

# 4151 and 4152 Type 400 Card to MFT Mounting Adaptor and Family of MFT-Compatible Module Assemblies

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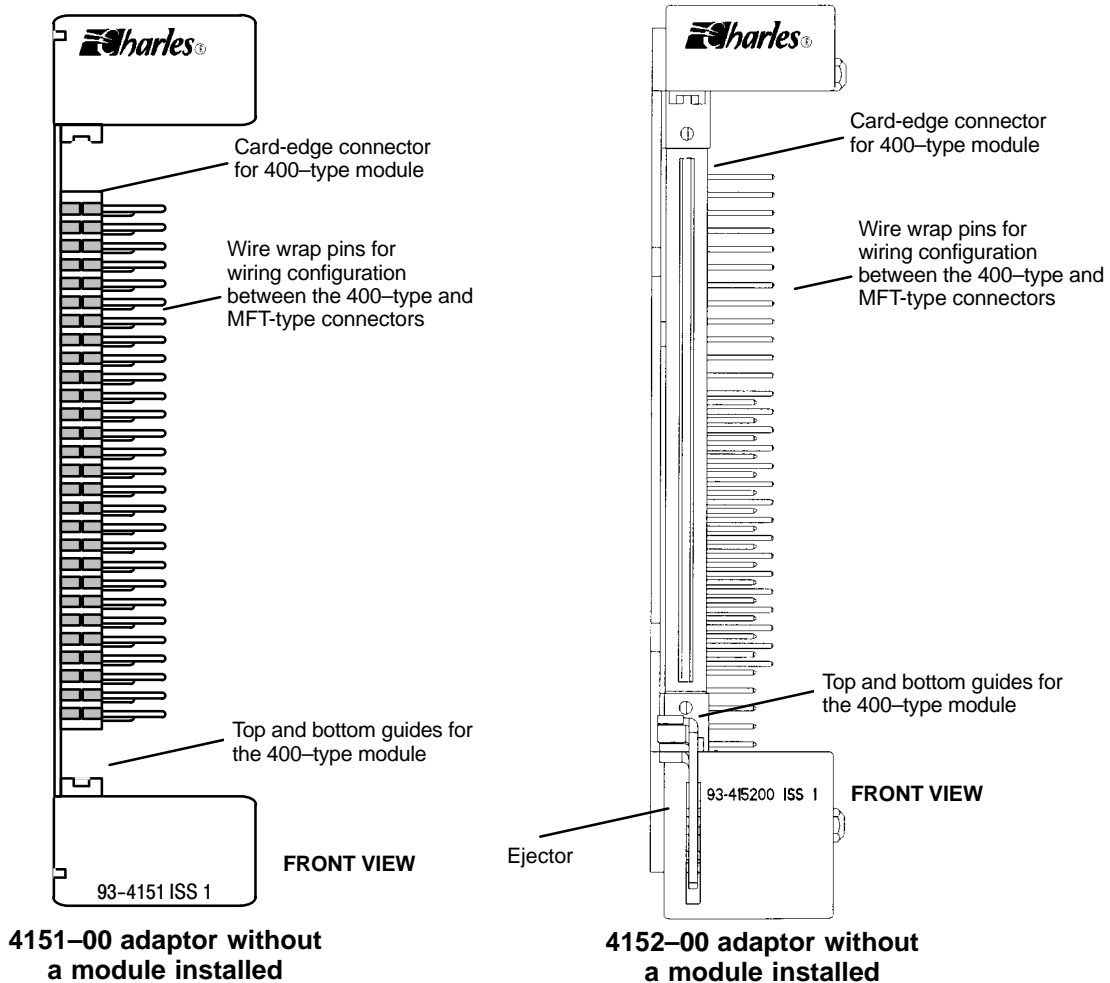


Figure 1. 4151-00 and 4152-00 Type 400 to MFT Adaptors

**1. GENERAL**

**1.1 Document Purpose**

This document provides application, installation and testing information for the Charles Industries 4151 and 4152 Type 400 card to Metallic Facility Terminal (MFT) Mounting Adaptor and family of MFT-compatible module assemblies. This document covers the following model numbers:

Model #	Description
415100	Without ejector
415200	With ejector

**1.2 Document Status**

This document is reprinted to include the 4152-00 Adaptor.

