

# Temperature measuring transducer - MACX MCR-T-UI-UP

2811394

<https://www.phoenixcontact.com/pc/products/2811394>

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Freely programmable temperature transducer with analog output and 1 limit value relay, standard configuration, resistance thermometer in 2-, 3-, or 4-conductor technology, thermocouples, electrical isolation, wide-range power supply, screw connection, SIL, PL.

## Your advantages

- Cold junction compensation with separate plug
- Configuration via software (FDT/DTM) or IFS-OP-UNIT operator interface and display unit
- Up to SIL 2 in accordance with EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Programming during operation and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- Plug-in screw or spring-cage connection technology (Push-in technology)
- Freely programmable input and output
- Input for resistance thermometers, thermocouples, resistance-type sensors, potentiometers, and mV sources
- Measure differential temperatures
- Relay switching output
- Inverse output signal ranges as an option

## Commercial Data

Item number	2811394
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK1121
Catalog Page	Page 128 (C-5-2019)
GTIN	4046356520294
Weight per Piece (including packing)	264.2 g
Weight per Piece (excluding packing)	193.9 g
Customs tariff number	85437090
Country of origin	DE

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## 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	Temperature transmitter
Type	Signal conditioners with SIL and PL Functional Safety
Configuration	DIP switches
	Software

#### Insulation characteristics

Overvoltage category	II
Pollution degree	2

### Electrical properties

Electrical isolation	4-way isolation
Maximum power dissipation for nominal condition	1.26 W
Step response (0–99%)	≤ 1.75 s (SIL on)
	1.3 s (SIL off)
Maximum temperature coefficient	0.01 %/K

#### Electrical isolation Input/output/power supply

Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation in accordance with IEC/EN 61010-1

#### Electrical isolation Input/output

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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#### Electrical isolation Input/power supply

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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#### Electrical isolation Input/switching output

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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### Supply

Nominal supply voltage range	24 V AC/DC ... 230 V AC/DC (50/60 Hz)
Supply voltage range	19.2 V AC/DC ... 253 V AC/DC (24 V AC/DC ... 230 V AC/DC (-20 % ... +10 %, 50/60 Hz))
Power consumption	< 1.5 W

### Input data

Signal:

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Number of inputs	1
Input signal	Temperature
	Resistor
	Voltage

## Measurement

Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Sensor types that can be used (TC)	B, E, J, K, N, R, S, T, L, U, CA, DA, A1G, A2G, A3G, MG, LG
Temperature measuring range	-250 °C ... 2500 °C (Range depending on the sensor type)
Linear resistance measuring range	0 Ω ... 50 kΩ
Potentiometer resistance range	0 Ω ... 50 kΩ
Linear mV signal range	-1000 mV ... 1000 mV

## Output data

### Switching: Relay

Configurable/programmable	Yes
Contact type	1 changeover contact
Contact material	AgSnO <sub>2</sub> , hard gold-plated
Maximum switching voltage	30 V AC (30 V DC)
Max. switching current	0.5 A (30 V AC)
	1 A (30 V DC)

### Signal: Current

Number of outputs	1
Configurable/programmable	Yes
Max. voltage output signal	± 11 V
Current output signal	4 mA ... 20 mA (in the case of SIL; further free configuration without SIL)
Max. current output signal	22 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	≤ 600 Ω (20 mA)
Behavior in the event of a sensor error	according to NE 43 or freely configurable

## Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	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

## Dimensions

Width	17.5 mm
Height	112.5 mm
Depth	113.7 mm

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Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)
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## Material specifications

Flammability rating according to UL 94	V0 (Housing)
Housing material	PA 6.6-FR

## Environmental and real-life conditions

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	typ. 5 % ... 95 % (non-condensing)

## Approval data

### CE

Certificate	CE-compliant
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### ATEX

Identification	<input type="checkbox"/> II 3 G Ex nA nC ic IIC T4 Gc X
Certificate	IBExU 10 ATEX B001 X

### UKCA Ex (UKEX)

Identification	<input type="checkbox"/> II 3 G Ex nA nC ic IIC T4 Gc X
Certificate	PxCIF21UKEX2811394X

### IECEX

Identification	Ex ec ic nC IIC T4 Gc
Certificate	IECEX IBE 10.0004 X

### UL, USA / Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6

### Shipbuilding approval

Certificate	DNV GL TAA000020C
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### Safety Integrity Level (SIL, IEC 61508)

Identification	2
Certificate	SEBS-A.150520/17TB

### Performance Level (ISO 13849)

Identification	d
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### EAC Ex

Identification	<input type="checkbox"/> 2Ex ec ic IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00078

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## DNV GL data

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

## EMC data

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.

## Standards and regulations

Electrical isolation	4-way isolation
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## Mounting

