

# EMM 3- 24DC/500AC-16-IFS - Motor management



2297523

<https://www.phoenixcontact.com/in/products/2297523>

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Electronic motor management with integrated current transformers up to 16 A - active power measurement for overload and underload monitoring of motors and systems for optimum protection. 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	2297523
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CK7
Product Key	CK7511
Catalog Page	Page 16 (C-5-2019)
GTIN	4046356175777
Weight per Piece (including packing)	260 g
Weight per Piece (excluding packing)	225.2 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
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### 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	5.5 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 (IN1 - IN4)

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 $U_N$	≤ 16 A
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## Power measurement

Basic accuracy	typ. 2 %
Power range	14 kW

## 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	400 mA ... 16 A
Measuring via	Internal current transformer

## 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 <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	Yellow LED
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

## 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	<input type="checkbox"/> II (2) G [Ex e] [Ex d] [Ex px]
	<input type="checkbox"/> II (2) D [Ex t] [Ex p]
Certificate	PTB 10 ATEX 3024

### UL, USA/Canada

Certificate	NKCR.E140324
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### 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

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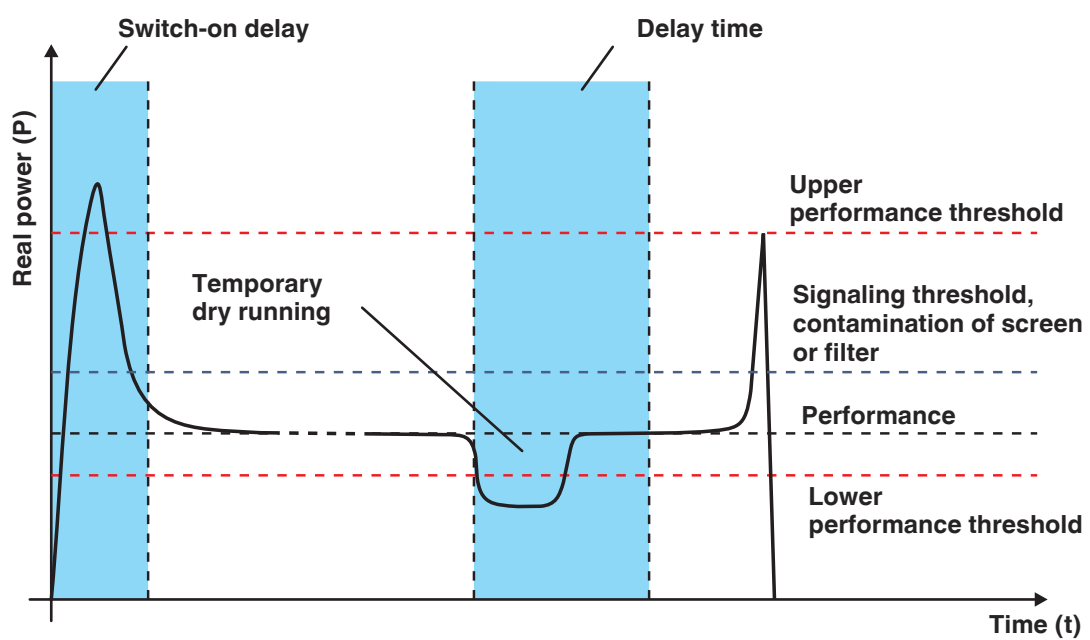
<https://www.phoenixcontact.com/in/products/2297523>

## Mounting

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

## Drawings

Diagram



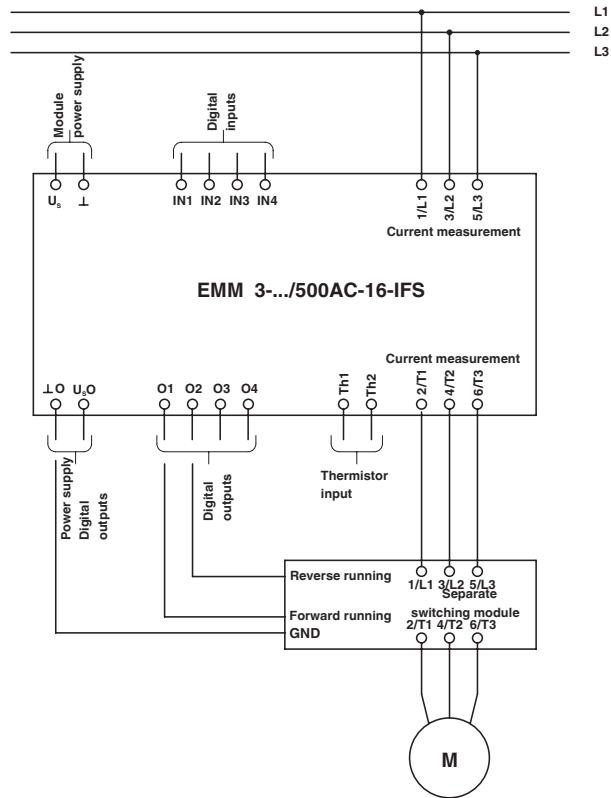
Status monitoring: air bubbles in motor-operated pumps

