



MTA15
PowerMaster[®] Accessory

Product Manual
Revision 1.2

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General Information

Product Introduction

The MTA15 is a self-contained accessory to the PowerMaster[®] analyzer. This accessory accommodates testing of any ANSI socket-based meter using a load provided by the PowerMaster[®]. Two meter sockets are provided with an included meter cover when the other socket is not in use. For mechanical meters, the user can pull the supplied pins for the lid, rotate the case upright, and test appropriately.

Currents are injected via the PowerMaster[®] by either the standard duckbill probes or the 6mm terminated lead set (required for currents above 20A). Voltages are injected using the standard voltage lead set, and are fused for each phase on the MTA15.

To configure the test, the user will connect the supplied jumpers according to the wiring diagram for each meter. Once the service type is selected in the PowerMaster[®], the user will select a Phantom Load Setup to provide the test. Results are saved as normal in the PowerMaster[®] and will be downloaded using the Meter Site Manager 2 software.

Included Accessories

Qty.	Part #	Description
1	10-340-4001R	Red jumper
1	10-340-4001Y	Yellow jumper
1	10-340-4001B	Blue jumper
1	10-340-4001W	White jumper
2	10-340-4101K	Stackable black jumper
1	10-340-4096G	Green lead with alligator clip
3	22-241-0070	Current isolator
2	22-900-2022	Pull pin for lid
1	22-232-0100	Meter socket cover
1	N/A	Product manual

Accessories should be stored in the vinyl pouch located in the lid of the carry case.

Recommended Accessory

Qty.	Part #	Description
1	10-340-0045	AC Plug to Safety Banana Plug Adapter

Safety

Operation of the PowerMaster[®] and the supplied accessories and adapters can present the user to potentially hazardous conditions. Please follow all required safety procedures set forth by the user's safety organization within the company. If no safety organization exists, please follow all applicable OSHA rules and standards for PPE (Person Protective Equipment) when working in

high voltage and low voltage environments. This equipment should be used by trained and qualified personnel ONLY.

Tips for Testing:

1. Connect the green safety ground to a true earth ground before testing begins. Remove the green safety ground last after testing is complete.
2. Verify the clear Ekstrom meter cover is in place when the second meter socket is not in use. Without the cover, the user could be present to dangerous voltages.
3. Never disconnect the CURRENT or VOLTAGE leads from the PowerMaster[®] while driving a load into the MTA15.
4. Pressing the "ON" key on the PowerMaster[®] while driving a load can be used as an emergency shutoff. The auxiliary power switch on the front panel of the PowerMaster[®] will provide the same function as well.
5. Follow the wiring diagrams in this manual carefully. Placing jumpers in wrong configurations can cause the in-line fuses to blow.

Specifications

Supported PowerMaster [®] models	5302, 7302, 7305, 7332, 7335
Supported meter forms	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 25S, 29S, 36S, 45S, 46S, 56S, 66S
Fuse (x3)	KLKR 0.2A, 600V; fast acting
Meter Cover	Ekstrom model 1-6002 (clear)
Case	Pelican 1550
Dimensions	21" x 17" x 8.5"
Weight	27.2 lbs (12.3 kg)
Warranty	1 year

Technical Support

For technical support, please contact the factory at (865) 218-5838 (877-966-5851 toll free) and ask for "Powermetrix Technical Support." You may alternatively email Powermetrix at help@powermetrix.com. The support staff will answer questions about the operation and care of your equipment, assist you in troubleshooting a problem, and help you overcome common application difficulties whenever possible. If it becomes necessary for your equipment to be returned to us for any reason, you will be issued an RMA number during the technical support contact.

Feedback

Powermetrix depends on information from our customers to continue the attributes of quality, dependability, and simplicity associated with our products. We invite you to contact our Technical Support office.

1 Setting Up

Grounding

For the PowerMaster to properly stabilize and achieve the highest possible accuracy, the MTA15 must be properly grounded. Using the supplied green lead with alligator clip, insert the cable into the green "VOLTAGE DRIVE" (PM-G) female receptacle. Connect the alligator clip to a known earth ground. When using in a laboratory application, Powermetrix recommends the AC Plug to Safety Banana Plug Adapter (part# 10-340-0045). This accessory allows the Auxiliary power, Auxiliary neutral, and ground to be easily terminated for a standard US three-prong AC wall outlet.

Jumpers

To properly configure the meter under test, the MTA15 supplies a set of jumpers. Each meter displays the proper jumper configuration in the diagrams in this manual. Please refer to the section "Jumper Configuration Diagrams" for more information.

Voltage Lead Connections

For Models 7332 & 7335

1. Connect the Voltage Lead Set + Safety Ground + Aux Power cable to the PowerMaster.
2. Remove all alligator clips from the ends.
3. Separate the "MEASURE" and "RETURN" from the stackable banana jacks.
4. Insert the cables labeled "MEASURE" into the "VOLTAGE MEASURE" receptacles according to their color code.
5. Insert the cables labeled "DRIVE" into the "VOLTAGE DRIVE" receptacles according to their color code.
6. Insert the green lead with alligator clip into the "VOLTAGE DRIVE" receptacle. Connect the alligator clip to a known earth ground.
7. Connect the AUX PWR and AUX NEU to a voltage source between 100-530VAC.

For Models 5302, 7302, & 7305

1. Connect the Voltage Lead Set + Safety Ground + Aux Power cable to the PowerMaster.
2. Remove all alligator clips from the ends.
3. Insert the cables labeled "MEASURE" into the "VOLTAGE MEASURE" receptacles according to their color code.
4. Insert the green lead with alligator clip into the "VOLTAGE DRIVE" receptacle. Connect the alligator clip to a known earth ground.
5. Insert the colored leads with alligator clips into the "VOLTAGE DRIVE" receptacles according to the color code (separate accessories, not supplied).
6. Connect the alligator clips from "VOLTAGE DRIVE" to the phase voltages at the secondary metering terminals (600V AC max). CAUTION: METER SOCKETS ARE NOW ENERGIZED!

7. Connect the AUX PWR and AUX NEU to a voltage source between 100-530VAC.

Current Lead Connections

For 0-20A test current

1. Connect the 3-Phase Test Switch Current Direct Probes to the PowerMaster.
2. Insert the probes (white side up) into the "20A CURRENT" test block (according to the meter being tested).
3. Insert any isolators in the test block for phases not being used.

For 0-50A test current

1. Connect the 3-Phase Current Direct Probes (terminated with 6mm plugs) to the PowerMaster.
2. Insert the probes into the "50A CURRENT (6mm MC)". According to the color code, plug the phase RTN into the colored female receptacle (top) and the DRIVE into the black female receptacle for each phase.
3. Insert all three isolators into the "20A CURRENT" test block.
4. To remove the probes, push into the receptacle gently and now the probe will unlock for removal.

Testing Mechanical Meters

1. Open the case and remove the pull pins located at the hinge of the lid.
2. Remove the lid and place aside.
3. Insert the meter into the appropriate socket.
4. Rotate the MTA15 in a vertical position so the case stands upright.
5. For pulse detection, use a Manual Pushbutton Switch (EP10-100-3311) or a Photo Disk Detector with Flexible Arm Mount (EP10-100-3326).
6. Test as normal.

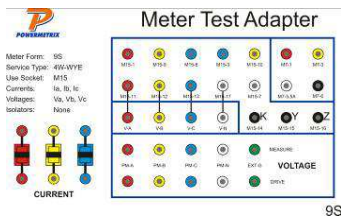
2 PowerMaster Procedure

All connections should be made according to Section 1 (Setting Up). For the meter under test, locate and make the correct configuration for the meter found in Section 3 (Jumper Configuration Diagrams). Once verified, follow the instructions below.

The following procedure is for Main Application 1.0.0.30 and above.

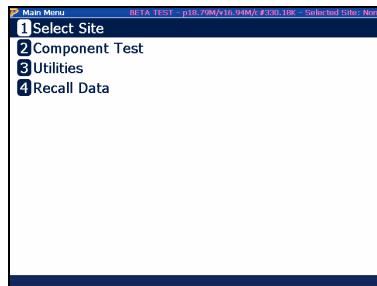
2.1 With Site Selected

STEP 1



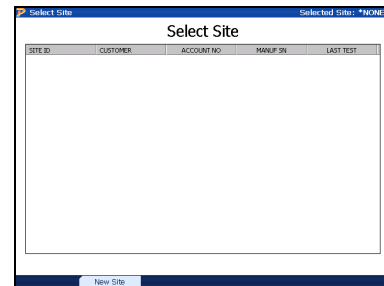
Confirm connections and jumpers are correct.

STEP 2



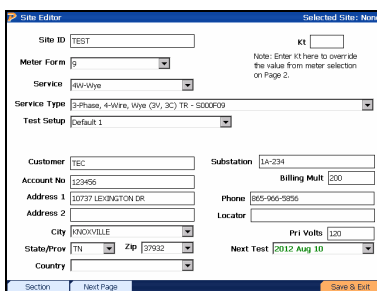
At the Main Menu, press "1" to Select Site.

STEP 3



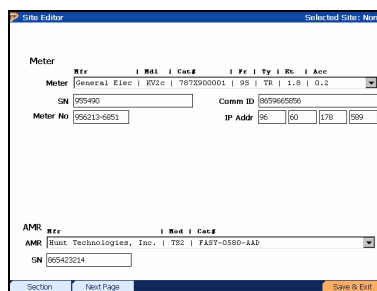
In the Site Editor, press F2 to create a new site.

STEP 4



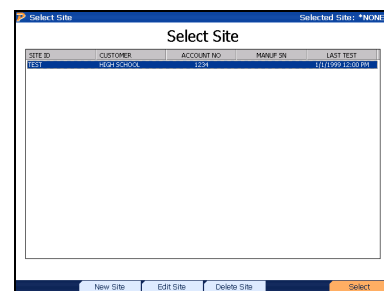
In the Site Editor screen, enter the Site ID, meter form, service, and service type according to the Jumper Configuration Diagram.

