

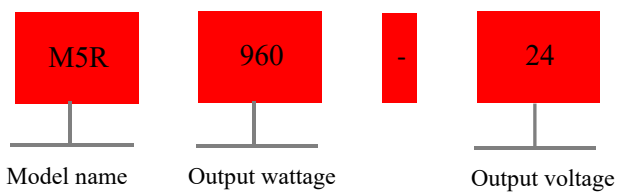
## M5R960-□ Series



### ▲ Features

- Three-Phase 340-550VAC wide range input  
(Dual phase operation possible)
- Width only 110mm
- Built-in active PFC function compliance to BS EN/EN61000-3-2
- High efficiency 94.5% and low power dissipation
- Protections: Short circuit/Overload/Over voltage/Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Current sharing up to 3840W(3+1)
- can be installed on DIN rail TS-35/7.5 or 15
- Built DC OK relay contact
- 100% full load burn-in contact
- 3 years warranty

### ▲ Model Encoding

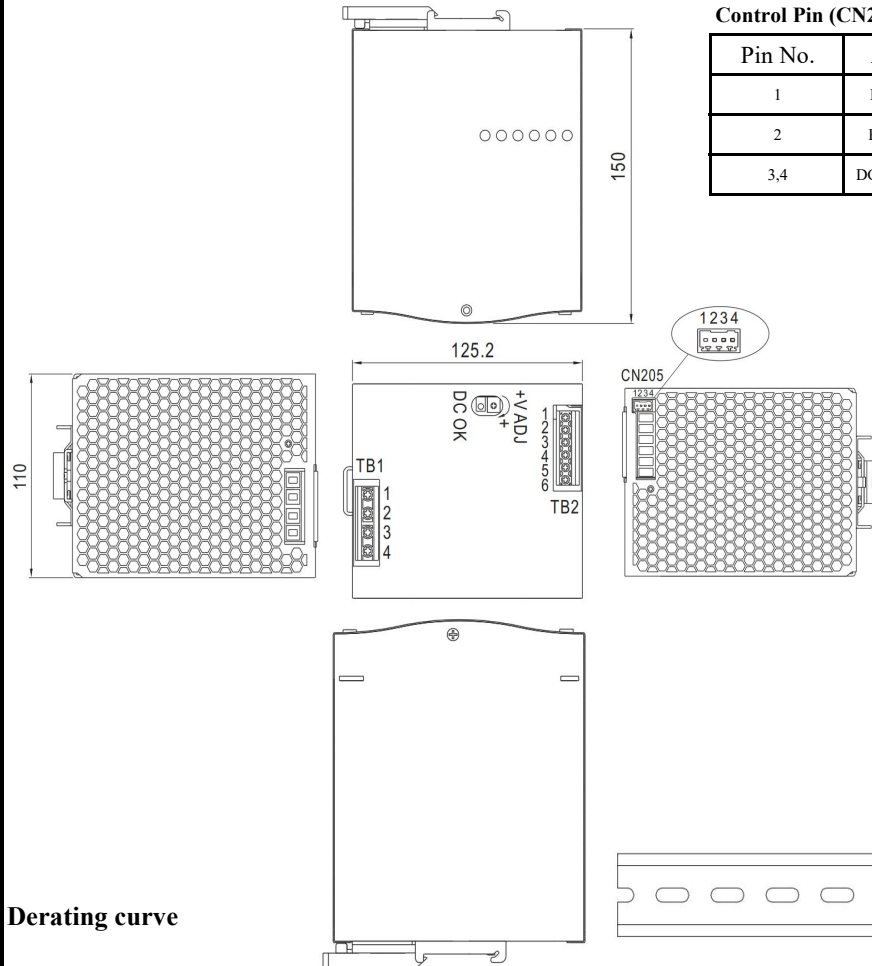


## Specification

| Input                             |   |   |   |
|-----------------------------------|---|---|---|
| Voltage range Note.1              | Three-Phase 340 ~ 550VAC (Dual phase operation possible) 480 ~ 780VDC                                 |   |   |
| Leakage current                   | <3.5mA / 530VAC   |   |   |
| Frequency range                   | 47-63Hz   |   |   |
| Inrush current (Typ.)             | Cold start :60A   |   |   |
| Power factor(Typ.)                | PF $\geq$ 0.88/400VAC PF $\geq$ 0.86/500VAC at full load  |   |   |
| AC Current(Typ.)                  | 2A/400VAC 1.4A/500VAC   |   |   |
| Output                            |   |   |   |
| DC voltage (V)                    | 24V   |   | 48V   |
| Efficiency(TYP.)                  | 94%   |   | 94.5%   |
| Rated Current (A)                 | 40A   |   | 20A   |
| Current range(A)                  | 0-40A   |   | 0-20A   |
| Rated power(W)                    | 960W  |   | 960W  |
| Ripple & noise(max ) Note.2       | 180mVp-p  |   | 250mVp-p                                      |
| Voltage ADJ.range                 | 24-28V  |   | 48-55V  |
| Voltage tolerance Note.3          | $\pm$ 1%  |   | $\pm$ 1%                                      |
| Line regulation                   | $\pm$ 0.5%  |   | $\pm$ 0.5%                                    |
| Load regulation                   | $\pm$ 1%  |   | $\pm$ 1%                                      |
| Setup, rise time                  | 1000ms 100ms/400VAC 800ms 100ms/500VAC(at full load)  |   |   |
| Hold up time(Typ.)                | 12ms/400VAC 14ms/500VAC(at full load)   |   |   |
| Status indicator                  | Green LED   |   |   |
| Protection                        |   |   |   |
| Overload                          | 105 ~ 130% rated output power   |   |   |
|                                   | Protection type : Constant current limiting, unit will shut down after 3 sec. ,re-power on to recover |   |   |
| Over voltage(V)                   | 29 ~ 33V  |   | 56 ~ 65V                                      |
|                                   | Protection type : Shut down o/p voltage, re-power on to recover                                       |   |   |
| Over temperature                  | Shut down o/p voltage, recovers automatically after temperature goes down                             |   |   |
| DC OK Realy contact ratings(max.) | 60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load   |   |   |
