

# AXL F RTD4 XC 1H - Temperature module



1035430

<https://www.phoenixcontact.com/us/products/1035430>

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Axioline F, Temperature recording module, Analog inputs: 4 (for resistance temperature detectors), connection technology: 2-, 3-, 4-conductor (shielded), transmission speed in the local bus: 100 Mbps, Extreme conditions version, degree of protection: IP20, including bus base module and Axioline F connectors

## Product description

The module is designed for use within an Axioline F station. It is used to acquire signals from resistive temperature sensors. The module supports all common platinum and nickel sensors in accordance with DIN EN 60751 and SAMA. Cu10, Cu50, Cu53 sensors as well as various KTY8x sensor types are also supported.

## Your advantages

- 4 analog input channels for connecting resistance temperature detectors (RTDs)
- 500  $\Omega$  and 5 k $\Omega$  linear inputs
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Integrated, digital sensor linearization
- Standardized measured value representation directly in  $^{\circ}\text{C}$ ,  $^{\circ}\text{F}$  or  $\Omega$
- Measured value display in 16-bit format or floating point format
- Programmable filters
- Short-circuit protected inputs
- Temperature stability
- Very high level of noise immunity
- Low noise emission
- Installation monitoring by means of "Channel scout" function
- Can be used under extreme ambient conditions
- Extended temperature range of  $-40^{\circ}\text{C}$  ...  $+70^{\circ}\text{C}$  (see "Tested successfully: use under extreme ambient conditions" in the data sheet)
- Partially coated PCBs
- Device rating plate stored

## Commercial data

Item number	1035430
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR02
Product key	DRI243
Catalog page	Page 86 (C-6-2019)
GTIN	4055626541839

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Weight per piece (including packing)	216.566 g
Weight per piece (excluding packing)	144 g
Customs tariff number	85389091
Country of origin	DE

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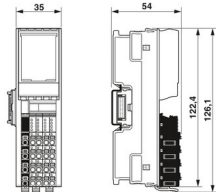


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## Technical data

### Dimensions

Dimensional drawing	
Width	35 mm
Height	126.1 mm
Depth	54 mm
Note on dimensions	The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715).

### Interfaces

#### Axioline F local bus

Number of interfaces	2
Connection method	Bus base module
Transmission speed	100 Mbps

### System properties

#### Module

Input address area	8 Byte
Output address area	8 Byte
Required parameter data	12 Byte
Required configuration data	6 Byte

### Input data

#### Analog

Input name	Analog inputs
Description of the input	Inputs for resistive temperature sensors
Number of inputs	4 (for resistance temperature detectors)
Connection method	Push-in connection
Connection technology	2-, 3-, 4-conductor (shielded)
A/D converter resolution	24 bit
Sensor types (RTD) that can be used	Pt, Ni, KTY, Cu sensors
Data formats	IB IL, S7-compatible
Measured value representation	16 bits (15 bits + sign bit)
Input filter time	40 ms
	60 ms
	100 ms

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	120 ms (adjustable)
Nominal value of the current sources	1 mA (Pt 100, Ni 100, $R_{Lin}$ 500 $\Omega$ ; pulse current, the specification is valid during the sampling phase)
	210 $\mu$ A (P t1000, Ni 1000, $R_{Lin}$ 5000 $\Omega$ ; pulse current, the specification is valid during the sampling phase)
Differential non-linearity	typ. 1 ppm / $\pm 0.0001$ % (in all ranges)
Integral non-linearity	typ. 30 ppm / $\pm 0.003$ % (Pt 100)
	typ. 20 ppm / $\pm 0.002$ % ( $R_{Lin}$ 500 $\Omega$ )
	typ. 200 ppm / $\pm 0.02$ % ( $R_{Lin}$ 5000 $\Omega$ )
Linear resistance measuring range	0 $\Omega$ ... 500 $\Omega$
	0 k $\Omega$ ... 5 k $\Omega$
Protective circuit	Short-circuit protection, overload protection of the inputs
	Transient protection of inputs
	Transient protection of sensor supplies

## Product properties

Type	block modular
Product type	I/O component
Product family	Axioline F
Mounting position	any (no temperature derating)
Scope of delivery	including bus base module and Axioline F connectors

