

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 Ω and 5 k Ω 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 Ω
- 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°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

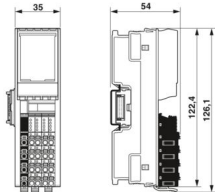
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Technical data

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

Product properties

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

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 ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
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 ² ... 1.5 mm ²
Conductor cross section, flexible	0.2 mm ² ... 1.5 mm ²
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	Ⓢ II 3 G Ex ec IIC T4 Gc
Certificate	UL 20 ATEX 2441X
References to standards	EN IEC 60079-0, EN IEC 60079-7

UKEX

Identification	Ex II 3 G Ex ec IIC T4 Gc
Certificate	PxCIMA22UKEX2701949X
References to standards	EN IEC 60079-0, EN IEC 60079-7

IECE_x

Identification	Ex ec IIC T4 Gc
Certificate	IECEX ULD 20.0026X
References to standards	IEC 60079-0 Ed. 7, IEC 60079-7 Ed. 5.1

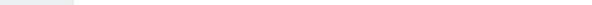
UL, USA/Canada

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
References to standards	UL 60079-0 Ed. 7 / CSA C22.2 NO. 60079-0 Ed. 4
	UL 60079-7 Ed. 5 / CSA C22.2 NO. 60079-7 Ed. 2

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	
References to standards	GB/T 3836.1-2021, GB/T 3836.3-2021

Mounting

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

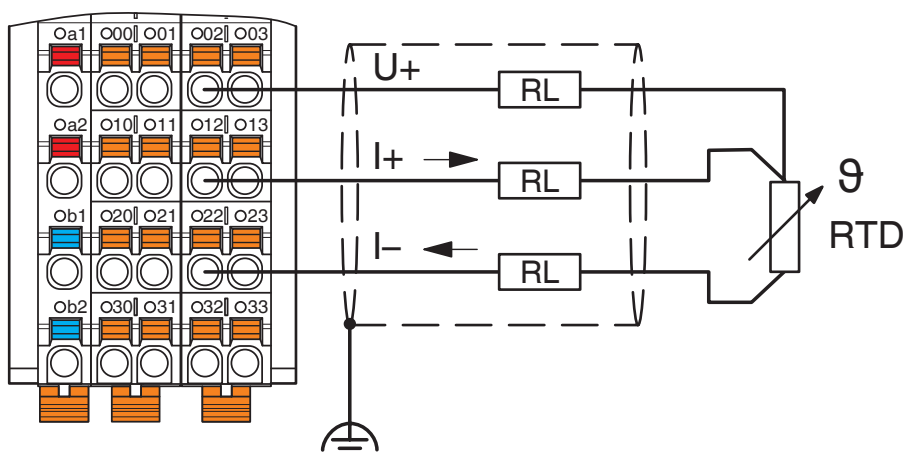
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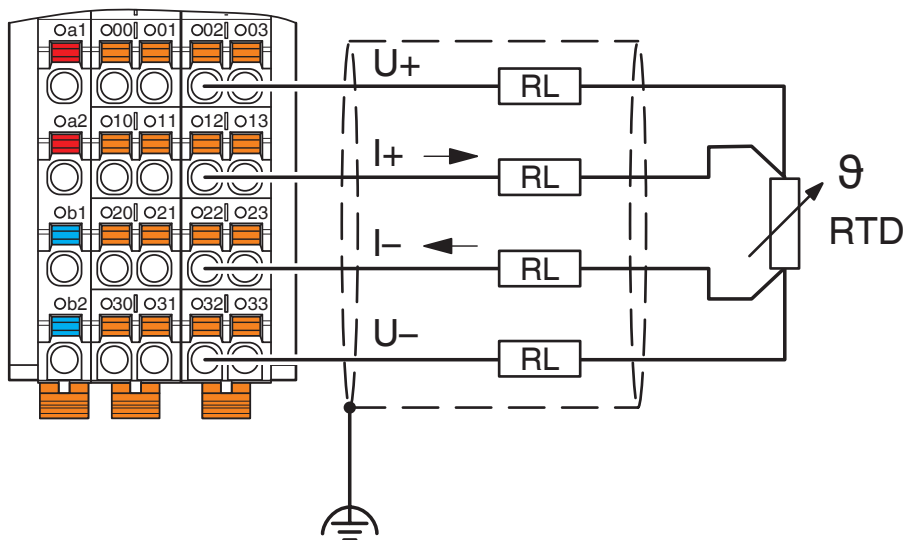
Drawings

