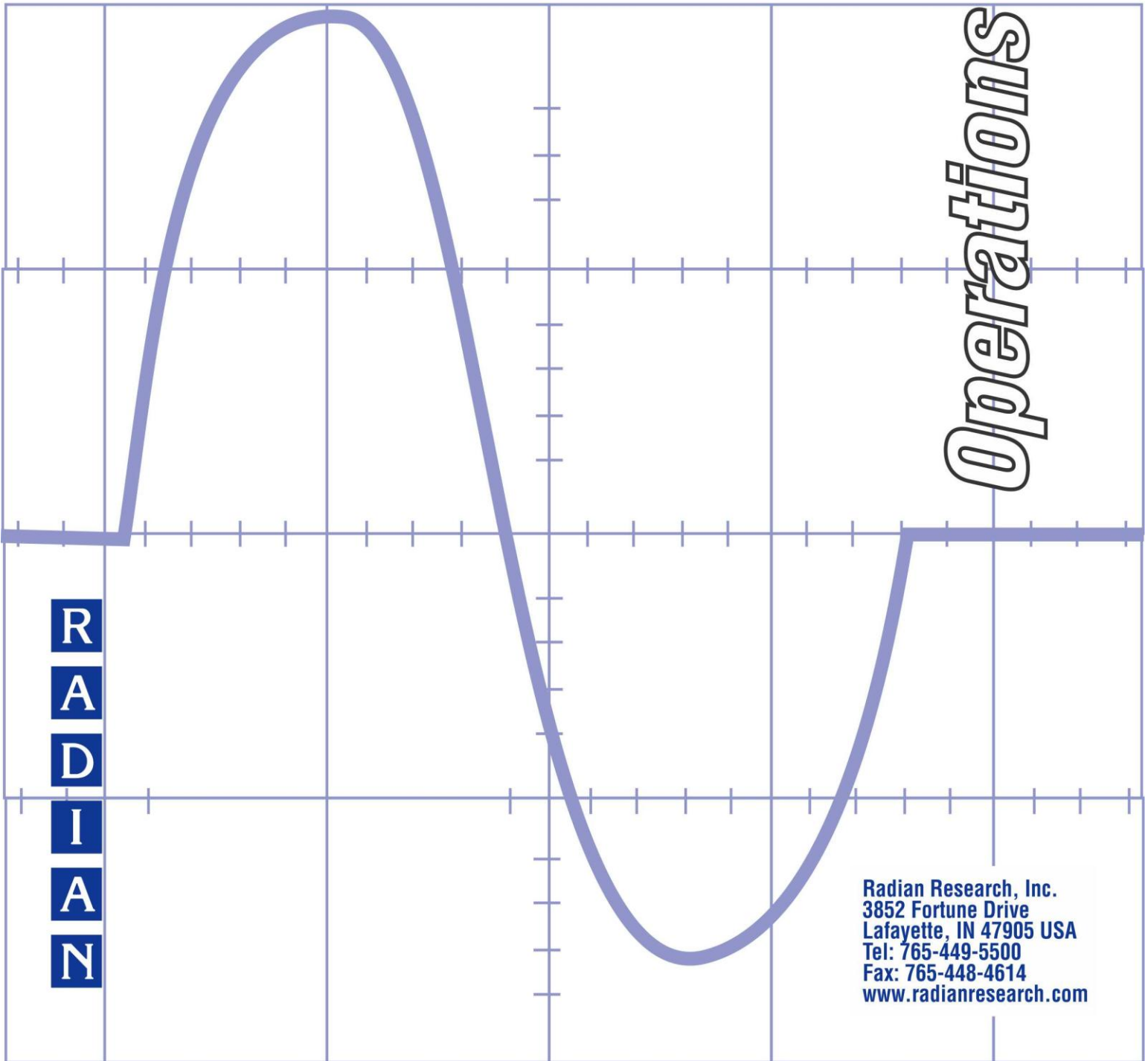


Radian Research, Inc.
**RB-MTS Meter Test Stand
with Voltage Option,
RB-10 Wiring Diagrams**

Operations Manual



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RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams

The RB-MTS with Voltage Option provides a universal ANSI S meter socket combined with a multi-tap voltage transformer to provide a shop solution for meter testing with field load boxes. This document describes its use with Radian Research's RB-10 Bantam Lite Portable Field Testing Solution.