## Insulation characteristics

Overvoltage category	II (IEC 60664-1, EN 60664-1)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

## Electrical properties

### Potentials

Power consumption	max. 1.1 W (entire device)
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### Potentials: Axioline F local bus supply ( $U_{Bus}$ )

Supply voltage	5 V DC (via bus base module)
Current draw	max. 140 mA
Power consumption	max. 700 mW

### Potentials: Supply for analog modules ( $U_A$ )

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 17 mA
Power consumption	max. 400 mW
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode
	Transient protection; Suppressor diode

## Electrical isolation/isolation of the voltage ranges

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Test voltage: 5 V supply of the local bus ( $U_{BUS}$ ) / 24 V supply (I/Os)	500 V AC, 50 Hz, 1 min.
Test voltage: 5 V supply of the local bus ( $U_{BUS}$ )/analog inputs	500 V AC, 50 Hz, 1 min.
Test voltage: 5 V supply of the local bus ( $U_{BUS}$ ) / functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: 24 V supply (I/O)/analog inputs	500 V AC, 50 Hz, 1 min.
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: Analog inputs/functional ground	500 V AC, 50 Hz, 1 min.

## Connection data

### Connection technology

Connection name	Axioline F connector
Note on the connection method	Please observe the information provided on conductor cross sections in the "Axioline F: system and installation" user manual.

### Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 16
Stripping length	8 mm

### Axioline F connector

Connection method	Push-in connection
Note on the connection method	Please observe the information provided on conductor cross sections in the "Axioline F: system and installation" user manual.
Conductor cross section, rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section, flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 16
Stripping length	8 mm

## Environmental and real-life conditions

### Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C (Standard, applications with UL approval, use in zone 2 potentially explosive area)
	-40 °C ... 70 °C (Extended, see section "Tested successfully: use under extreme ambient conditions" in the data sheet.)
Degree of protection	IP20
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)

## Standards and regulations

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
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## Approvals

### ATEX

Identification	Ex II 3 G Ex ec IIC T4 Gc
Certificate	UL 20 ATEX 2441X

### UKEX

Identification	Ex II 3 G Ex ec IIC T4 Gc
Certificate	PxCIMA22UKEX2701949X

### IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX ULD 20.0026X

### UL, USA/Canada

Identification	cULus
Certificate	E238705

### UL Ex, USA / Canada

Identification	Class I, Zone 2, AEx ec IIC T4
	Class I, Division 2, Groups A, B, C, D, T4
	Ex ec IIC T4 Gc X
Certificate	E366272

### CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	CCC, Ex II 3 G Ex ec IIC T4 Gc

## Mounting

Mounting type	DIN rail mounting
Mounting position	any (no temperature derating)

