

# Revalco®

Made in Italy

## Adjustable transformers and variable resistors



2011

# ADJUSTABLE TRANSFORMERS

|                                             |            |
|---------------------------------------------|------------|
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# ADJUSTABLE TRANSFORMERS

## GENERAL DESCRIPTION

The adjustable transformers are used for the continuous adjustment of single-phase and three-phase voltages.

They are used in electromechanical and electronic industries, in laboratories and schools.

Principally are used for:

- manual and automatic control of supplies in measurement switchboard
- speed control in rotating machines
- control of heating machines
- educational demonstrations in schools and colleges
- correctly regulate single-phase and three-phase voltages

In respect of thyristor regulators, the AC voltages control by using these adjustable transformers has the following advantages:

- don't cause frequency interferences
- the output voltage wave is perfectly sinusoidal
- high efficiency, low consumption

The adjustable transformers are available in two versions:

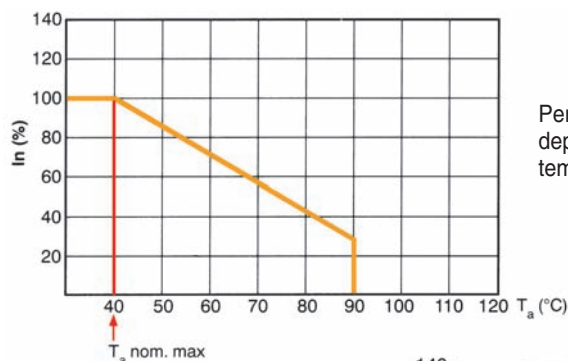
- protected by metallic case, usefull for the schools, laboratories, measurement tests
- open execution not protected to be mounted into electrical panels, control switchboards

Excluding the model HST which has the primary separate from the secondary winding, all the models are self-contained transformers.

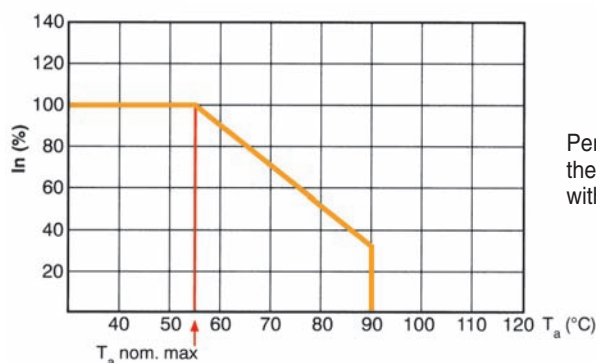
The adjustable transformers are made of high quality materials and manufactured using modern technology, so when the permissible load capacities are observed, no particular maintenance is required. With the standard version the cleaning of the slide surface only is required after long periods of use.

## TECHNICAL CHARACTERISTICS

- The standard versions are supplied by 230V +10% input voltages. This voltage must never be higher than 6% of the nominal value to avoid possible increases of the temperature in the winding over the admitted limit. The secondary circuit conforms to standards VDE 0552/5.69, **must be protected against the short circuits by a fuse or thermic protection. The primary circuit must be protected by a time delayed fuse with proper range.**
- The standard working frequency is 50Hz. Models with frequency at 400Hz can be available on request; it should be understood however that the losses of the core caused by the magnetic hysteresys increases with the increase of the frequency.
- The nominal current load is permitted within the working temperatures from  $-15^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ ; in case of these limits are exceeded it is necessary to cool the transformer
- Test voltage is 2,5kV at 50Hz from the metallic parts and the points under volatge
- Protection degree: class I
- The protected models in metallic case (HSN and HTN) have the same technical characteristics of the open models; the only difference is in the working temperature that in this case is  $30^{\circ}\text{C}$ . In case of prolonged use (more than 4h continuous use) it is better to reduce the load of about 20% to avoid the overheating of the metallic case.
- In case of their use in presence of high temperatures, the maximum admissible current must be reduced of 15% every  $10^{\circ}\text{C}$  exceedent the max ambient temperature ( $40^{\circ}\text{C}$ )

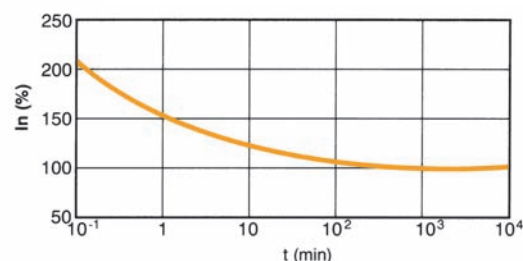


Permissible permanent load ,  
depending by the environmental  
temperature



Permissible permanent load , depending by  
the environmental temperature in models  
with silver circuit

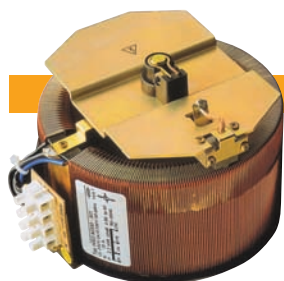
Permissible, depending on the  
operating time





# SINGLE-PHASE

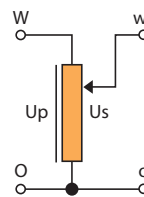
## OPEN EXECUTION



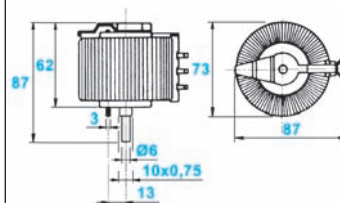
- 7HSG0011/48
- 7HSG0011/230

| Up (V) | Us (V)    | Is (A) | P (VA) | Weight (kg) |
|--------|-----------|--------|--------|-------------|
| 48     | 0.....48  | 5      | 240    | 1,2         |
| 230    | 0.....230 | 0,8    | 180    | 1,1         |