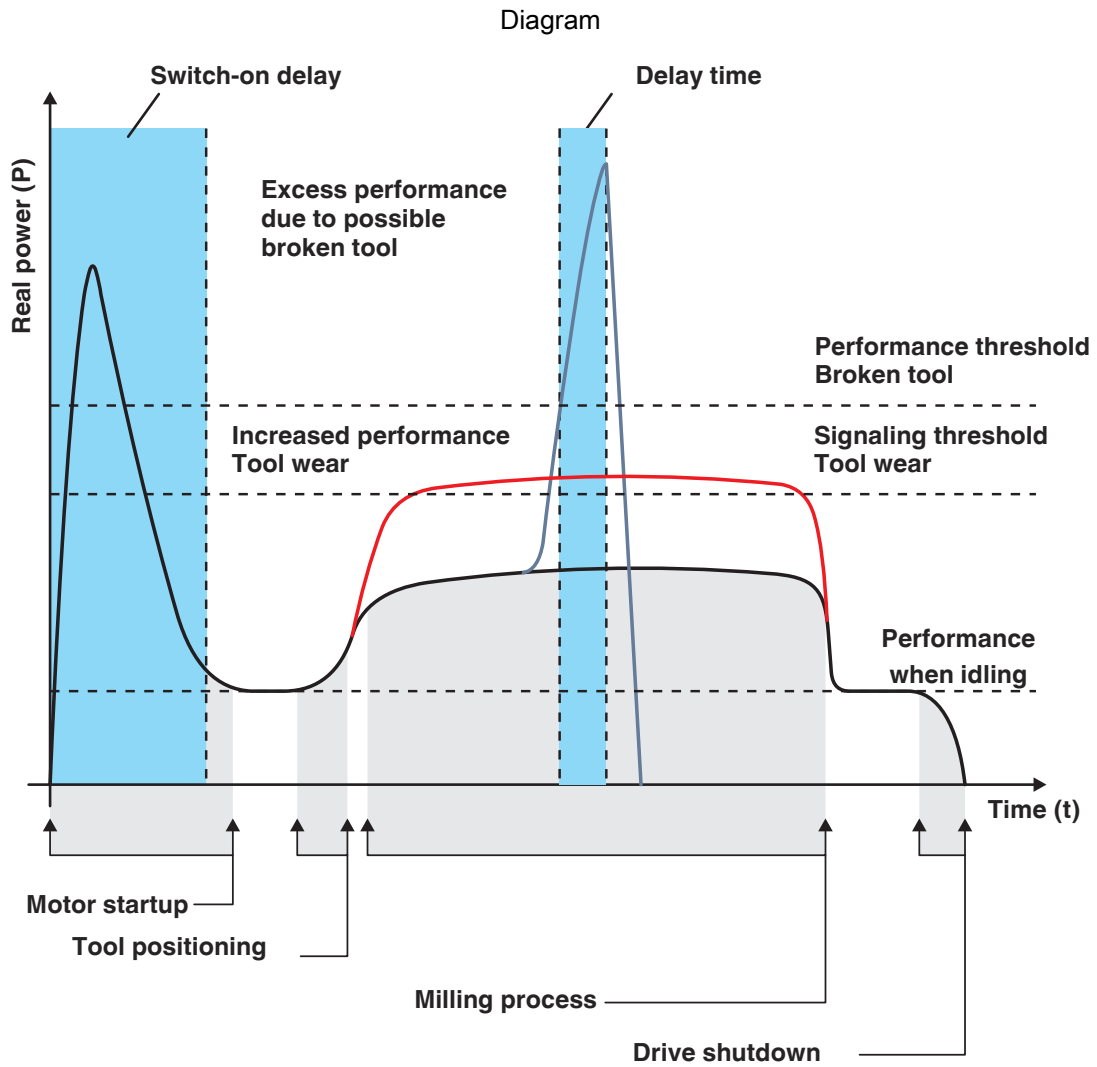
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Connection diagram