**1.3 Equipment Function**

The basis of the 4151 and 4152 family of MFT-compatible module assemblies is the Type 400 Card to MFT Mounting Adaptor depicted in Figure 2. The 4151 and 4152 facilitate the use of Charles Industries Type 400 Modules in WECO MFT Shelves.

**1.4 Equipment Location/Mounting**

Mounts in one position of a Type 400 Mounting Assembly.

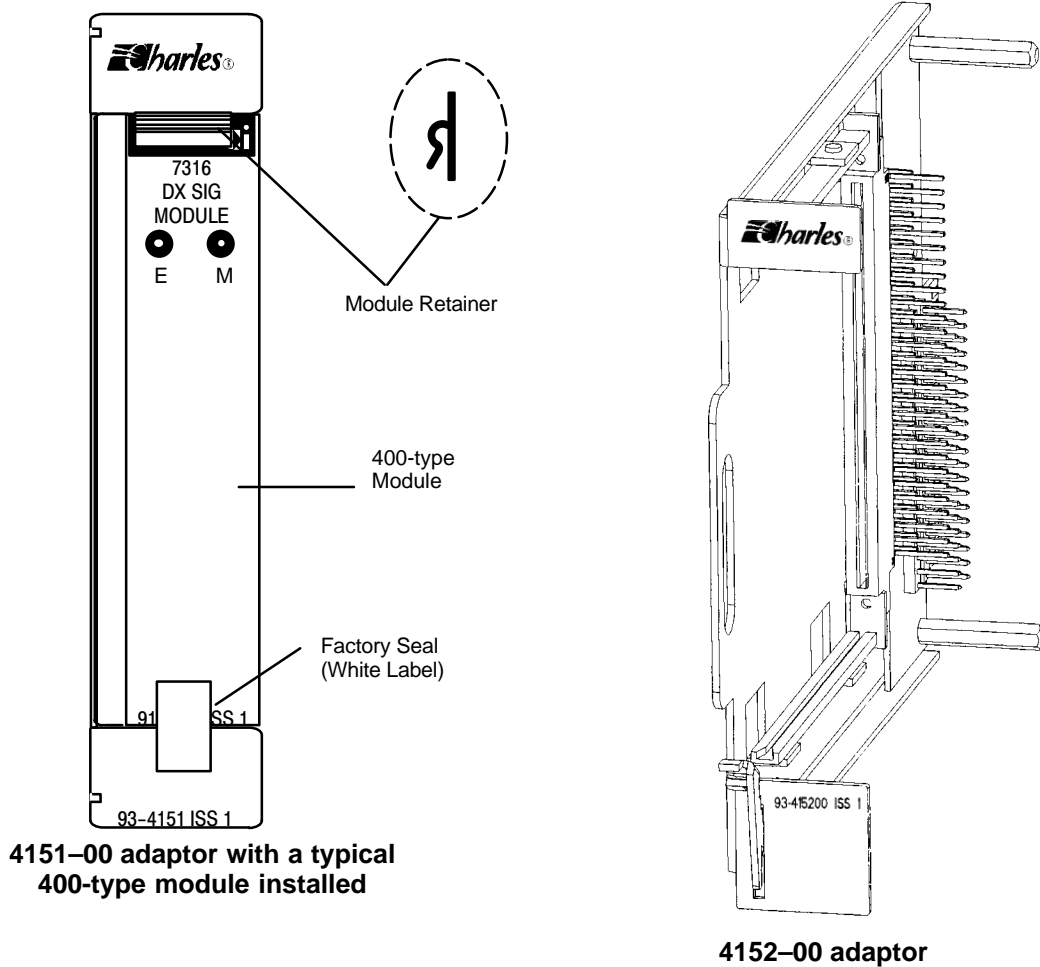


Figure 2. 4151-00 and 4152-00 Type 400 to MFT Adaptors, different views

## 2. INSPECTION

### 2.1 Inspect for Damages

Inspect the equipment thoroughly upon delivery. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company.