STEP 5



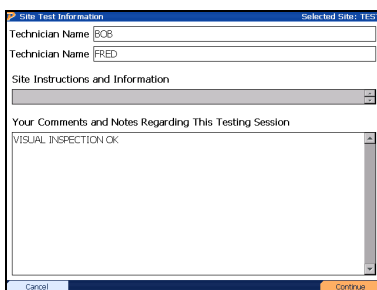
Press F2 to select a meter in the database, or enter a Kt on Page 1. Press F6 to save and exit.

STEP 6



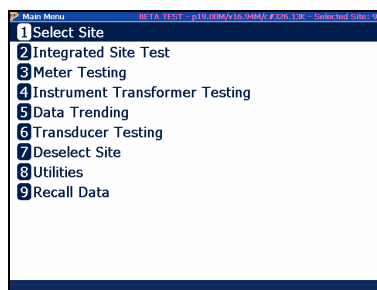
At the Site Editor, press F6 to select the site to be tested.

STEP 7



Optionally enter the user's name(s) and any comments regarding the installation. Press F6 to continue.

STEP 8



At the Main Menu, press "3" to enter Meter Testing.

STEP 9



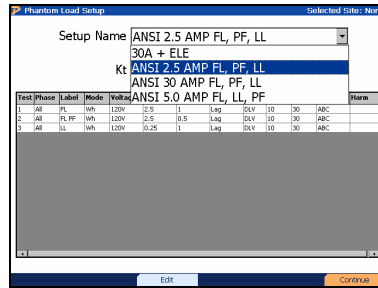
At the Meter Testing menu, press "2" to enter Phantom Load.

STEP 10



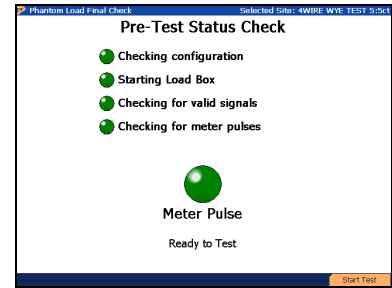
Hook up pulse pickup to meter (AUX DIG on PowerMaster).

STEP 11



Select the setup, then press F6 to continue.

STEP 12



After stabilization is complete and pulses are detected, press F6 to continue.

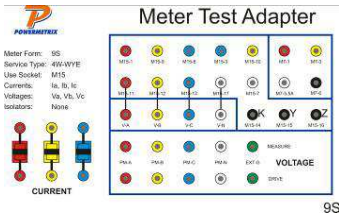
STEP 13

Phantom Load Results					
FL			99.902		
Phase	Voltage	Current	PF	Time	Pulses
All	120.01	30.009	1.000	35.03	4
PF			99.866		
Phase	Voltage	Current	PF	Time	Pulses
All	120.01	30.035	0.500	35.98	2
LL			99.909		
Phase	Voltage	Current	PF	Time	Pulses
All	120.01	3.037	1.000	88.97	1

After the test is complete, press F6 to save and exit.

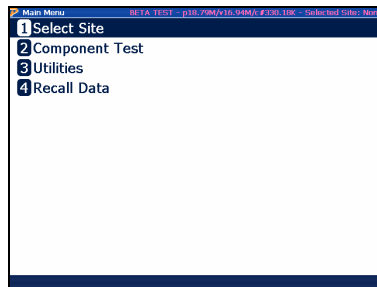
2.2 With No Site Selected (Component Test)

STEP 1



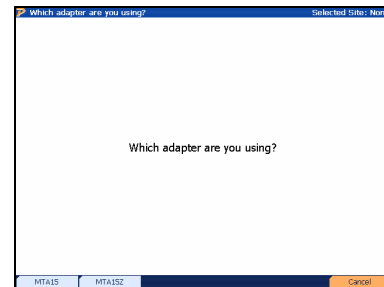
Confirm connections and jumpers are correct.

STEP 2



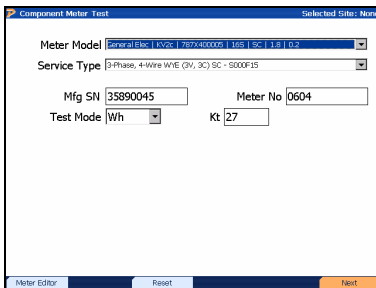
At the Main Menu, press “2” for Component Test.

STEP 3



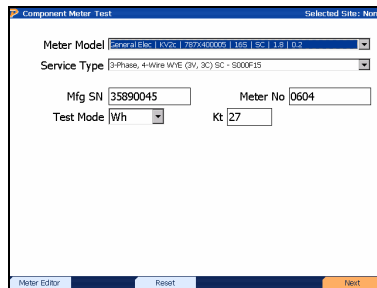
Press F1 to select “MTA15”.

STEP 4



In the Component Test screen, select the Meter Model and service type according to the Jumper Configuration Diagram.

STEP 5



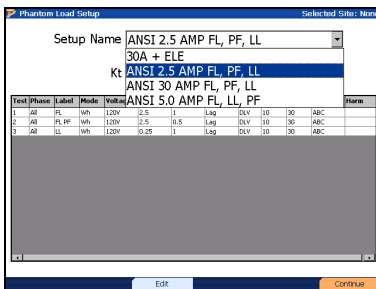
Enter the serial number (MFG SN) and alternatively the Kt value. Press F6 to continue.

STEP 6



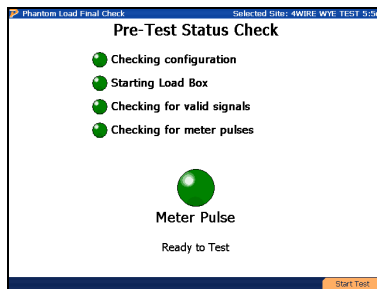
Hook up pulse pickup to meter (AUX DIG on PowerMaster).

STEP 7



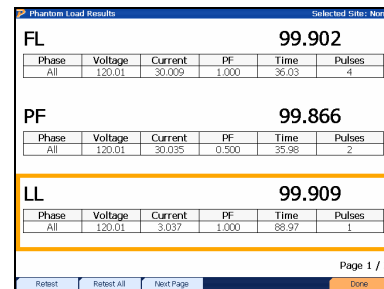
Select the setup, then press F6 to continue.

STEP 12



After stabilization is complete and pulses are detected, press F6 to

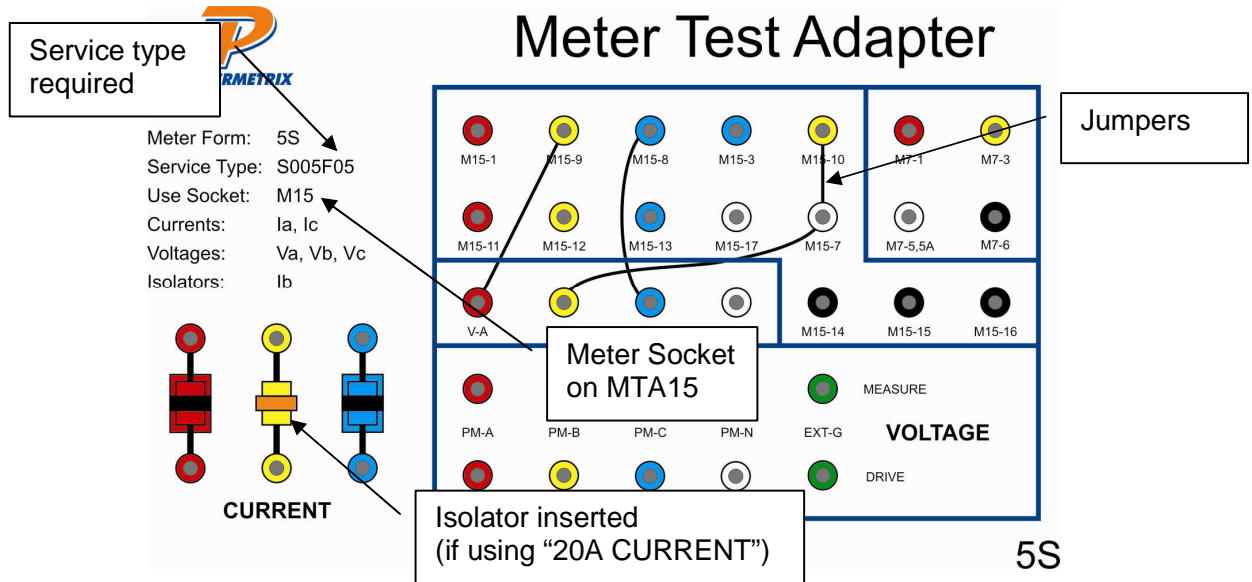
STEP 13



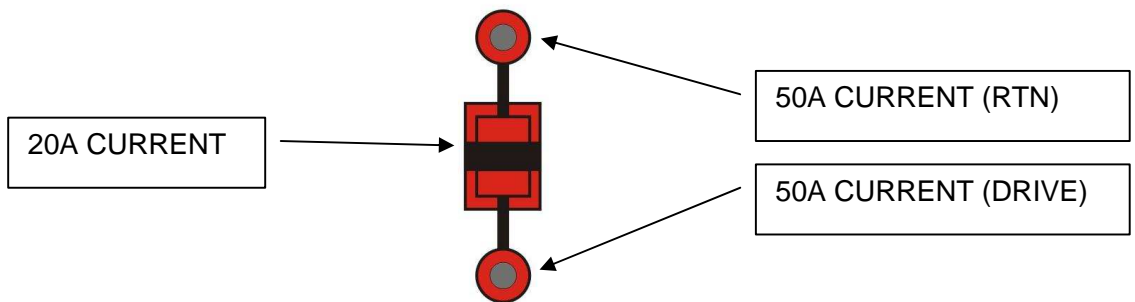
After the test is complete, press F6 to save and exit.

3 Jumper Configuration Diagrams

This section gives the user diagrams for the jumper configurations required for each meter. The diagrams also show the correct service type to select, the appropriate meter socket, active voltages and currents, and more. Below is a basic explanation of what the diagrams are displaying to the user.