The RB-MTS powers from a 120 VAC 60 Hz source, and a Nema 15P plug and cord is provided. The system is fused with two 5 amp fuses, located on the side panel. The voltage transformer uses this to produce voltages delivered to shrouded 4MM jacks (safety banana). These voltages are hazardous. An on/off lamp indicator and switch disable and enable this voltage for powering the RB-10 and meter under test. Make all connections, remove, and replace the meter ONLY when the power and the indicator are off. See the Fig. 1 of the side panel below.

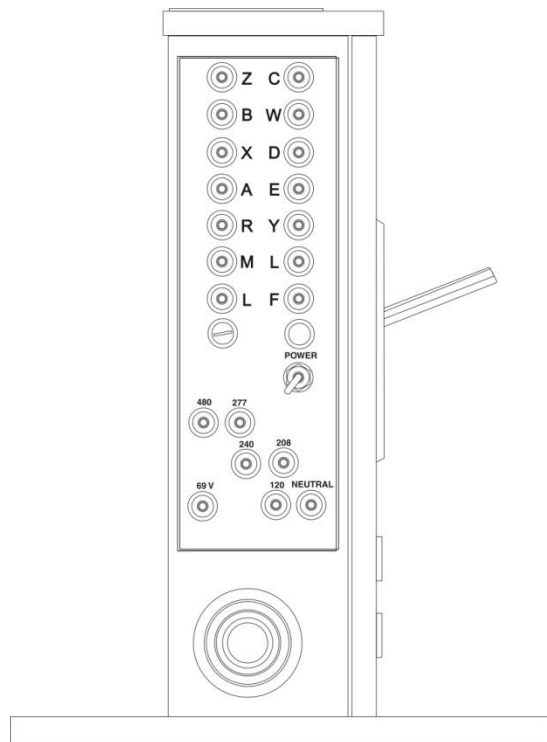


Fig.1 Side panel of RB-MTS with Voltage Option

RB-MTS Meter Test Stand with Voltage Option

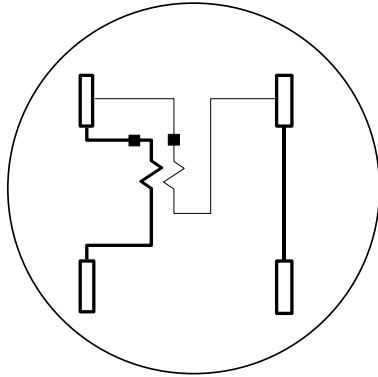
RB-10 Wiring Diagrams

The RB-MTS Meter Adapter with Voltage Option allows testing with the RB-10 for most ANSI S meter forms. Use these charts with the instructions provided with the RB-10 to setup tests.

- Make all connections with the power off.
- Connect voltage jumpers in the table first using 4MM shrouded patch cables, then connect a jumper from the Neutral terminal on the side panel to the V terminal in the chart. The 4MM patch cables will stack for multiple connections on a terminal.
- Connect a jumper from the voltage you select's terminal for the meter test (i.e. 240) to the V+ terminal from the chart.
- Finally connect the RB-10 cable Voltage +/- to the V+ terminal on the top of the stack and the RB-10 cable Voltage to the V terminal on the top of the stack. Place the RB-10 cable current terminals in the appropriate receptacles below the socket.
- Be careful with forms such as S5 that use the ANSI 9 and 10 terminals (RB-MTS terminals W and Y). RB-10 current phases are a short when it is powered down and if left in the socket adapter will short voltages applied to these terminals.
- Set the RB-10 switches per the chart.
- Lift the handle for the meter socket firmly, seat the meter to be tested and push the handle down.
- Make sure the load switch is off and the voltage select on the RB-10 is set to the voltage you are using to test. Turn on the RB-MTS power switch. The meter should have voltage applied.
- Adjust currents and test the meter per normal RB-10 operation. Turn off the RB-MTS power before removing the meter.
- Turn the RB-10 load off before powering down the RB-MTS.