### 2.2 Equipment Identification

Charles Industries' equipment is identified by a model and issue number imprinted on the front panel or located elsewhere on the equipment. Each time a major engineering design change is made on the equipment, the issue number is advanced by 1 and imprinted on subsequent units manufactured. Therefore, be sure to include both the model number and its issue number when making inquiries about the equipment.

### 2.3 Static Concerns

Each module is shipped in static-protective packaging to prevent electrostatic charges from damaging static-sensitive devices. Use approved static-preventive measures, such as static-conductive wrist straps and a static-dissipative mat, when handling modules outside of their protective packaging. A module intended for future use should be tested as soon as possible and returned to its original protective packaging for storage.



**STATIC-SENSITIVE**



**This equipment contains static-sensitive electronic devices. To prevent electrostatic charges from damaging static-sensitive units:**

- **Use approved static preventive measures (such as a static-conductive wrist strap and a static-dissipative mat) at all times whenever touching units outside of their original, shipped static-protective packaging.**
- **Do not ship or store units near strong electrostatic, electromagnetic, or magnetic fields.**
- **Use static-protective packaging for shipping or storage.**

## 3. APPLICATION GUIDELINES

The adaptor, as provided, must be wired by the user as required by the application. (Charles Industries will wire unit upon special order). The standard wiring schemes, given in Figure 3, of which each is designated by a unique two-digit number. When a 4151–00 or 4152–00 adaptor is wired according to a standard scheme, the –00 suffix is replaced with the two digit wiring scheme number. For example, a 4151–00 wired per wiring scheme 09 becomes 4151–09. In this document, 4151–XX or 4152–XX will be used to indicate an adaptor has been wired according to one of the standard wiring schemes.

An adaptor that is equipped with the required Charles Industries module and sub-assembly(s) for replacing a specific WECO module will then take on the same two letter suffix as the WECO module that it replaces. For example, WECO J99343-AC is replaced by a Charles Industries 4151-AC. In this document, 4151–\*\* or 4152–\*\* will be used to indicate the combination of 4151–XX or 4152–XX, Charles Industries module and subassemblies (when required).

Table 1 provides a list of 415X–\*\* MFT-Compatible Module Assemblies and the WECO model numbers they replace. Table 1 also includes 415X–\*\* MFT-type Assemblies that are not WECO counterpart but are available.

To assemble a 415X–\*\* in the field, remove the plastic module retainer clip taped to the inside of the 415X–00. Next, slide the 400-type module into the 415X–00 until it is firmly seated into the module connector. Next install the module retainer at the top of the front panel in the position shown in Figure 3.

When a 415X–\*\* is assembled at the factory, a small white label is attached to the bottom front panel of the 400-type module as shown in Figure 2. This white label seal provides assurance that the 415X\*\* is equipped with the required module.