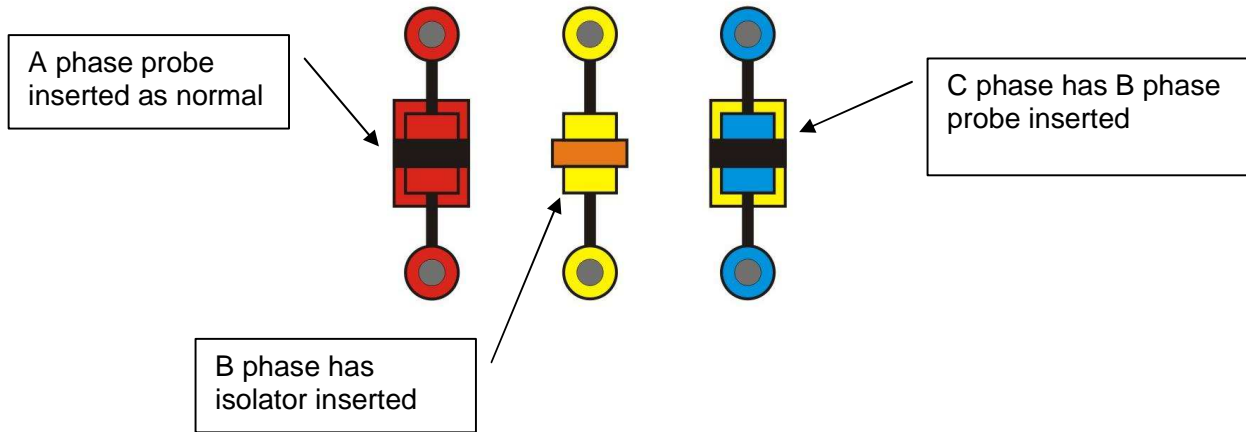


Diagrams for Currents



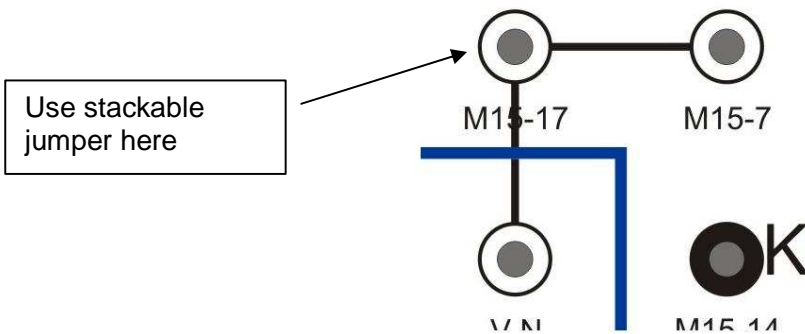
Special Configurations

Some meters may require different probes to be inserted into different phases. The diagrams show this by displaying the background an appropriate color to designate the phase probe. This applies to both the "20A CURRENT" and "50A CURRENT (6mm MC)". An example is below:



NOTE: When using the "50A CURRENT (6mm MC)," all isolators are still required to be inserted into the "20A CURRENT" test block.

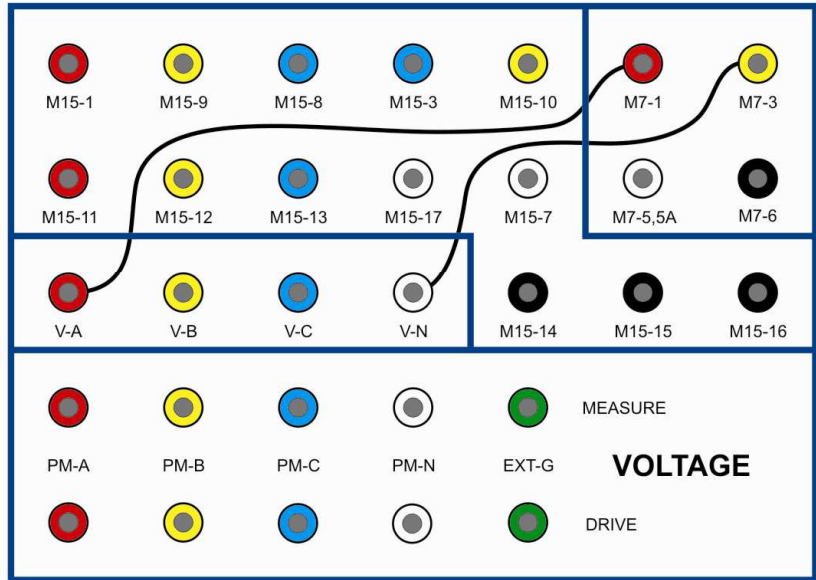
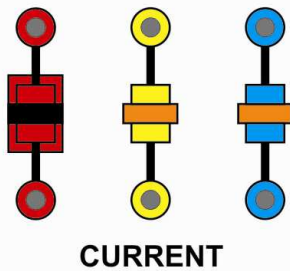
Some meters may require two jumpers inserted into one receptacle. When this occurs, a stackable black jumper is used. An example is below:





Meter Test Adapter

Meter Form: 1S
 Service Type: S001F01
 Use Socket: M7
 Currents: Ia
 Voltages: Va
 Isolators: Ib, Ic



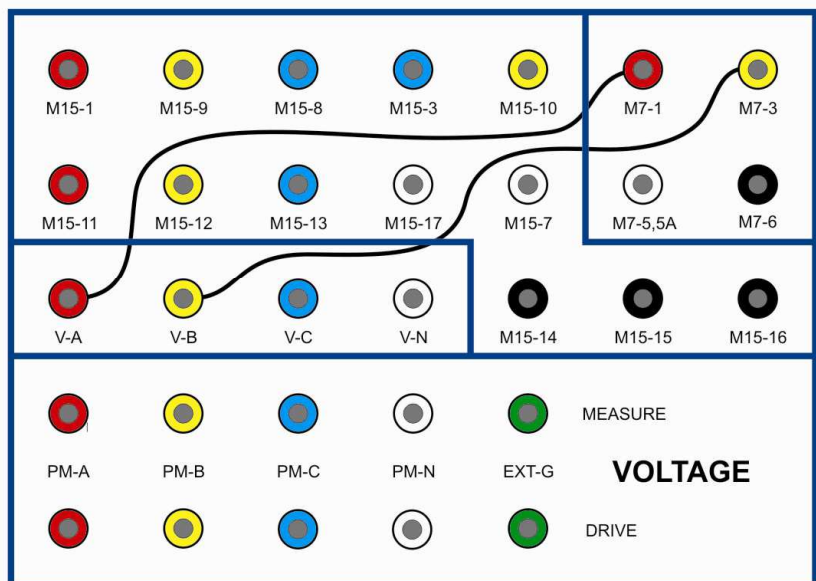
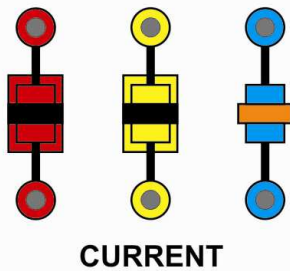
1S

Service Type: 1-Phase, 2-Wire (1V, 1C) - S001F01



Meter Test Adapter

Meter Form: 2S
 Service Type: S003F02
 Use Socket: M7
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ic



TEST WITH LINKS CLOSED

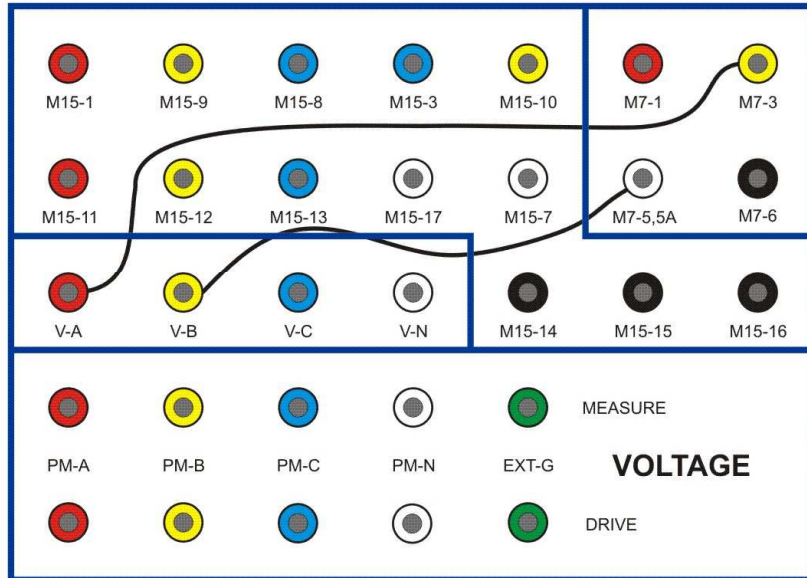
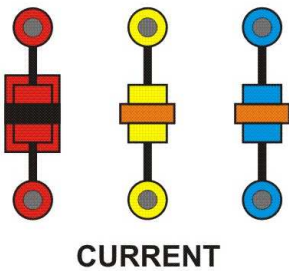
2S

Service Type: 1-Phase, 3-Wire (1V, 2C) SC - S003F02



Meter Test Adapter

Meter Form: 3S
 Service Type: S002F03
 Use Socket: M7
 Currents: Ia
 Voltages: Va
 Isolators: Ib, Ic



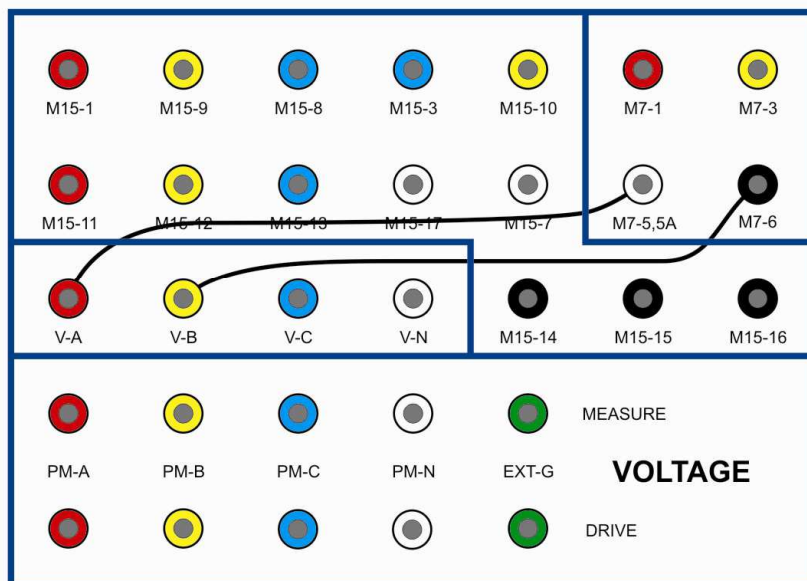
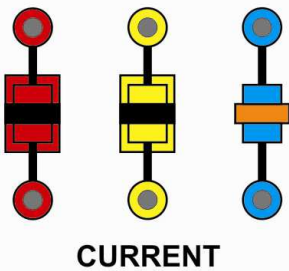
3S