Connection diagram



Connection example: 3-conductor connection

Connection diagram



Connection example: 4-conductor connection

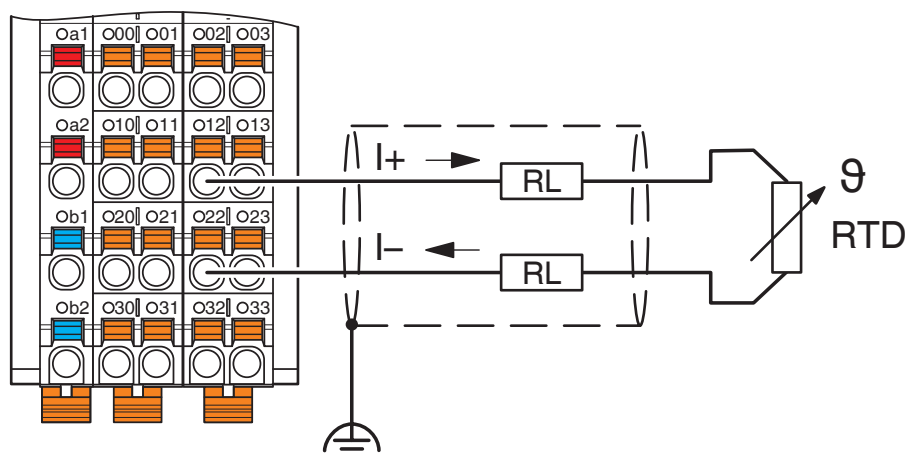
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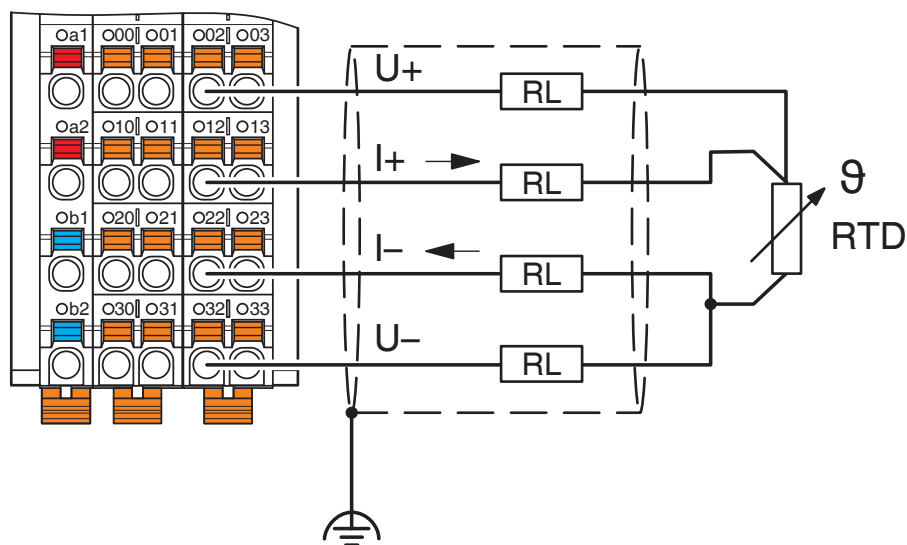