Table 1. 415X–\*\* MFT-Compatible Module Assemblies

415X–** Module #	Equivalent WECO Module #	Required 400-type Modules & Assemblies	415X–** Wiring Scheme
415X-AC	J99343–AC	One 7376–10 Loop Start/Ground Start Loop Signaling Repeater	415X-01
415X-AD	J99343–AD	One 7370–00 Dial Long Line Repeater	415X-01
415X-DB	J99343–BD	One 412–01 Pad/Transformer	415X-03
415X-CD	J99343–CD	One 7312–10 Loop Extender	415X-01
415X-DA	J99343–DA	One 7316–00 DX Signaling Unit	415X-05
415X-DB	J99343–DB	One 7316–00 DX Signaling Unit	415X-05
415X-EC	J99343–EC	One 7391–11 2W Automatic Ringdown	415X-01
415X-HA	None	One 7305–00 4W to 2W Repeater with DX1/DX2 Signaling Interface	415X-18
415X-PB	J99343–PB	One 7534–00 2W to 2W Electronic Hybrid Repeater; One 7833–02 Nonloaded Precision Balance Network (east)	415X-08
415X-PD	J99343–PD	One 7534–00 2W to 2W Electronic Hybrid Repeater; Two 7833–01 H88 Precision Balance Networks	415X-08
415X-PG	J99343–PG	One 7534–00 2W to 2W Electronic Hybrid Repeater; One 7833–01 H88 Precision Balance Network (east)	415X-08
415X-PH	J99343–PH	One 7534–00 2W to 2W Electronic Hybrid Repeater; Two 7833–01 H88 Precision Balance Networks	415X-08
415X-PJ	J99343–PJ	One 7534–00 2W to 2W Electronic Hybrid Repeater; One 7833–01 H88 Precision Balance Network (west); One 7833–02 Nonloaded Precision Balance Network (east)	415X-08
415X-PK	J99343–PK	One 7534–00 2W to 2W Electronic Hybrid Repeater; One 7833–01 H88 Precision Balance Network (east); One 7833–02 Nonloaded Precision Balance Network (west)	415X-08
415X-RA	J99343–RA	One 7535–00 2W to 4W Electronic Hybrid Repeater	415X-09
415X-RC	J99343–RC	One 7535–00 2W to 4W Electronic Hybrid Repeater; One 7833–02 Nonloaded Precision Balance Network	415X-10
415X-RE	J99343–RE	One 7535–00 2W to 4W Electronic Hybrid Repeater; One 7833–02 Nonloaded Precision Balance Network	415X-09
415X-RF	J99343–RF	One 7535–00 2W to 4W Electronic Hybrid Repeater	415X-09
415X-RG	J99343–RG	One 7535–00 2W to 4W Electronic Hybrid Repeater; One 7833–01 H88 Precision Balance Network	415X-10
415X-RH	J99343–RH	One 7535–00 2W to 4W Electronic Hybrid Repeater; One 7833–01 H88 Precision Balance Network	415X-09
415X-SA	J99343–SA	One 401–00 Dual Line Amplifier	415X-03
415X-SB	J99343–SB	One 401–00 Dual Line Amplifier	415X-03
415X-SX	None	One 7306–50 4W–To–4W Terminal Repeater	415X-19
415X-WD	None	One 733–00 Two–Way Dial Loop–To–E&M Converter	415X-13
415X-WE	None	One 7279–24 2W–To–4W Repeater	415X-17
415X-WF	None	One 7279–44 4W–To–4W Repeater	415X-17
415X-WG	None	One 7280–00 SF–To–E&M Converter	415X-16
415X-WH	None	One 7281–00 SF FXO	415X-16
415X-WI	None	One 7281–01 SF FXS	415X-16
415X-WJ	None	One 7282–00 SF Ringdown	415X-16

415X–** Module #	Equivalent WECO Module #	Required 400-type Modules & Assemblies	415X–** Wiring Scheme
415X-WK	None	One 7534–00 2W to 2W Electronic Hybrid Repeater	415X-08
415X-WL	None	One AM1 7535–00 2W to 4W Electronic Hybrid Repeater	415X-09
415X-WM	None	One 7391–00 (Issue 3) 2W Automatic Ringdown LS/GS	415X-20
415X-WN	None	One 4101–00 Transfer Relay Module, 48V	415X-15
415X-WR	None	One 7279–26 2W–To–4W Repeater With Prescription Gain	415X-17
415X-WU	None	One 7283–00 DX–To–E&M Converter	415X-16

#### 4. INSTALLER CONNECTIONS

Before installing the 415X\*\* in the MFT shelf, refer to the respective Charles Industries documents associated with the included module and its subassemblies. These documents will provide any necessary optioning and alignment procedure that is required before placing the equipment in operation. The documents also provide other information such as application, testing, circuit description and block diagrams that will assist in the use of the equipment.

The adaptor makes connection to the office distributing frame through a prewired 40–pin wire-wrap card-edge connector provided as part of the MFT shelf. If installer wiring is required, refer to the appropriate wiring configuration in Figure 3. It may be helpful to refer to the documentation associated with the included 400–type module.