Connection diagram



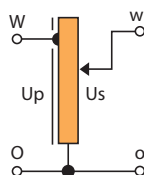
Dimensions in mm



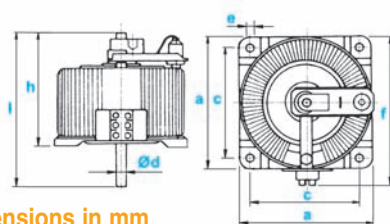
- 7HSG0022
- 7HSG0052
- 7HSG0102
- 7HSG0202
- 7HSG0302

| Up (V) | Us (V)    | Is (A) | P (VA) | Weight (kg) |
|--------|-----------|--------|--------|-------------|
| 230    | 0.....250 | 1,2    | 300    | 2,1         |
| 230    | 0.....250 | 2,5    | 620    | 3,5         |
| 230    | 0.....250 | 5      | 1250   | 5           |
| 230    | 0.....260 | 8      | 2080   | 7,4         |
| 230    | 0.....260 | 13     | 3380   | 10,5        |

Connection diagram



| h   | l   | Ød | a   | c   | e   | f   |
|-----|-----|----|-----|-----|-----|-----|
| 102 | 130 | 8  | 97  | 80  | 5,4 | 118 |
| 105 | 135 | 8  | 130 | 110 | 8,3 | 151 |
| 123 | 153 | 8  | 130 | 110 | 8,3 | 151 |
| 123 | 153 | 8  | 155 | 127 | 8,3 | 175 |
| 123 | 158 | 8  | 210 | 165 | 8,3 | 233 |



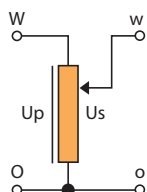
Dimensions in mm

- 7HSG230/1
- 7HSG230/1,25
- 7HSG230/1,6
- 7HSG230/2
- 7HSG230/2,5
- 7HSG230/3
- 7HSG230/4
- 7HSG230/4,5
- 7HSG230/6
- 7HSG230/8
- 7HSG230/10
- 7HSG230/12
- 7HSG230/18
- 7HSG230/23
- 7HSG230/32

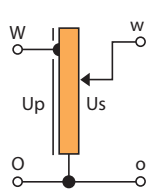
| Up (V) | Us (V)    | I (A) | P (VA) |
|--------|-----------|-------|--------|
| 230    | 0.....230 | 1,0   | 230    |
| 230    | 0.....230 | 1,25  | 287    |
| 230    | 0.....230 | 1,6   | 368    |
| 230    | 0.....230 | 2,0   | 460    |
| 230    | 0.....230 | 2,5   | 575    |
| 230    | 0.....230 | 3,0   | 690    |
| 230    | 0.....230 | 4,0   | 920    |
| 230    | 0.....230 | 4,5   | 1035   |
| 230    | 0.....230 | 6,0   | 1380   |
| 230    | 0.....230 | 8,0   | 1840   |
| 230    | 0.....230 | 10,0  | 2300   |
| 230    | 0.....230 | 12,0  | 2760   |
| 230    | 0.....230 | 18,0  | 4140   |
| 230    | 0.....230 | 23,0  | 5290   |
| 230    | 0.....230 | 32,0  | 7360   |

- 7HSG260/0,8
- 7HSG260/1
- 7HSG260/1,4
- 7HSG260/1,6
- 7HSG260/2
- 7HSG260/2,5
- 7HSG260/3
- 7HSG260/3,5
- 7HSG260/4,5
- 7HSG260/6,3
- 7HSG260/8
- 7HSG260/10
- 7HSG260/15
- 7HSG260/20
- 7HSG260/30

| Up (V) | Us (V)    | I (A) | P (VA) | Weight (kg) | Model |
|--------|-----------|-------|--------|-------------|-------|
| 230    | 0.....260 | 0,8   | 208    | 1,4         | M15   |
| 230    | 0.....260 | 1,0   | 260    | 1,4         | M15   |
| 230    | 0.....260 | 1,4   | 364    | 2,4         | M30   |
| 230    | 0.....260 | 1,6   | 416    | 2,4         | M30   |
| 230    | 0.....260 | 2,0   | 520    | 2,4         | M30   |
| 230    | 0.....260 | 2,5   | 650    | 3,5         | M50   |
| 230    | 0.....260 | 3,0   | 780    | 3,5         | M50   |
| 230    | 0.....260 | 3,5   | 910    | 4,6         | M100  |
| 230    | 0.....260 | 4,5   | 1170   | 4,6         | M100  |
| 230    | 0.....260 | 6,3   | 1638   | 7,0         | M200  |
| 230    | 0.....260 | 8,0   | 2080   | 7,0         | M200  |
| 230    | 0.....260 | 10,0  | 2600   | 9,2         | M250  |
| 230    | 0.....260 | 15,0  | 3900   | 13,3        | M300  |
| 230    | 0.....260 | 20,0  | 5200   | 14,0        | M400  |
| 230    | 0.....260 | 30,0  | 7800   | 20,5        | M500  |

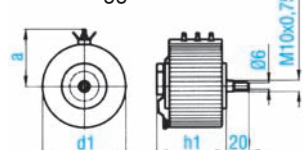


Connection diagram

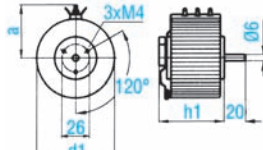


Connection diagram

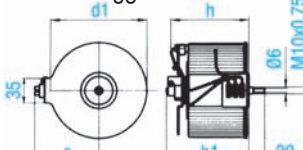
M15 - fissaggio centrale



M15

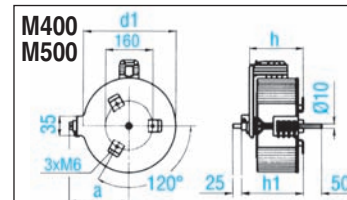
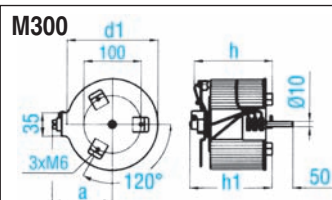
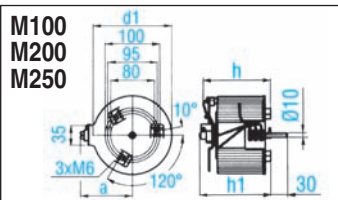
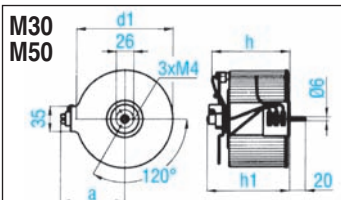