| Current sharing                   | Please refer to function manual   |   |   |
| Safety and EMC                    |   |   |   |
| Withstand voltage                 | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC   |   |   |
| Isolation resistance              | I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH  |   |   |
| Safety standards                  | Design reference EN IEC 62368-1、GB4943.1  |   |   |
| EMC emission                      | Parameter   | Standard  | Test Level / Note                             |
|                                   | Conducted   | EN 55032  | Class B                                       |
|                                   | Radiated  | EN 55032  | Class B                                       |
|                                   | Voltage Flicker   | EN 61000-3-3  | 设计参考 Class A                                  |
|                                   | Harmonic Current  | EN IEC 61000-3-2  | Class A                                       |
| EMC immunity                      | Parameter   | Standard  | Test Level / Note                             |
|                                   | ESD   | EN 61000-4-2  | Level 4 15KV air;Level 4 8KV contact          |
|                                   | Radiated Susceptibility   | EN 61000-4-3  | Level 3 10V/m                                 |
|                                   | EFT/Burest  | EN 61000-4-4  | Level 3 2KV/5KHZ                              |
|                                   | Surge   | EN 61000-4-5  | Level 3 2KV/Line-Line;Level3 4kV/Line-Line-FG |
|                                   | Conducted   | EN 61000-4-6  | Level 3 10V                                   |
|                                   | Magnetic Field  | EN 61000-4-8  | Level 4 30A/m                                 |
| Voltage Dips and interruptions    | EN 61000-4-11   | <5% residual voltage for 0.5 cycles ,70% residual voltage for 25 cycles , <5% residual voltage for 250 cycles |   |

| Environmental              |  |            |
|----------------------------|--|------------|
| Working temperature Note.5 | - 30~+70 °C (Refer to "Derating curve ")   |            |
| Storage TEMP.humidity      | -40~+85°C 10 ~ 95% RH non-condensing   |            |
| Working humidity           | 20 ~ 95% RH non-condensing   |            |
| TEMP.coefficient           | ±0.03%/°C (0 ~ 50°C)   |            |
| Vibration                  | Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6 |            |
| Others                     |  |            |
| Mean time between failure  | 647.1K hrs min MIL-HDBK-217F(25°C)   |            |
| Installation               | Install on DIN rail TS35   |            |
| Weight                     | About 2.47kg   |            |
| Length*width*height        | 110*125.2*150mm  |            |
| Data                       | Details  | Model name |
|                            | M5R 960W 40A/24V   | M5R960-24  |
|                            | M5R 960W 20A/48V   | M5R960-48  |