#### **CAUTION**

**Installation and removal of modules should be done with care. Do not force a module into place. If excessive resistance is encountered while installing a module, remove the module, and check the card guides and connector to verify proper alignment and absence of foreign material.**

#### 5. TESTING

When the installation is completed, perform a talk and signaling test on the facility to verify proper operation. If trouble is encountered, verify that the 415X–\*\* is making good connection with the MFT shelf card connector by removing and then reinserting it. If trouble persists, inspect the wiring of the 415X–XX adaptor assembly and compare it with the appropriate wiring scheme in Figure 3. If necessary, make a point–to–point resistance check to verify continuity and absence of shorts between pins. Perform the test procedure contained in the Charles Industries document covering the included Type 400 module and its subassemblies.

#### 6. TECHNICAL ASSISTANCE

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847–806–8500

847–806–8556 (FAX)

800–607–8500

techserv@charlesindustries.com (e-mail)

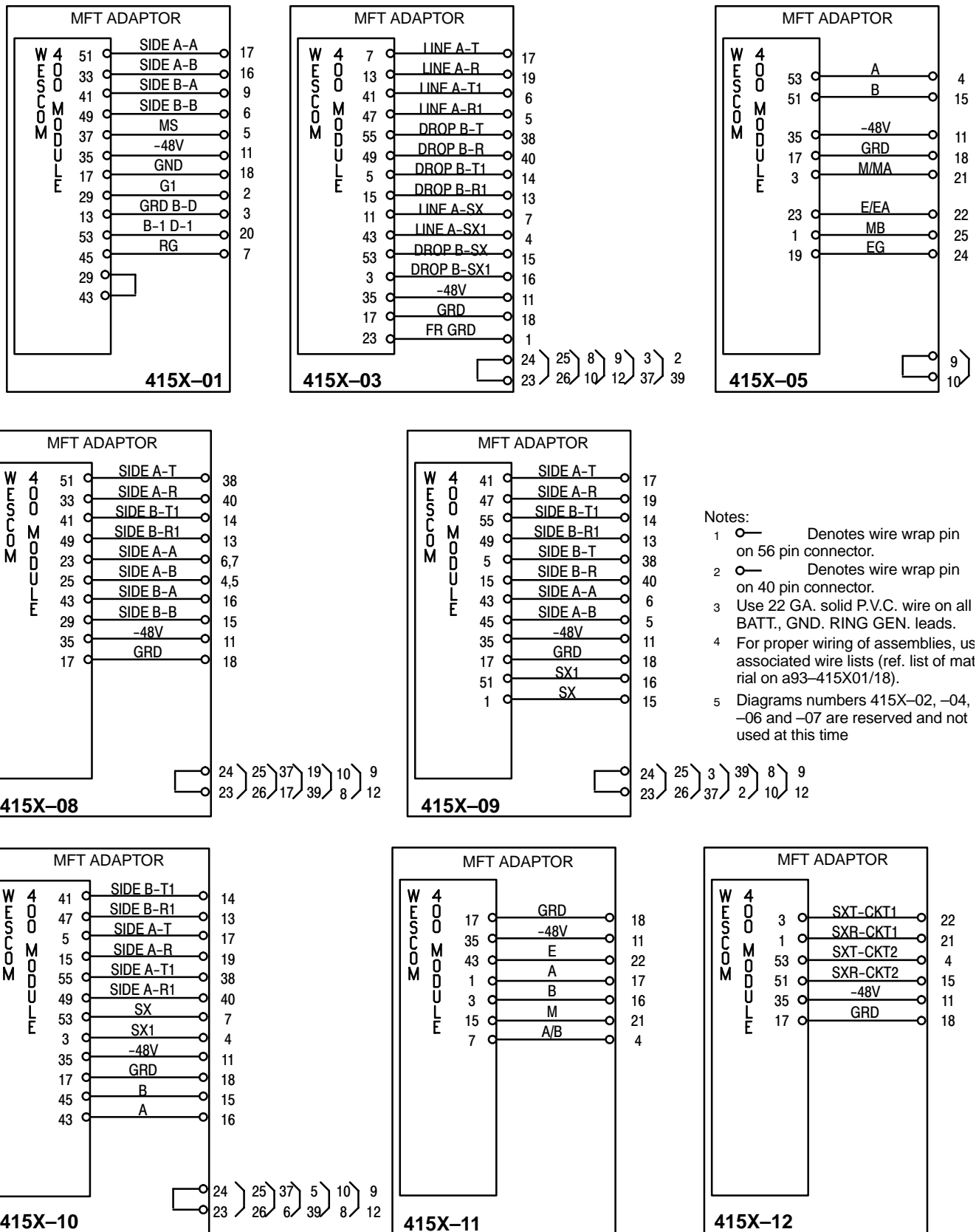
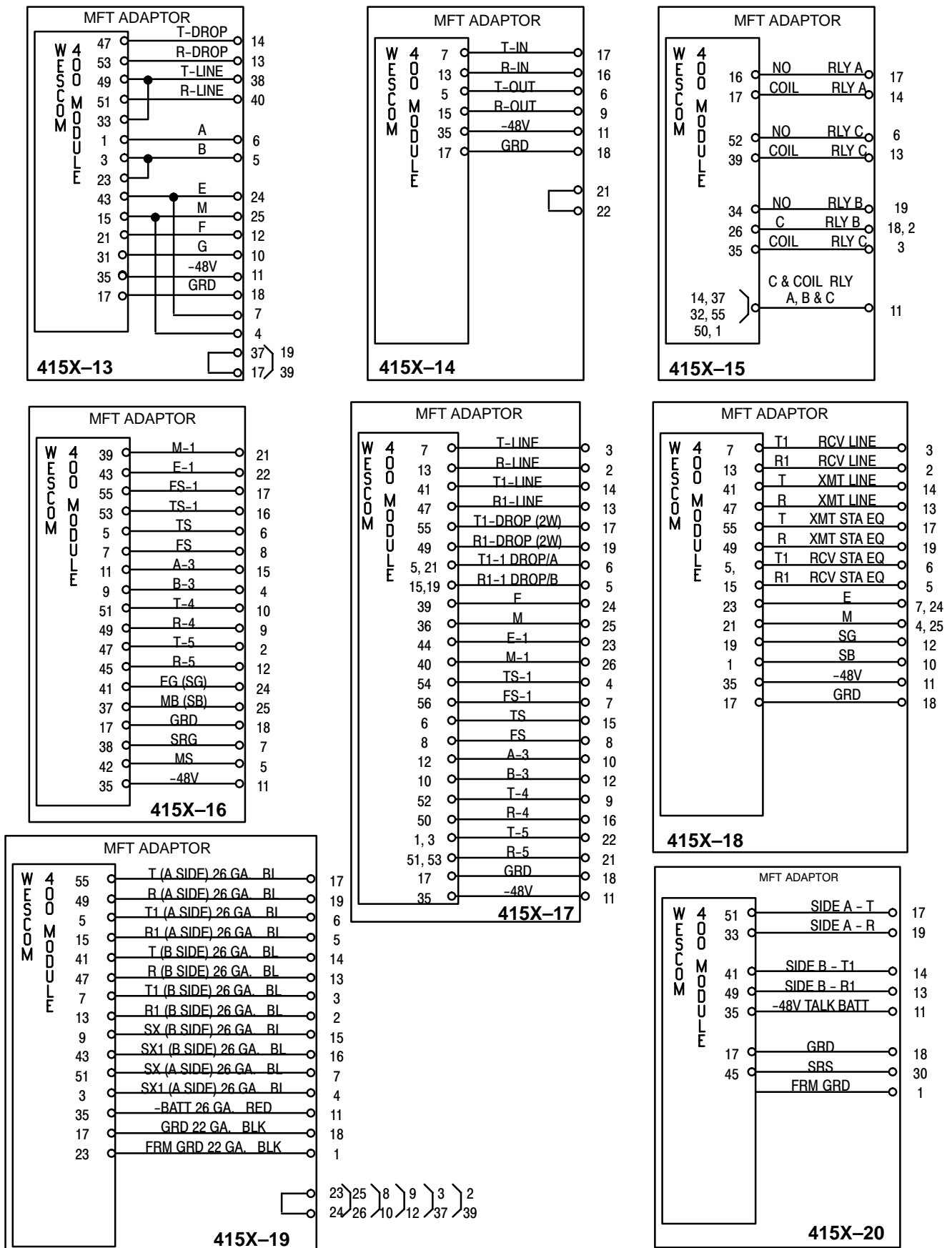