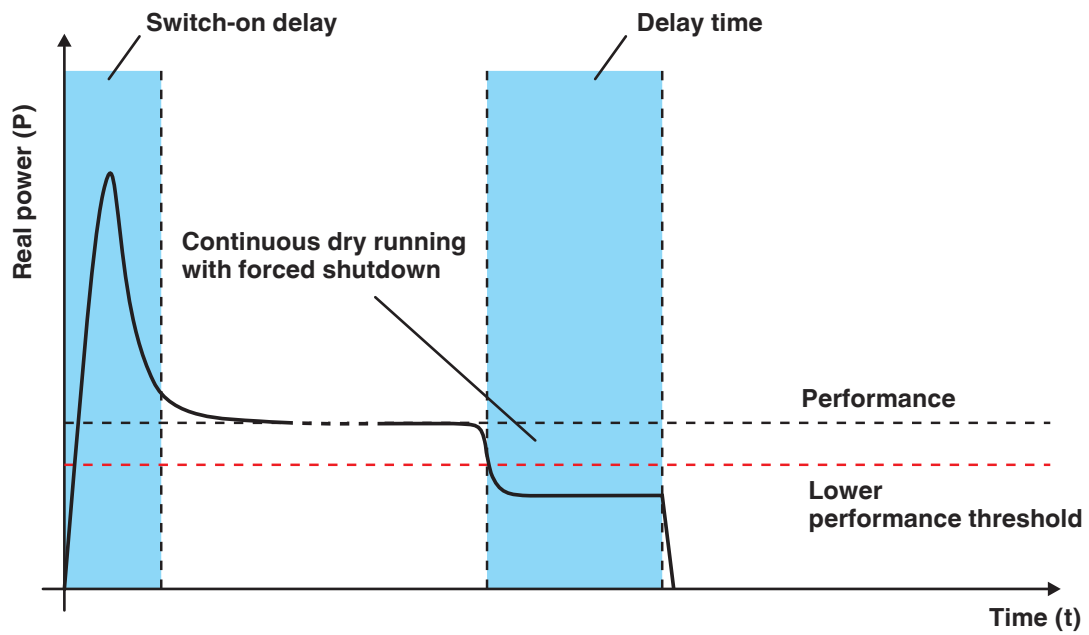




Status monitoring: machine tool for milling



Diagram



Status monitoring: dry run in motor-operated pumps

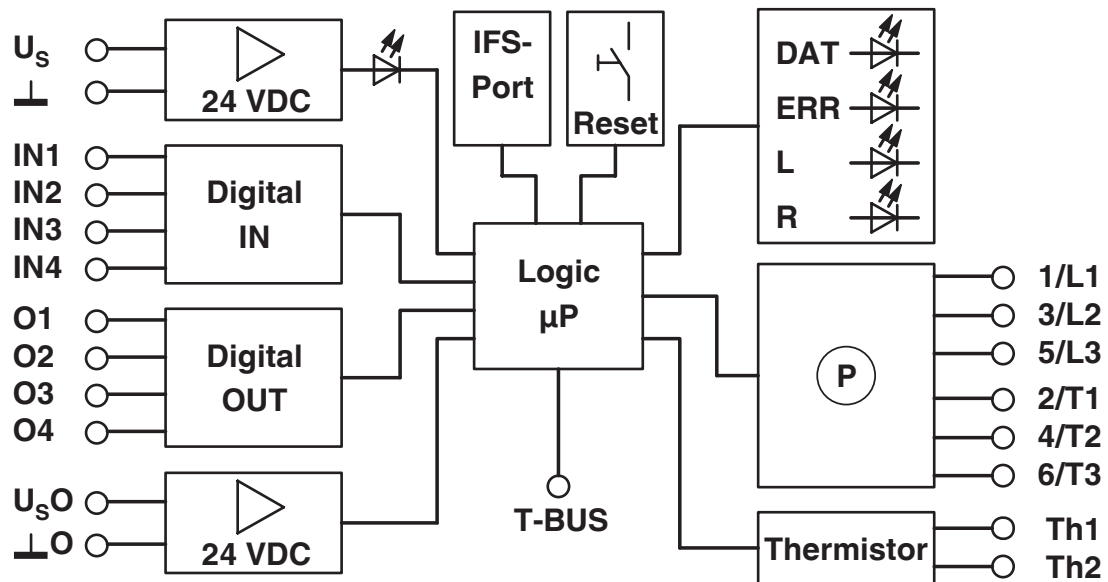
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Block diagram



