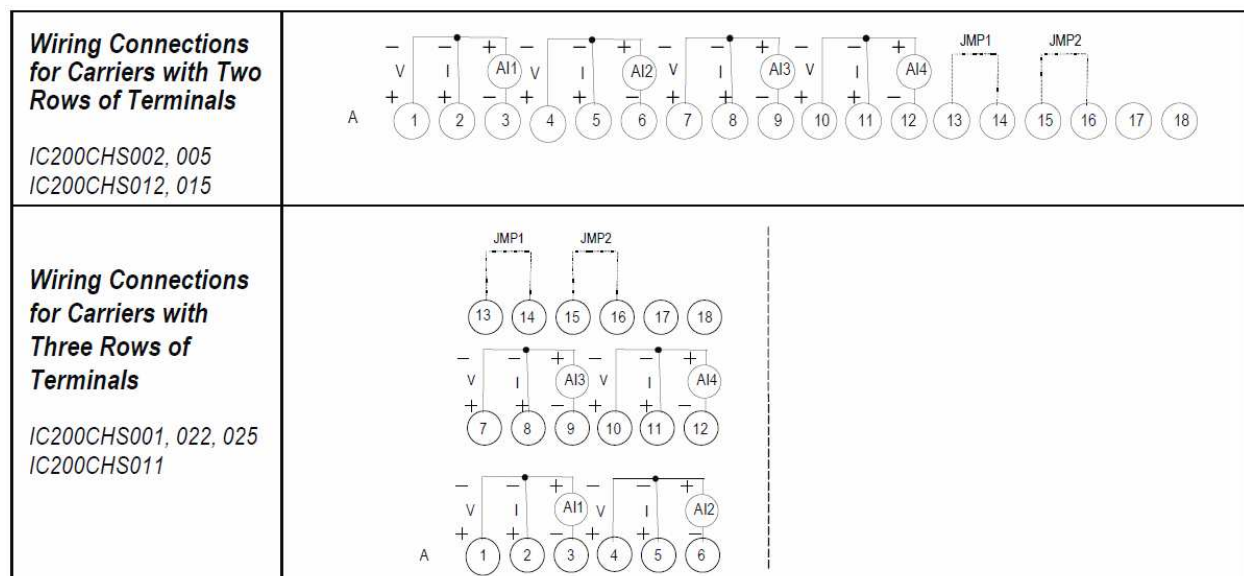


Figure 2.8 IC200ALG230 Wiring

## 2.4.5 IC670ALG240 To IC200ALG240 Wiring

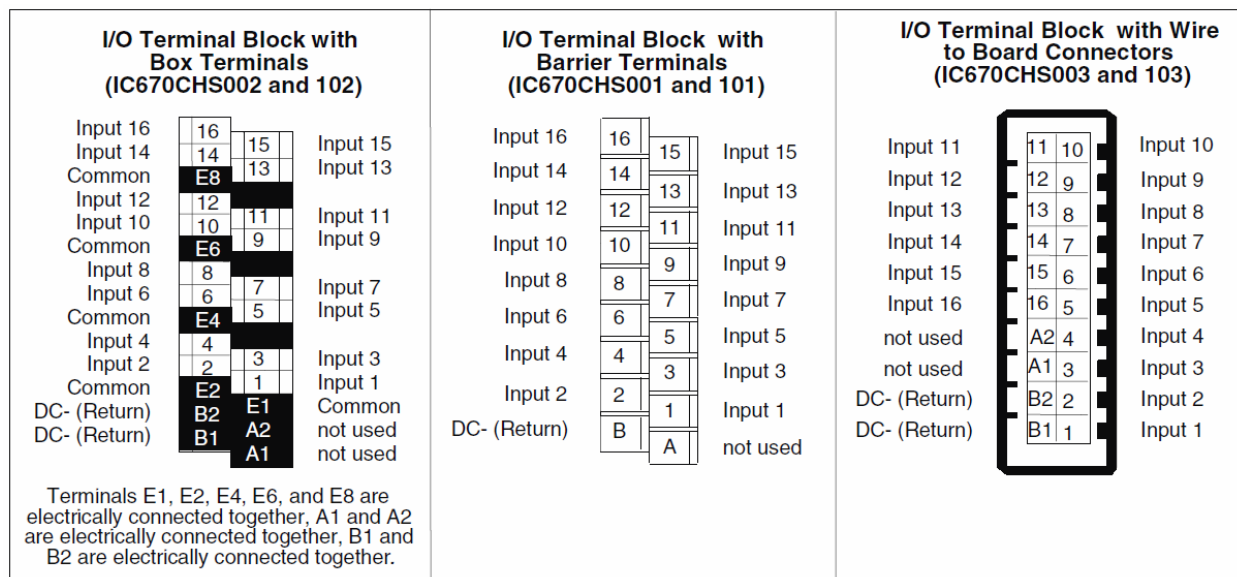


Figure 2.9 IC670ALG240 Wiring

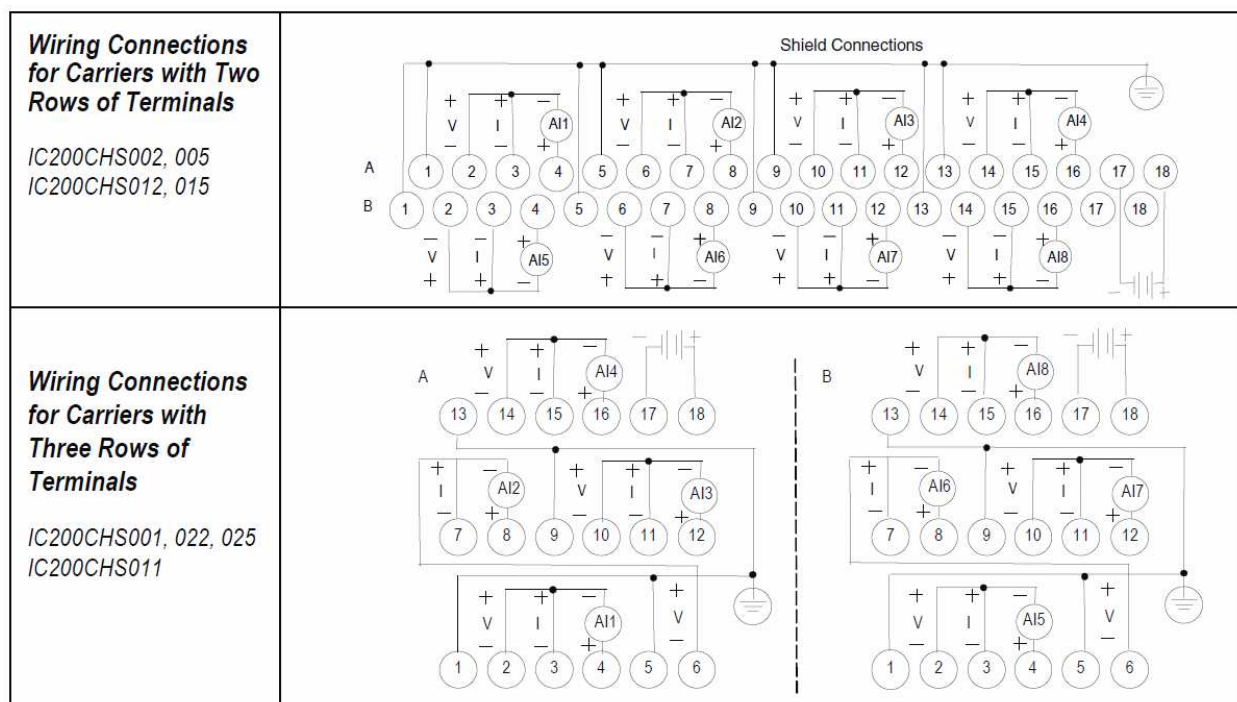


Figure 2.10 IC200ALG240 Wiring

## 2.4.6 IC670ALG620 To IC200ALG620 Wiring

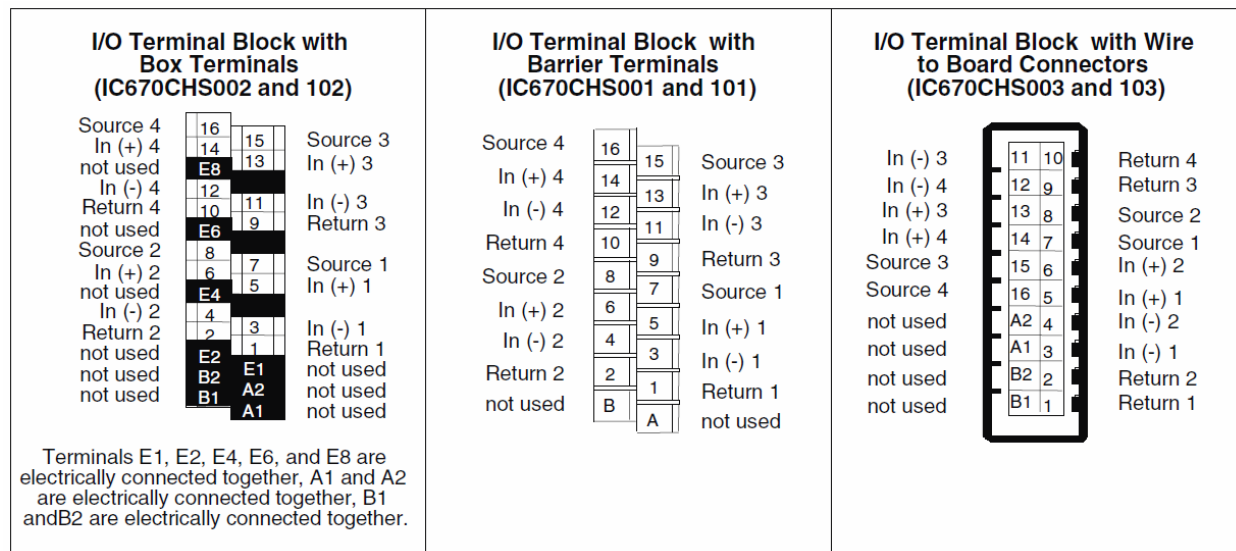


Figure 2.11 IC670ALG620 Wiring