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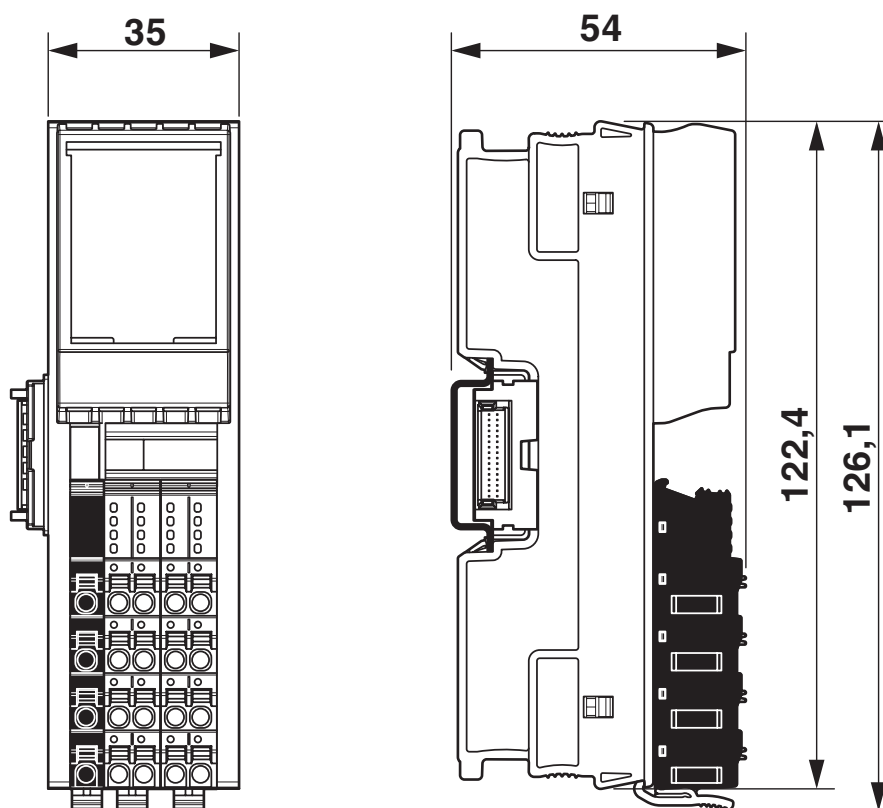
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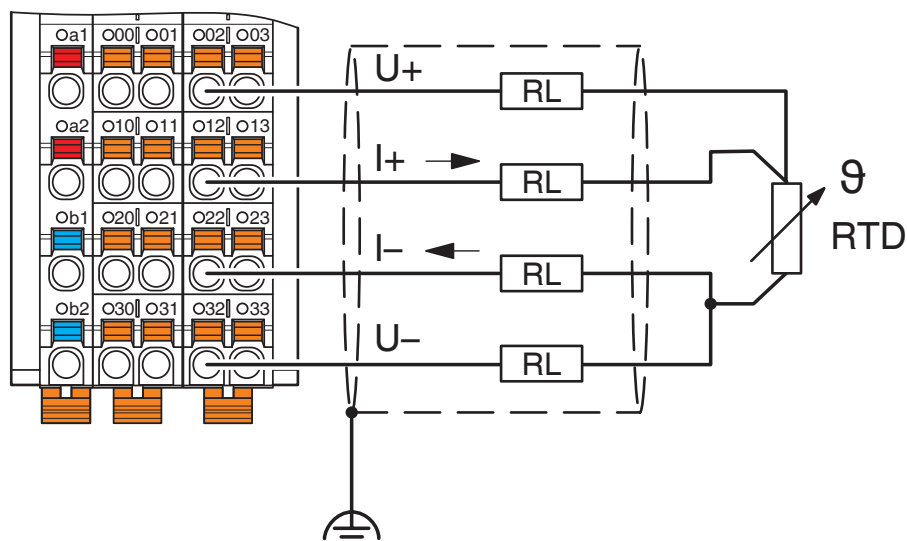
## Drawings

Dimensional drawing



Dimensional drawing

Connection diagram



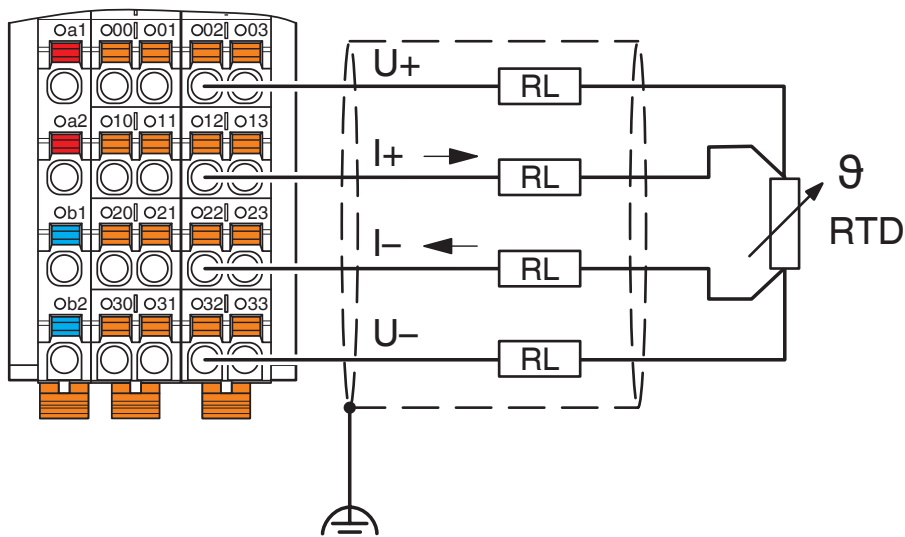
Connection example: 4-conductor connection for 3-conductor sensor with very long supply lines (> 100 m)