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## Approvals



**EAC**

Approval ID: RU\*C-DE.\*08.B.00520\*



**UL Listed**

Approval ID: FILE E 140324



**cUL Listed**

Approval ID: FILE E 140324



**ATEX**

Approval ID: PTB 10 ATEX 3024

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## Classifications

### ECLASS

ECLASS-11.0	27370804
ECLASS-13.0	27370804
ECLASS-12.0	27370804

### ETIM

ETIM 8.0	EC002572
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### UNSPSC

UNSPSC 21.0	39121100
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Mandatory Accessories

### IFS-USB-DATACABLE - Data cable

2320500

<https://www.phoenixcontact.com/in/products/2320500>

Used for communicating between industrial PCs and Phoenix Contact devices with the 12-pos. IFS data port, such as QUINT UPS or TRIO UPS.



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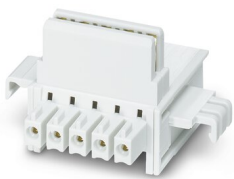
## Accessories

### ME 22,5 TBUS 1,5/ 5-ST-3,81 GY - DIN rail bus connectors

2201937

<https://www.phoenixcontact.com/in/products/2201937>

DIN rail connector, color: gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts



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## IFS-USB-DATACABLE - Data cable

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## EM-PB-GATEWAY-IFS - Data interface

2297620

<https://www.phoenixcontact.com/in/products/2297620>

Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via PROFIBUS DP. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.



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## EM-MODBUS-GATEWAY-IFS - Data interface

2901528

<https://www.phoenixcontact.com/in/products/2901528>



Gateway for the connection of up to 32 INTERFACE system devices via Modbus/TCP to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## EM-CAN-GATEWAY-IFS - Data interface

2901504

<https://www.phoenixcontact.com/in/products/2901504>



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via CANopen<sup>®</sup>. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.



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## EM-PNET-GATEWAY-IFS - Data interface

2904472

<https://www.phoenixcontact.com/in/products/2904472>



Gateway for the connection of up to 32 INTERFACE system devices via PROFINET to a higher-level controller. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## EM-ETH-GATEWAY-IFS - Data interface

2901988

<https://www.phoenixcontact.com/in/products/2901988>



Gateway for the connection of up to 32 INTERFACE system devices to a higher-level controller via EtherNet/IP™. The INTERFACE system devices are connected to the Gateway via DIN rail connectors, the DIN rail connectors are provided.

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## IFS-CONFSTICK-L - Memory block

2901103

<https://www.phoenixcontact.com/in/products/2901103>



Multi-functional memory block with handle for the INTERFACE system; for easy storage and back up of the configuration.

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## IFS-CONFSTICK - Memory block

2986122

<https://www.phoenixcontact.com/in/products/2986122>



Multi-functional memory block for the INTERFACE systemf for easy storage and backup of the configuration.

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## MM-CONF-SET - Configuration package

2297992

<https://www.phoenixcontact.com/in/products/2297992>



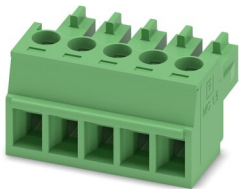
Configuration package for the EMM ... IFS, comprising CONTACTRON-DTM-IFS, USB programming adapter, and user manual on CD.

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## MC 1,5/ 5-ST-3,81 - PCB connector

1803604

<https://www.phoenixcontact.com/in/products/1803604>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: MC 1,5/...-ST, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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## IMC 1,5/ 5-ST-3,81 - Printed-circuit board connector

1857919

<https://www.phoenixcontact.com/in/products/1857919>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Pin, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: IMC 1,5/..-ST, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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## IMC 1,5/ 5-ST-3,81SET IL IFS 2M - Plug

1784729

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Assembled connecting cable, IL-IFS, 2 m in length

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## US-EMLP (15X5) - Plastic label

0828790

<https://www.phoenixcontact.com/in/products/0828790>



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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## UC-EMLP (15X5) - Plastic label

0819301

<https://www.phoenixcontact.com/in/products/0819301>



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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