

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Electronic motor management for operation with external current transformer- active power measurement for overload and underload monitoring of motors and systems for optimum protection for all performance classes. Freely parameterizable switching and signaling thresholds.

## Your advantages

- Optional connection to INTERFACE system and PROFIBUS-GATEWAY-IFS via TBUS
- Digital outputs control external switching elements
- Freely parameterizable signaling or switching thresholds

## Commercial data

|                                      |                    |
|--------------------------------------|--------------------|
| Item number                          | 2297507            |
| Packing unit                         | 1 pc               |
| Minimum order quantity               | 1 pc               |
| Product key                          | CK7512             |
| Catalog page                         | Page 16 (C-5-2019) |
| GTIN                                 | 4046356175760      |
| Weight per piece (including packing) | 280.6 g            |
| Weight per piece (excluding packing) | 246.4 g            |
| Customs tariff number                | 85371098           |
| Country of origin                    | DE                 |

## Technical data

### Notes

#### Utilization restriction

|          |   |
|----------|---|
| EMC note | EMC: class A product, see manufacturer's declaration in the download area |
|----------|---|

### Product properties

|                |                          |
|----------------|--------------------------|
| Product type   | Electronic motor manager |
| Operating mode | 100% operating factor    |

### Electrical properties

|   |       |
|---|-------|
| Number of phases                                | 3     |
| Maximum power dissipation for nominal condition | 2.5 W |
| Test voltage input/output                       | 8 kV  |

#### Supply

|  |                      |
|--|----------------------|
| Rated control circuit supply voltage $U_S$ | 230 V AC             |
| Control supply voltage range               | 92 V AC ... 253 V AC |
| Rated control supply current $I_S$         | 10 mA                |
| Switching threshold                        | 48 V AC ("0" signal) |
|  | 96 V AC ("1" signal) |

#### Insulation characteristics

|  |                                |
|--|--------------------------------|
| Rated insulation voltage   | 500 V                          |
| Rated surge voltage  | 6 kV                           |
| Overvoltage category   | III                            |
| Degree of pollution  | 2                              |
| Insulation characteristics between the input and output circuits   | Safe isolation (IEC 60947-1)   |
| Insulation characteristics between the thermistor input and output | Basic insulation (IEC 60947-1) |

### Input data

#### Digital inputs (IN1 - IN4)

|                               |               |
|-------------------------------|---------------|
| Number of inputs              | 4 (IN1 - IN4) |
| Rated actuating voltage $U_C$ | 230 V AC      |
| Rated actuating current $I_C$ | 3.5 mA        |

#### Voltage measuring input V1, V2, V3

|                                |                      |
|--------------------------------|----------------------|
| Input voltage range            | 42 V AC ... 575 V AC |
| Typical input current at $U_N$ | < 0.5 mA             |

#### Current measuring input L1/T1, L2/T2, L3/T3

|                                |                                    |
|--------------------------------|------------------------------------|
| Typical input current at $U_N$ | 5 A (Secondary external converter) |
|--------------------------------|------------------------------------|

#### Power measurement

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

|                |  |
|----------------|--|
| Basic accuracy | typ. 2 %   |
| Power range    | 4.5 kW (x amplitude transmission factor for current transformer) |

## Voltage measurement/star voltage

|                |  |
|----------------|--|
| Basic accuracy | typ. 0.75 %                                    |
| Voltage range  | 0 V AC ... 350 V AC (Phase-to-neutral voltage) |

## Current measurement

|                |   |
|----------------|---|
| Basic accuracy | typ. 0.5 %  |
| Current range  | 140 mA ... 5 A  |
| Measuring via  | External push-through current transformers connected upstream |

## Output data

|                         |   |
|-------------------------|---|
| Output name             | Acknowledging contacts O1-O4  |
| Note                    | The meaning of the acknowledgement outputs can be freely parameterized, see user manual |
| Number of outputs       | 4   |
| Nominal output voltage  | 230 V AC (Relay output)   |
| Continuous load current | 500 mA  |

## Connection data

### Control circuits

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Stripping length                 | 8 mm  |
| Screw thread                     | M3  |
| Conductor cross section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 24 ... 14                                   |

### Load circuit

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Stripping length                 | 8 mm  |
| Screw thread                     | M3  |
| Conductor cross section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 24 ... 14                                   |

## Signaling

|                           |   |
|---------------------------|---|
| Status display            | LED yellow right rotation (R), LED yellow left rotation (L), LED green data communication |
| Operating voltage display | Green LED   |
| Error indication          | Red LED   |

## Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 99 mm   |

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

|       |          |
|-------|----------|
| Depth | 114.5 mm |
|-------|----------|