M30 - fissaggio centrale



|      | d1  | h   | h1  | a   |
|------|-----|-----|-----|-----|
| M15  | 80  | -   | 68  | 49  |
| M15  | 80  | -   | 71  | 49  |
| M30  | 100 | 98  | 100 | 74  |
| M50  | 117 | 98  | 100 | 83  |
| M100 | 125 | 120 | 121 | 86  |
| M200 | 153 | 120 | 121 | 100 |
| M250 | 174 | 120 | 121 | 110 |
| M300 | 226 | 116 | 117 | 149 |
| M400 | 230 | 110 | 120 | 156 |
| M500 | 270 | 125 | 135 | 175 |

Dimensions in mm



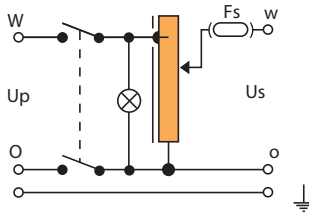
## METALLIC CASE EXECUTION



- 7HSN0103
- 7HSN0203
- 7HSN0303
- 7HSN260/4,5
- 7HSN260/8
- 7HSN260/10
- 7HSN260/15
- 7HSN260/20
- 7HSN260/30

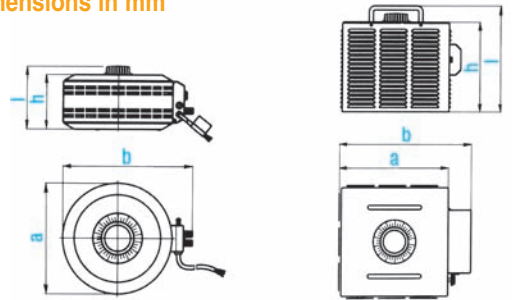
|  | Up (V) | Us (V)    | I (A) | P (VA) | Weight (kg) | Model |
|--|--------|-----------|-------|--------|-------------|-------|
|  | 230    | 0.....250 | 5,0   | 1250   | 6,0         | -     |
|  | 230    | 0.....260 | 7,0   | 1820   | 8,5         | -     |
|  | 230    | 0.....260 | 13,0  | 3380   | 12,0        | -     |
|  | 230    | 0.....260 | 4,5   | 1170   | 4,4         | M100  |
|  | 230    | 0.....260 | 8,0   | 2080   | 8,1         | M200  |
|  | 230    | 0.....260 | 10,0  | 2600   | 11,5        | M250  |
|  | 230    | 0.....260 | 15,0  | 3900   | 20,8        | M300  |
|  | 230    | 0.....260 | 20,0  | 5200   | 22,4        | M400  |
|  | 230    | 0.....260 | 30,0  | 7800   | 32          | M500  |

Connection diagram



Dimensions in mm

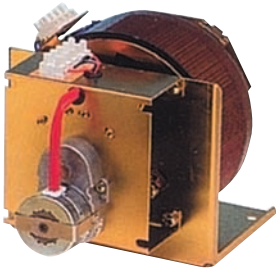
|          | a   | b   | h   | l   |
|----------|-----|-----|-----|-----|
| 7HSN0103 | 170 | 206 | 136 | 157 |
| 7HSN0203 | 202 | 240 | 136 | 157 |
| 7HSN0303 | 268 | 305 | 134 | 157 |
| M100     | 170 | 220 | 135 | 155 |
| M200     | 203 | 253 | 135 | 155 |
| M250     | 270 | 320 | 135 | 155 |
| M300     | 258 | 315 | 178 | 228 |
| M400     | 318 | 348 | 178 | 228 |
| M500     | 357 | 387 | 178 | 228 |



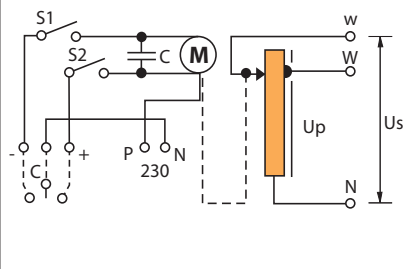
M100, M200, M250  
7HSN0103, 7HSN0203, 7HSN0303

M300, M400, M500

## MOTORISED EXECUTION

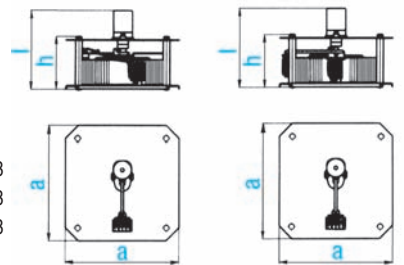


Connection diagram



Dimensions in mm

|      | a   | h   | l   |
|------|-----|-----|-----|
| M300 | 275 | 170 | 238 |
| M400 | 310 | 170 | 238 |
| M500 | 350 | 180 | 248 |