### Installation Instruction



#### Control Pin (CN205) : DINKLE ECH250R-04P or equivalent

| Pin No. | Assignment          | Mating Housing   | Wire Diameter                            |
|---------|---------------------|--|--|
| 1       | P-(Current Share)   | DINKLE ESC250V-04P or equivalent (Including in the single package) | 0.081~0.517mm <sup>2</sup><br>(28~20AWG) |
| 2       | P+(Current Share)   |  |  |
| 3,4     | DC OK Relay Contact |  |  |

#### Terminal Pin No. Assignment (TB1)

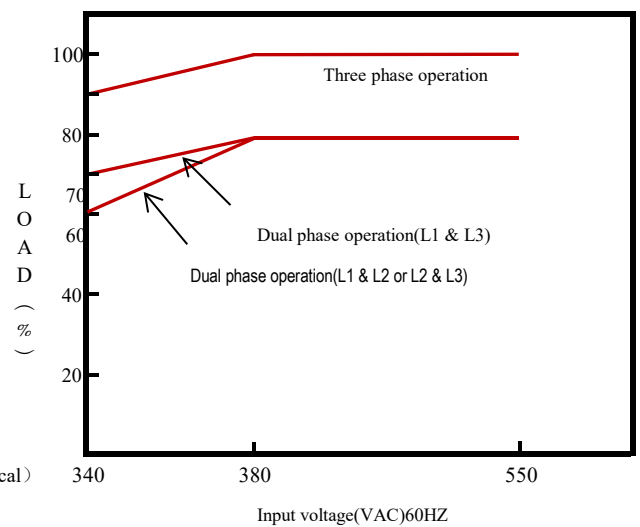
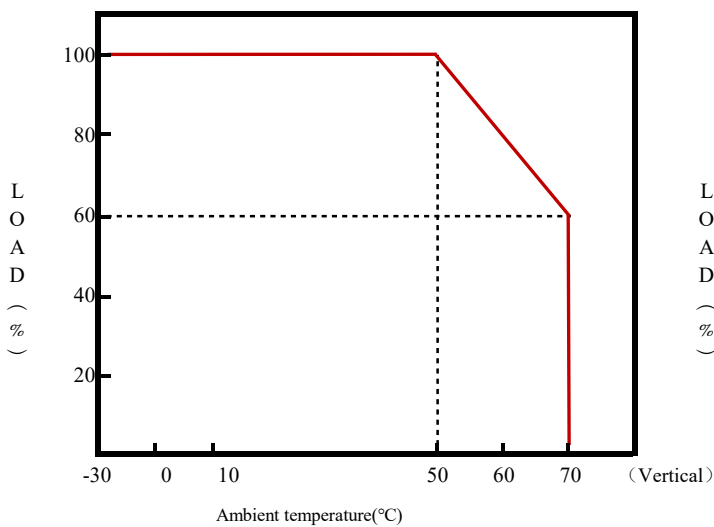
| Pin No. | Assignment |
|---------|------------|
| 1       | FG Ⓧ       |
| 2       | AC/L3      |
| 3       | AC/L2      |
| 4       | AC/L1      |

#### Terminal Pin No. Assignment (TB2)

| Pin No. | Assignment   |
|---------|--------------|
| 1,2,3   | DC OUTPUT +V |
| 4,5,6   | DC OUTPUT -V |

ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15

### Derating curve



#### Note:

- Dual phase operation is allowed under certain derating to output load. Please refer to derating curves for details.
- Ripple & noise are measured at 20MHZ of bandwidth by using a "12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
- Tolerance: includes set up tolerance, line regulation and load regulation.
- All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- Installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.
- The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).