## Material specifications

|       |                 |
|-------|-----------------|
| Color | gray (RAL 7042) |
|-------|-----------------|

## Environmental and real-life conditions

### Ambient conditions

|   |                  |
|---|------------------|
| Degree of protection                    | IP20             |
| Ambient temperature (operation)         | -25 °C ... 70 °C |
| Ambient temperature (storage/transport) | -25 °C ... 70 °C |

## Approvals

### ATEX

|                |                                  |
|----------------|----------------------------------|
| Identification | Ⓜ II (2) G [Ex e] [Ex d] [Ex px] |
|                | Ⓜ II (2) D [Ex t] [Ex p]         |
| Certificate    | PTB 10 ATEX 3024                 |

### UL, USA/Canada

|             |              |
|-------------|--------------|
| Certificate | NKCR.E140324 |
|-------------|--------------|

### Safety Integrity Level (SIL, IEC 61508)

|                |               |
|----------------|---------------|
| Identification | ≤ 1           |
| Note           | Safe shutdown |

### Safety Integrity Level (SIL, IEC 61508)

|                |                  |
|----------------|------------------|
| Identification | 1                |
| Note           | Motor protection |

### Category (ISO 13849)

|                |               |
|----------------|---------------|
| Identification | ≤ 1           |
| Note           | Safe shutdown |

### Performance Level

|                |               |
|----------------|---------------|
| Identification | ≤ b           |
| Note           | Safe shutdown |

## Standards and regulations

### Standards/regulations

|                       |              |
|-----------------------|--------------|
| Standards/regulations | DIN EN 50178 |
|                       | EN 60947     |
|                       | EN 60947-4-2 |

## Mounting

|                       |                           |
|-----------------------|---------------------------|
| Mounting type         | DIN rail mounting         |
| Assembly instructions | in rows with zero spacing |

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

Mounting position

Vertical (horizontal DIN rail)

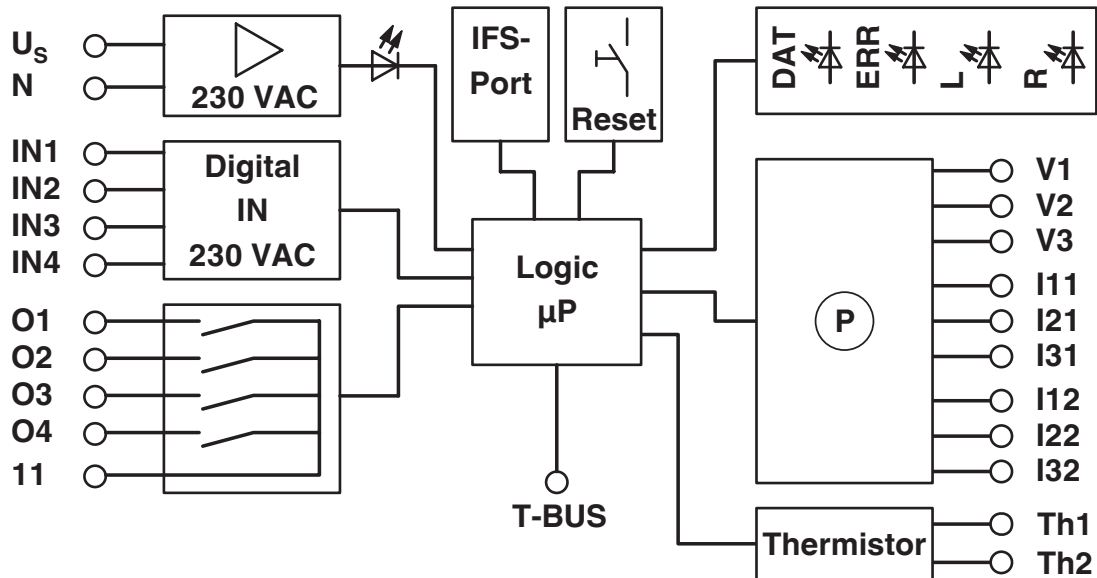
# EMM 3-230AC/500AC-IFS - Motor management

