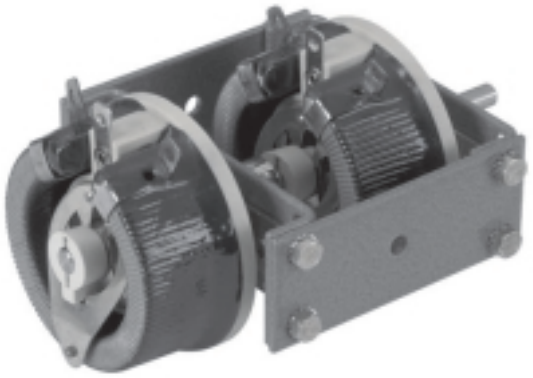
Wirewound Rheostats and Potentiometers Graded Windings, Ganged Assemblies



DATA REQUIRED TO DEFINE A UNIT

a: Ohmic value of the current load in series with the rheostat.
b: Supply voltage of the rheostat + series load.
c: Ohmic value of rheostat.
d: Maximum current when the rheostat is in short circuit position.
e: Current when the rheostat is set to maximum ohmic value.
f: Resistance variation law as a function of mechanical travel.

To define a graded winding unit a, b and c; or c, d and e or g has to be established.

APPLICATION EXAMPLES

Potentiometer mode.

The following data has to be established :
– potentiometer supply voltage U.
– ohmic value of the controlled current load Z.

Note : If the power to be controlled is small, a linear, variation law rheostat can be used.

Ohmic value : $R = \frac{Z}{5}$ and $I = \frac{U^2}{Z}$;

in such case the output current is $I = \frac{6U}{Z}$

Control of lamps.

The parameters to be established are :
– light flux variation required :
linear from 100% to 1%
log variation from 100% to 4%
or from 100% to 20%
– lamp supply voltage,
– lamp power range,

FEATURES

- Duo, trio or quarto configurations

RHEOSTATS AND POTENTIOMETERS WITH GRADED WINDING : RTS

When the ration $\frac{\text{max. current}}{\text{min. current}}$ exceeds 2, a graded unit may enable a smaller sized unit to be used than an equivalent linear law unit for the same maximum current. Graded windings can also avoid the use of twin units.

Linear relationships are achievable between the variable parameters being controlled and the rheostat command shaft.

All RT size rheostats are available with graded windings except the RT12 size. The resistive wire is protected by a specially VISHAY SFERNICE formulated enamel. Mechanical and environmental characteristics are identical to the RT series.

GANGED ASSEMBLIES

Rheostats may be ganged mechanically in the following styles :

2 ganged units RTC DUO
3 ganged units RTC TRIO
4 ganged units RTC QUARTO

The RT12 unit is not suitable for ganged assembly.

Ganged assemblies may comprise :
– similar sized units, where the ohmic values may be different ;
– various sized units where the unit at the top end of the command shaft can be of smaller size.

