

### Main Applications

- Industrial heat-treatment furnaces
- Industrial cooling plants
- Painting plants
- Driers for ceramics, paper and textile products
- Industrial heaters
- Ovens and furnaces
- Sterilizers

### Main Features

- Conduction inhibition input
- Overcurrent protection (DE option)
- Detection of partial load failure (RPC option)
- SCR diagnosis circuit and complete load failure (DTC option)
- Input control from Vdc and Vac logic signal
- Zero crossing switching of mains voltage
- High capacity anti-parallel SCR double thyristor
- LED status indicators
- MOV protections (varistor)
- DIN rail or panel mounting (depending on version)

### PROFILE

Wattcor W211 line offers a wide range of solid state power controllers with "zero crossing" switching for resistive loads with current ratings up to 600A and 660Vac nominal voltages. The models of the W211 series accept Vdc and Vac logic controls. The conduction is activated by the control signal at the first zero crossing of the load power voltage. Switching off occurs by the first zero crossing of the load current after disabling the control signal. The control of three-phase loads can be by two or three W211 in series and fired in parallel. Each model is equipped with a logic input to disable the solid state relay/power controller and eventually break off power supply. Different options are available for the more critical applications, such as the "load control" (RPC option) which detects and indicates partial load failure interruption/cut-off, with a LED on the faceplate, and a relay alarm output. The DTC option allows the control of a possible SCR short-circuit or the complete current failure in the load. A further safety option is represented by the "electronic cut-off" circuit, (DE option), a device protecting the power element against a momentary excess

current higher than a selected value, corresponding to approx. 13 times the nominal current of the solid state power controller. The alarm condition disables the power supply, activates an alarm relay (in common with RPC option) and allows the instrument resetting through a front button. The WATTCOR W211 series are designed to guarantee nominal current and voltage values at 50°C ambient temperature, with a working temperature range from -5°C up to 60°C. 250A and 600A units are supplied with internal fuse and digital output for the fuse status. Signal connections are made via "plug-in" connectors to enable easy wiring.

The instrument can be DIN rail or panel mounted (from 250 up to 600A current ratings, panel mounting only).

### TECHNICAL DATA

#### General Features

Nominal working voltage  
- 660Vac (max. range 20...725Vac)  
Nominal frequency: 50/60Hz

#### Current Ratings (50°C)

|         | Repetitive overcurrent (t=1s) | Non repetitive overcurrent (t=20ms) |
|---------|-------------------------------|-------------------------------------|
| 25Arms  | ≤ 74A                         | ≤ 600A                              |
| 40Arms  | ≤ 100A                        | ≤ 1500A                             |
| 75Arms  | ≤ 180A                        | ≤ 1700A                             |
| 100Arms | ≤ 300A                        | ≤ 4800A                             |
| 150Arms | ≤ 300A                        | ≤ 4800A                             |
| 250Arms | ≤ 450A                        | ≤ 7800A                             |
| 400Arms | ≤ 2000A                       | ≤ 15000A                            |
| 600Arms | ≤ 2000A                       | ≤ 15000A                            |

|         | Pt for fusing (t=1-10ms)  | Critical dv/dt with output deactivated |
|---------|---------------------------|--|
| 25Arms  | ≤ 1800A <sup>2</sup> s    | 1000V/μs                               |
| 40Arms  | ≤ 11200A <sup>2</sup> s   | 1000V/μs                               |
| 75Arms  | ≤ 14450A <sup>2</sup> s   | 1000V/μs                               |
| 100Arms | ≤ 86200A <sup>2</sup> s   | 1000V/μs                               |
| 150Arms | ≤ 86200A <sup>2</sup> s   | 1000V/μs                               |
| 250Arms | ≤ 200000A <sup>2</sup> s  | 1000V/μs                               |
| 400Arms | ≤ 1125000A <sup>2</sup> s | 500V/μs                                |
| 600Arms | ≤ 1125000A <sup>2</sup> s | 500V/μs                                |

### Dissipated Power:

1.2 W per Amp of load

### Control Input

- Two inputs available for Vdc and Vac logic signals
- Option for control via contact free from potential (option 4)
- Max. voltage-range: 0...30Vdc, 0...32Vac
- Safety power-up voltage: < 3Vdc, <5Vac
- Safety power-off voltage: >5Vdc, ≥15Vac
- Impedance: 1KW@5Vdc, 2.5KW@30Vdc, 1.5KW for Vac

