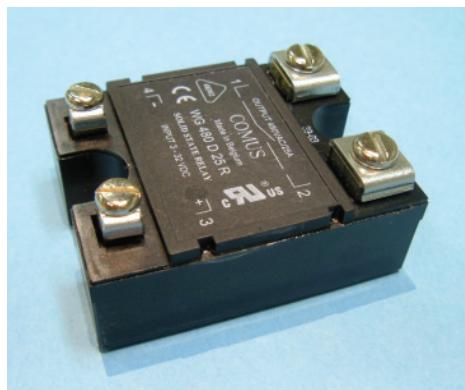


Solid State Relays

Datasheet WG 480 D xxxx

Comus International Bvba
 Overhaamlaan 40
 3700 Tongeren, Belgium
 Phone: +32 12390400
 Fax: +32 12235754
 Email: info@comus.be
 www.comus.be



Features

| | |
|---------------------|---|
| Switching | Zero cross |
| Output | Back-to-back SCR with internal snubber |
| Input | DC with constant current control |
| Applications | resistive and inductive loads with $\cos\phi > 0,85$ (Z-Type) inductive load with $\cos\phi > 0,65$ (R-Type) |

Technical data

| WG 480D... | 10 Z | 10 R | 25 Z | 25 R | 40 Z | 40 R |
|---|-----------------------|----------------------------|-----------------------|--------|-----------------------|--------|
| Input circuit | | | | | | |
| Control voltage range | | | 3...32 VDC | | | |
| Control current max. | | | 22 mA | | | |
| Turn-off voltage min. | | | 1 VDC | | | |
| Input resistance | | | Constant current | | | |
| Output circuit | | | | | | |
| Load voltage range | | 24 (Z) / 48 (R) ...480 VAC | | | | |
| Peak-off-state voltage | | | 1200 V _{drm} | | | |
| Off-state leakage current | | | 10 mA eff. | | | |
| Load current range | 0,1...10 A | | 0,2...25 A | | 0,4...40 A | |
| Surge current 1 half wave | 110 A _{peak} | | 230 A _{peak} | | 500 A _{peak} | |
| I ² t for fusing | 60 A ² s | | 260 A ² s | | 1250 A ² s | |
| On-state voltage | | | 1,6 V _{peak} | | | |
| Off-state (static) dv/dt | | | 1000 V/μs | | | |
| Snubber | | | 47 Ω / 22nF | | | |
| General data | | | | | | |
| Turn-on time max. | 11 ms | 0,1 ms | 11 ms | 0,1 ms | 11 ms | 0,1 ms |
| Turn-off time max. | | | 11 ms | | | |
| Line frequency range | | | 47...63 Hz | | | |
| Isolation volt. between input/output | | | 4.000 V | | | |
| Isolation volt. between input-output/base | | | 2.500 V | | | |
| Isolation resistance | | | 50 MΩ | | | |
| Operation temperature | | | -20...+80 °C | | | |
| Recommended varistor | | | SIVOV-S20 K230 | | | |
| Approvals | | | cULus, VDE | | | |

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Technical data

| WG 280Dxxxx-LD | 50 Z | 50 R | 75 Z | 75 R | 90 Z | 90 R |
|---|-----------------------|--------|-----------------------|--------|------------------------|--------|
| Input circuit | | | | | | |
| Control voltage range | | | 3...32 VDC | | | |
| Control current max. | | | 22 mA | | | |
| Turn-off voltage min. | | | 1 VDC | | | |
| Input resistance | | | Constant current | | | |
| Output circuit | | | | | | |
| Load voltage range | | | 24...480 VAC | | | |
| Peak-off-state voltage | | | 1200 V _{drm} | | | |
| Off-state leakage current | | | 10 mA eff. | | | |
| Load current range | 0,4...50 A | | 0,4...75 A | | 0,4...90 A | |
| Surge current 1 half wave | 570 A _{peak} | | 910 A _{peak} | | 1090 A _{peak} | |
| I ² t for fusing | 1620 A ² s | | 4150 A ² s | | 5980 A ² s | |
| On-state voltage | | | 1,6 V _{peak} | | | |
| Off-state (static) dv/dt | | | 1000 V/μs | | | |
| Snubber | | | 47 Ω / 22 nF | | | |
| General data | | | | | | |
| Turn-on time max. | 11 ms | 0,1 ms | 11 ms | 0,1 ms | 11 ms | 0,1 ms |
| Turn-off time max. | | | 11 ms | | | |
| Line frequency range | | | 47...63 Hz | | | |
| Isolation volt. between input/output | | | 4.000 V | | | |
| Isolation volt. between input-output/base | | | 2.500 V | | | |
| Isolation resistance | | | 50 MΩ | | | |
| Operation temperature | | | -20...+80 °C | | | |
| Recommended varistor | | | SIOV-S20 K230 | | | |
| Approvals | | | cULus, VDE | | | |