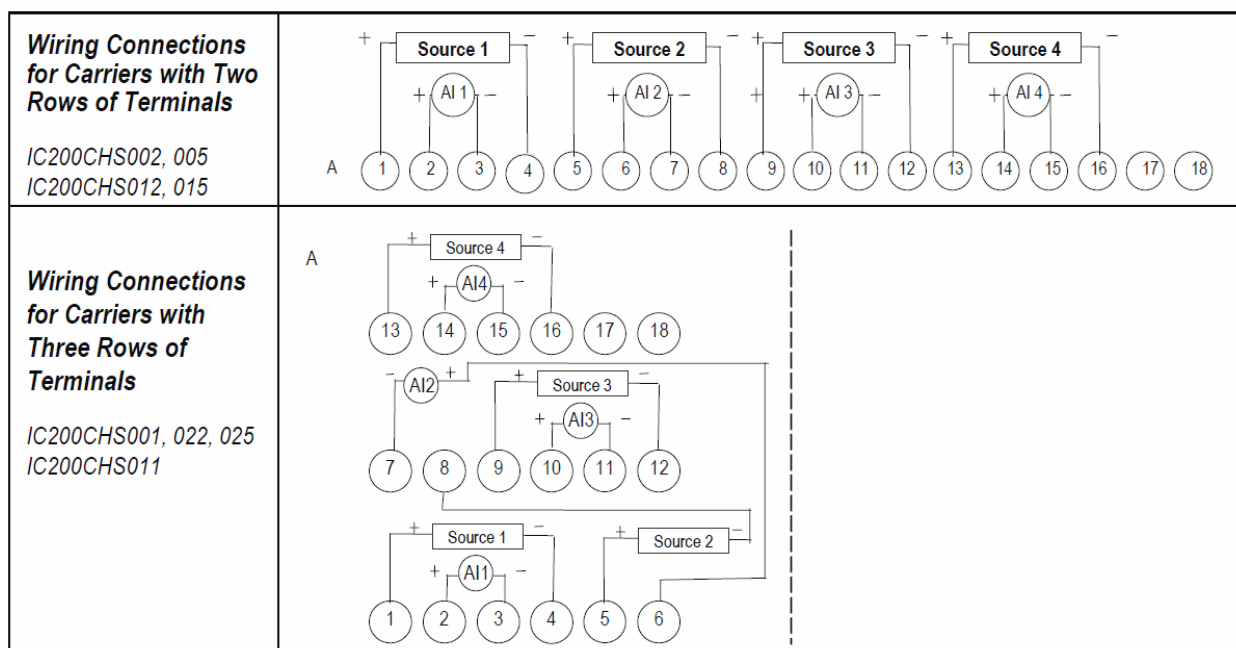


Figure 2.12 IC200ALG620 Wiring



## 2.4.7 IC670ALG630 To IC200ALG630 Wiring

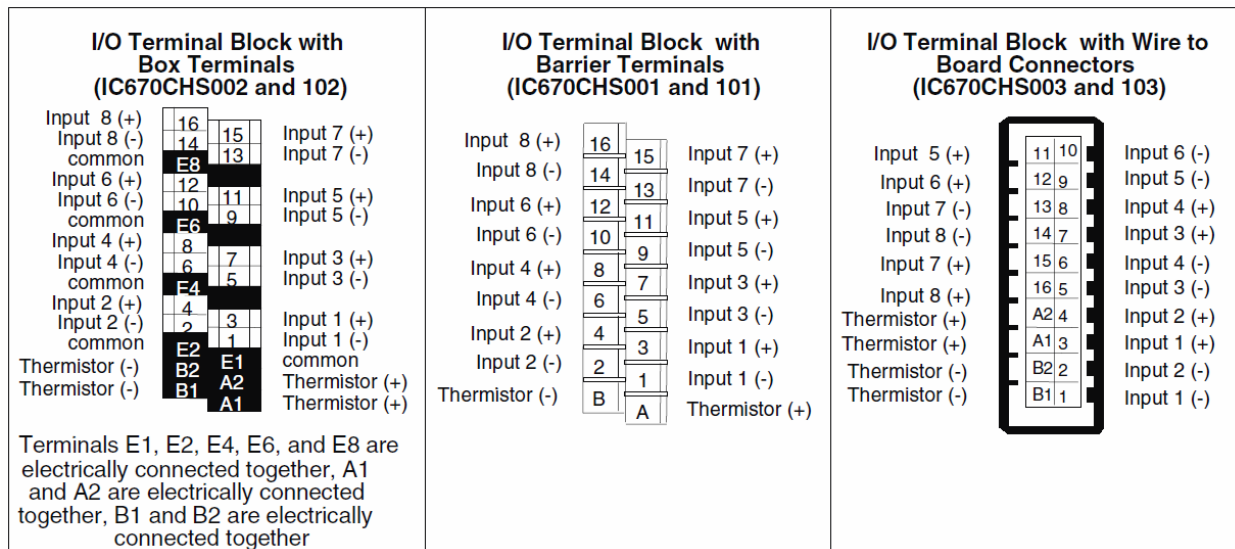


Figure 2.13 IC670ALG630 Wiring

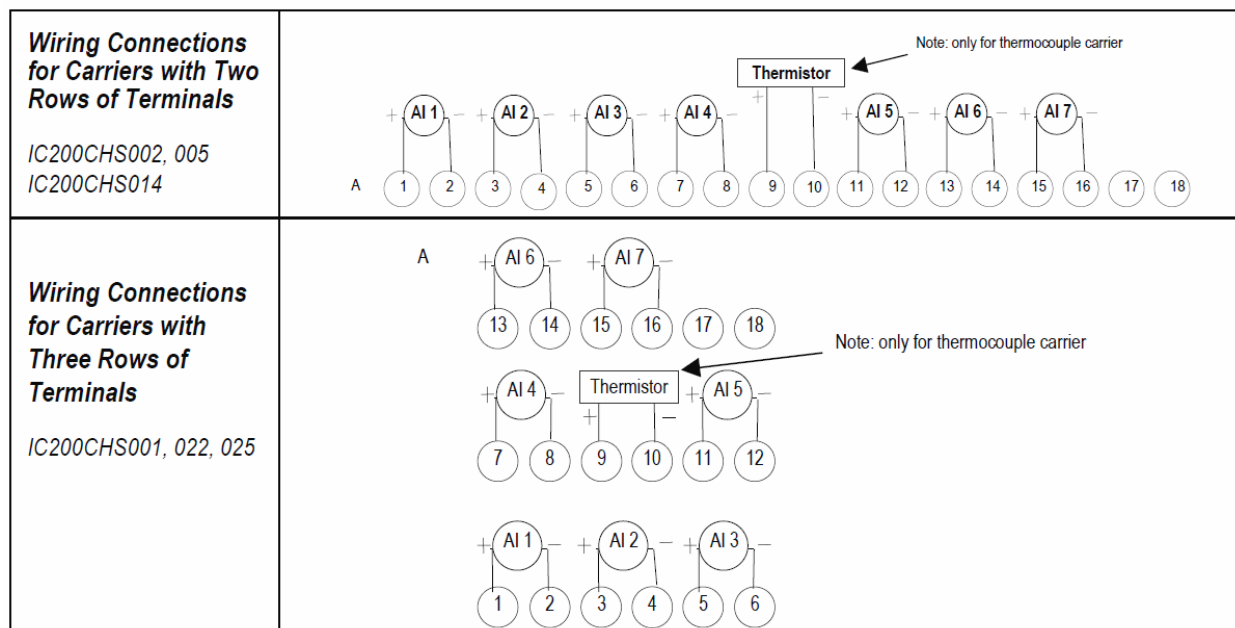


Figure 2.14 IC200ALG630 Wiring

## 2.4.8 IC670ALG320 To IC200ALG320 Wiring

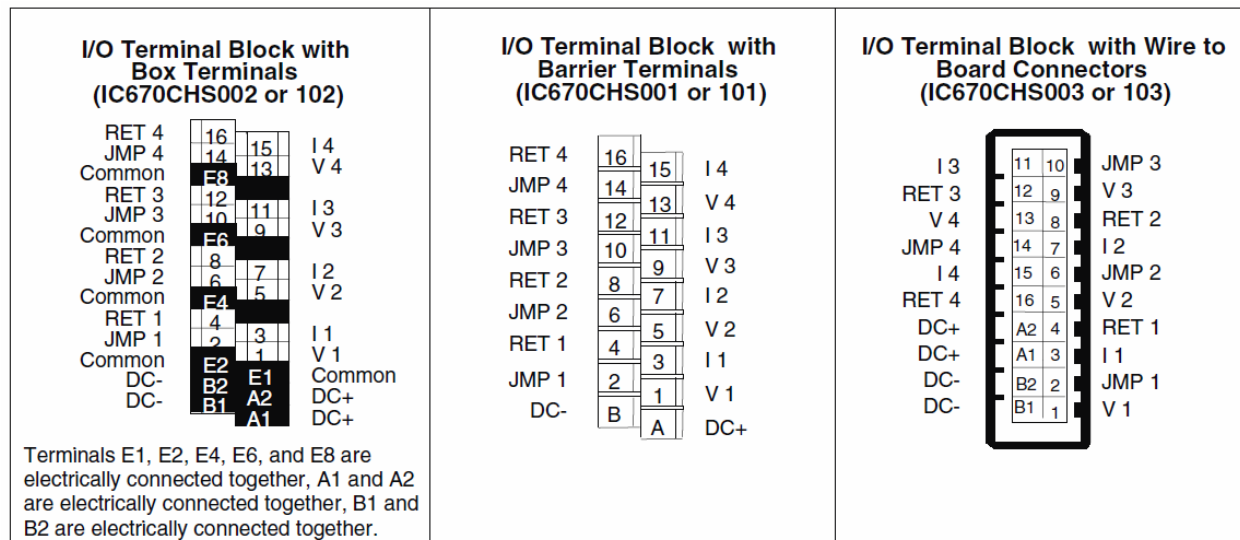


Figure 2.15 IC670ALG320 Wiring