Service Type: 1-Phase, 3-Wire (2V, 1C) 1PC - S002F03



Meter Test Adapter

Meter Form: 4S
 Service Type: S003F04
 Use Socket: M7
 Currents: Ia, Ib
 Voltages: Va
 Isolators: Ic



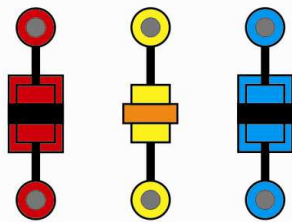
4S

Service Type: 1-Phase, 3-Wire (1V, 2C) TR - S003F04

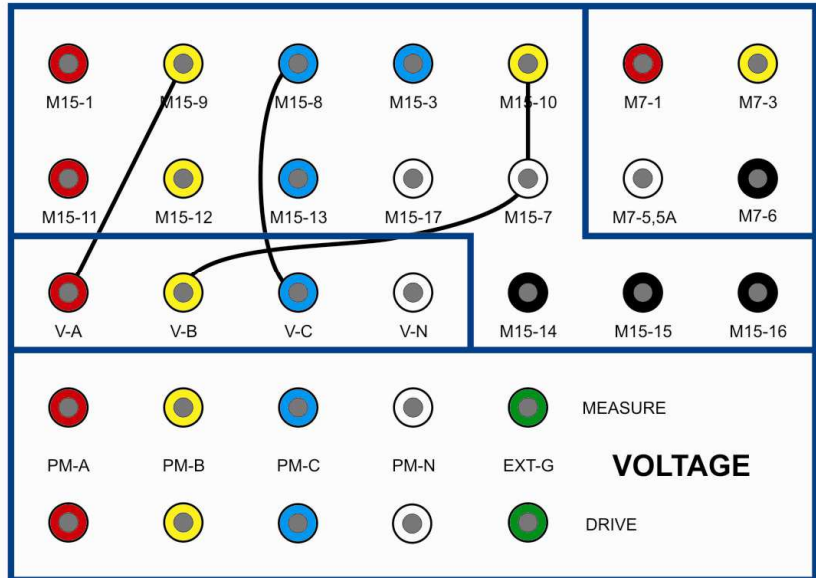


Meter Test Adapter

Meter Form: 5S
 Service Type: S005F05
 Use Socket: M15
 Currents: Ia, Ic
 Voltages: Va, Vb, Vc
 Isolators: Ib



CURRENT



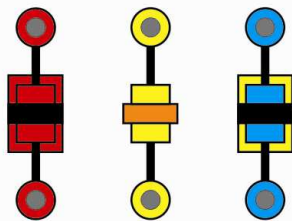
5S

Service Type: 3-Phase, 3-Wire Delta (2V, 2C) TR - S005F05



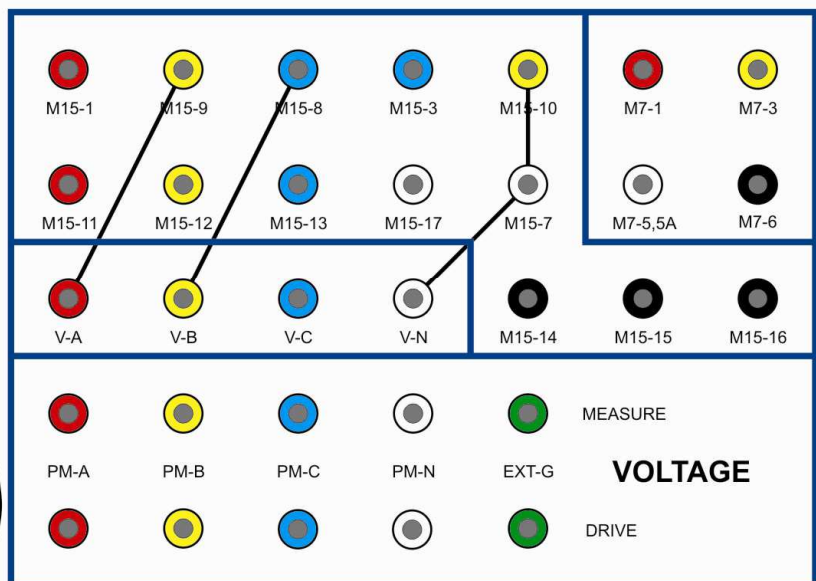
Meter Test Adapter

Meter Form: 5S
 Service Type: S004F05
 Use Socket: M15
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ib



CURRENT

CONNECT I-B TO INPUT C



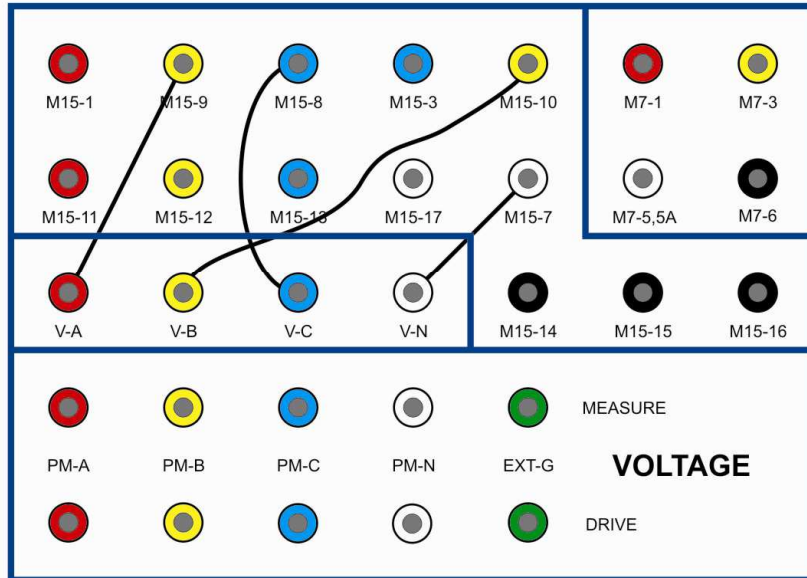
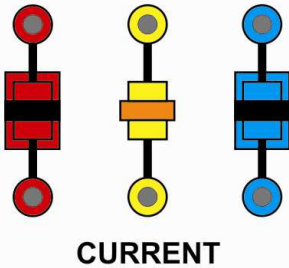
5S

Service Type: 3-Wire Network (2V, 2C) TR - S004F05



Meter Test Adapter

Meter Form: 5S
 Service Type: S006F05
 Use Socket: M15
 Currents: Ia, Ic
 Voltages: Va, Vb, Vc
 Isolators: Ib



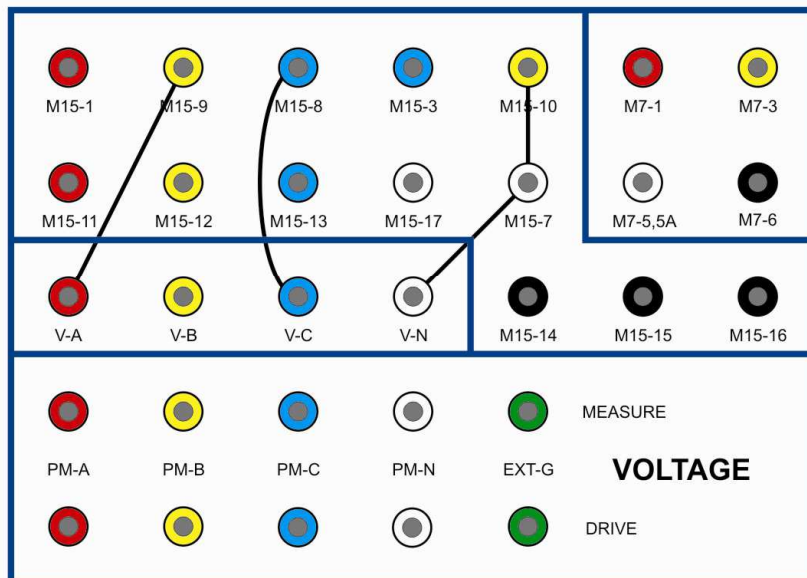
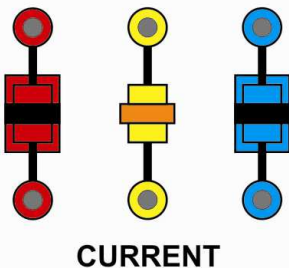
5S

Service Type: 3-Phase, 4-Wire Delta C-Hi (2V, 2C, 2PC) TR - S006F05



Meter Test Adapter

Meter Form: 5S
 Service Type: S008F05
 Use Socket: M15
 Currents: Ia, Ic
 Voltages: Va, Vc
 Isolators: Ib