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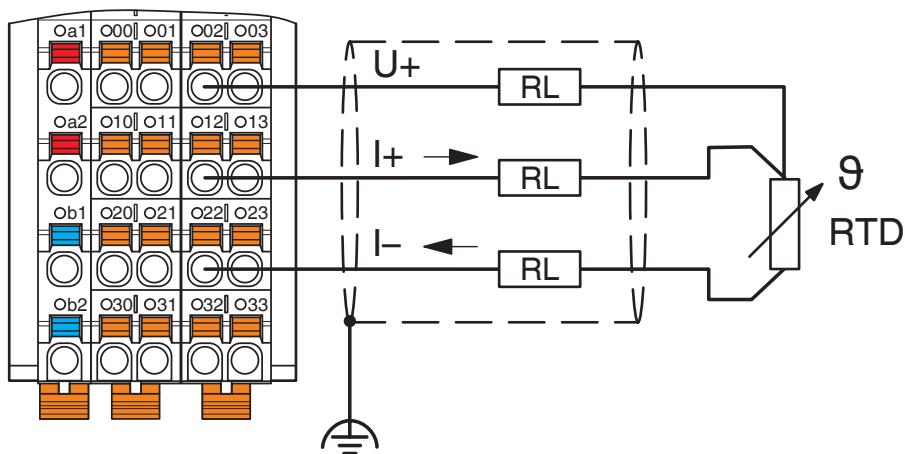
<https://www.phoenixcontact.com/us/products/1035430>

Connection diagram



Connection example: 4-conductor connection

Connection diagram



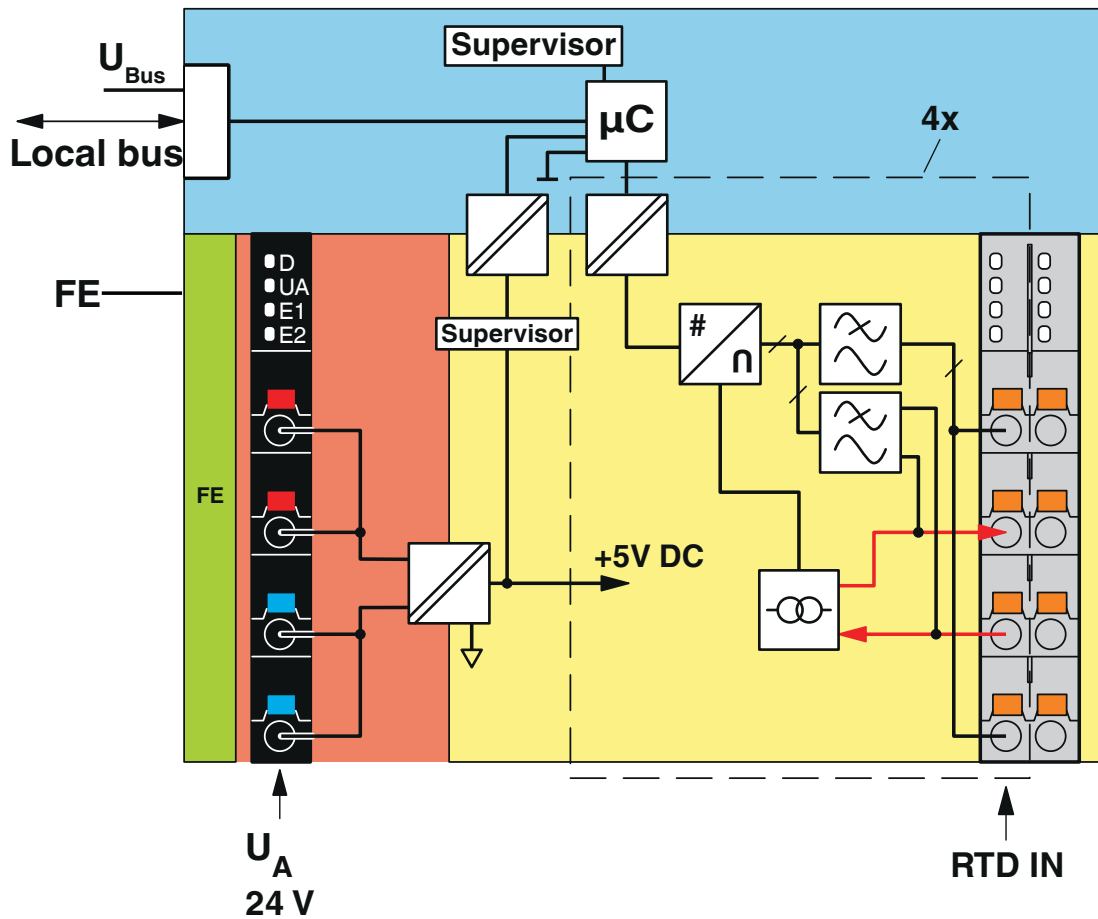
Connection example: 3-conductor connection