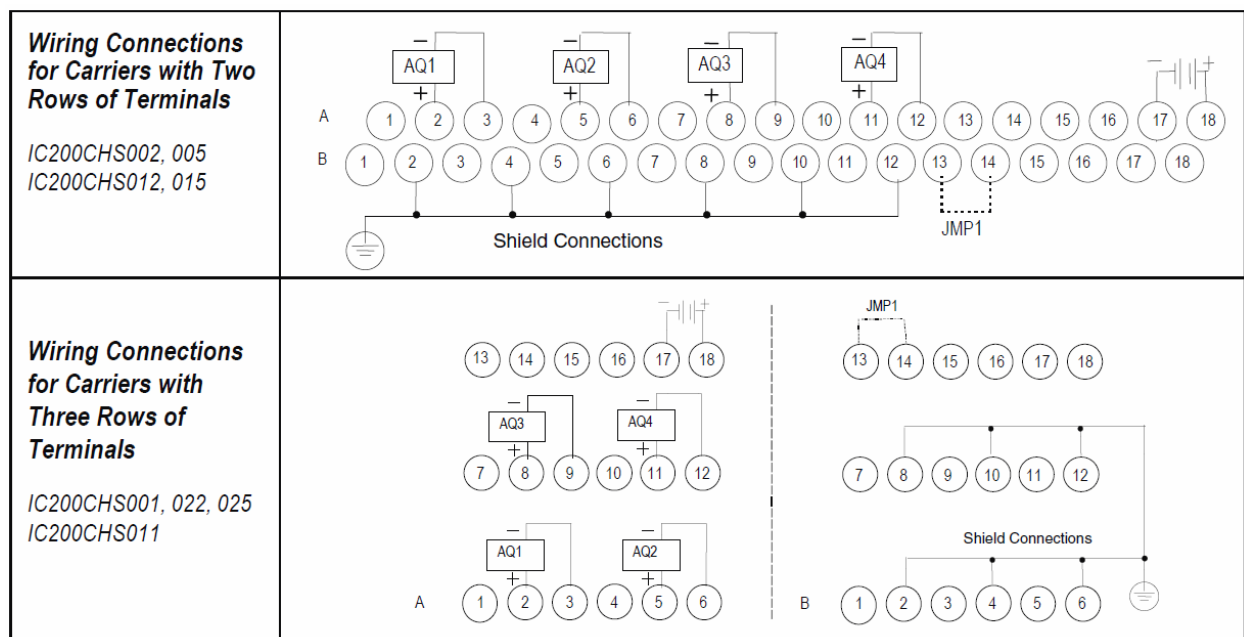


Figure 2.16 IC200ALG320 Wiring



## 2.4.9 IC670ALG330 To IC200ALG326 Wiring

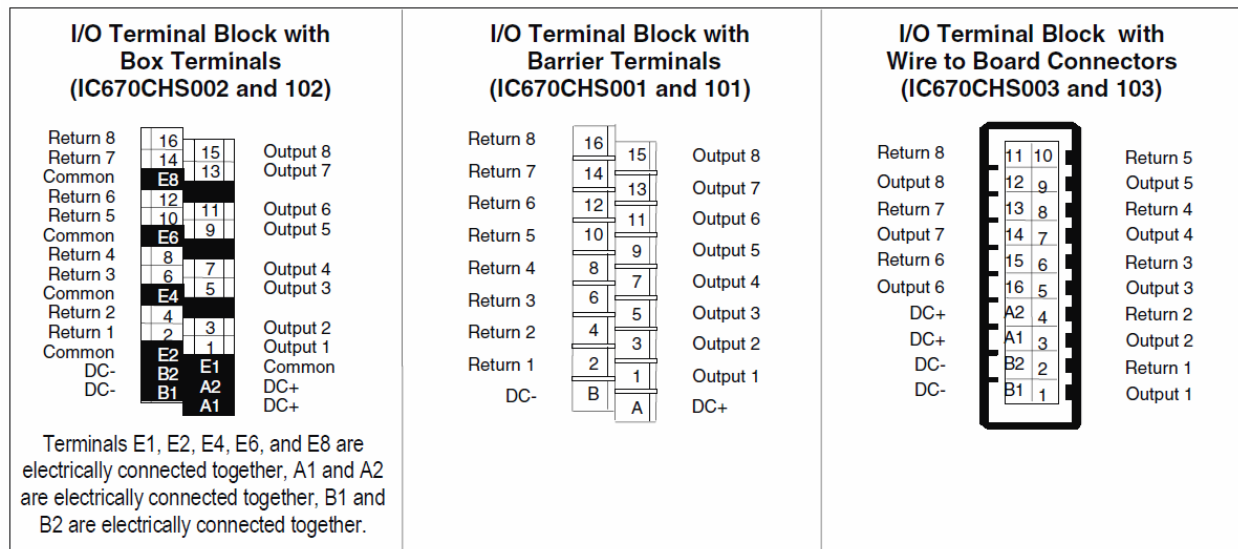


Figure 2.17 IC670ALG330 Wiring

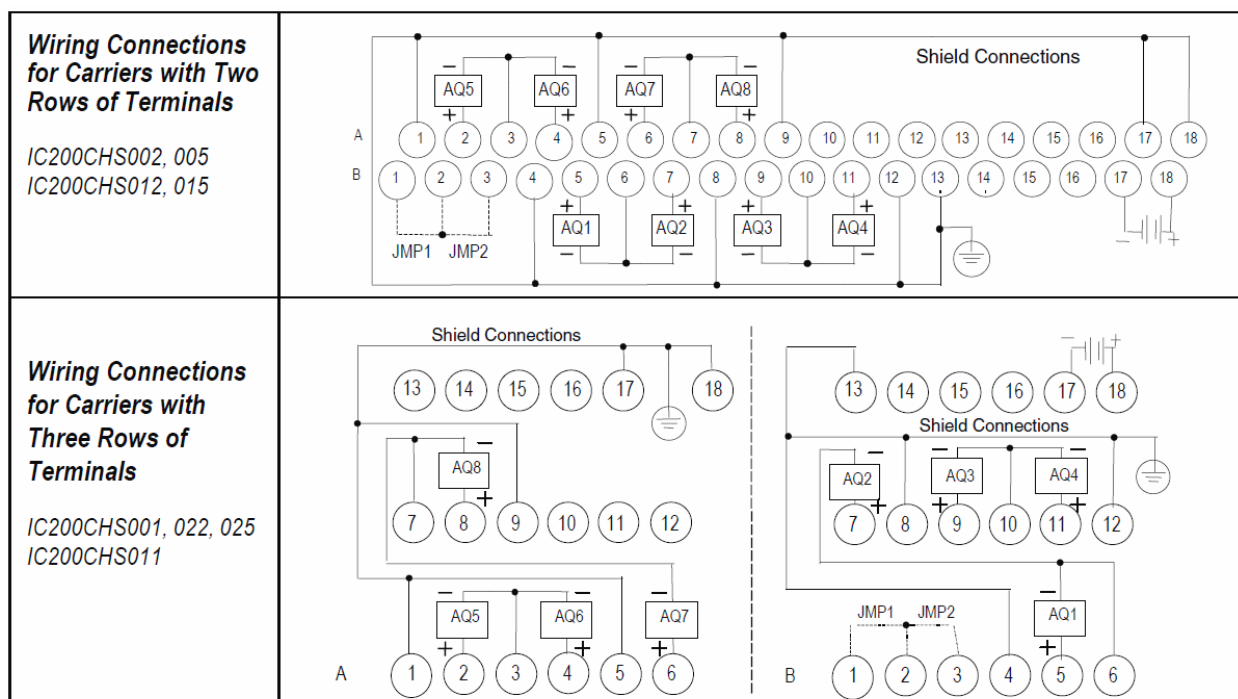


Figure 2.18 IC200ALG326 Wiring

## 2.5 Channel Configuration

VersaMax I/O may be configured using Machine Edition. In each case the Field Control channel configuration will need