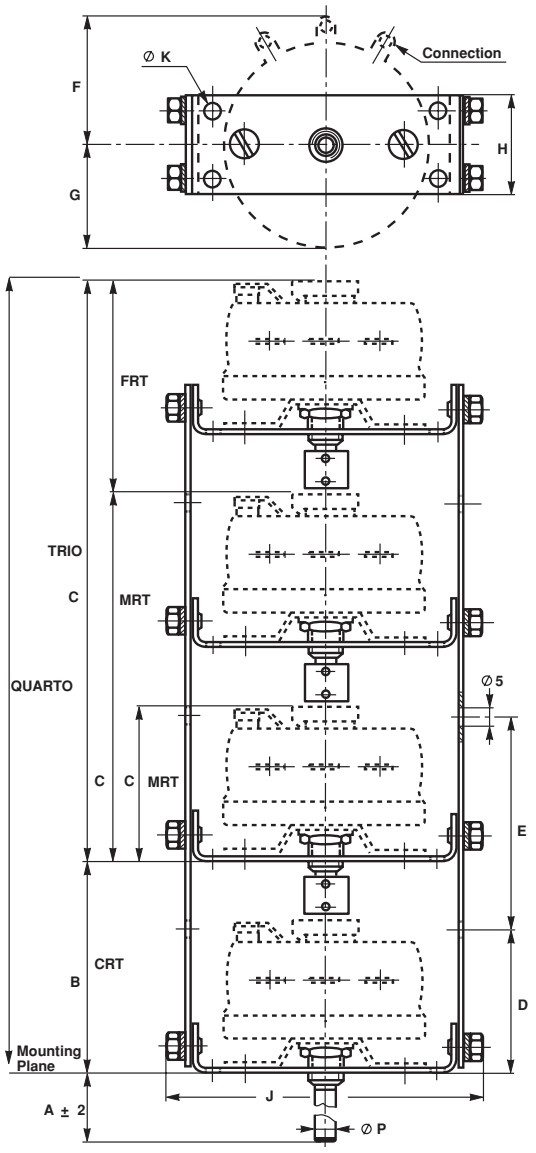
COMMAND SYSTEM

- All units with common command : Code CU
  Shaft locking devices as an option : Code DBA
  (factory assembled).
- Concentric shafts : Code CC
  Available for double ganged units only : RTC DUO
  The shaft locking device and double mini switch cannot be fitted to concentric shaft..
- Command knobs as an option :
  Code JF for standard shaft, code JFP - FSP for concen tric shafts.

SPECIAL FEATURES

For any special features such as graded windings, center-tappings, etc. We would be pleased to receive the details of your particular requirements.

DIMENSIONS in millimeters



FEATURES

Mechanical, electrical, and environmental features are similar to the RT series document numbers, 50024, 50025, 50026, 50027, 50028, 50029, 50030

DIMENSIONS

Series	Type	A	B	C	D	E	F	G	H	J	øH
RTC Duo	25	25	52	34.5	30	–	19	23	30	81	3.5
	55	25	63	46	41	–	30	38	30	92	4.5
	100	25	75	58	53	–	42.5	54.5	30	110	M5
	230	50	97	78	78	–	71.5	83	40	170	7
	500	50	128	110	109	–	71.5	83	40	170	7
RTC Trio	25	25	52	86.5	30	52	19	23	30	81	3.5
	55	25	63	109	41	63	30	38	30	92	4.5
	100	25	75	133	53	75	42.5	54.5	30	110	M5
	230	50	97	175	78	97	71.5	83	40	170	7
	500	50	128	238	109	128	71.5	83	40	170	7
RTC Quarto	25	25	52	138.5	30	52	19	23	30	81	3.5
	55	25	63	172	41	63	30	38	30	92	4.5
	100	25	75	208	53	75	42.5	54.5	30	110	M5
	230	50	97	272	78	97	71.5	83	40	170	7
	500	50	128	366	109	128	71.5	83	40	170	7

RTC Duo 2 ganged units
RTC Trio 3 ganged units
RTC Quarto 4 ganged units

PANEL CUT-OUT

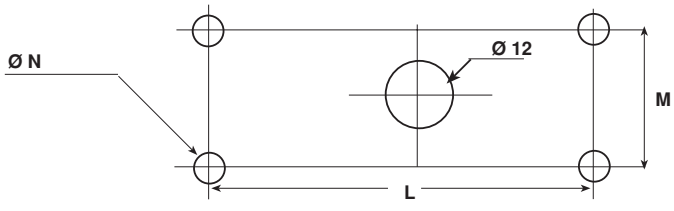
SERIES	DUO - TRIO - QUARTO				
Type	25	55	100	230	500
L	55	66	62	110	110
M	23	20	20	24	24
Ø N	3.5	4.5	M5	7	7

CONCENTRIC SHAFT*

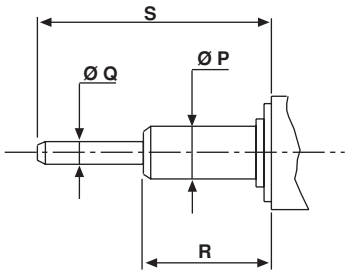
SERIES	TYPE	Ø P	Ø Q	R	S
RTC Duo	25	6	3.5	20	31
	55	6	3.5	21	38
	100	6	3.5	21	45
	230	10	5	25	45
	500	10	5	25	45

*2 ganged units only

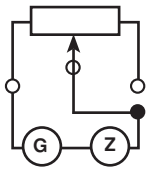
PANEL CUT-OUT



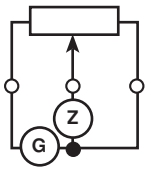
CONCENTRIC SHAFT



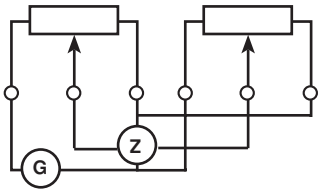
ELECTRICAL DIAGRAM (Typical Use)