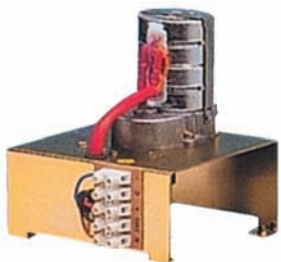
M300

M400, M500

|              | Up (V) | Us (V)    | I (A) | P (VA) |              | Up (V) | Us (V)    | I (A) | P (VA) | Weight (kg) | Model |
|--------------|--------|-----------|-------|--------|--------------|--------|-----------|-------|--------|-------------|-------|
| — 7HSM230/18 | 230    | 0.....230 | 18,0  | 4140   | — 7HSM260/15 | 230    | 0.....260 | 15,0  | 3900   | 16,7        | M300  |
| — 7HSM230/23 | 230    | 0.....230 | 23,0  | 5290   | — 7HSM260/20 | 230    | 0.....260 | 20,0  | 5200   | 18,1        | M400  |
| — 7HSM230/32 | 230    | 0.....230 | 32,0  | 7360   | — 7HSM260/30 | 230    | 0.....260 | 30,0  | 7800   | 25,0        | M500  |

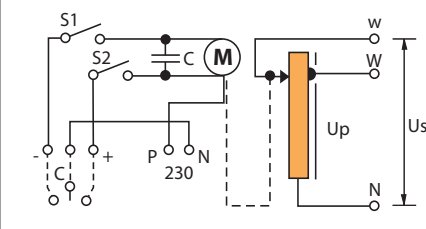
## MOTORISATION

- The auxiliary power supply of the motor is 230VAC
- The travel time of the brushes to make one complete round is about 23 seconds
- Other transformers can be motorised using the correct motor choosing it between the following models

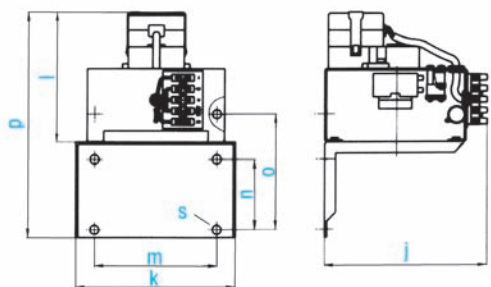


|             | Suitable for the models | Weight (Kg) |
|-------------|-------------------------|-------------|
| — 7HMA M50  | M50                     | 1,2         |
| — 7HMA M100 | M100                    | 1,7         |
| — 7HMA M200 | M200                    | 1,7         |
| — 7HMA M250 | M250                    | 1,7         |

Connection diagram



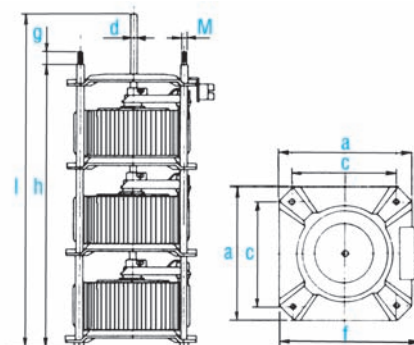
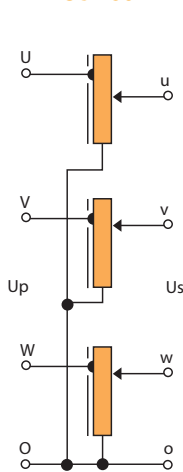
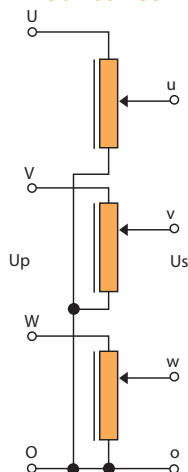
Dimensions in mm



## OPEN EXECUTION

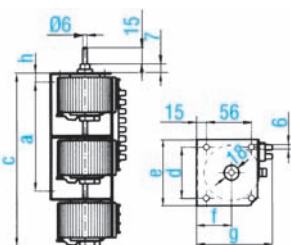
( ) = With cooling in oil

**Dimensions in mm**

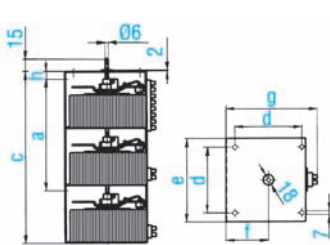


|                | Up (V) | Us (V)    | I (A) | P (VA) |               | Up (V) | Us (V)    | I (A) | P (VA) | Weight (kg) | Model  |
|----------------|--------|-----------|-------|--------|---------------|--------|-----------|-------|--------|-------------|--------|
| ■ 7HTG400/1    | 400    | 0.....400 | 1,0   | 690    | ■ 7HTG450/0,8 | 400    | 0.....450 | 0,8   | 624    | 4,9         | 3/M15  |
| ■ 7HTG400/1,25 | 400    | 0.....400 | 1,25  | 861    | ■ 7HTG450/1   | 400    | 0.....450 | 1,0   | 780    | 4,9         | 3/M15  |
| ■ 7HTG400/1,6  | 400    | 0.....400 | 1,6   | 1104   | ■ 7HTG450/1,4 | 400    | 0.....450 | 1,4   | 1092   | 8,1         | 3/M30  |
| ■ 7HTG400/2    | 400    | 0.....400 | 2,0   | 1380   | ■ 7HTG450/1,6 | 400    | 0.....450 | 1,6   | 1248   | 8,1         | 3/M30  |
| ■ 7HTG400/2,5  | 400    | 0.....400 | 2,5   | 1725   | ■ 7HTG450/2   | 400    | 0.....450 | 2,0   | 1560   | 8,1         | 3/M30  |
| ■ 7HTG400/3    | 400    | 0.....400 | 3,0   | 2070   | ■ 7HTG450/2,5 | 400    | 0.....450 | 2,5   | 1950   | 11,9        | 3/M50  |
| ■ 7HTG400/4    | 400    | 0.....400 | 4,0   | 2760   | ■ 7HTG450/3   | 400    | 0.....450 | 3,0   | 2340   | 11,9        | 3/M50  |
| ■ 7HTG400/4,5  | 400    | 0.....400 | 4,5   | 3105   | ■ 7HTG450/3,5 | 400    | 0.....450 | 3,5   | 2730   | 15,1        | 3/M100 |
| ■ 7HTG400/6    | 400    | 0.....400 | 6,0   | 4140   | ■ 7HTG450/4,5 | 400    | 0.....450 | 4,5   | 3510   | 15,1        | 3/M100 |
| ■ 7HTG400/8    | 400    | 0.....400 | 8,0   | 5520   | ■ 7HTG450/6,3 | 400    | 0.....450 | 6,3   | 4914   | 23,6        | 3/M200 |
| ■ 7HTG400/10   | 400    | 0.....400 | 10,0  | 6900   | ■ 7HTG450/8   | 400    | 0.....450 | 8,0   | 6240   | 23,6        | 3/M200 |
| ■ 7HTG400/12   | 400    | 0.....400 | 12,0  | 8280   | ■ 7HTG450/10  | 400    | 0.....450 | 10,0  | 7800   | 29,8        | 3/M250 |
| ■ 7HTG400/18   | 400    | 0.....400 | 18,0  | 12420  | ■ 7HTG450/15  | 400    | 0.....450 | 15,0  | 11700  | 45,5        | 3/M300 |
| ■ 7HTG400/23   | 400    | 0.....400 | 23,0  | 15870  | ■ 7HTG450/20  | 400    | 0.....450 | 20,0  | 15600  | 48,0        | 3/M400 |
| ■ 7HTG400/32   | 400    | 0.....400 | 32,0  | 22080  | ■ 7HTG450/30  | 400    | 0.....450 | 30,0  | 23400  | 70,5        | 3/M500 |