checking to make sure that the new configuration will be OK, especially for analogues.

**2.6 Programming**

The Field Control I/O should be replaced by equivalent VersaMax I/O such that the I/O points map to the same I/O module locations, so that no re-programming is required. Some additional programming may be desirable to handle additional diagnostics if available.

**Appendix A Glossary**

<b>Term</b>	<b>Description</b>
BIU	Bus Interface Unit
Carrier	Base to carry I/O module, NIU, power supply or communications module
CJC	Cold Junction Compensation, required for thermocouple inputs
Controller	A PLC or PAC
EGD	Ethernet Global Data, GE Intelligent Platforms protocol that runs over Ethernet
ENIU	VersaMax Ethernet Network Interface Unit
Ethernet	Open communications standard (Ethernet defines media and electronics required to transport data)
Field Control I/O	Distributed I/O product first introduced in the early 1990's, now discontinued
Genius	I/O communications system, also refers to network cable
I/O	Inputs and Outputs
Machine Edition	Windows based application to allow configuration and programming of Series 90 and PACSystems controllers and I/O
Modbus TCP	Open communications protocol for controller to controller and to I/O communications, based on Ethernet
NIU	Network Interface Unit
PAC	Programmable Automation Controller
PACSystems	Fourth generation range of controllers and I/O
PLC	Programmable Logic Controller
PROFINET	Open communications protocol for controller to I/O communications, based on Ethernet
VersaMax	Distributed I/O product first introduced in 1999