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Technical data

| WG 280Dxxxx-LD | 110 Z | 110 R | 125 Z | 125 R |
|---|------------------------|-----------------------|------------------------|--------|
| Input circuit | | | | |
| Control voltage range | | 3...32 VDC | | |
| Control current max. | | 22 mA | | |
| Turn-off voltage min. | | 1 VDC | | |
| Input resistance | | Constant current | | |
| Output circuit | | | | |
| Load voltage range | | 24...480 VAC | | |
| Peak-off-state voltage | | 1200 V _{drm} | | |
| Off-state leakage current | | 10 mA eff. | | |
| Load current range | 0,4...110 A | | 0,4...125 A | |
| Surge current 1 half wave | 1350 A _{peak} | | 1590 A _{peak} | |
| I ² t for fusing | 9100 A ² s | | 12650 A ² s | |
| On-state voltage | | 1,6 V _{peak} | | |
| Off-state (static) dv/dt | | 1000 V/μs | | |
| Snubber | | 47 Ω / 22 nF | | |
| General data | | | | |
| Turn-on time max. | 11 ms | 0,1 ms | 11 ms | 0,1 ms |
| Turn-off time max. | | 11 ms | | |
| Line frequency range | | 47...63 Hz | | |
| Isolation volt. between input/output | | 4.000 V | | |
| Isolation volt. between input-output/base | | 2.500 V | | |
| Isolation resistance | | 50 MΩ | | |
| Operation temperature | | -20...+80 °C | | |
| Recommended varistor | | SIOV-S20 K230 | | |
| Approvals | | cULus, VDE | | |

Housing specification

| | |
|-----------------------------|--|
| Weight | Approx. 80 gr unpotted , 100 gr potted (optional) |
| Housing material | Glass filled polyester |
| Potting compound (optional) | UL recognized Epoxy |
| Base plate | 10 ... 45 A : Aluminium 50 ... 125A : Aluminium , nickel plated |
| Terminals | Input : M4-screws Output : M3,5-screws |

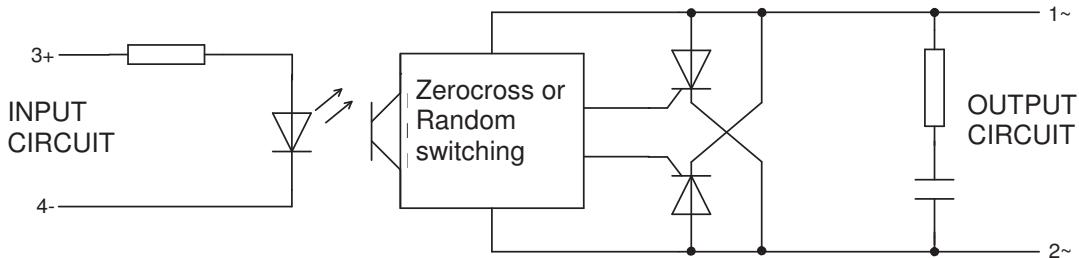
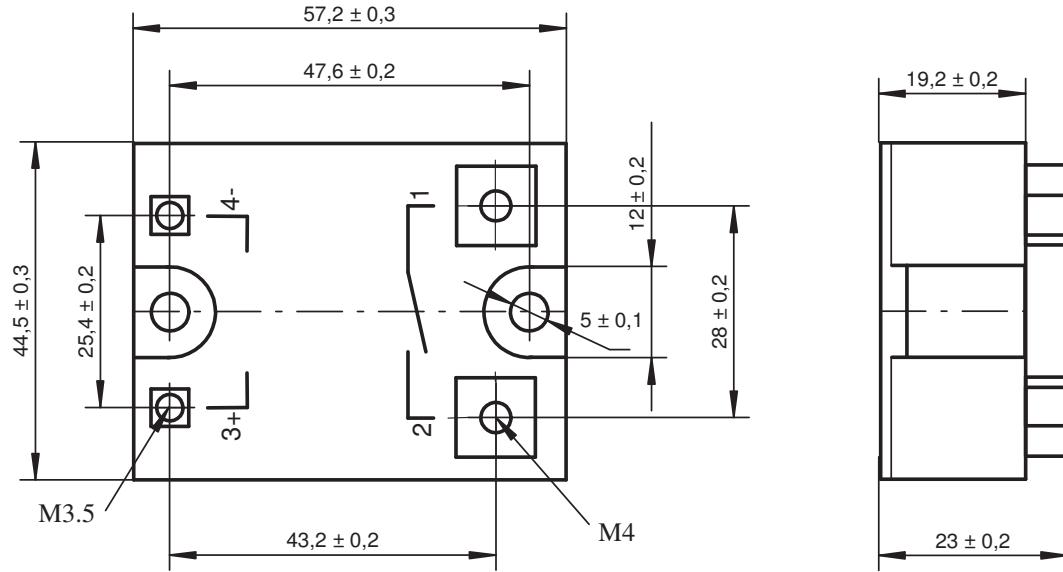
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Dimensions in mm