2297507

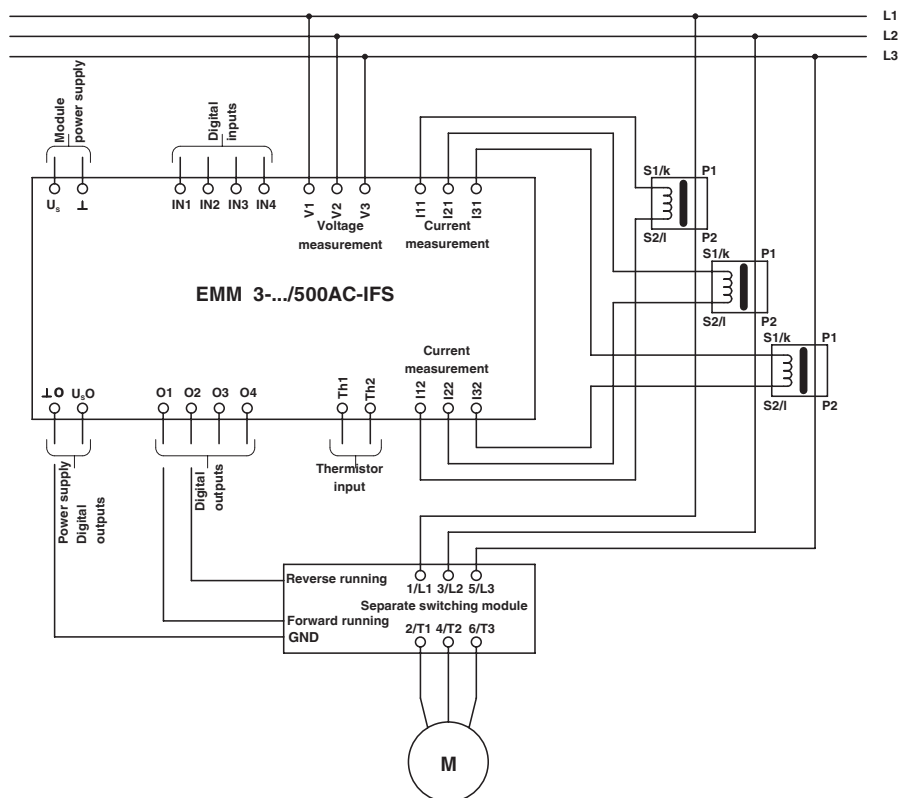
<https://www.phoenixcontact.com/pc/products/2297507>