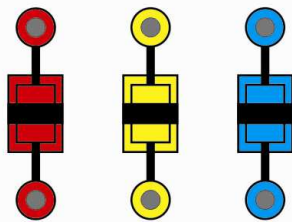
5S

Service Type: 3-Phase, 4-Wire WYE (2V, 2C, 2PC) TR - S008F05

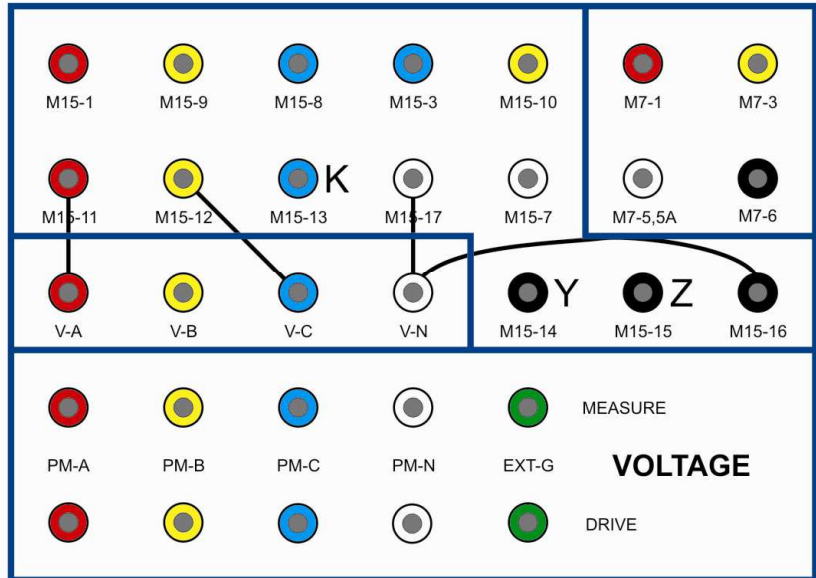


Meter Test Adapter

Meter Form: 6S
 Service Type: S009F06
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vc
 Isolators: None



CURRENT



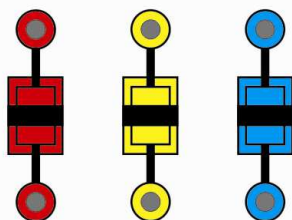
6S

Service Type: 3-Phase, 4-Wire WYE (2V, 3C) Z-coil TR - S009F06\

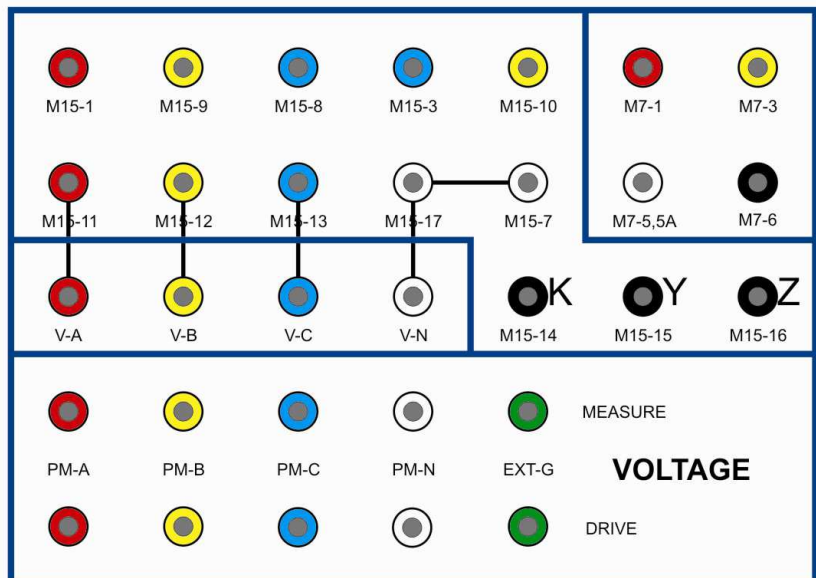


Meter Test Adapter

Meter Form: 8S
 Service Type: S010F08
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



CURRENT



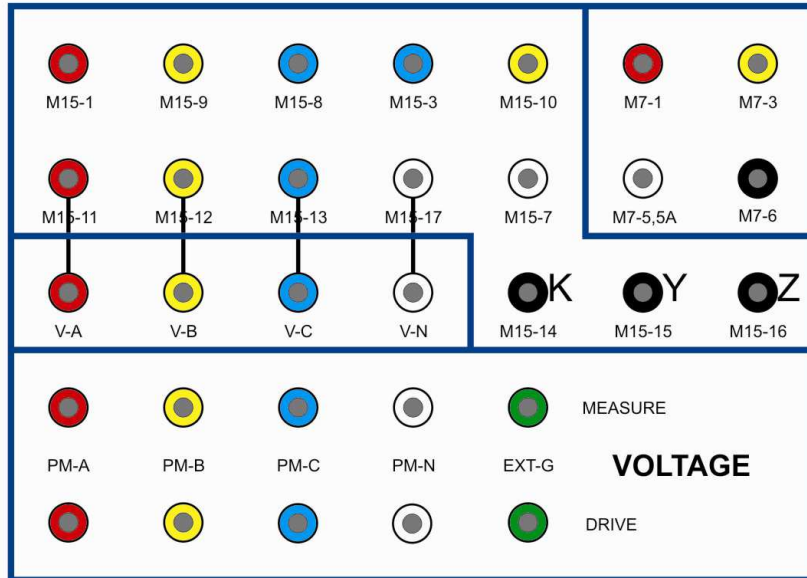
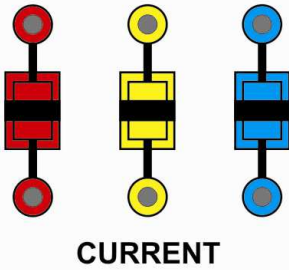
8S

Service Type: 3-Phase, 4-Wire DELTA C-Hi (2V, 3C) TR - S010F08



Meter Test Adapter

Meter Form: 9S
 Service Type: S000F09
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



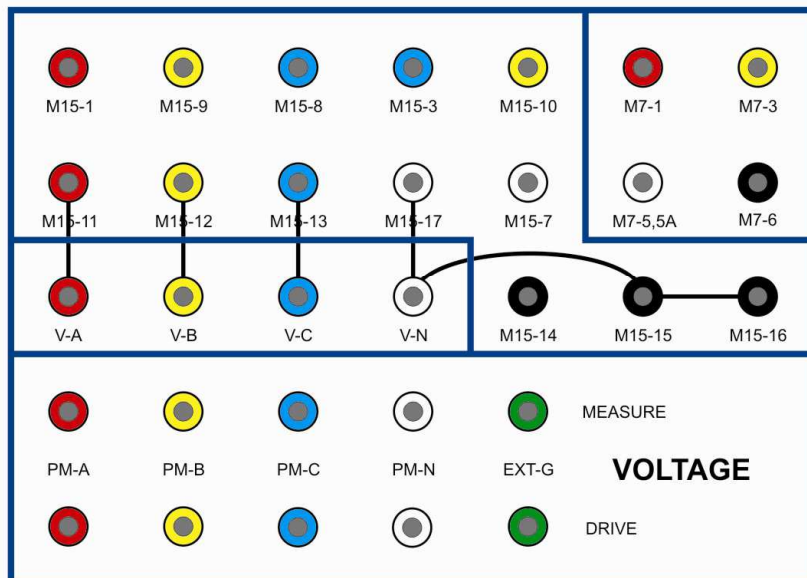
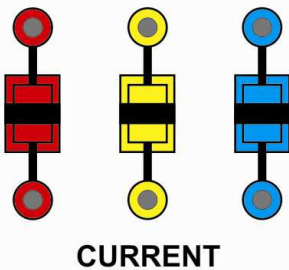
9S

Service Type: 3-Phase, 4-Wire, Wye (3V, 3C) TR - S000F09



Meter Test Adapter

Meter Form: 10S
 Service Type: S000F09
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



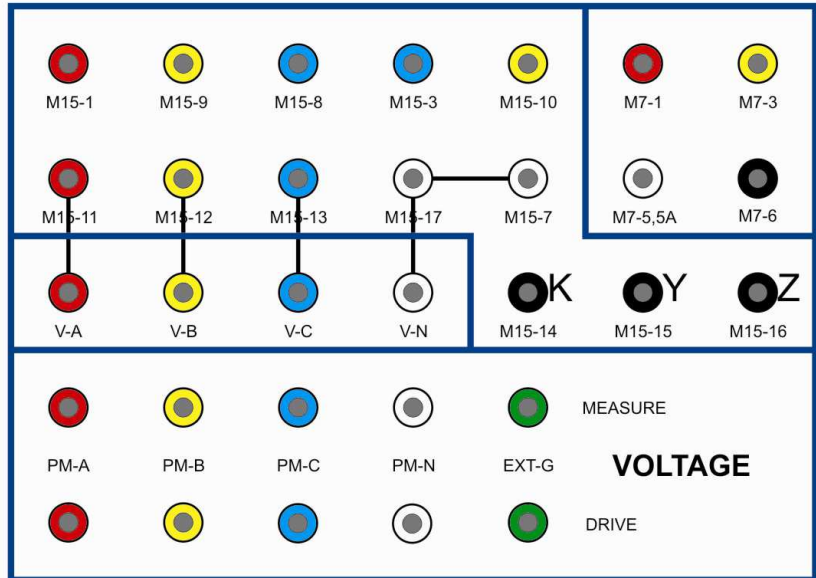
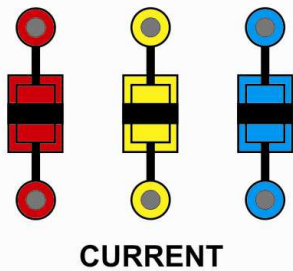
10S

Service Type: 3-Phase, 4-Wire, Wye (3V, 3C) TR - S000F09



Meter Test Adapter

Meter Form: 11S
 Service Type: S010F09
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



