

EMM 3- 24DC/500AC-IFS - Motor management



2297497

<https://www.phoenixcontact.com/us/products/2297497>

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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
- Freely parameterizable signaling or switching thresholds
- Digital outputs control external switching elements

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2297497 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C475 |
| Product key | DK7512 |
| GTIN | 4046356175753 |
| Weight per piece (including packing) | 263 g |
| Weight per piece (excluding packing) | 263 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 |
| Product family | CONTACTRON |
| 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 | 24 V DC |
| Control supply voltage range | 19.2 V DC ... 30 V DC |
| Rated control supply current I_S | 25 mA |
| Switching threshold | 9.6 V DC ("0" signal) |
| | 19.2 V DC ("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

| | |
|-------------------------------|---------------|
| Number of inputs | 4 (IN1 - IN4) |
| Rated actuating voltage U_C | 24 V DC |
| Rated actuating current I_C | 3.3 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

| | |
|----------------|--|
| 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 | 24 V DC (semiconductor output) |
| Output voltage range | 19.2 V DC ... 30 V DC |
| Continuous load current | 500 mA |
| Residual voltage | < 200 mV |
| Protective circuit | Suppressor diode |
| Surge voltage protection | > 33 V DC |

Connection data

Control circuits

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

Signaling

| | |
|---------------------------|--------------|
| Status display | LED (yellow) |
| Operating voltage display | Green LED |

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| | |
|----------------------------|-----------|
| Error indication | Red LED |
| Data communication display | green LED |

Dimensions

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

DIN EN 50178

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

Mounting

| | |
|-------------------|--------------------------------|
| Mounting type | DIN rail mounting |
| Assembly note | in rows with zero spacing |
| Mounting position | Vertical (horizontal DIN rail) |

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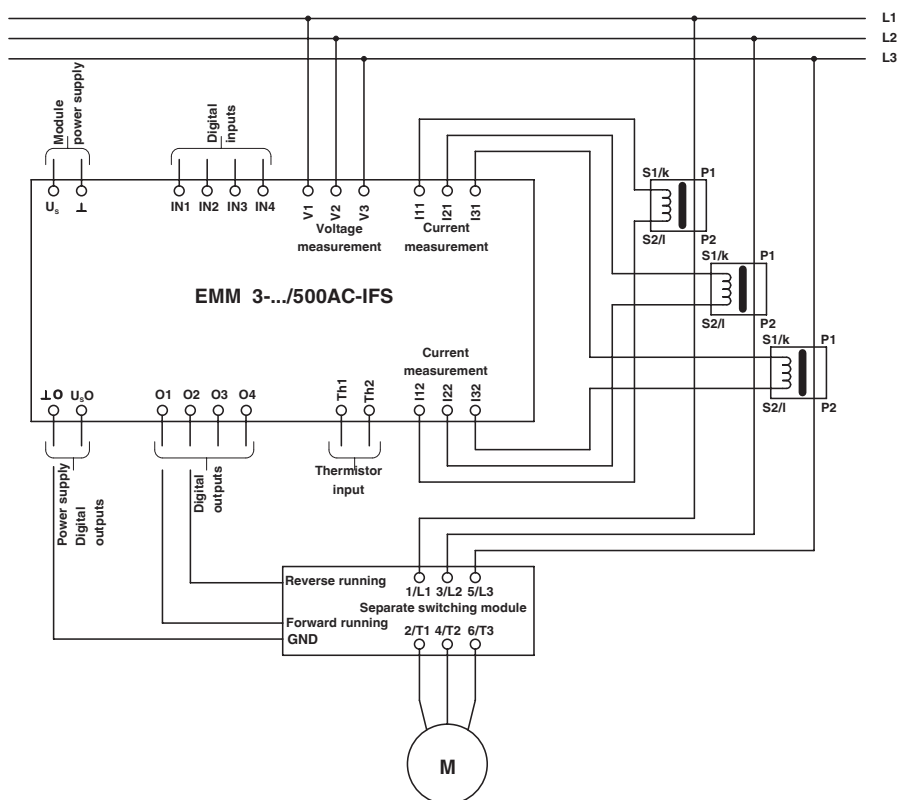