### Inhibition Input

- Max. voltage range: 0...30Vdc
- Impedance: 15KW
- Active inhibition: ≥ 5Vdc

### Auxiliary Power Supply

- Required only if an option or a fan have been selected
- 115 or 230Vac 50...60Hz - 5VA with phase independent of the voltage on the load
- Fan power supply (for ratings ≥150A)
- 115 or 230Vac 50/60Hz - 35VA

### Partial Load Failure Option (RPC)

- Detects a decrease in the load current (in regard to a pre-selected value), distinguishing one caused by a mains voltage decrease. It is necessary to specify the voltage applied to the load (115 or 230 or 440Vac ± 10%)
- Current limit point selectable from 30% up to 100% of nominal current (to be set via a front trimmer).
- Min. working time to let the alarm start: 400ms
- Alarm output: relay with NO 5A-250Vac working contact (shared by the DE option).

### SCR (DTC) Control and Complete Load Failure Option

Detects current crossing in the load when there is no control signal (SCR short-circuit).

Detects load current failure when a control signal is active (complete load or SCR failure/interruption, fuse break, load voltage failure).

The alarm mode, with memory or not, is selectable via an internal switch.

### Overcurrent Protection Option (DE)

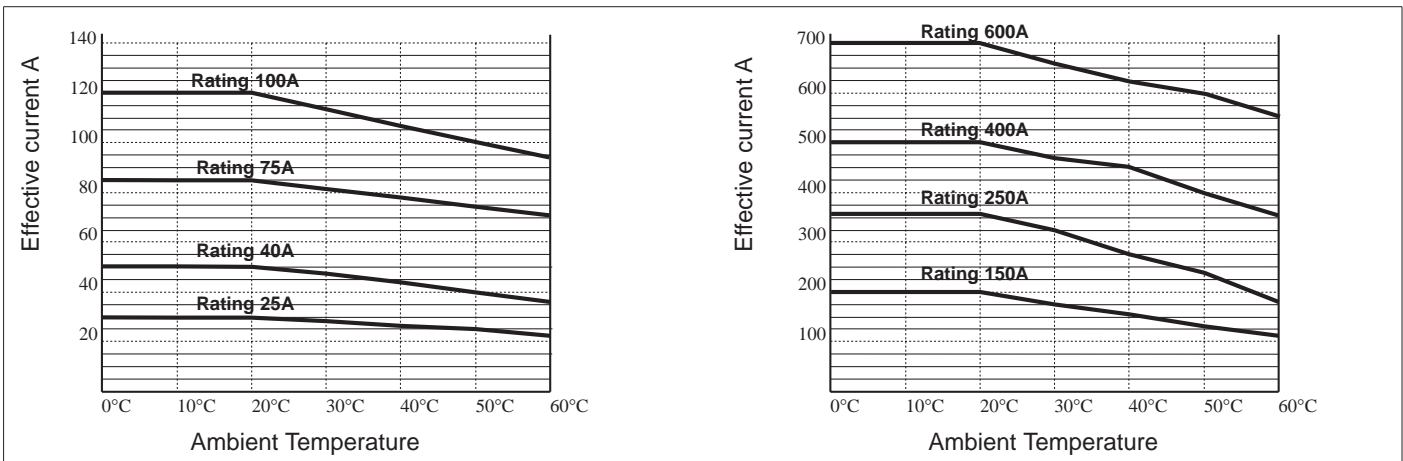
- Switching off with memory of the SCR if current exceeds the nominal value by 13 times
- Option available for ratings from 25 up to 150A
- Max. response time: 10ms@50Hz; 8.33ms@60Hz
- Alarm output: 5A-250V no contact relay (shared by RPC option)
- Reset of standard working through a front-face key
- This option does not replace extra-fast fuses, which should be used in any installation.

### Installation Comments

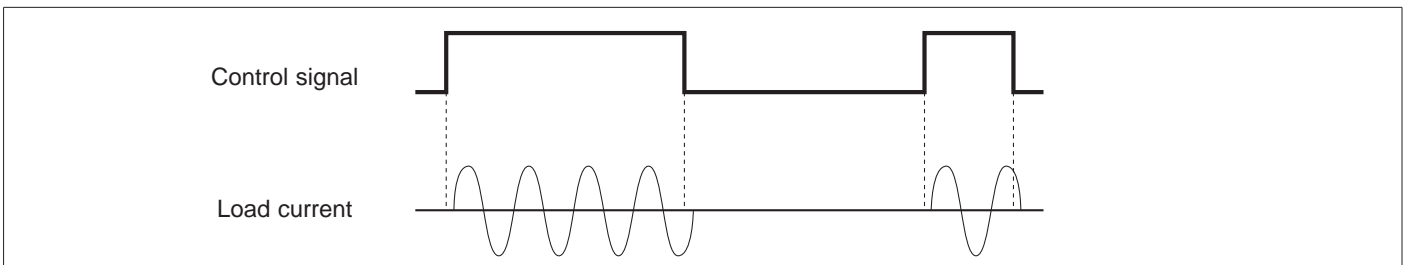
It is necessary to install the instrument correctly inside the panel to ensure best reliability:

- Max. inclination as to the vertical axis: 10°
- Vertical distance between two instruments: > 200mm
- Horizontal distance between two instruments: > 20mm

## POWER DISSIPATION CURVES



## TYPE OF FUNCTIONING



## MOUNTING

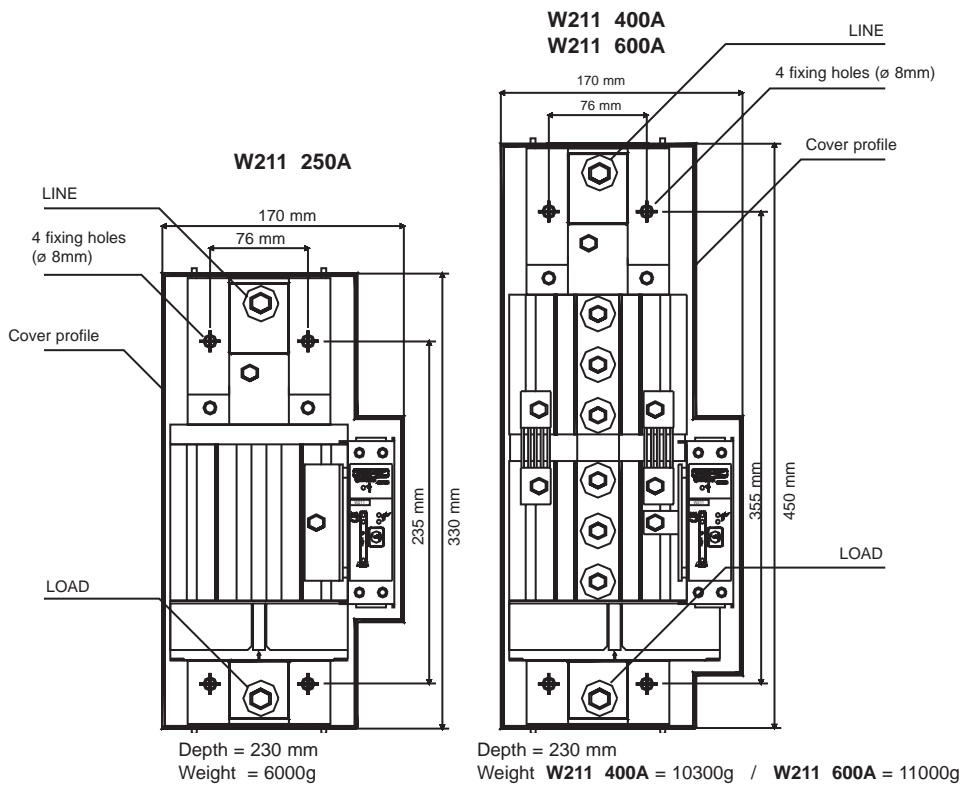
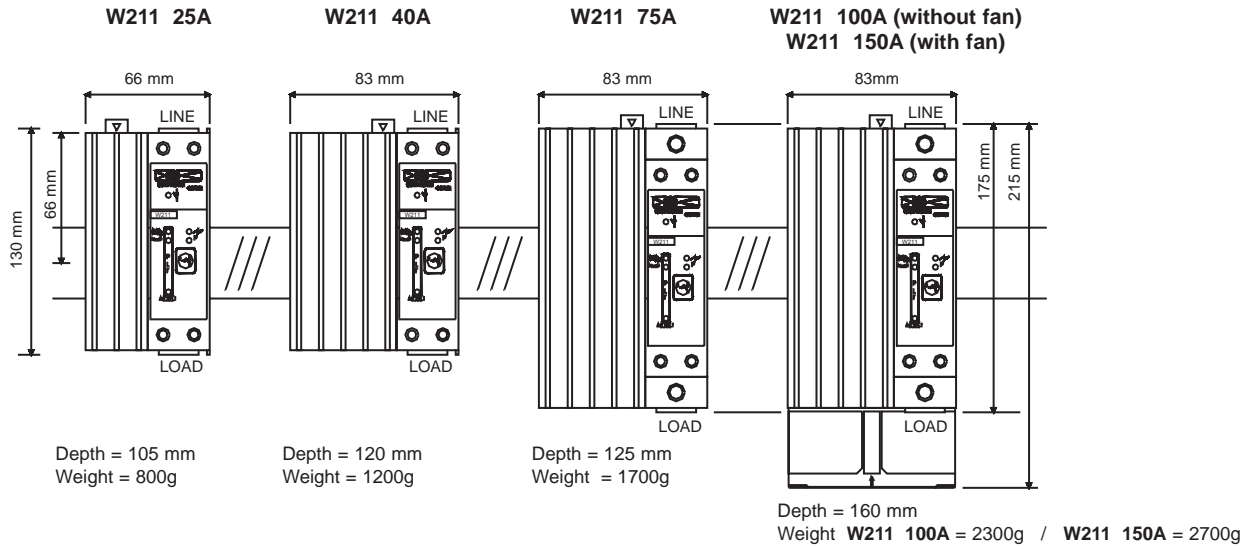
### Ratings from 25 up to 150A:

- DIN rapid rail mounting
- Panel mounting kit for ratings 75-150A (option 1886001)

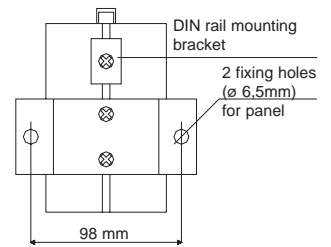
### Ratings from 250 to 600A:

- Panel mounting only

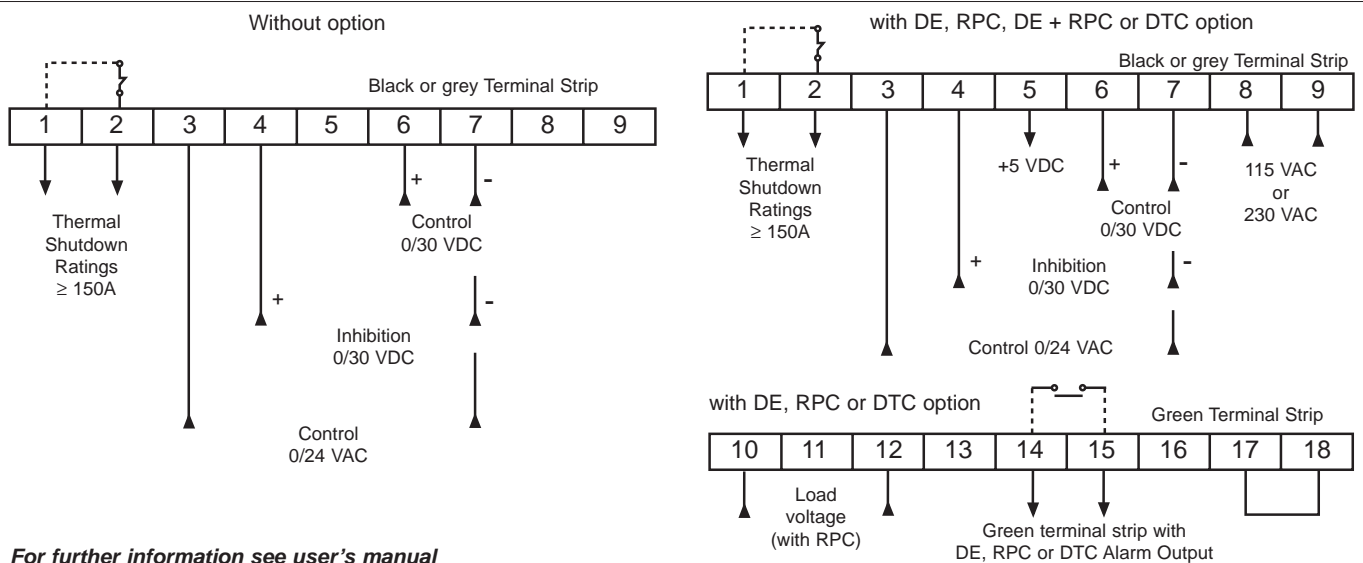
## DIMENSIONS AND MOUNTING



### Panel Mounting Kit



## CONTROL SIGNAL CONNECTION



For further information see user's manual