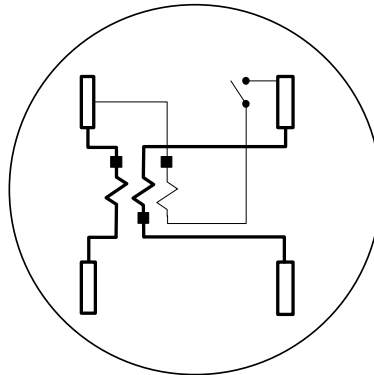
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 1S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A	1	1	C	E	≈	≈	≈	≈	C	D
A											
B											
C											
Jumper											

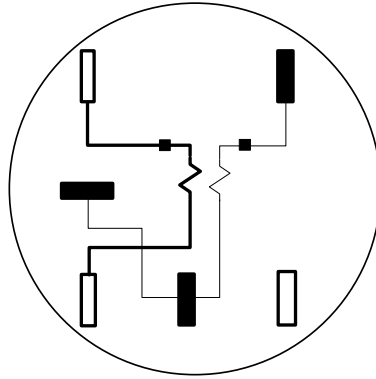


3-Wire
FORM 2S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	1	2	C	E	≈	≈	F	D	C	D
A											
B											
C											
Jumper											

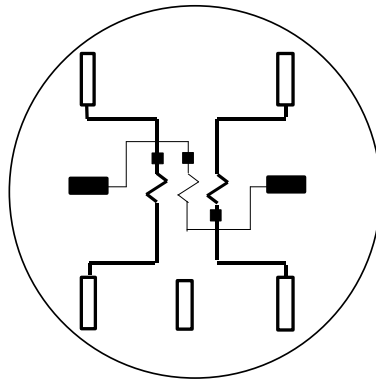
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 3S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A	1	1	C	E	≈	≈	≈	≈	D	B
A											
B											
C											
Jumper											

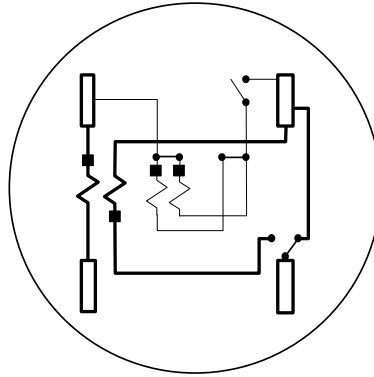


2-Element
3-Wire
FORM 4S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	1	2	C	E	≈	≈	F	D	M	B
A											
B											
C											
Jumper											

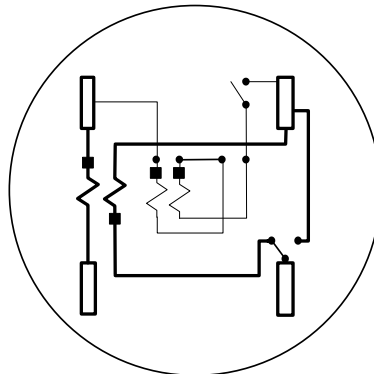
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 19S-2

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A	1	1	C	E	≈	≈	≈	≈	C	D
A											
B											
C											
Jumper											

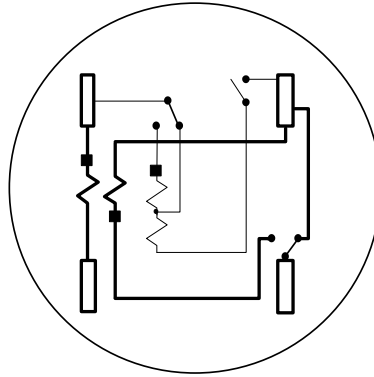


3-Wire
FORM 19S-3

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	1	2	C	E	≈	≈	F	D	C	D
A											
B											
C											
Jumper											

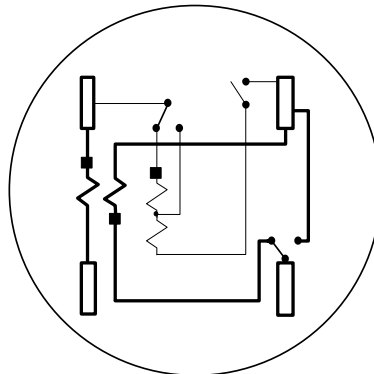
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 20S-2

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A	1	1	C	E	≈	≈	≈	≈	C	D
A											
B											
C											
Jumper											