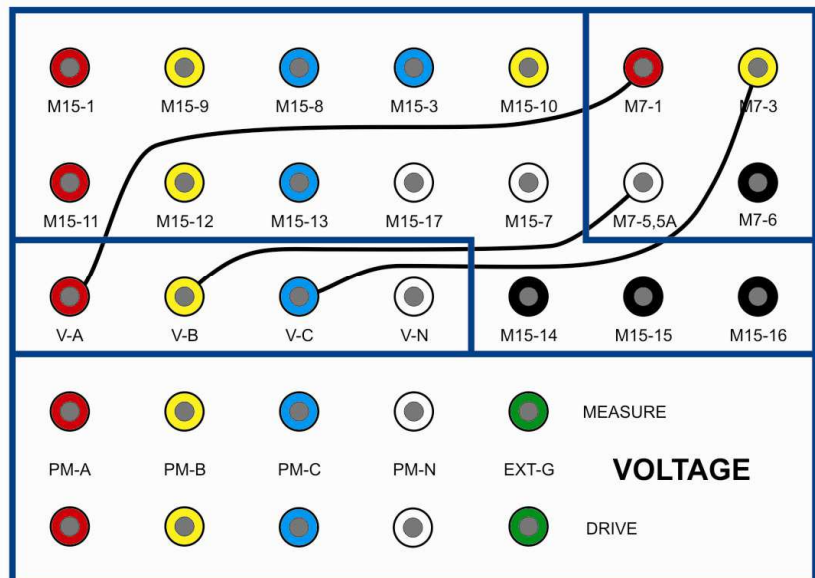
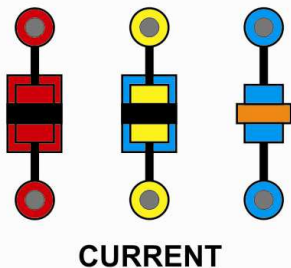
11S

Service Type: 3-Phase, 4-Wire DELTA C-Hi (3V, 3C) TR - S010F09



Meter Test Adapter

Meter Form: 12S
 Service Type: S005F12
 Use Socket: M7
 Currents: Ia, Ic
 Voltages: Va, Vb, Vc
 Isolators: Ic



CONNECT V-C TO SOCKET B

TEST WITH LINKS CLOSED

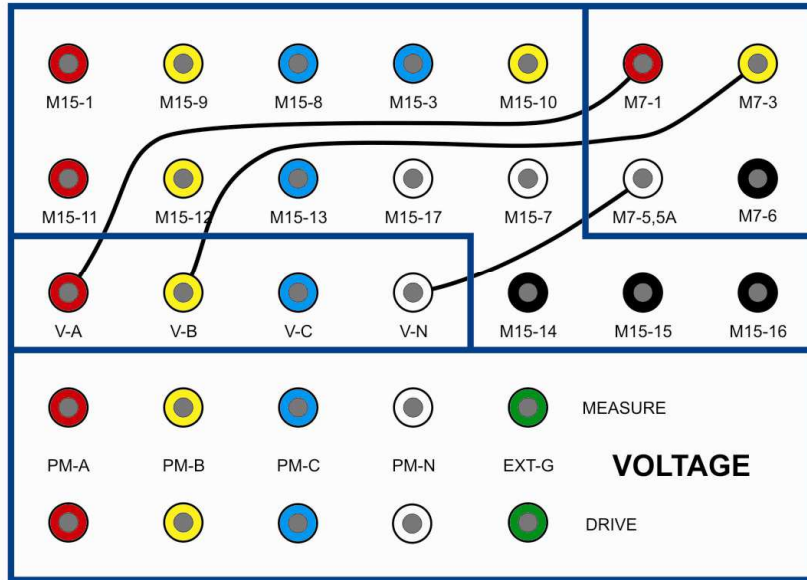
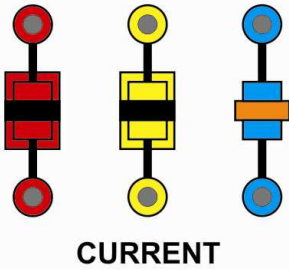
12S

Service Type: 3-Phase, 3-Wire Delta (2V, 2C) SC - S005F12



Meter Test Adapter

Meter Form: 12S
 Service Type: S004F12
 Use Socket: M7
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ic



TEST WITH LINKS CLOSED

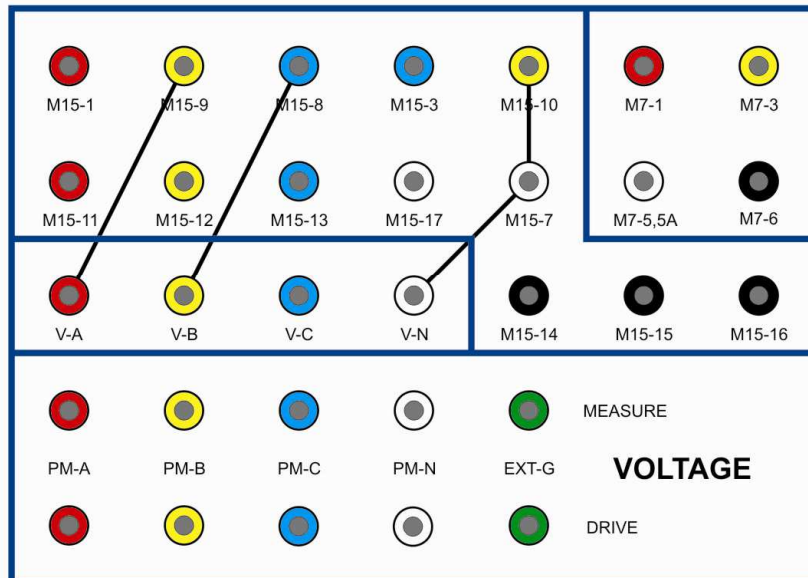
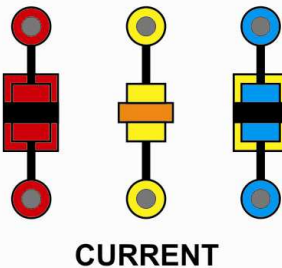
12S

Service Type: 3-Wire Network (1V, 2C) SC - S004F12



Meter Test Adapter

Meter Form: 13S
 Service Type: S004F12
 Use Socket: M15
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ib



CONNECT V-B TO SOCKET C

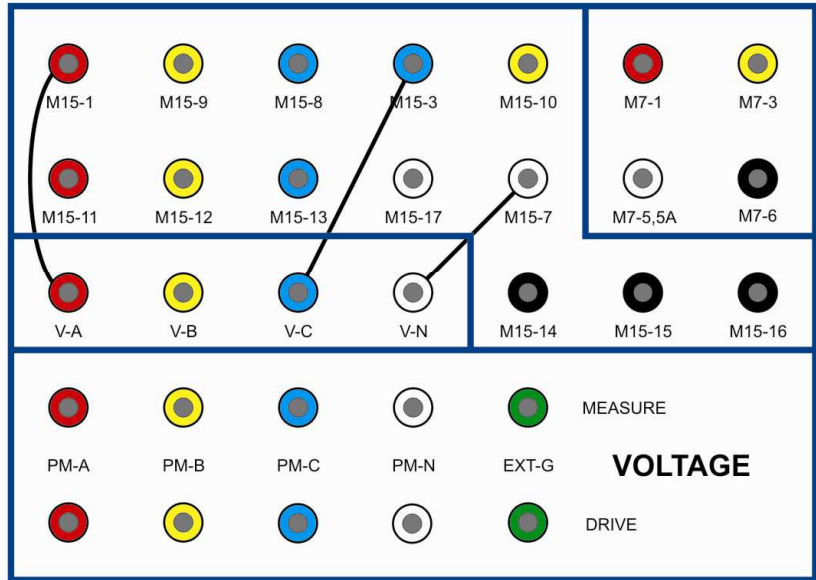
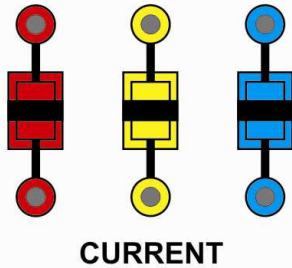
13S

Service Type: 3-Wire Network (1V, 2C) SC - S004F12



Meter Test Adapter

Meter Form: 14S
 Service Type: S009F14
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vc
 Isolators: None



TEST WITH LINKS CLOSED

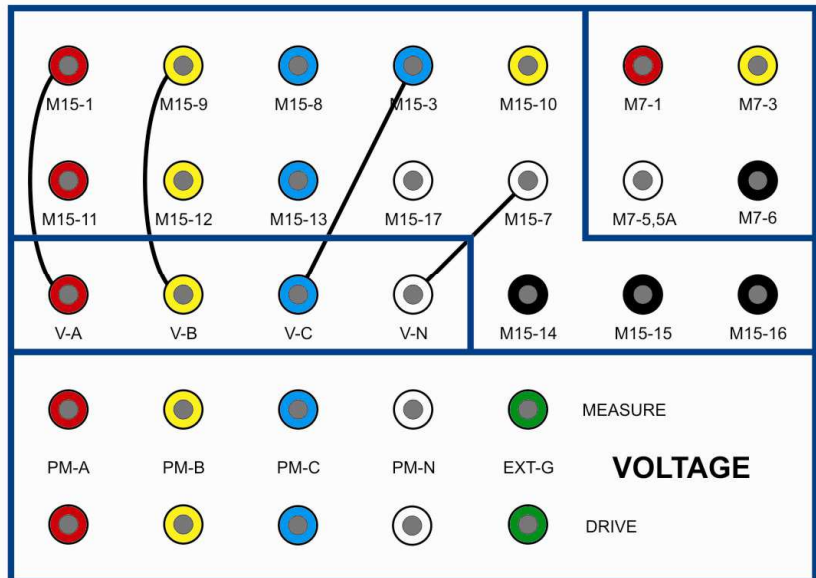
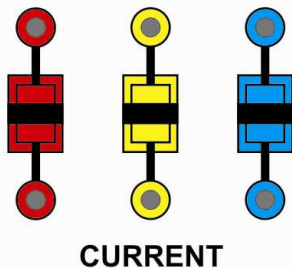
14S

Service Type: 3-Phase, 4-Wire WYE (2V, 3C) Z-coil SC - S009F14



Meter Test Adapter

Meter Form: 15S
 Service Type: S010F15
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