Ordering Information

The diagram illustrates a square-wave current waveform. The horizontal axis is labeled "CURRENT" and the vertical axis is labeled "SWITCHING". The waveform starts at zero, rises to a peak value of 10A, and then drops back to zero. This pattern repeats. Two specific points on the waveform are highlighted: one where the current rises from zero to 10A, labeled "R : Random", and another where the current drops from 10A back to zero, labeled "Z : Zero cross".

Options: Suffix – P, 100% potted

Solid State Relays

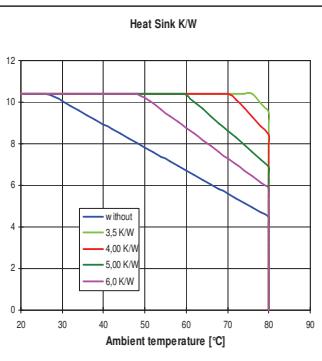
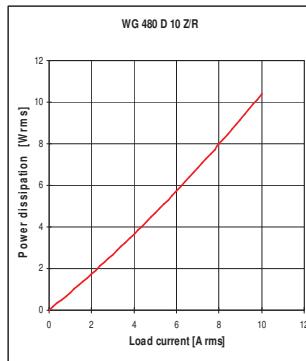
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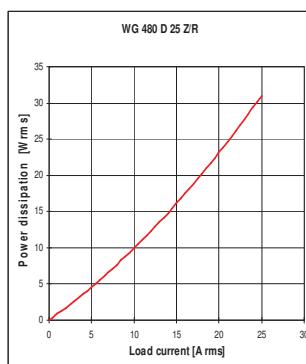
Derating diagrams



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 10 A | 10 A | |
| WG K2/100 | 10 A | 10 A | |
| WG K3/160 | 10 A | 10 A | 10 A |
| WG K4/160L | 10 A | 10 A | 10 A |
| WG K5/80 | 10 A | | |

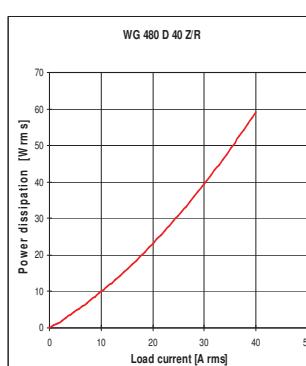
Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 18 A | 12 A | |
| WG K2/100 | 23 A | 17 A | |
| WG K3/160 | 25 A | 25 A | 23 A |
| WG K4/160L | 25 A | 25 A | 25 A |
| WG K5/80 | 25 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 18 A | 12 A | |
| WG K2/100 | 23 A | 17 A | |
| WG K3/160 | 40 A | 29 A | 23 A |
| WG K4/160L | 40 A | 40 A | 40 A |
| WG K5/80 | 34 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink

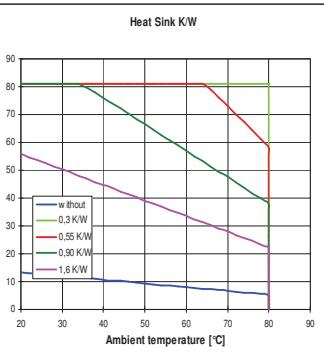
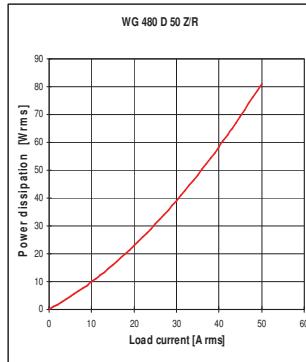
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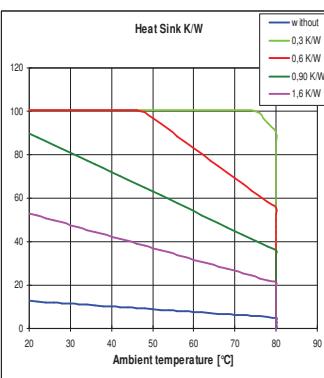
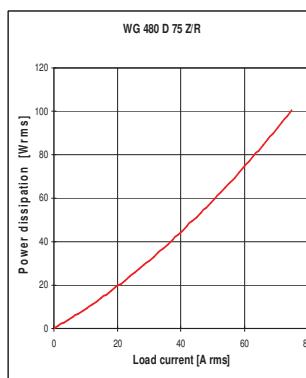
Derating diagrams