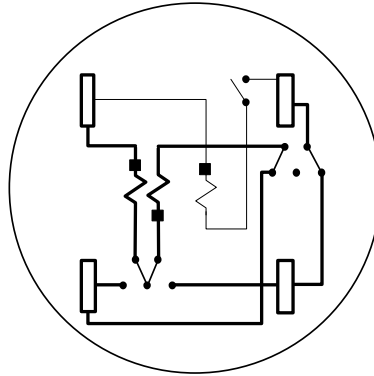


3-Wire
FORM 20S-3

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	1	2	C	E	≈	≈	F	D	C	D
A											
B											
C											
Jumper											

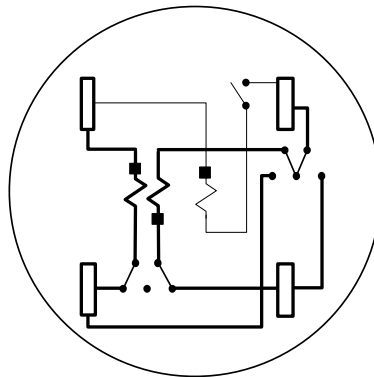
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 21S-2

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A	1	1	C	E	≈	≈	≈	≈	C	D
A											
B											
C											
Jumper											

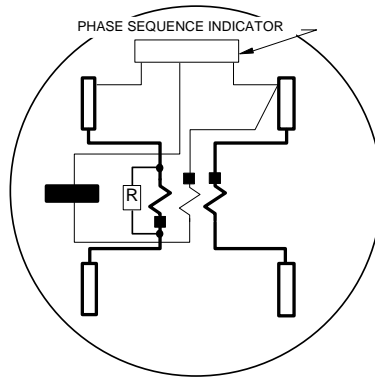


3-Wire
FORM 21S-3

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	1	2	C	E	≈	≈	F	D	C	D
A											
B											
C											
Jumper											

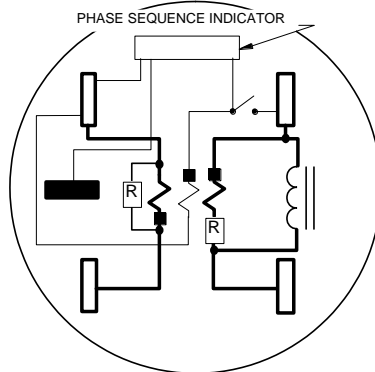
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Wire
FORM 22S

	ELEMT SWITCH	M E	S E	A +	A C*	B +	B -	C +	C -	V +	V -
S	A+C	1	2	E*	C*	≈	≈	D	F	D	C
A											
B											
C											
Jumper											



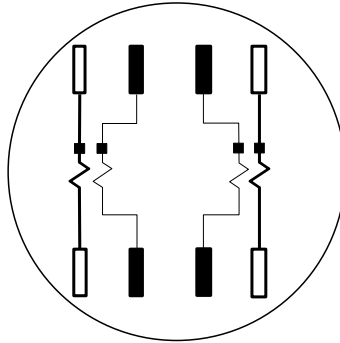
2-Wire
FORM 23S

	ELEMT SWITCH	M E	S E	A +	A C*	B +	B -	C +	C -	V +	V -
S	A+C	1	2	E*	C*	≈	≈	D	F	D	C
A											
B											
C											
Jumper											

* ±A Connects to Load Side of meter, A to Line Side of meter

RB-MTS Meter Test Stand with Voltage Option

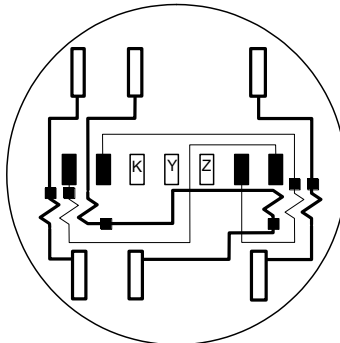
RB-10 Wiring Diagrams



2-Element
3-Wire
FORM 5S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	W	Y
A	A	1	1	C	E	≈	≈	D	F	W	Y
B											
C	C	1	1	C	E	≈	≈	D	F	W	Y
Jumper		X to W		Z to Y							

* Connect to service side and open all switches.