3/M15

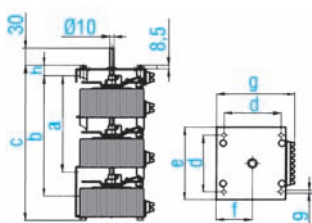


### 3/M30, 3/M50

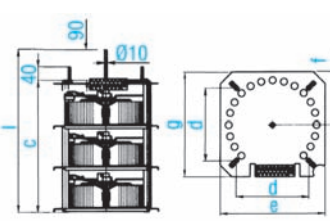


|        | a   | b   | c   | d   | e   | f   | g   | h  | i   |
|--------|-----|-----|-----|-----|-----|-----|-----|----|-----|
| 3/M15  | 154 | -   | 246 | 80  | 100 | 48  | 87  | 15 | -   |
| 3/M30  | 234 | -   | 323 | 80  | 100 | 55  | 110 | 15 | -   |
| 3/M50  | 243 | -   | 323 | 110 | 124 | 64  | 128 | 18 | -   |
| 3/M100 | 243 | 284 | 370 | 110 | 130 | 67  | 134 | 21 | -   |
| 3/M200 | 243 | 284 | 370 | 160 | 178 | 90  | 180 | 21 | -   |
| 3/M250 | 243 | 284 | 370 | 160 | 178 | 90  | 180 | 21 | -   |
| 3/M300 | -   | -   | 402 | 178 | 275 | 138 | 275 | -  | 492 |
| 3/M400 | -   | -   | 402 | 249 | 310 | 155 | 310 | -  | 492 |
| 3/M500 | -   | -   | 466 | 249 | 350 | 175 | 350 | -  | 492 |

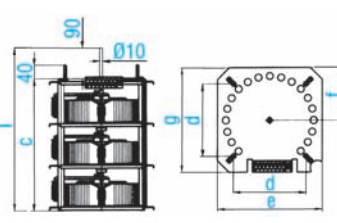
**3/M100, 3/M200, 3/M250**



### 3/M300



3/M400, 3/M500



**Dimensions in mm**

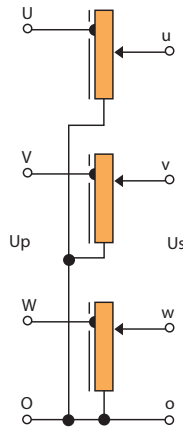


## METALLIC CASE EXECUTION



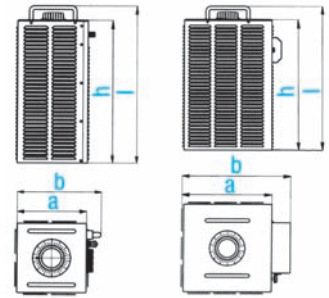
|            | Up (V) | Us (V)    | I (A) | P (VA) | Weight (Kg) | Model  |
|------------|--------|-----------|-------|--------|-------------|--------|
| 7HTN0703   | 400 Y  | 0.....450 | 7,0   | 5460   | 30,5        | -      |
| 7HTN0903   | 400 Y  | 0.....450 | 13,0  | 10140  | 41,0        | -      |
| 7HTN450/8  | 400 Y  | 0.....450 | 8,0   | 6240   | 28,6        | 3/M200 |
| 7HTN450/10 | 400 Y  | 0.....450 | 10,0  | 7800   | 35,2        | 3/M250 |
| 7HTN450/15 | 400 Y  | 0.....450 | 15,0  | 11700  | 51,7        | 3/M300 |
| 7HTN450/20 | 400 Y  | 0.....450 | 20,0  | 15600  | 54,8        | 3/M400 |
| 7HTN450/30 | 400 Y  | 0.....450 | 30,0  | 23400  | 79,0        | 3/M500 |

Connection diagram



Dimensions in mm

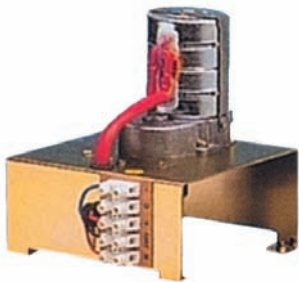
|          | a   | b   | h   | l   |
|----------|-----|-----|-----|-----|
| 7HTN0703 | 185 | 200 | 468 | 506 |
| 7HTN0903 | 265 | 286 | 478 | 525 |
| 3/M200   | 240 | 285 | 380 | 420 |
| 3/M250   | 240 | 285 | 380 | 420 |
| 3/M300   | 285 | 315 | 480 | 520 |
| 3/M400   | 318 | 348 | 480 | 520 |
| 3/M500   | 357 | 387 | 540 | 590 |