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 20 A | 13 A | |
| WG K2/100 | 26 A | 18 A | |
| WG K3/160 | 50 A | 34 A | 26 A |
| WG K4/160L | 50 A | 50 A | 50 A |
| WG K5/80 | 41 A | | |

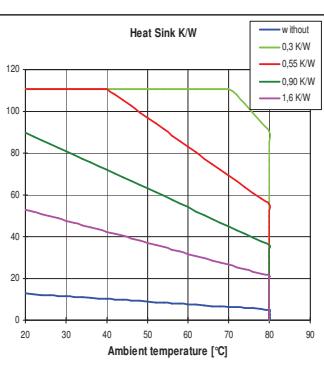
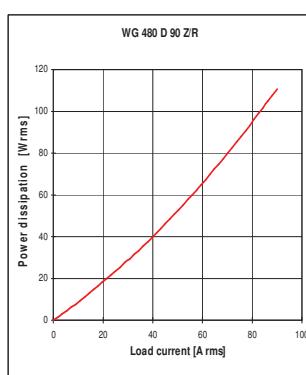
Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 23 A | 14 A | |
| WG K2/100 | 31 A | 21 A | |
| WG K3/160 | 66 A | 42 A | 31 A |
| WG K4/160L | 75 A | 75 A | 68 A |
| WG K5/80 | 51 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 25 A | 15 A | |
| WG K2/100 | 33 A | 22 A | |
| WG K3/160 | 73 A | 45 A | 33 A |
| WG K4/160L | 90 A | 90 A | 76 A |
| WG K5/80 | 56 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink

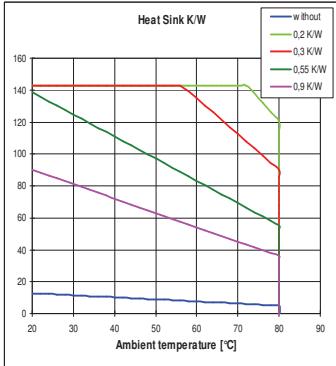
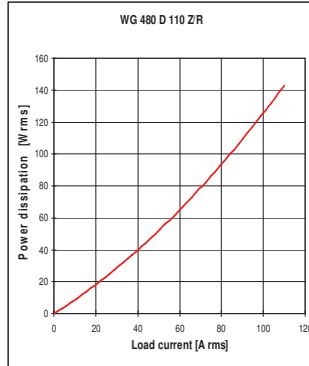
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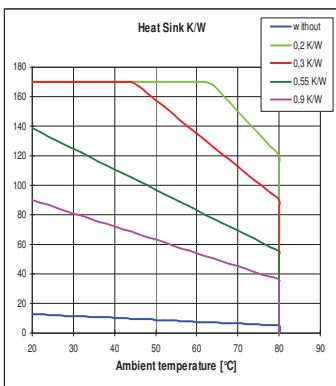
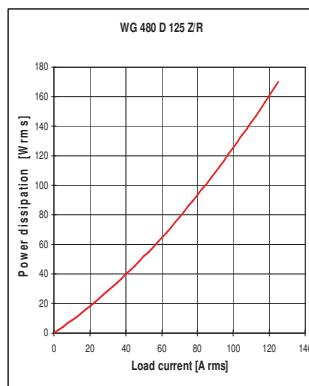
Derating diagrams



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 25 A | 15 A | |
| WG K2/100 | 33 A | 22 A | |
| WG K3/160 | 74 A | 46 A | 33 A |
| WG K4/160L | 110 A | 103 A | 77 A |
| WG K5/80 | 56 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink



**Number of SSR per Heatsink/
Load current per SSR**

| Heat sink | 1 SSR | 2 SSR | 3 SSR |
|------------|-------|-------|-------|
| WG K1/100 | 25 A | 15 A | |
| WG K2/100 | 33 A | 22 A | |
| WG K3/160 | 74 A | 46 A | 33 A |
| WG K4/160L | 125 A | 103 A | 77 A |
| WG K5/80 | 257 A | | |

Values for 40 °C enclosure-temperature and mounted with conducting paste between the SSR and the heat sink