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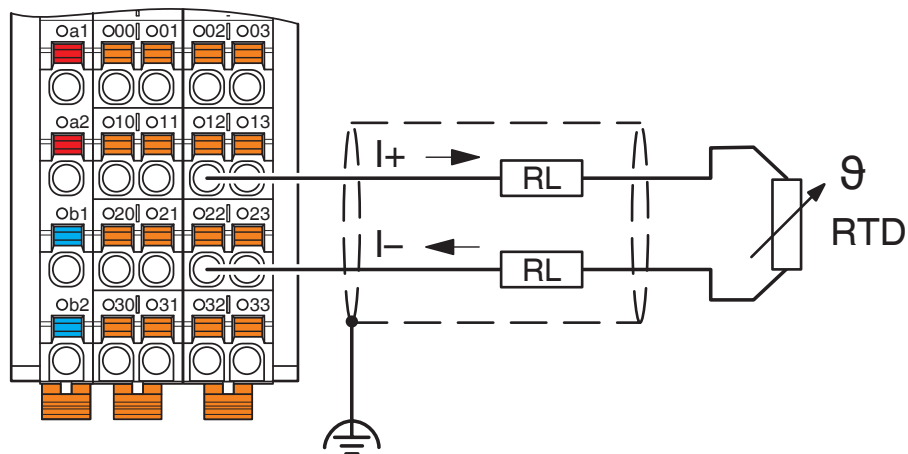
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Block diagram



Internal wiring of the terminal points

Connection diagram



Connection example: 2-conductor connection

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1035430>

### BSH

Approval ID: 840

### UAE-RoHS

Approval ID: 23-02-63242



### IECEx

Approval ID: IECEx ULD 20.0026X



### ATEX

Approval ID: UL 20 ATEX 2441X



### cULus Listed

Approval ID: FILE E 366272



### CCC

Approval ID: 2021122309114456\_CN

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## Classifications

### ECLASS

ECLASS-11.0	27242601
ECLASS-12.0	27242601
ECLASS-13.0	27242601

### ETIM

ETIM 8.0	EC001596
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### UNSPSC

UNSPSC 21.0	32151600
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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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## Accessories

### AXL F BS H - Bus connector

2700992

<https://www.phoenixcontact.com/us/products/2700992>

Axioline F bus base module for housing type H



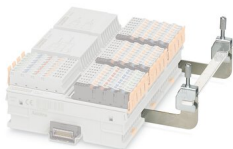
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### AXL SHIELD SET - Shield connection

2700518

<https://www.phoenixcontact.com/us/products/2700518>

Axioline shield connection set (contains 2 shield bus holders and 2 SK 5 shield connection clamps)



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## ZB 20,3 AXL UNPRINTED - Zack marker strip

0829579

<https://www.phoenixcontact.com/us/products/0829579>



Zack marker strip for Axioline F (device labeling), in 2 x 20.3 mm pitch, unprinted, 25-section, for individual labeling with B-STIFT 0.8, X-PEN, or CMS-P1-PLOTTER

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## ZBF 10/5,8 AXL UNPRINTED - Zack Marker strip, flat

0829580

<https://www.phoenixcontact.com/us/products/0829580>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 10.15 mm, lettering field size: 4 x 10, 15 x 5 mm, 1 x 5.8 x 5 mm, Number of individual labels: 50

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## EMT (35X28)R - Insert label

0801602

<https://www.phoenixcontact.com/us/products/0801602>



Insert label, for marking the Axioline F series from Phoenix Contact, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, lettering field size: 35 x 28 mm, Number of individual labels: 500

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