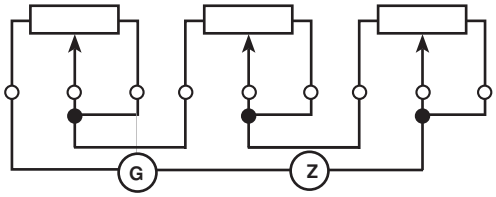
Single rheostat connected



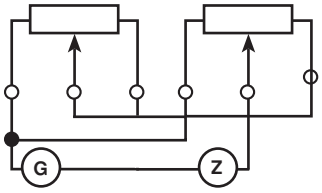
Single potentiometer connected



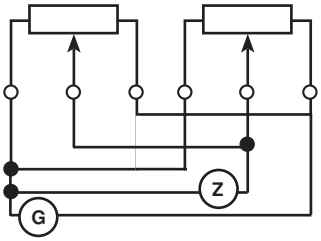
Double potentiometer series connected, load in parallel



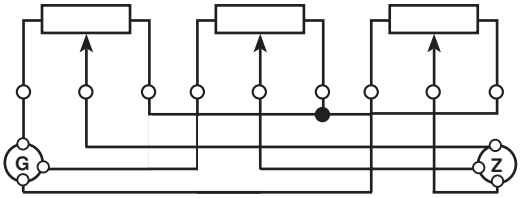
Triple rheostat series connected



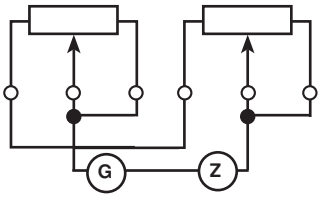
Double rheostat parallel connected, load in series



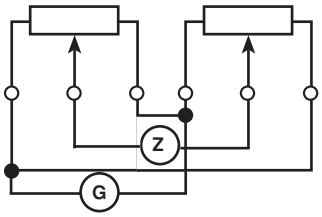
Double potentiometer parallel connected, load in series



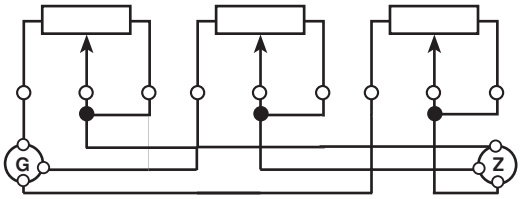
Triple rheostat connected, used for three phase current regulator



Double bridge



Double potentiometer parallel connected, load in parallel



Triple potentiometer connected, used for three phase current regulator

MARKING

Graded winding units : RTS

SFERNICE trademark, series, style, number of graded, windings, ohmic value (in Ω or kΩ), tolerance (in %), maximum current (in A), manufacturing date.

Ganged units : RTC : Duo, Trio, Quarto

SFERNICE trademark, series, style, the relative position of each unit in the assembly.

CRT 1st unit (command knob end),

MRT 2nd and/or 3rd unit,

FRT last unit,

ohmic value (in Ω or kΩ), tolerance (in %), maximum current (in A), manufacturing date.

ORDERING INFORMATION

2 GANGED UNITS

RTC (E)	DUO		CU	CRT25 FRT25	L	DBA	AS	220Ω 470Ω	± 10% ± 10%	JFP	FSP
SERIES	STYLE	SPECIAL DESIGN	COMMAND SHAFT	UNIT SEQUENCE	VARIATION LAW	SHAFT LOCKING DEVICE	SPINDLE	OHMIC VALUE	TOLERANCE	OPTIONS	
		Method N° Optional	1 common shaft CU Concentric Shaft CC			Optional				Concentric shaft Knobs	

3 GANGED UNITS

RTC (E)	TRIO		CRT100	L	DBA	AS	33Ω	± 10%
			MRT100				680Ω	± 10%
			FRT100				4.7kΩ	± 10%
SERIES	STYLE	SPECIAL DESIGN	UNIT SEQUENCE	VARIATION LAW	SHAFT LOCKING DEVICE	SPINDLE	OHMIC VALUE	TOLERANCE
		Method N° Optional			Optional			

4 GANGED UNITS

RTC (E)	QUARTO		CRT230	L	DBA	AS	33Ω	± 10%
			MRT230				220Ω	± 10%
			MRT230				6.8kΩ	± 10%
			FRT55				1.5kΩ	± 10%
SERIES	STYLE	SPECIAL DESIGN	UNIT SEQUENCE	VARIATION LAW	SHAFT LOCKING DEVICE	SPINDLE	OHMIC VALUE	TOLERANCE
		Method N° Optional			Optional			

NOTE

Unless otherwise specified the ganged units are assembled in the following sequence.
The lowest ohmic value being situated on the command knob side.