3/M200, 3/M250  
7HTN0703, 7HTN0903  
3/M300, 3/M400  
3/M500

## MOTORISATION

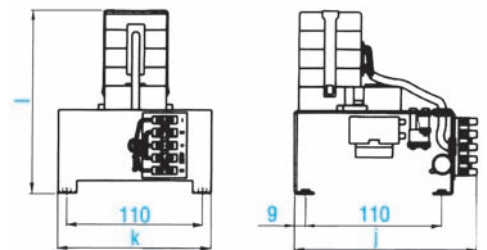
- The auxiliary power supply of the motor is 230VAC
- The travel time of the brushes to make one complete round is about 23 seconds
- Other transformers can be motorised using the correct motor choosing it between the following models



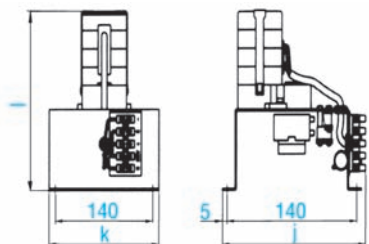
|             | Suitable for the models: | Weight (Kg) |
|-------------|--------------------------|-------------|
| 7HMA 3/M50  | 3/M50                    | 1,0         |
| 7HMA 3/M100 | 3/M100                   | 1,0         |
| 7HMA 3/M200 | 3/M200                   | 1,0         |
| 7HMA 3/M250 | 3/M250                   | 1,0         |
| 7HMA 3/M300 | 3/M300                   | 1,4         |
| 7HMA 3/M400 | 3/M400                   | 1,4         |
| 7HMA 3/M500 | 3/M500                   | 1,4         |

| j   | k   | l   |
|-----|-----|-----|
| 147 | 124 | 124 |
| 147 | 124 | 148 |
| 147 | 124 | 148 |
| 147 | 124 | 148 |
| 147 | 150 | 166 |
| 147 | 194 | 209 |
| 147 | 194 | 209 |

Dimensions in mm

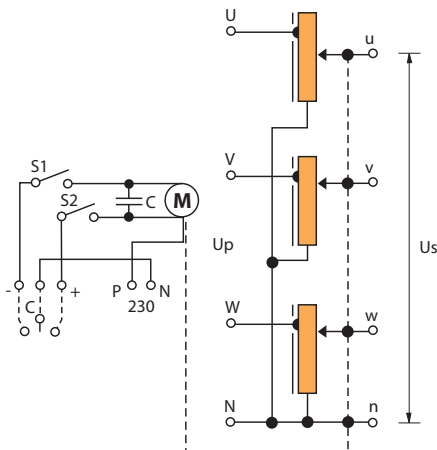


3/M50, 3/M100, 3/M200, 3/M250



3/M300, 3/M400, 3/M500

Connection diagram



# ACCESSORIES

## KNOBS



- **AMAN416** Knob for open adjustable transformer HSG0011 with shaft Ø 6mm
- **AMAN458** Knob for open adjustable transformer HSG0022 with shaft Ø 8mm
- **AMAN808** Knob for all other open adjustable transformers model HSG with shaft Ø 8mm and three-phase open adjustable transformers model HTO
- **AMAN456** Knob for open single-phase and three-phase adjustable transformer from model M15 to M50 with shaft Ø 6mm
- **AMAN810** Knob for open single-phase and three-phase adjustable transformer from model M100 to M500 with shaft Ø 10mm

## GRADUATED SCALE PLATES

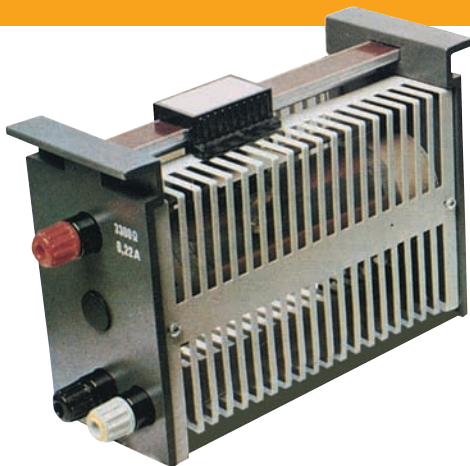


- **ASG1** Graduated scale plate for adjustable transformer HSG0011, HSG0022, M15 and M30
- **ASG2** Graduated scale plate for all other adjustable transformer



# VARIABLE RESISTORS

## GENERAL DESCRIPTION



These variable resistors are indispensable aids, designed for varying DC and AC currents and voltages in a wide range of the electric industries, such as testing the electric circuits of motor vehicles, applications in the laboratory, education and others.

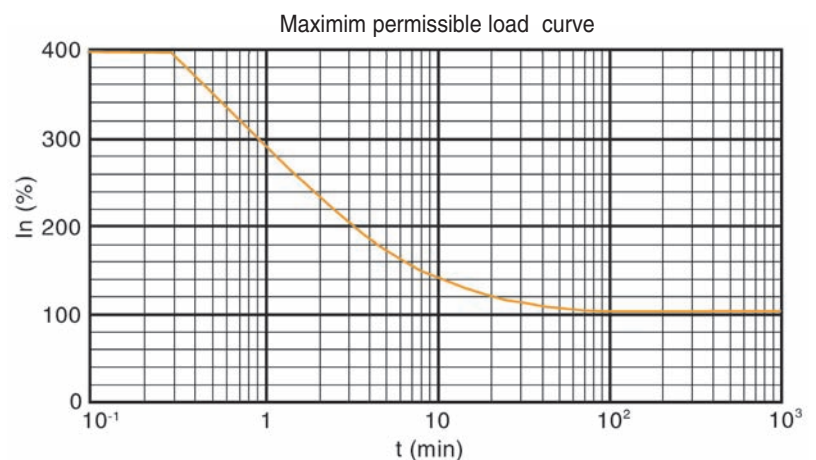
The units can be operated as rheostats or potentiometers.