Figure 3. 415-XX Wiring Configurations (Part 1 of 2)



## 7. WARRANTY & CUSTOMER SERVICE

### 7.1 Warranty

Charles Industries, Ltd. offers an industry-leading, 5-year warranty on products manufactured by Charles Industries. Contact your local Sales Representative at the address or telephone numbers below for warranty details. The warranty provisions are subject to change without notice. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract.

Charles Industries, Ltd.  
5600 Apollo Drive  
Rolling Meadows, Illinois 60008–4049  
847–806–6300 (Main Office)  
847–806–6231 (FAX)

### 7.2 Field Repairs (In-Warranty Units)

Field repairs involving the replacement of components within a unit are not recommended and may void the warranty and compatibility with any applicable regulatory or agency requirements. If a unit needs repair, contact Charles Industries, Ltd. for replacement or repair instructions, or follow the *Repair Service Procedure* below.

### 7.3 Advanced Replacement Service (In-Warranty Units)

Charles Industries, Ltd. offers an “advanced replacement” service if a replacement unit is required as soon as possible. With this service, the unit will be shipped in the fastest manner consistent with the urgency of the situation. In most cases, there are no charges for in-warranty repairs, except for the transportation charges of the unit and for a testing and handling charge for units returned with no trouble found. Upon receipt of the advanced replacement unit, return the out-of-service unit in the carton in which the replacement was shipped, using the pre-addressed shipping label provided. Call your customer service representative at the telephone number above for more details.

### 7.4 Standard Repair and Replacement Service (Both In-Warranty and Out-Of-Warranty Units)

Charles Industries, Ltd. offers a standard repair or exchange service for units either in- or out-of-warranty. With this service, units may be shipped to Charles Industries for either repair and quality testing or exchanged for a replacement unit, as determined by Charles Industries. Follow the *Repair Service Procedure* below to return units and to secure a repair or replacement. A handling charge applies for equipment returned with no trouble found. To obtain more details of this service and a schedule of prices, contact the CI Service Center at 217–932–5288 (FAX 217–932–2943).

#### *Repair Service Procedure*

1. Prepare, complete, and enclose a purchase order in the box with the equipment to be returned.
2. Include the following information:
  - Company name and address
  - Contact name and phone number
  - Inventory of equipment being shipped
  - Particulars as to the nature of the failure
  - Return shipping address
3. Ship the equipment, purchase order, and above-listed information, transportation prepaid, to the service center address shown below.

CI Service Center  
503 N.E. 15th St., P.O. Box 339  
Casey, IL 62420–2054
4. Most repaired or replaced units will be returned within 30 or 45 days, depending on the product type and availability of repair parts. Repaired units are warranted for either 90 days from the date of repair or for the remaining unexpired portion of the original warranty, whichever is longer.



## 8. SPECIFICATIONS

The physical characteristics of the MFT adaptor are shown in Table 2.

*Note: For the physical and electrical specifications of the included Type 400 module and subassemblies, refer to the applicable documentation.*

**Table 2. Physical Specifications**

<b>Feature</b>	<b>U.S.</b>	<b>Metric</b>
Height	7.5 inches	19.0 centimeters
Width	4.0 inches	10.0 centimeters
Depth	8.25 inches	22.0 centimeters
Weight (nominal)	15.0 ounces	430 grams
Temperature	32° to 122° F	0° to 50° C

