

# TECHNICAL DATASHEET

ELECTRICAL SPECIFICATIONS

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Print Date 29.12.2025 11:37

## DC-Converter 172E-13.8-ON

900 Watt, non isolated, single output buck converter with internal decoupling diode

All parameters defined on Ta=25°C, IoNom = 65.0 ADC and UiNom = 48VDC

### ABSOLUTE MAXIMUM RATINGS

| parameter                                             | unit | typ   |
|-------------------------------------------------------|------|-------|
| Input peak voltage                                    | VDC  | 75.00 |
| Feedback protection against overvoltage on the output | VDC  | 16    |
| Worst case output voltage in fault mode               | VDC  | 18    |
| Output overvoltage protection                         | VDC  | 15.6  |

### THERMAL CHARACTERISTICS

| parameter                                        | min to max    | typ    |
|--------------------------------------------------|---------------|--------|
| Ambient temperature range                        | -40°C / +85°C |        |
| Max. case temperature for thermal shut down [°C] |               | +90°C  |
| Storage temperature (device not in operation)    | -10°C / +65°C |        |
| Relative maximum humidity under storage          |               | 75% RH |
| Storage under worst conditions [in days]         |               | 25     |

### COMMUNICATION INTERFACE

| parameter                                    | unit | fulfilled | conditions | min to max   |
|----------------------------------------------|------|-----------|------------|--------------|
| Option Enable (connect to Vin for operation) |      | ✓         |            |              |
| Enable voltage for transformer               | VDC  |           | IoNom      | 16.0 to 75.0 |

### SPECIALS

| parameter                               | unit | fulfilled | conditions    | typ     |
|-----------------------------------------|------|-----------|---------------|---------|
| Switching frequency                     | kHz  |           |               | 110     |
| Efficiency at light loads               | %    |           | 0.25IoNom     | 96.00   |
| Efficiency at medium loads              | %    |           | 0.5IoNom      | 95.00   |
| Efficiency at full loads                | %    |           | IoNom         | 95.00   |
| MTTF                                    | h    |           | SN29500 @ 70° | 800 000 |
| For active loads or parallel connection |      | ✓         |               |         |
| Drives high capacitive loads            |      | ✓         |               |         |
| CC/CV battery load characteristic       |      | ✓         |               |         |
| Insulation strength primary to case     | VDC  |           |               | 1500    |

### COMPLIANCE

| parameter                                                       | fulfilled | notes |
|-----------------------------------------------------------------|-----------|-------|
| 61000-6-2 (EMC-Immunity standard for industrial environment)    | ✓         |       |
| 61000-4-2 (immunity against ESD-electrostatic discharge)        | ✓         |       |
| 61000-4-3 (immunity High frequency electromagnetic fields)      | ✓         |       |
| 61000-4-4 (immunity against burst – electrical fast transients) | ✓         |       |
| 61000-4-5 (immunity against surge - high energy surges)         | ✓         |       |
| 61000-4-6 (immunity against induced, conducted disturbances)    | ✓         |       |

All technical and general information is provided in all conscience. However, completeness and accuracy cannot be guaranteed. Demke recommends to fully test the product in its determined application. Due to permanent improvements to our products, we reserve the right to change specifications at any time and without prior notification and without obligation to update products already supplied. This is a component for professional equipment manufacturers. Read the safety and installation instruction for proper use. Safety aspect and EMC-aspect must be considered in the end application.

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|                                                                |   |
|----------------------------------------------------------------|---|
| 61000-6-4 (EMC – Emission standard for industrial environment) | ✓ |
| 55022<A                                                        | ✓ |

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### INPUT

| parameter              | unit | conditions | min | typ  | max |
|------------------------|------|------------|-----|------|-----|
| Input voltage range    | VDC  | IoNom      | 18  | 48   | 70  |
| Max. input current     | A    | UiNom      |     | 70   |     |
| Input start up voltage | VDC  | UiNom      |     | 18.0 |     |
| Undervoltage lockout   | VDC  | UiNom      |     | 16.7 |     |

### OUTPUT

| parameter                                                    | unit | conditions | min | typ        | max |
|--------------------------------------------------------------|------|------------|-----|------------|-----|
| Output voltage                                               | VDC  | IoNom      |     | 13.8       |     |
| Minimum required load to obtain the specified output voltage | %    | UiNom      |     | 0          |     |
| Output voltage accuracy                                      | %    | IoNom      |     | +/-3.00%   |     |
| Output voltage overshoot at initial switch-on                | %    | IoNom      |     | overdamped |     |
| Rated output power                                           | W    |            |     | 900        |     |

### CONTROL

| parameter                                               | unit | conditions         | min | typ      | max |
|---------------------------------------------------------|------|--------------------|-----|----------|-----|
| Static line regulation                                  | %    | IoNom/UiMin...UiMa |     | 0.20     |     |
| Static load regulation                                  | %    | IoMin...IoMax/UiNo |     | 4.0      |     |
| Dynamic load change adjusting time                      | ms   | LoadChange 10...90 |     | 0.60     |     |
| Dynamic load change deviation to nominal output voltage | V    | LoadChange 10...90 |     | 1.00     |     |
| Maximum admissible capacitive load                      | uF   | IoNom              |     | infinite |     |
| Initial switch on time                                  | ms   | IoNom              |     | 500      |     |
| Softstart ramp up time                                  | ms   | IoNom              |     | 50       |     |

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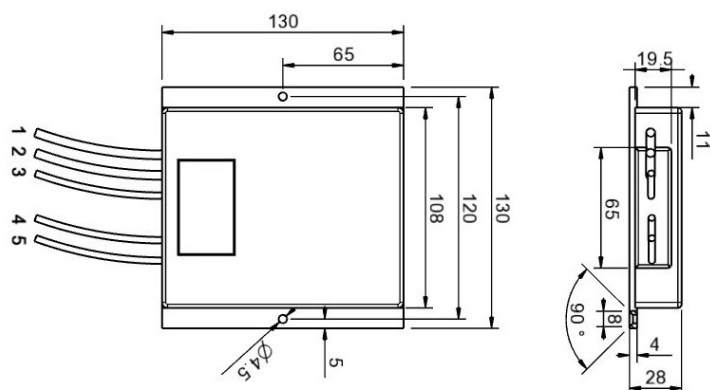
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## parameter

| parameter          | unit |            |
|--------------------|------|------------|
| Overall dimensions | mm   | 130x130x28 |
| Weight             | g    | 980        |

| Pin No. | Function | Electrical Determination | Colour | Cross-              | Cable length |
|---------|----------|--------------------------|--------|---------------------|--------------|
| 1       | On       | Enable                   | blue   | 1,5 mm <sup>2</sup> | 300 mm       |
| 2       | Vi+      | Input voltage positive   | red    | 6 mm <sup>2</sup>   | 300 mm       |
| 3       | Vi-      | Input voltage negative   | black  | 6 mm <sup>2</sup>   | 300 mm       |
| 4       | Vo-      | Output voltage negative  | brown  | 10 mm <sup>2</sup>  | 300 mm       |
| 5       | Vo+      | Output voltage positive  | red    | 10 mm <sup>2</sup>  | 300 mm       |

Case: FMC 130x130x28



This technical datasheet is preliminary, specs may vary slightly.

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