## Drawings

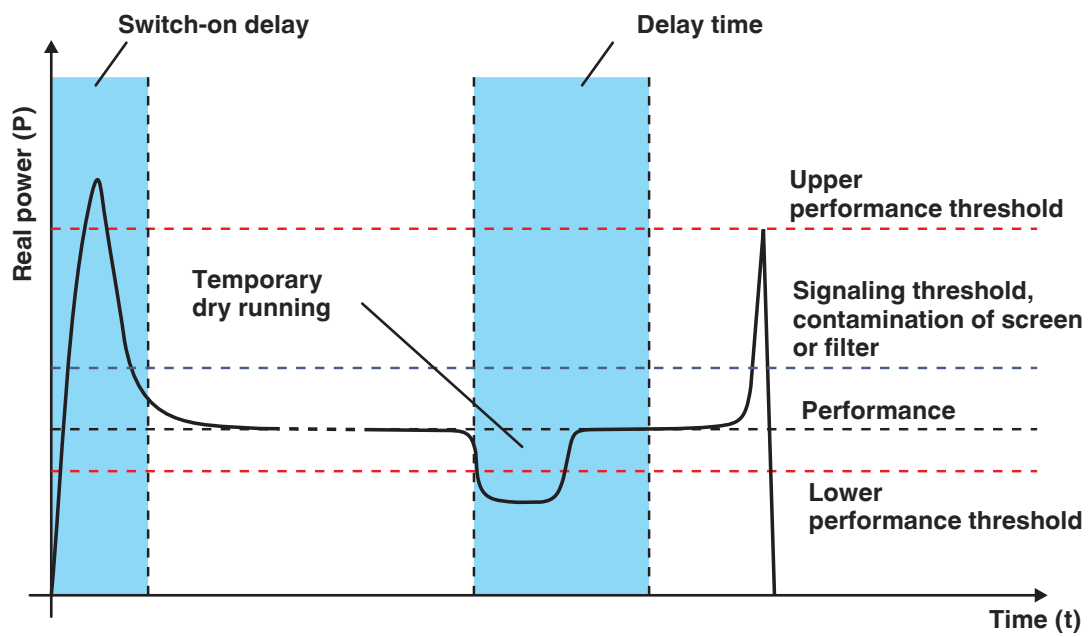
Block diagram



Connection diagram



Diagram



Status monitoring: air bubbles in motor-operated pumps

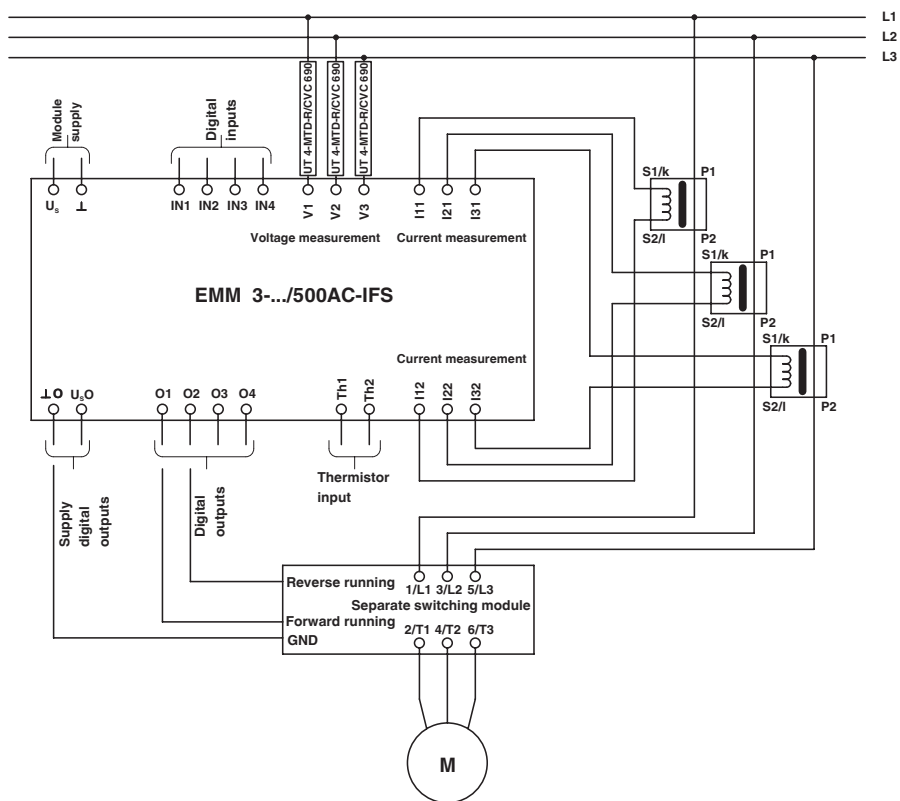
# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