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Drawings

Connection diagram



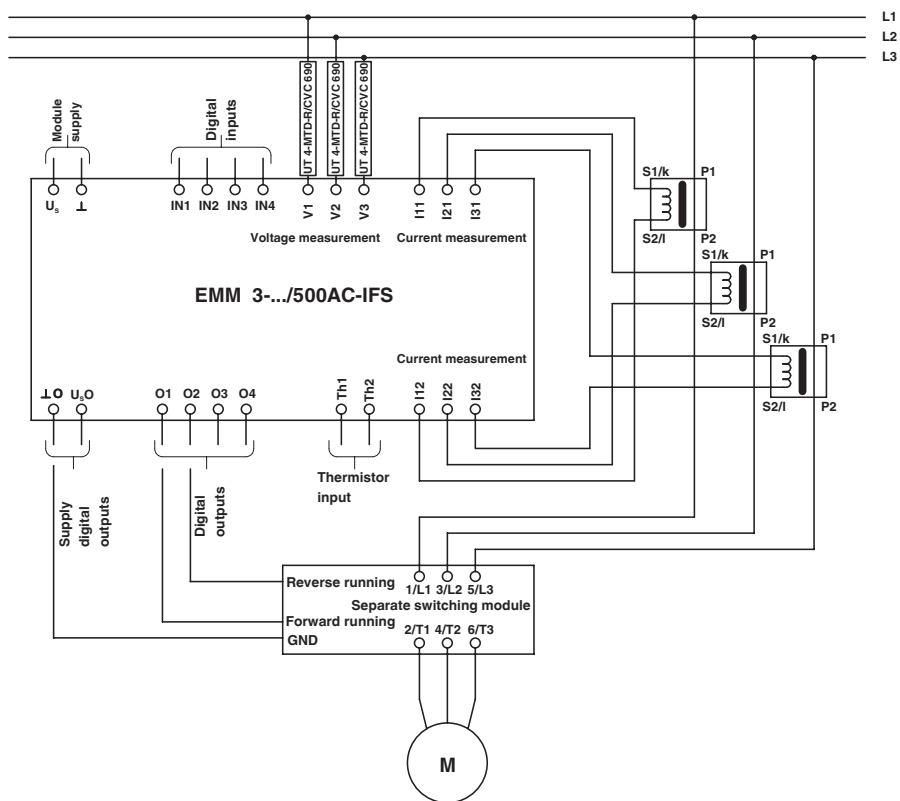
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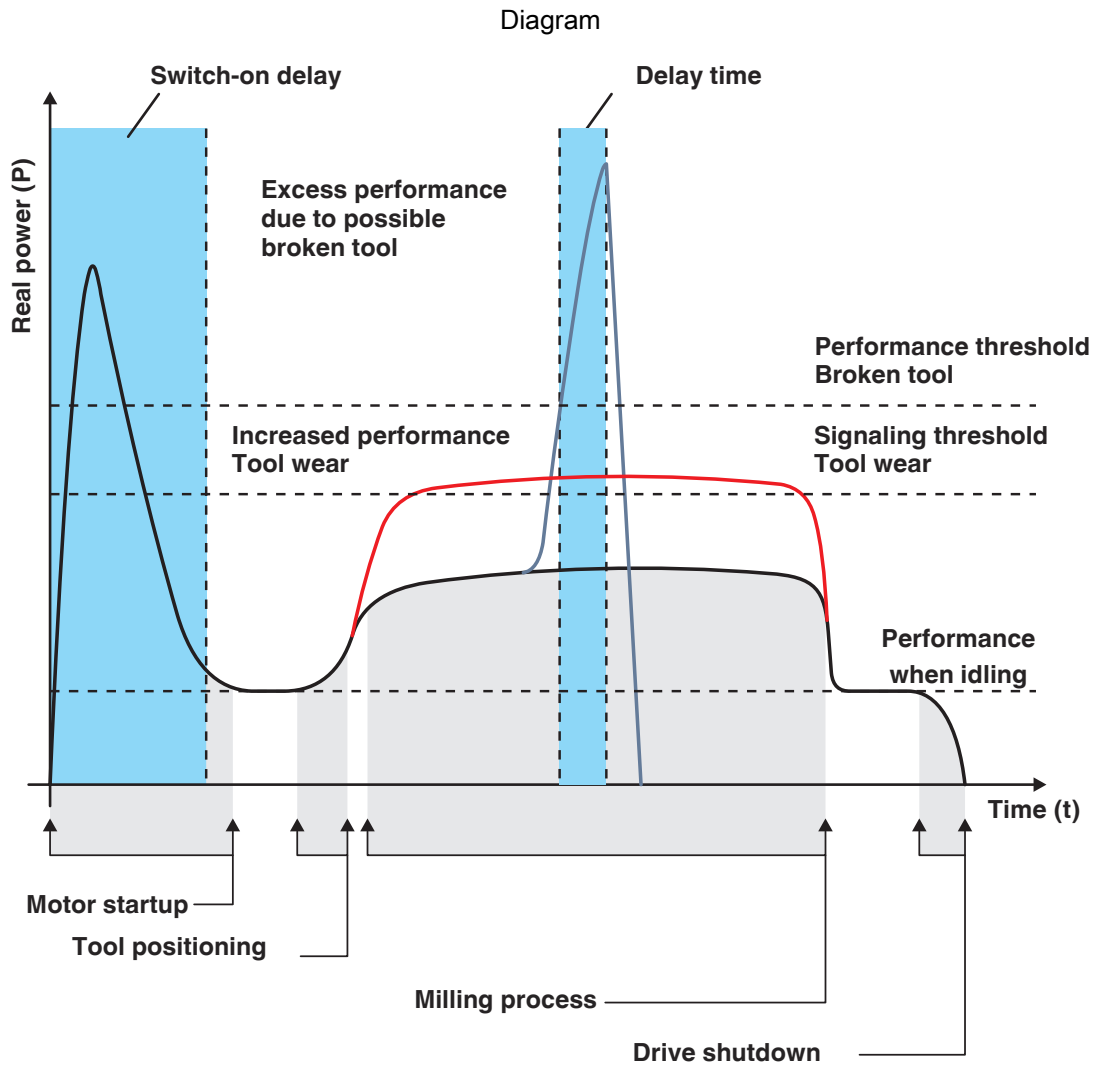
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Connection diagram