Connection diagram



Connection example: 2-conductor connection

Connection diagram



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

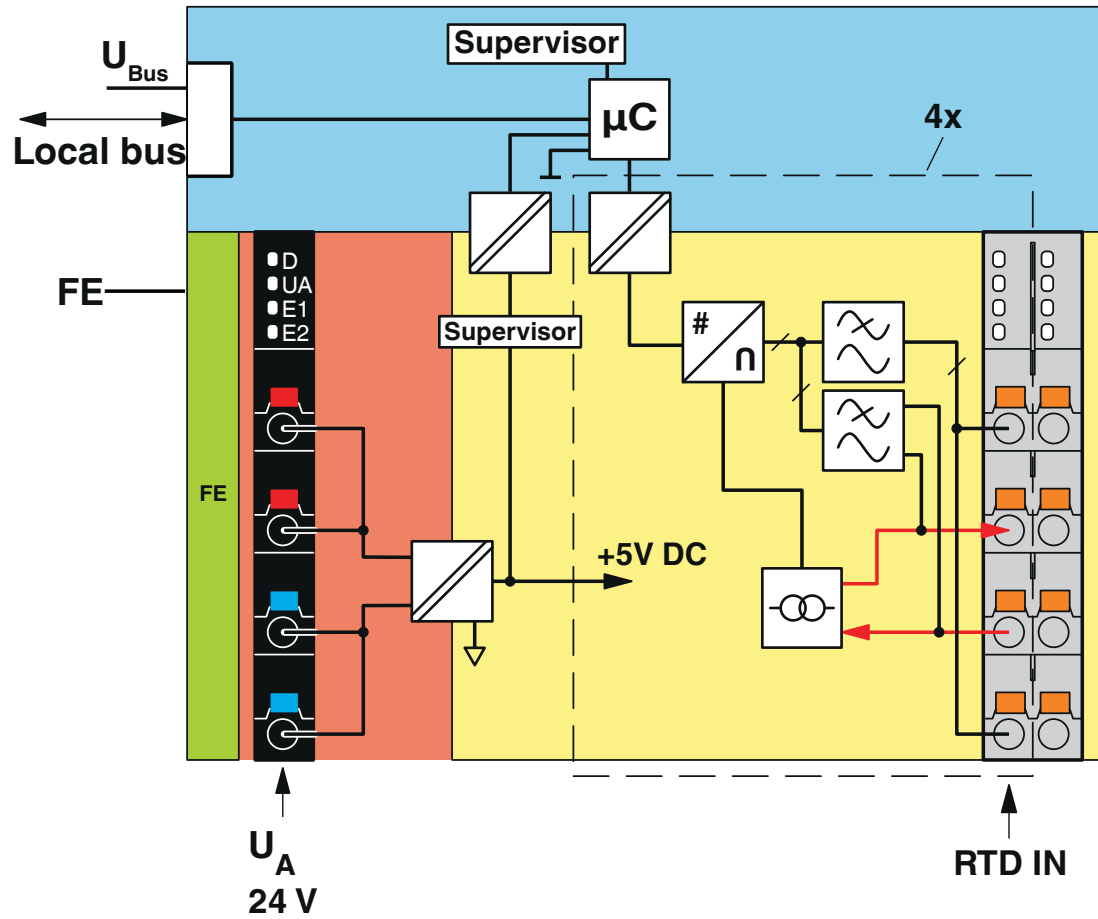
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Block diagram



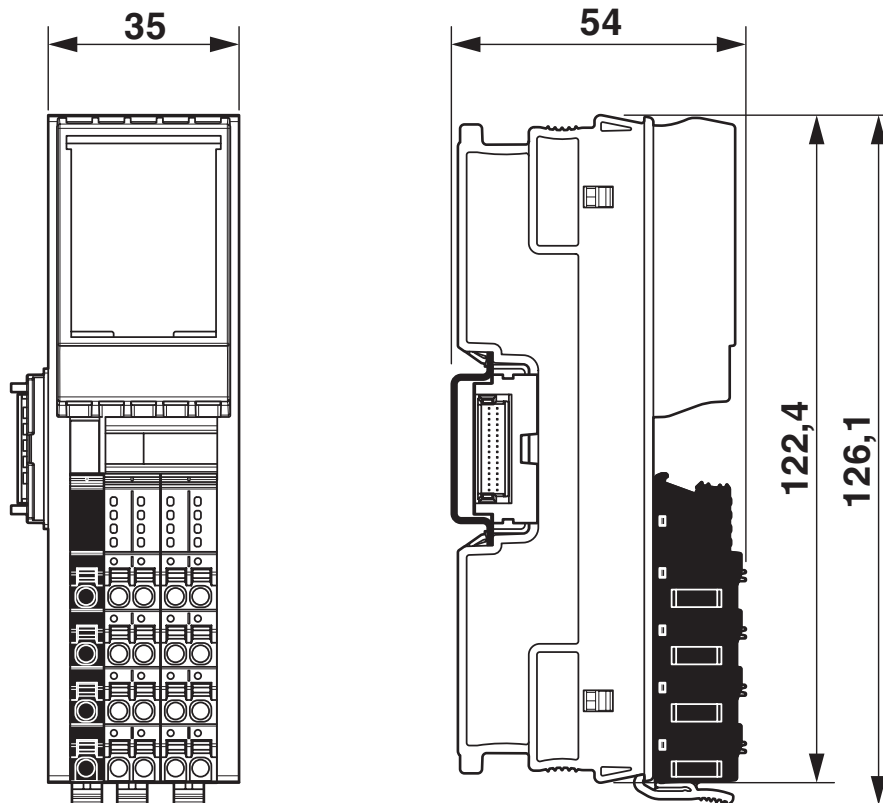
Internal wiring of the terminal points

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Dimensional drawing



Dimensional drawing

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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: E366272



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 9.0	EC001596
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UNSPSC

UNSPSC 21.0	32151600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
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	8c476df3-9884-4104-9cb2-7d3b47eff882

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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

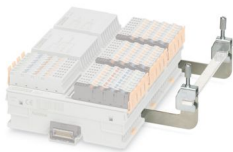


AXL SHIELD SET - Shield connection

2700518

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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

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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