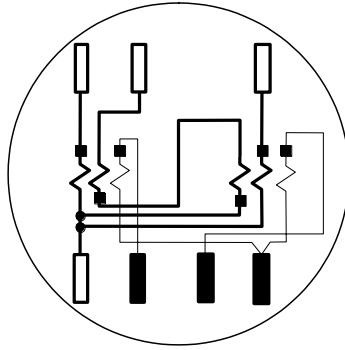
2-Element
4-Wire
FORM 6S

	ELEMT SWITCH	M	S	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	Y	W	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	2	1	C	E	Y	W	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper		L to M		B to Z							

* Connect to service side and open all switches.

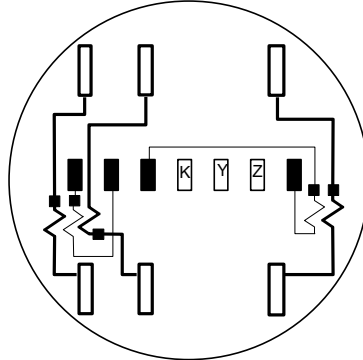
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 7S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	E	†W b	D	†E c	Y	F
A	A	1	1	C	E	W	†E b	D	†E c	Y	F
B	B	2	1	C	E	E	†W b	D	†E c	Y	F
C	C	1	1	C	E	W	†E b	D	†E c	Y	F
Jumper		Z to Y									



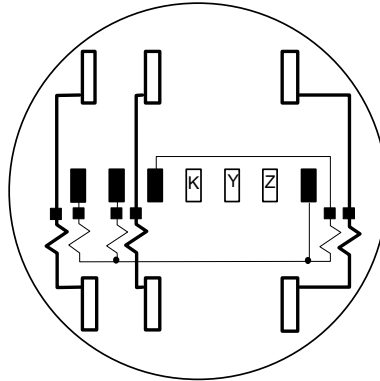
2-Element
4-Wire
FORM 8S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	2	3	C	E	Y	W	D	F	L	M
A	A	½	1	C	E	W	Y	D	F	L	M
B	B	½	1	C	E	Y	W	D	F	L	M
C	C	1	1	C	E	W	Y	D	F	L	M
Jumper		L to R		M to Z							

* Connect to service side and open all switches.

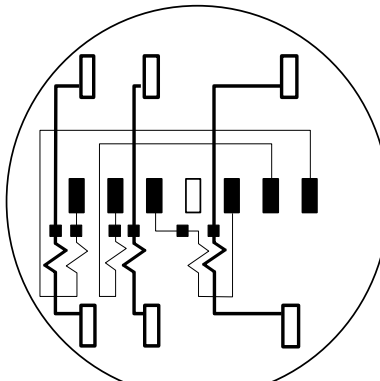
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



3-Element
4-Wire
FORM 9S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	1	1	C	E	W	Y	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper		L to M	M to R								

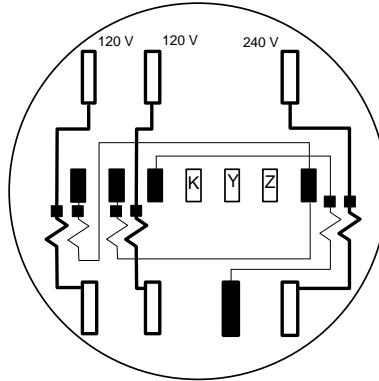


3-Element
4-Wire
FORM 10S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	1	1	C	E	W	Y	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper		L to M	M to R	X to B	B to Z						

RB-MTS Meter Test Stand with Voltage Option

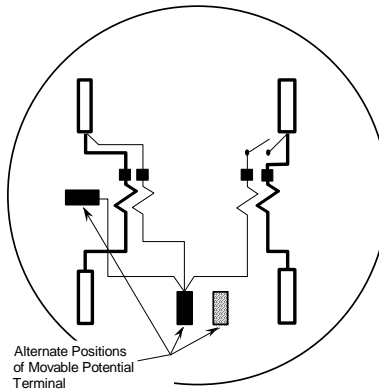
RB-10 Wiring Diagrams



3-Element
4-Wire
FORM 11S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	1	1	C	E	W	Y	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper		L to M	M to R								