The principle part of the various types of these variable wirewound resistors are their cores of a pyrostatic ceramic material wound with resistance wire from 1 ohm to 10kohm in compliance with the Renard series. Intermediate values can be provided by connecting the resistance coils of some of the types in parallel.

Non standard values and tolerances can be furnished on special request. Furthermore, bare coil bodies without coils (without casing) can be also supplied.

## TECHNICAL CHARACTERISTICS

- Precision class  $\pm 10\%$
- Insulation resistance:  $> 5M\Omega$
- Earthing resistance:  $< 0,1\Omega$
- Allowed voltage at terminals: max 800V  $\overline{\overline{=}}$  / 750V rms
- Insulation voltage against casing:  $> 1,5$  kV
- Insulation: Class B
- Protection degree: IP20
- Standards: DIN 41480-SE6 / DIN 40050 / VDE 0110

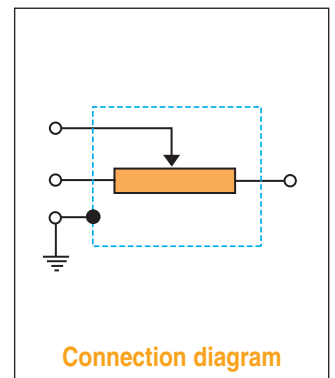
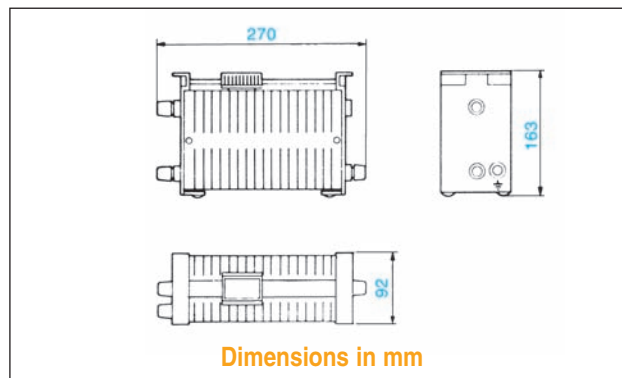


## SINGLE-PHASE

### 7PRN162

- Power 160W
- Weight: from 1,8 to 2,1 Kg depending on the resistive value

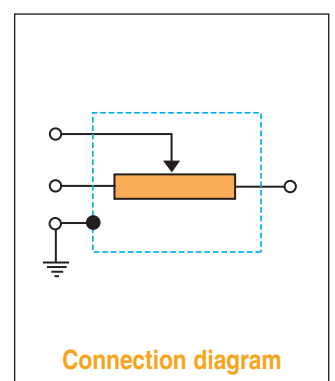
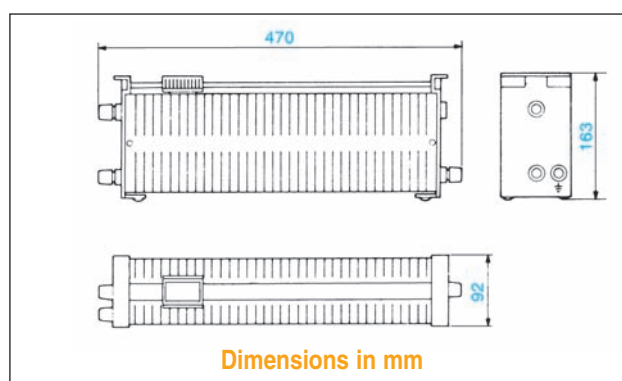
| Resistive value<br>( $\Omega$ ) | Max admissible load (A) |        |
|---------------------------------|-------------------------|--------|
|                                 | continuous              | 15 min |
| 1                               | 13                      | 18     |
| 3,3                             | 7                       | 10     |
| 10                              | 4                       | 5,7    |
| 33                              | 2,2                     | 3,1    |
| 100                             | 1,25                    | 1,8    |
| 330                             | 0,7                     | 1,0    |
| 1000                            | 0,4                     | 0,57   |
| 3300                            | 0,22                    | 0,31   |



### 7PRN322

- Power 320W
- Weight: from 3,3 to 3,9 Kg depending on the resistive value

| Resistive value<br>( $\Omega$ ) | Max admissible load (A) |        |
|---------------------------------|-------------------------|--------|
|                                 | continuous              | 15 min |
| 1                               | 18                      | 25     |
| 3,3                             | 10                      | 14     |
| 10                              | 5,7                     | 8      |
| 33                              | 3,1                     | 4,4    |
| 100                             | 1,8                     | 2,5    |
| 330                             | 1,0                     | 1,4    |
| 1000                            | 0,57                    | 0,8    |
| 3300                            | 0,31                    | 0,44   |
| 10000                           | 0,18                    | 0,25   |