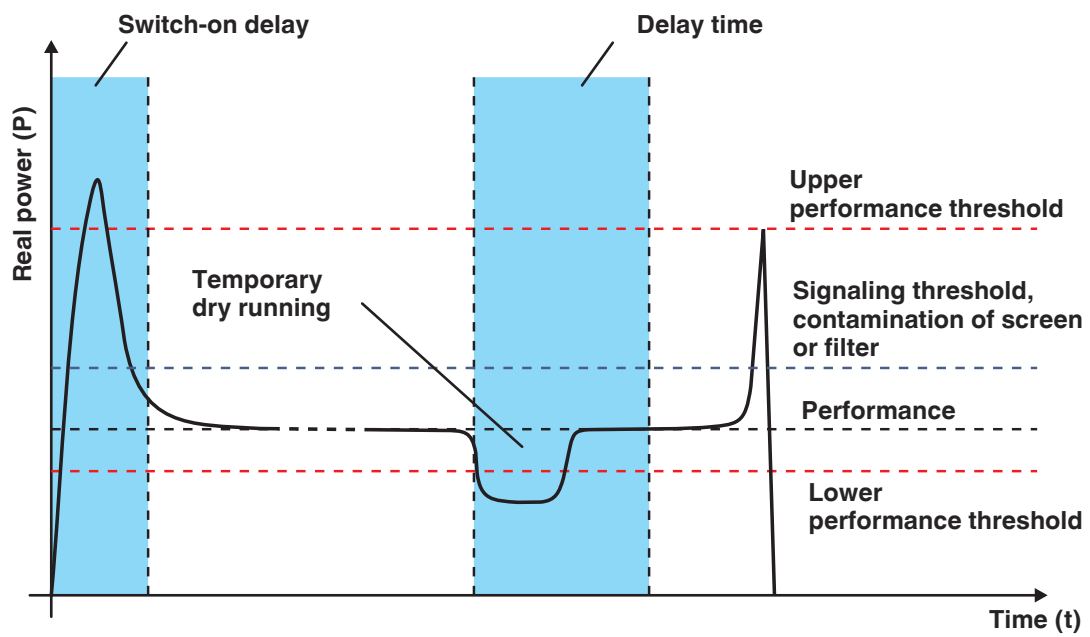


EMM 3-.../500AC-IFS with connected CONTACTRON VOLTAGE CONVERTER



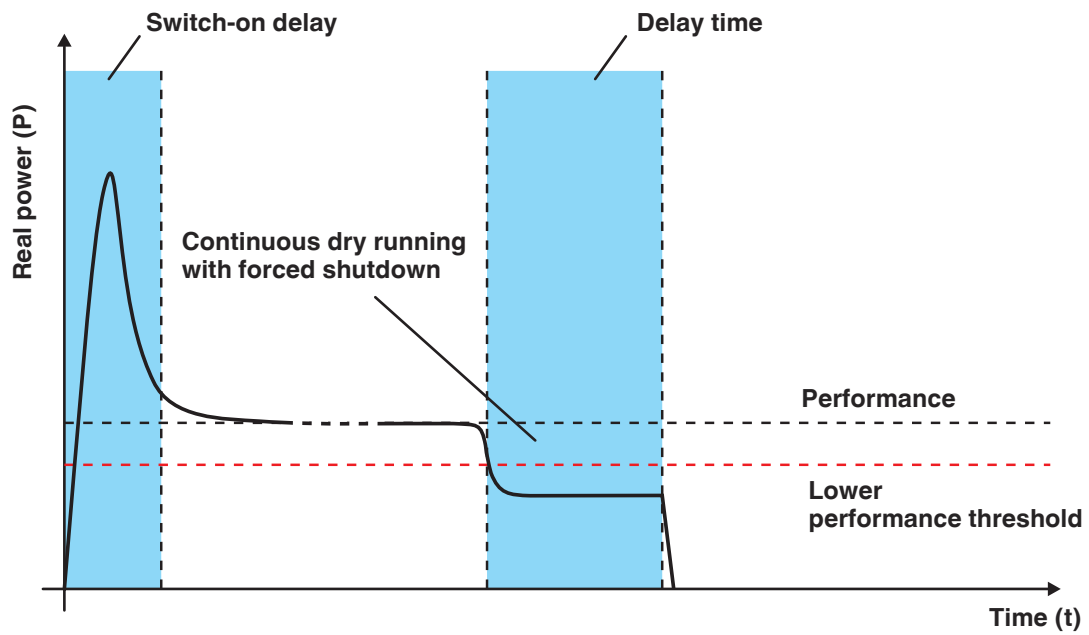
Status monitoring: machine tool for milling

Diagram



Status monitoring: air bubbles in motor-operated pumps

Diagram

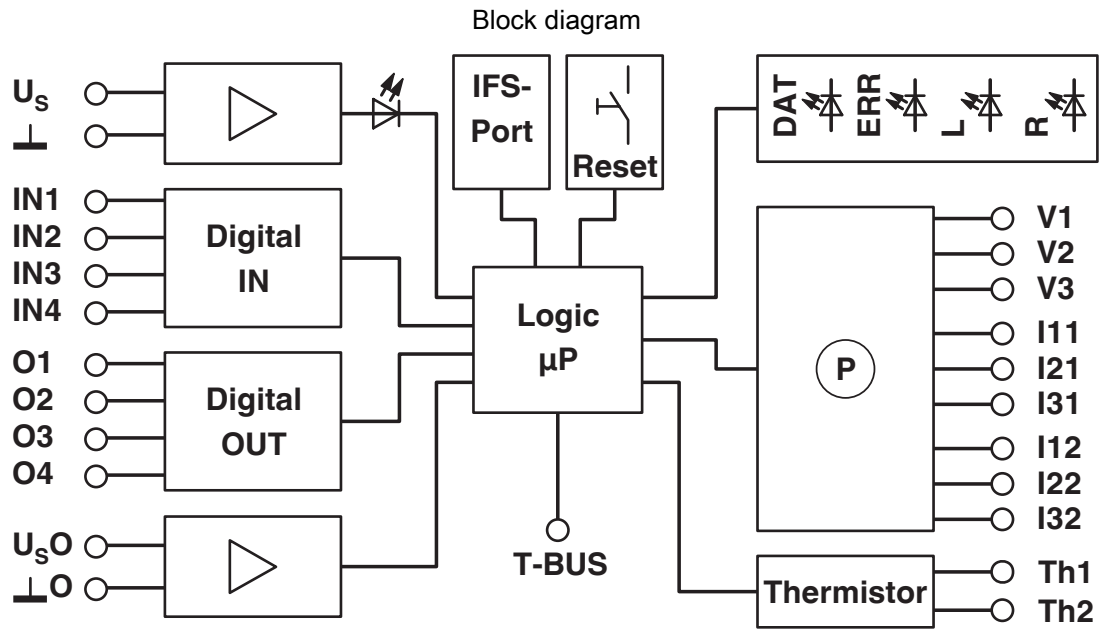


Status monitoring: dry run in motor-operated pumps

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Classifications

ECLASS

ECLASS-13.0

27370804

ETIM

ETIM 9.0

EC002572

UNSPSC

UNSPSC 21.0

39121100

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Environmental product compliance

EU RoHS

| | |
|---|-----------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(c)-I, 7(c)-II |

China RoHS

| | |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | 141e0f24-6c49-48b6-a9f1-f1b2bd215171 |

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