Note: Test performed at 120V on all voltage coils

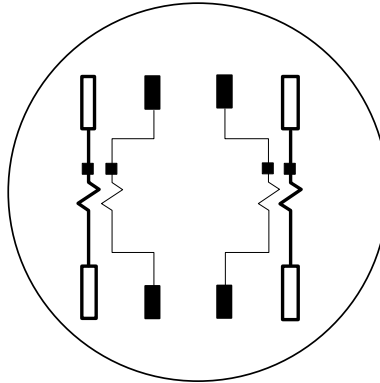


2-Element
3-Wire
FORM 12S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	C	Z
A	A	1	1	C	E	≈	≈	D	F	C	Z
B											
C	C	1	1	C	E	≈	≈	D	F	C	Z
Jumper		C to D									

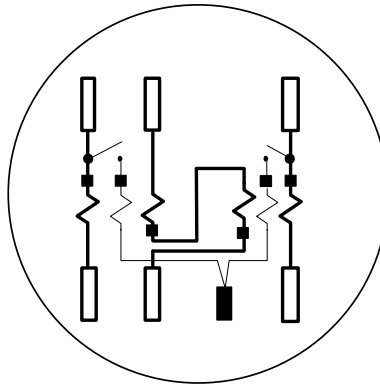
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
3-Wire
FORM 13S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	W	Y
A	A	1	1	C	E	≈	≈	D	F	W	Y
B											
C	C	1	1	C	E	≈	≈	D	F	W	Y
Jumper		X to W		Z to Y							

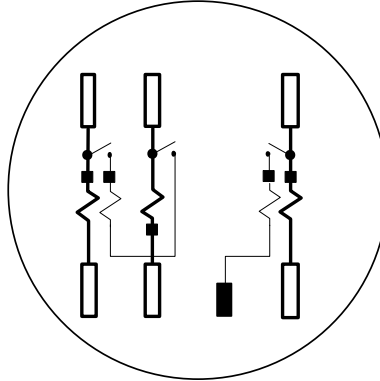


2-Element
4-Wire
FORM 14S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	Y	W	D	F	C	Z
A	A	1	1	C	E	W	Y	D	F	C	Z
B	B	2	1	C	E	Y	W	D	F	C	Z
C	C	1	1	C	E	W	Y	D	F	C	Z
Jumper		C to D									

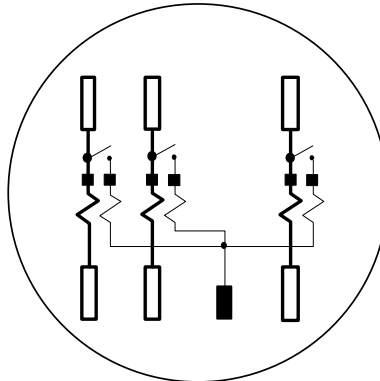
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 15S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	2	3	C	E	Y	W	D	F	C	W
A	A	½	1	C	E	W	Y	D	F	C	W
B	B	½	1	C	E	Y	W	D	F	C	W
C	C	1	1	C	E	W	Y	D	F	C	W
Jumper		C to D	W to Z								

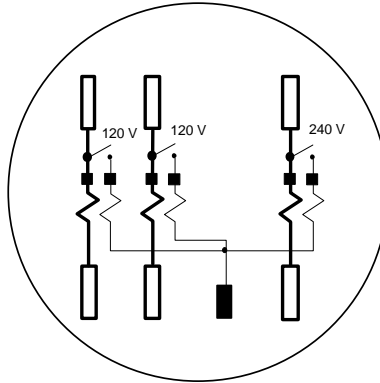


3-Element
4-Wire
FORM 16S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	C	Z
A	A	1	1	C	E	W	Y	D	F	C	Z
B	B	1	1	C	E	W	Y	D	F	C	Z
C	C	1	1	C	E	W	Y	D	F	C	Z
Jumper		C to W	W to D								

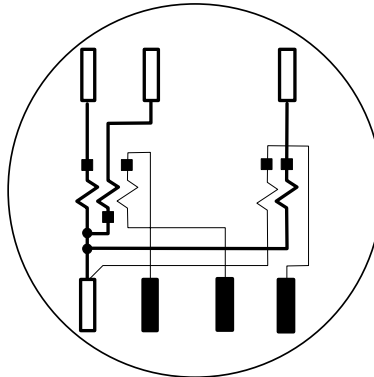
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