Connection diagram

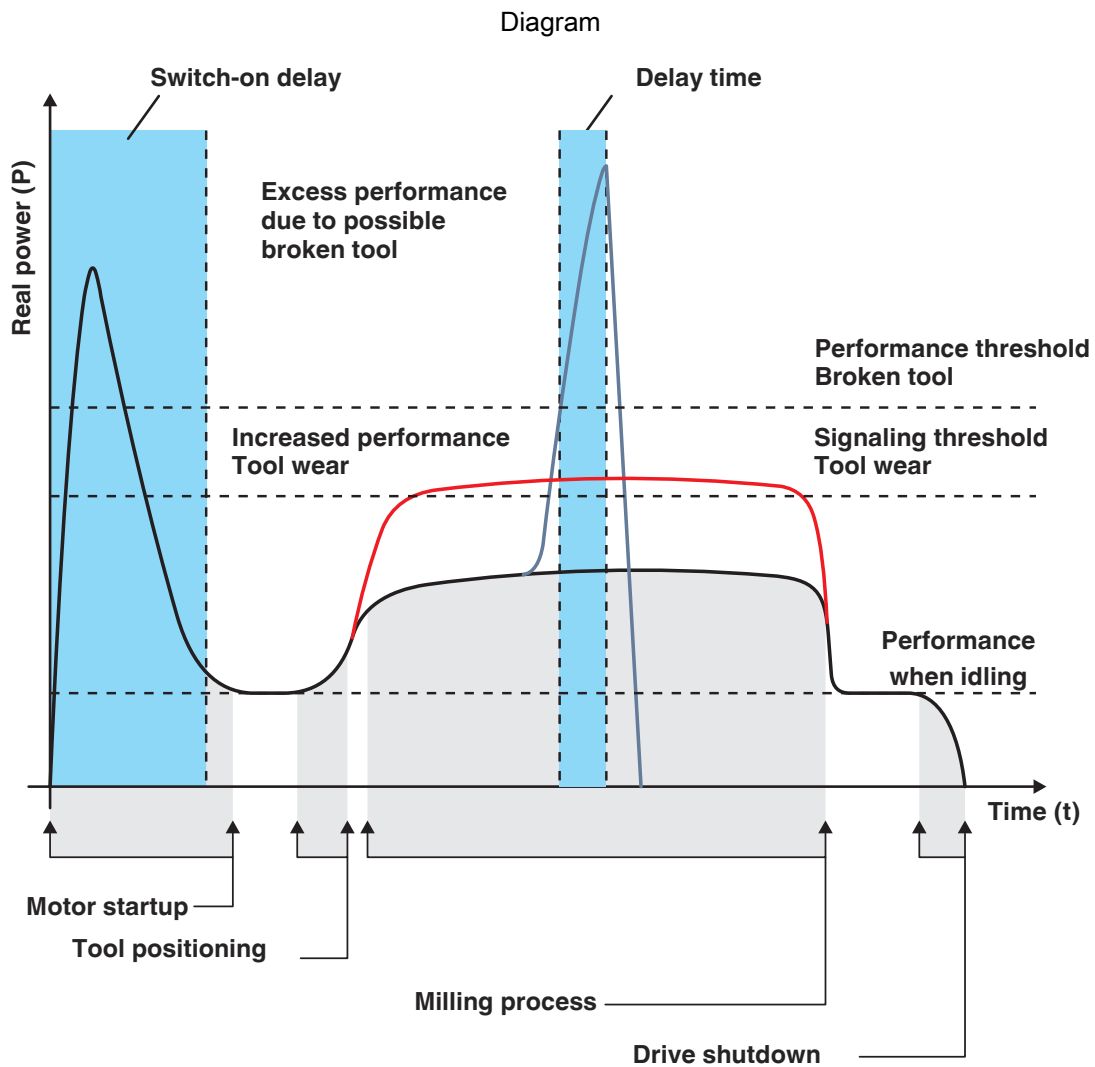


EMM 3-.../500AC-IFS with connected CONTACTRON VOLTAGE CONVERTER



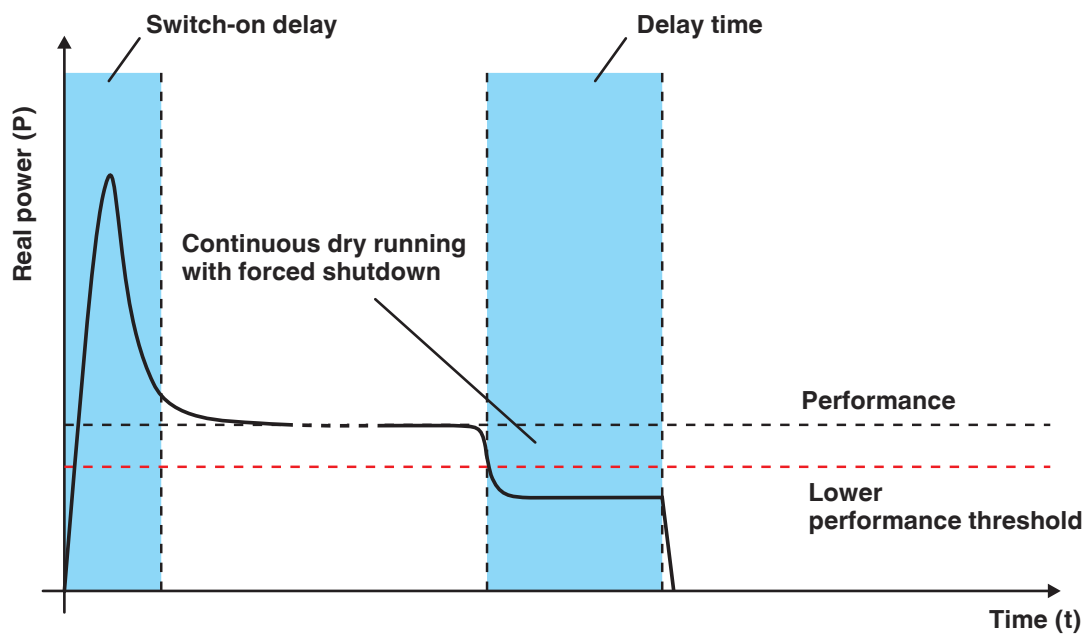
2297507

<https://www.phoenixcontact.com/pc/products/2297507>



Status monitoring: machine tool for milling

Diagram



Status monitoring: dry run in motor-operated pumps

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27370804 |
|-------------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121104 |
|-------------|----------|

# EMM 3-230AC/500AC-IFS - Motor management



2297507

<https://www.phoenixcontact.com/pc/products/2297507>

## Environmental product compliance

|            |  |
|------------|--|
| China RoHS | Environmentally Friendly Use Period = 50 years<br>For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |
|------------|--|

Phoenix Contact 2024 © - all rights reserved  
<https://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstraße 8  
D-32825 Blomberg  
+49 (0) 5235-3 00  
[info@phoenixcontact.com](mailto:info@phoenixcontact.com)