TEST WITH LINKS CLOSED

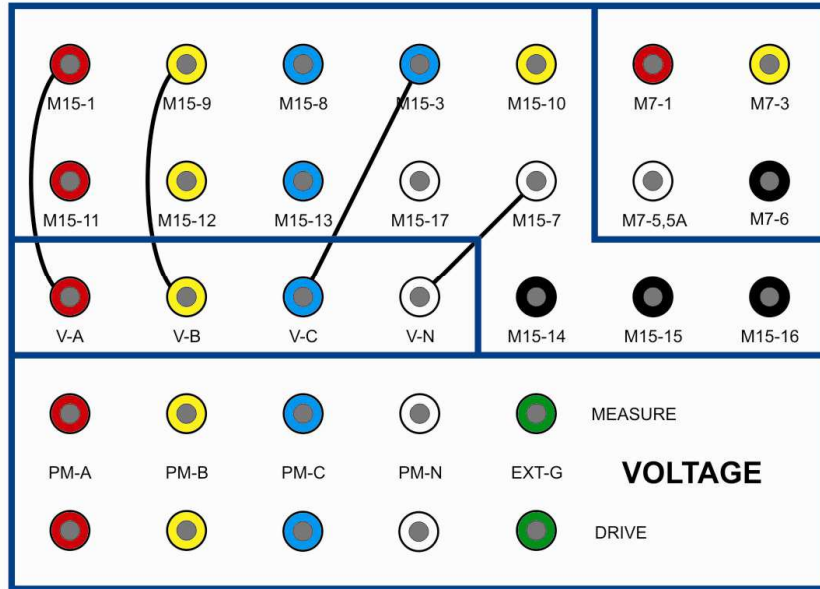
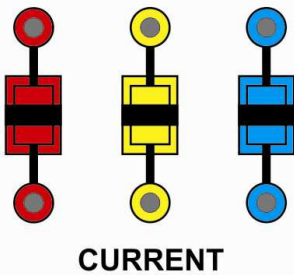
15S

Service Type: 3-Phase, 4-Wire DELTA C-High (3V, 3C) SC - S010F15



Meter Test Adapter

Meter Form: 16S
 Service Type: S000F15
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



TEST WITH LINKS CLOSED

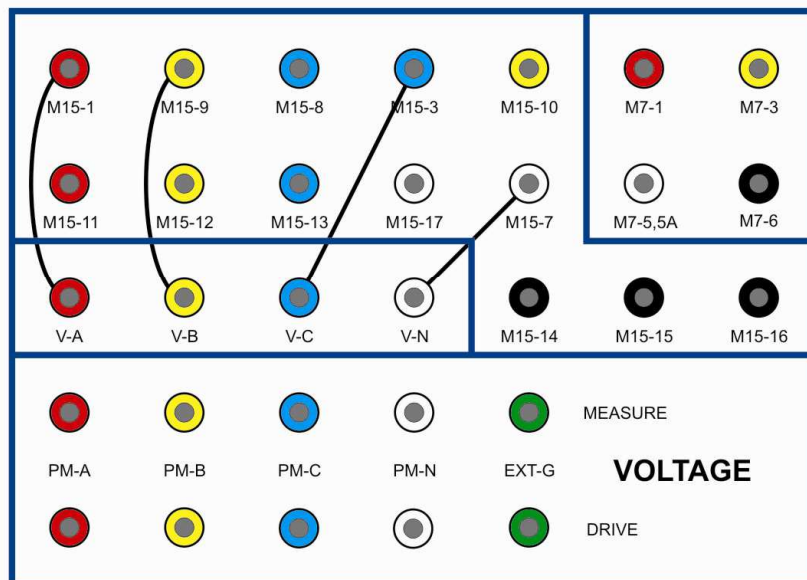
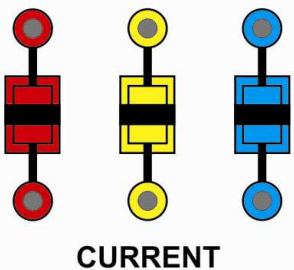
16S

Service Type: 3-Phase, 4-Wire WYE (3V, 3C) SC - S000F15



Meter Test Adapter

Meter Form: 17S
 Service Type: S010F15
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vb, Vc
 Isolators: None



TEST WITH LINKS CLOSED

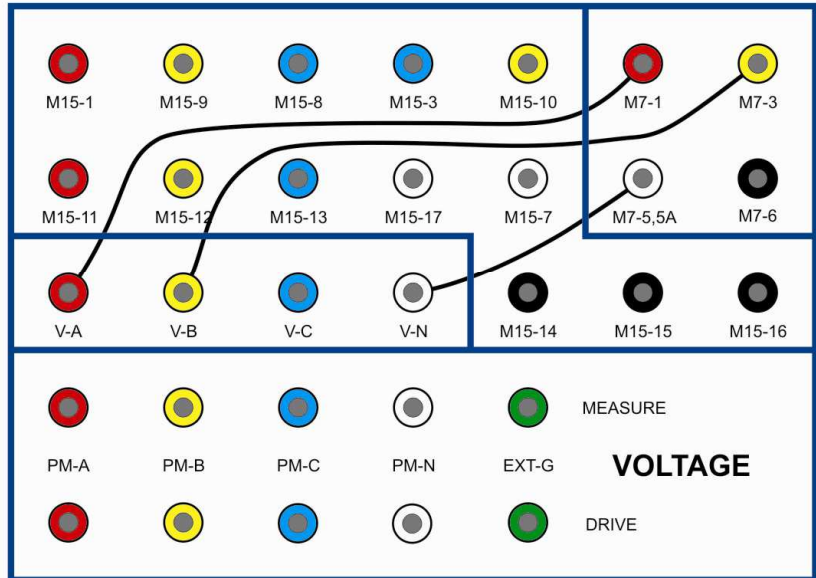
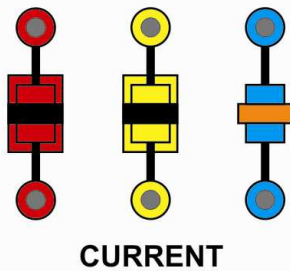
17S

Service Type: 3-Phase, 4-Wire DELTA C-High (3V, 3C) SC - S010F15



Meter Test Adapter

Meter Form: 25S
 Service Type: S004F12
 Use Socket: M7
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ic



TEST WITH LINKS CLOSED

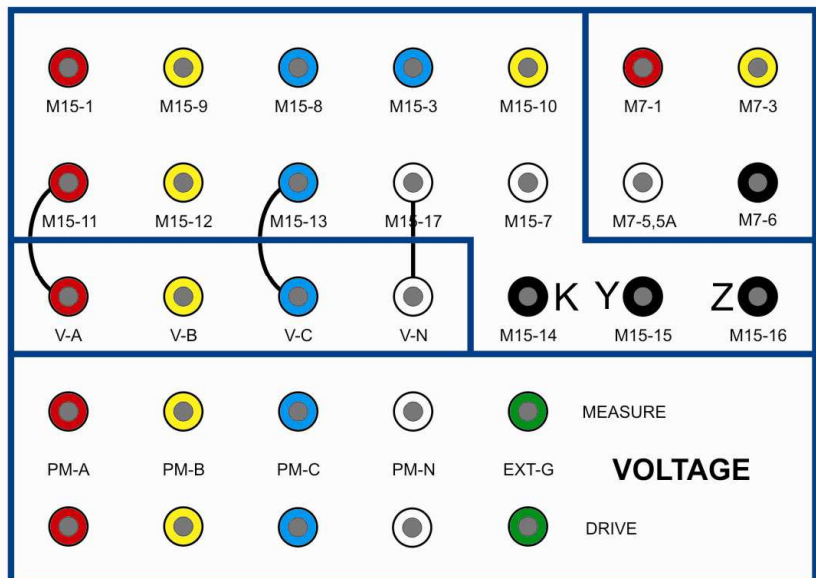
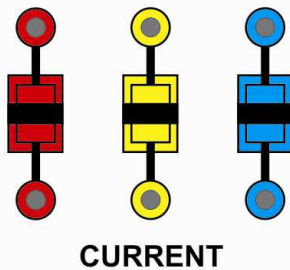
25S

Service Type: 3-Wire Network (1V, 2C) SC - S004F12



Meter Test Adapter

Meter Form: 29S
 Service Type: S009F06
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vc
 Isolators: None



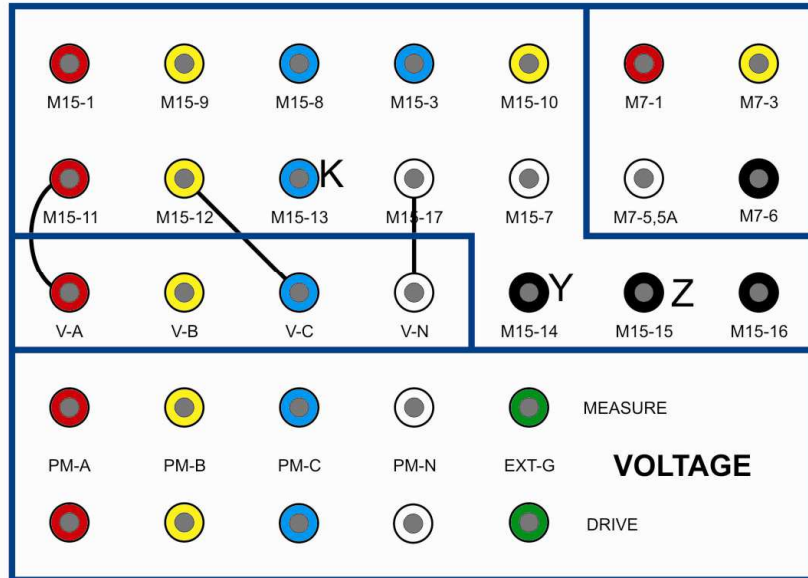
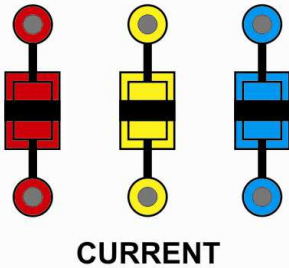
29S

Service Type: 3-Phase, 4-Wire WYE (2V, 3C) Z-coil TR - S009F06



Meter Test Adapter

Meter Form: 36S
 Service Type: S009F06
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vc
 Isolators: None