3-Element
4-Wire
FORM 17S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	C	Z
A	A	1	1	C	E	W	Y	D	F	C	Z
B	B	1	1	C	E	W	Y	D	F	C	Z
C	C	1	1	C	E	W	Y	D	F	C	Z
Jumper		C to W		W to D							



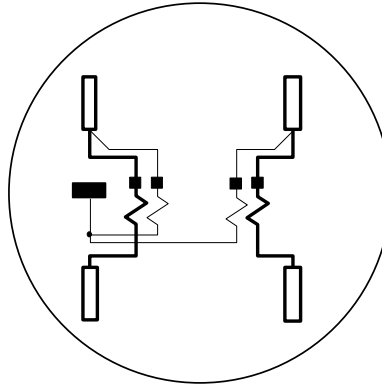
2-Element
4-Wire
FORM 24S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	E	†Wb	D	†Ec	Y	Z
A	A	1	1	C	E	W	†Eb	D	†Ec	Y	Z
B	B	2	1	C	E	E	†Wb	D	†Ec	Y	Z
C	C	1	1	C	E	W	†Eb	D	†Ec	Y	Z
Jumper		D to Y		E to Z							

† Disconnect B and C currents from terminal 2

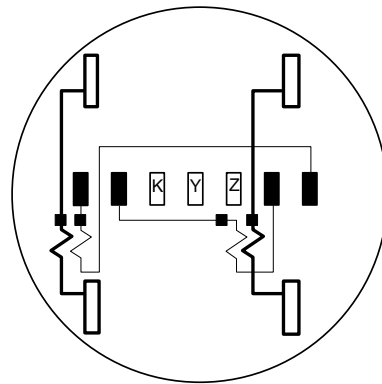
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
3-Wire
FORM 25S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	C	M
A	A	1	1	C	E	≈	≈	D	F	C	M
B											
C	C	1	1	C	E	≈	≈	D	F	C	M
Jumper		C to D									

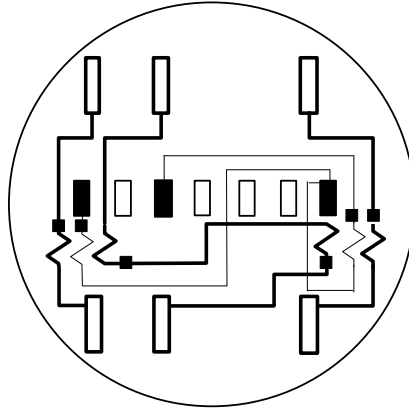


2-Element
3-Wire
FORM 26S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	L	Z
A	A	1	1	C	E	≈	≈	D	F	L	Z
B											
C	C	1	1	C	E	≈	≈	D	F	L	Z
Jumper		L to M		B to Z							

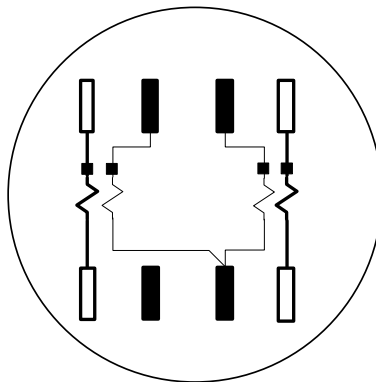
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 29S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	Y	W	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	2	1	C	E	Y	W	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper	L to R										

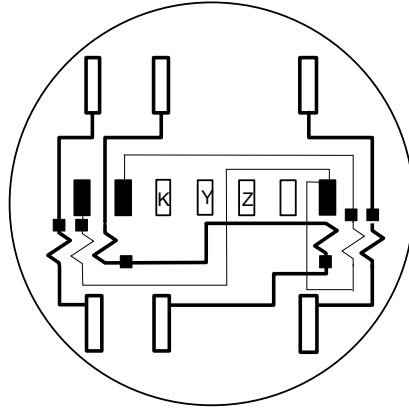


2-Element
3-Wire
FORM 35S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	W	Z
A	A	1	1	C	E	≈	≈	D	F	W	Z
B											
C	C	1	1	C	E	≈	≈	D	F	W	Z
Jumper	X to W										