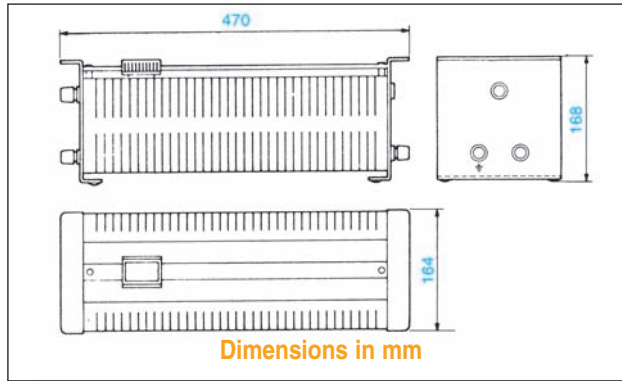


## 7PRN642

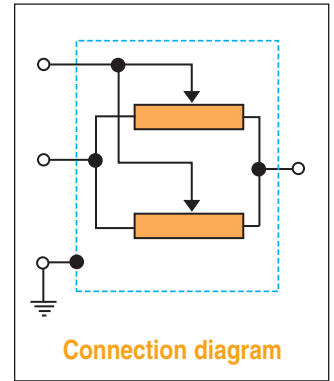
Power 320W

Weight: from 6,0 to 7,2 Kg depending on the resistive value

| Resistive value<br>( $\Omega$ ) | Max admissible load (A) |        |
|---------------------------------|-------------------------|--------|
|                                 | continuous              | 15 min |
| 0,5                             | 36                      | 50     |
| 1,6                             | 20                      | 28     |
| 5                               | 11,4                    | 16     |
| 16,5                            | 6,2                     | 8,7    |
| 50                              | 3,6                     | 5      |
| 165                             | 2                       | 2,8    |
| 500                             | 1,1                     | 1,6    |
| 1650                            | 0,6                     | 0,9    |
| 5000                            | 0,36                    | 0,5    |



Dimensions in mm



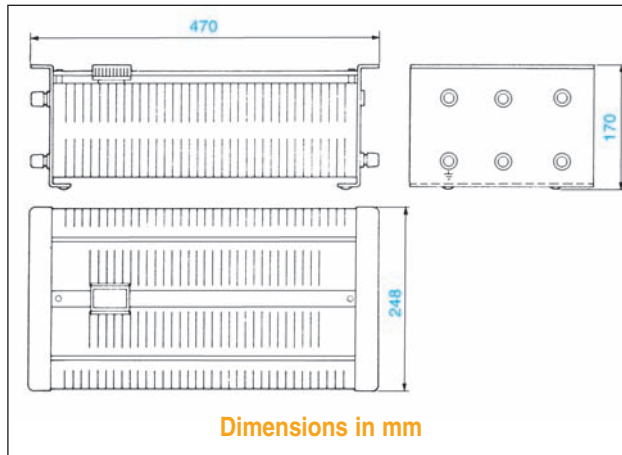
Connection diagram

## 7PRN962

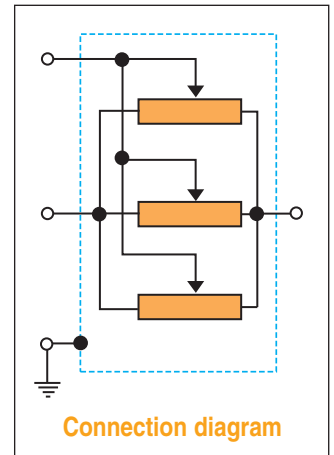
Power 960W

Weight: from 8,2 to 10 Kg depending on the resistive value

| Resistive value<br>( $\Omega$ ) | Max admissible load (A) |        |
|---------------------------------|-------------------------|--------|
|                                 | continuous              | 15 min |
| 0,33                            | 54                      | 76     |
| 1,1                             | 30                      | 42     |
| 3,33                            | 17                      | 24     |
| 11                              | 9,3                     | 13     |
| 33                              | 5,4                     | 7,6    |
| 110                             | 3                       | 4,2    |
| 333                             | 1,7                     | 2,4    |
| 1100                            | 0,98                    | 1,4    |
| 3330                            | 0,54                    | 0,61   |



Dimensions in mm



Connection diagram

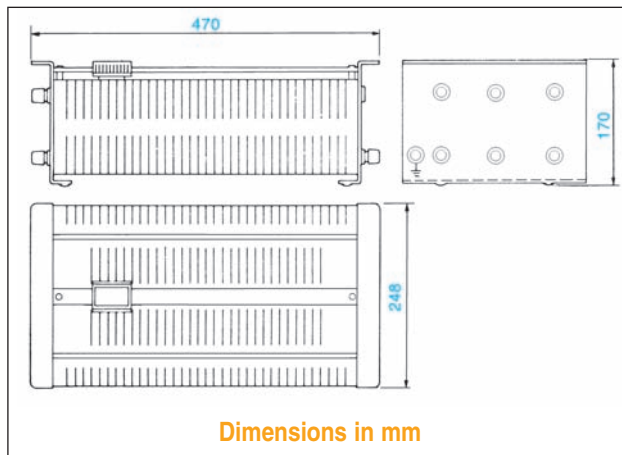
# THREE-PHASE

## 7PRN3/322

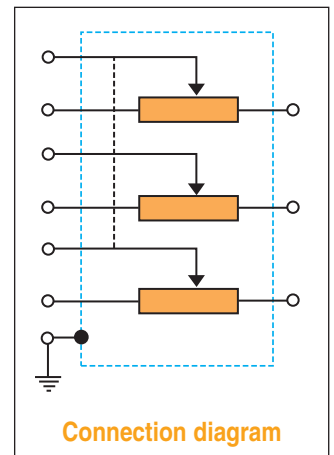
Power 3x320W

Weight: from 8,2 to 10 Kg depending on the resistive value

| Resistive value<br>( $\Omega$ ) | Max admissible load (A) |        |
|---------------------------------|-------------------------|--------|
|                                 | continuous              | 15 min |
| 3x1                             | 3x18                    | 3x25   |
| 3x3,3                           | 3x10                    | 3x14   |
| 3x10                            | 3x5,7                   | 3x8    |
| 3x33                            | 3x3,1                   | 3x4,4  |
| 3x100                           | 3x1,8                   | 3x2,5  |
| 3x330                           | 3x1,0                   | 3x1,4  |
| 3x1000                          | 3x0,57                  | 3x0,8  |
| 3x3300                          | 3x0,31                  | 3x0,44 |
| 3x10000                         | 3x0,18                  | 3x0,25 |



Dimensions in mm



Connection diagram