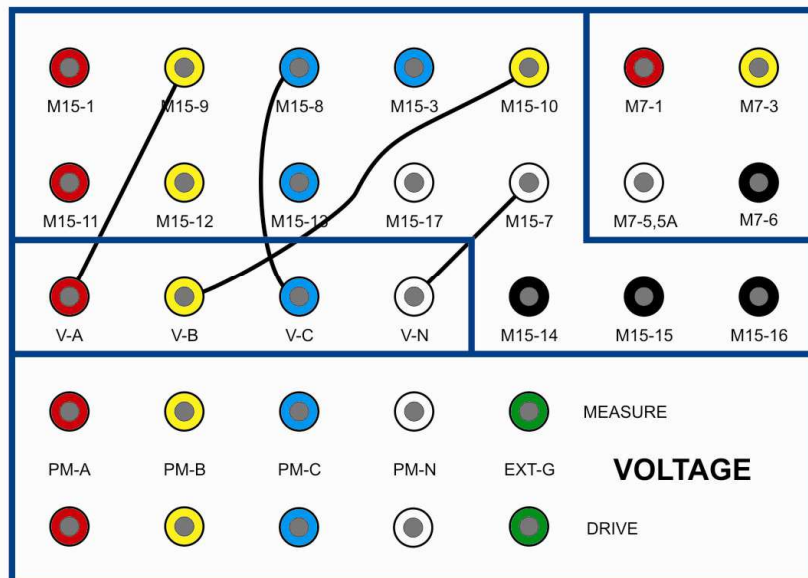
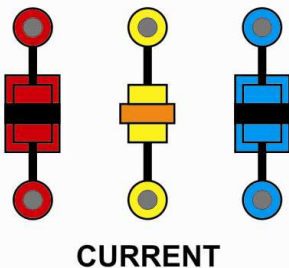
36S

Service Type: 3-Phase, 4-Wire WYE (2V, 3C) Z-coil TR - S009F06



Meter Test Adapter

Meter Form: 45S
 Service Type: S006F05
 Use Socket: M15
 Currents: Ia, Ic
 Voltages: Va, Vb, Vc
 Isolators: Ib



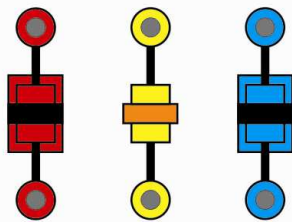
45S

Service Type: 3-Phase, 4-Wire Delta C-Hi (2V, 2C, 2PC) TR - S006F05

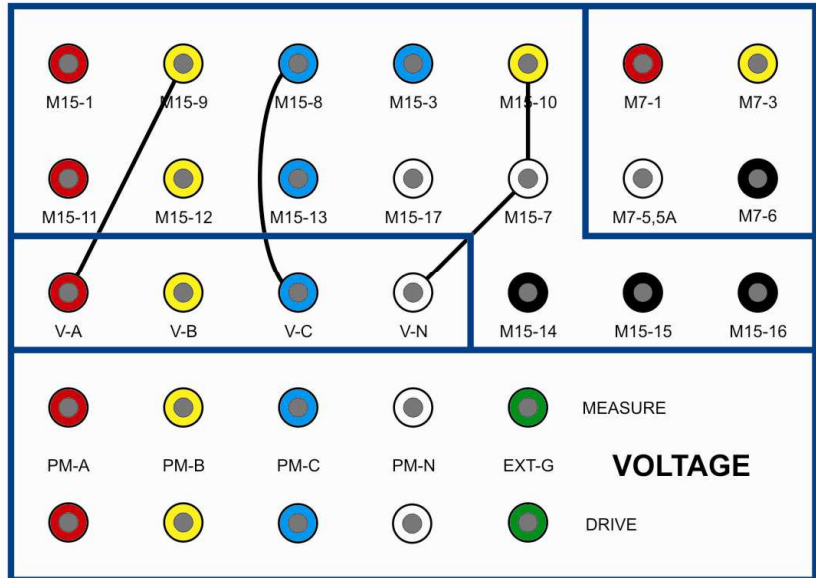


Meter Test Adapter

Meter Form: 45S
 Service Type: S008F05
 Use Socket: M15
 Currents: Ia, Ic
 Voltages: Va, Vc
 Isolators: Ib



CURRENT



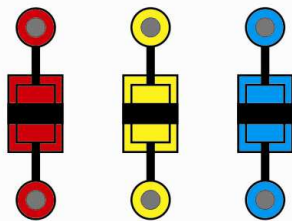
45S

Service Type: 3-Phase, 4-Wire WYE (2V, 2C, 2PC) TR - S008F05

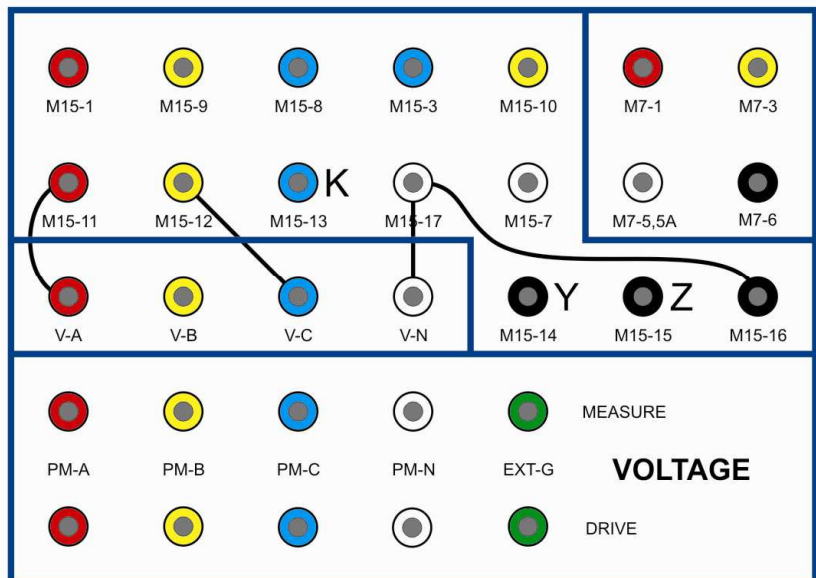


Meter Test Adapter

Meter Form: 46S
 Service Type: S009F46
 Use Socket: M15
 Currents: Ia, Ib, Ic
 Voltages: Va, Vc
 Isolators: None



CURRENT



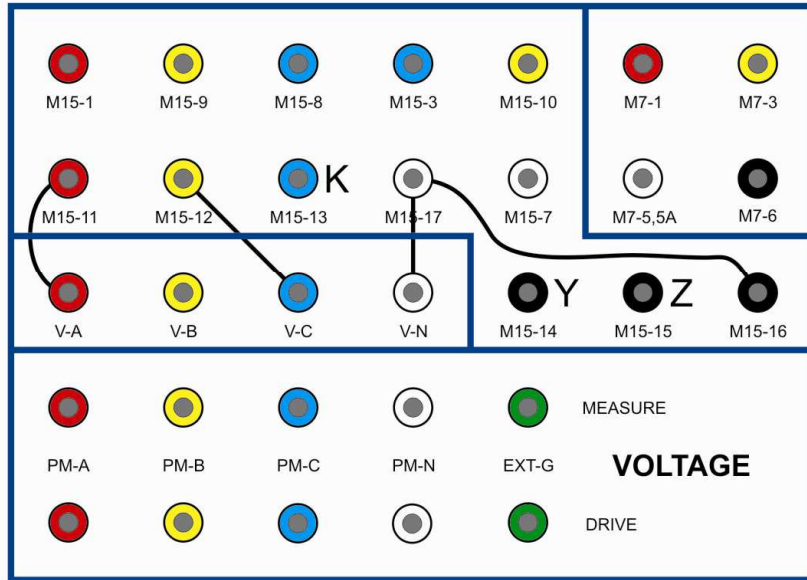
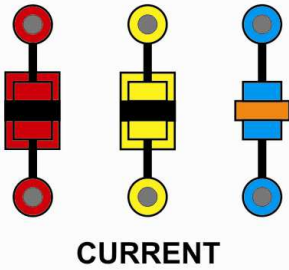
46S

Service Type: TBA



Meter Test Adapter

Meter Form: 56S
 Service Type: S003F04
 Use Socket: M15
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ic



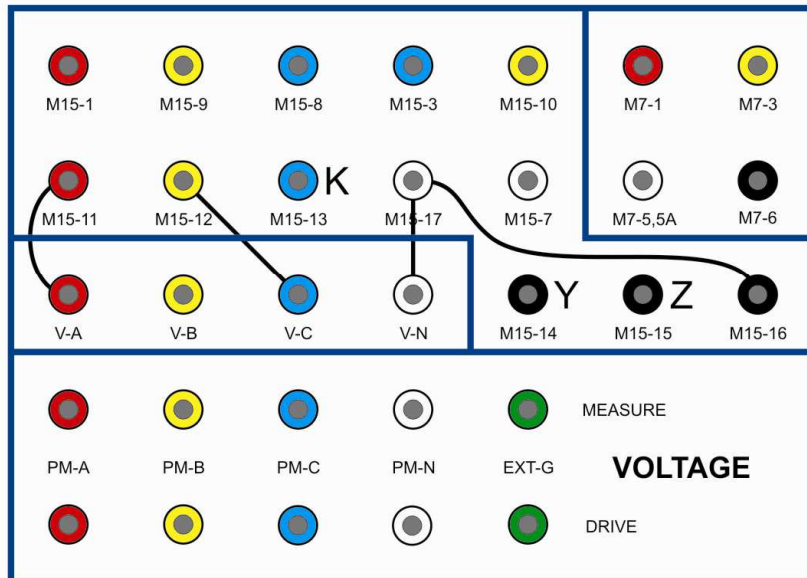
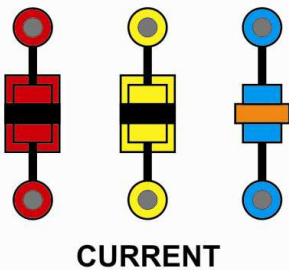
56S

Service Type: 1-Phase, 3-Wire (1V, 2C) TR - S003F04



Meter Test Adapter

Meter Form: 66S
 Service Type: S003F04
 Use Socket: M15
 Currents: Ia, Ib
 Voltages: Va, Vb
 Isolators: Ic



66S

Service Type: 1-Phase, 3-Wire (1V, 2C) TR - S003F04