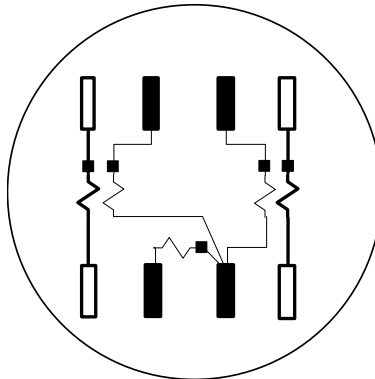
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 36S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	4	3	C	E	Y	W	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	2	1	C	E	Y	W	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper	L to M										



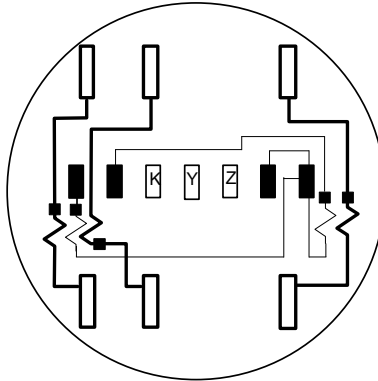
2-Element
3-Wire
FORM 45S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	W	Z
A	A	1	1	C	E	≈	≈	D	F	W	Z
B											
C	C	1	1	C	E	≈	≈	D	F	W	Z
Jumper	X to W										

Note: Voltage coil between 7 and 10 for measurement purposes only and is not part of the meter test.

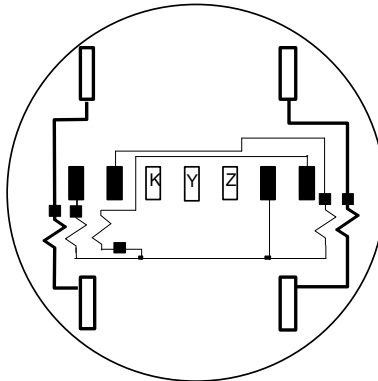
RB-MTS Meter Test Stand with Voltage Option

RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 46S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	2	3	C	E	Y	W	D	F	L	Z
A	A	½	1	C	E	W	Y	D	F	L	Z
B	B	½	1	C	E	Y	W	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper	L to M										



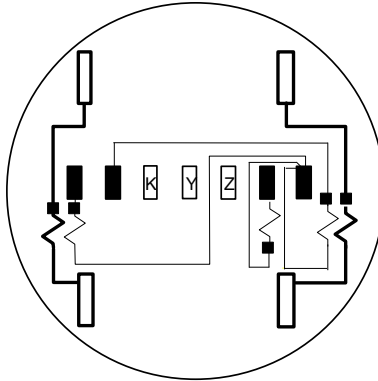
2-Element
4-Wire
FORM 56S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	L	B
A	A	1	1	C	E	≈	≈	D	F	L	B
B											
C	C	1	1	C	E	≈	≈	D	F	L	B
Jumper	L to M										

Note: Voltage coil 16 and 17 for measurement purposes only and is not part of the meter test.

RB-MTS Meter Test Stand with Voltage Option

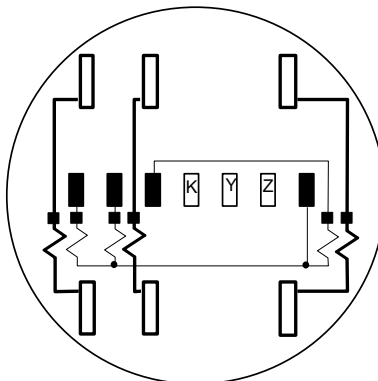
RB-10 Wiring Diagrams



2-Element
4-Wire
FORM 66S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+C	2	2	C	E	≈	≈	D	F	L	Z
A	A	1	1	C	E	≈	≈	D	F	L	Z
B											
C	C	1	1	C	E	≈	≈	D	F	L	Z
Jumper		L to M									

Note: Voltage coil 16 and 17 for measurement purposes only and is not part of the meter test.



3-Element
4-Wire
FORM 96S

	ELEMT SWITCH	M E	S E	A +	A	B +	B	C +	C	V +	V
S	A+B+C	3	3	C	E	W	Y	D	F	L	Z
A	A	1	1	C	E	W	Y	D	F	L	Z
B	B	1	1	C	E	W	Y	D	F	L	Z
C	C	1	1	C	E	W	Y	D	F	L	Z
Jumper		L to M		M to R							