Mounting type	DIN rail mounting
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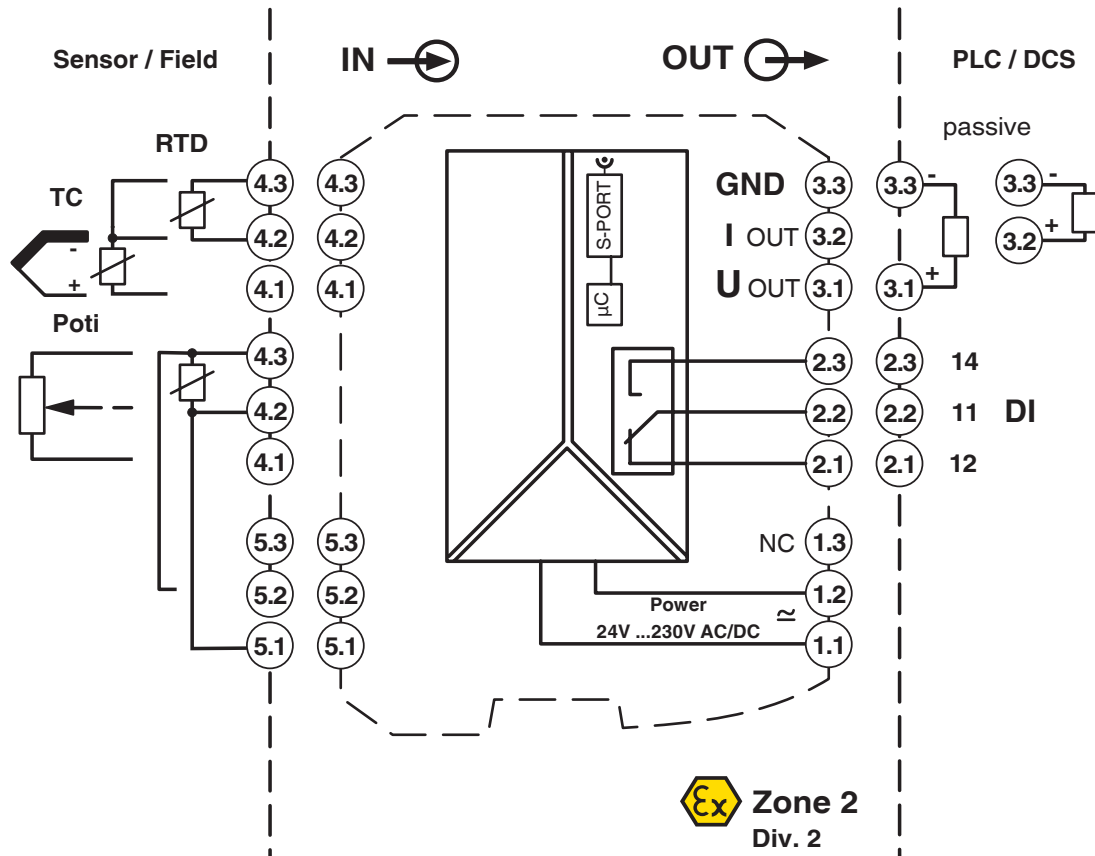
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## Drawings

Block diagram



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## Approvals



**DNV GL**

Approval ID: TAA000020C



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**Functional Safety**

Approval ID: SEBS-A.150520/17 V1

**Functional Safety**

Approval ID: 09/11-04 R013 V1R0

**Functional Safety**

Approval ID: 100134C P0019 C001



**cUL Listed**

Approval ID: FILE E 238705



**UL Listed**

Approval ID: FILE E 238705



**Functional Safety**

Approval ID: SEBS-A.150520/17 V1



**DNV GL**

Approval ID: TAA000020C

**Functional Safety**

Approval ID: 09/11-04 R013 V1R0

**Functional Safety**

Approval ID: 100134C P0019 C001

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**IECEX**

Approval ID: IECEX IBE 10.0011X



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**ATEX**

Approval ID: IBExU 10 ATEX B001 X



**UL Listed**

Approval ID: FILE E 199827



**cUL Listed**

Approval ID: FILE E 199827



**IECEX**

Approval ID: IECEX IBE 10.0011X



**ATEX**

Approval ID: IBExU 10 ATEX B001 X

**cULus Listed**

**cULus Listed**



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## Classifications

### ECLASS

ECLASS-9.0	27210129
ECLASS-10.0.1	27210129
ECLASS-11.0	27210129

### ETIM

ETIM 8.0	EC002919
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### UNSPSC

UNSPSC 21.0	41112100
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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

### Power and error message module

Power and error message module - MACX MCR-PTB - 2865625

<https://www.phoenixcontact.com/pc/products/2865625>



Power and fault signaling module with screw connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

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### Power and error message module

Power and error message module - MACX MCR-PTB-SP - 2924184

<https://www.phoenixcontact.com/pc/products/2924184>



Power and fault signaling module with Push-in connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

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## Power supply unit

Power supply unit - QUINT4-SYS-PS/1AC/24DC/2.5/SC - 2904614

<https://www.phoenixcontact.com/pc/products/2904614>



Primary-switched power supply unit, QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A

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## Programming adapter

Programming adapter - IFS-USB-PROG-ADAPTER - 2811271

<https://www.phoenixcontact.com/pc/products/2811271>



Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.

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## Plug

Plug - MACX MCR-I20 - 2905680

<https://www.phoenixcontact.com/pc/products/2905680>



Connection terminal block for current signals, +20 mA ... -20 mA, for safe switching of limit values, in combination with MACX ...-T-UI... temperature transducers.

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## Plug

Plug - MACX MCR-CJC - 2924993

<https://www.phoenixcontact.com/pc/products/2924993>



Plug for cold junction compensation for thermocouples, for safe switching of limit values, in combination with MACX ...-T-UI... temperature transducers.

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## Adapter

Adapter - IFS-BT-PROG-ADAPTER - 2905872

<https://www.phoenixcontact.com/pc/products/2905872>

Bluetooth adapter with micro USB and S-PORT interface for wireless communication with the MINI Analog, MINI Analog Pro, MACX Analog, INTERFACE system gateways, and PLC logic device series.



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## Insulating sleeve

Insulating sleeve - MPS-IH WH - 0201663

<https://www.phoenixcontact.com/pc/products/0201663>

Insulating sleeve, color: white



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## Insulating sleeve

Insulating sleeve - MPS-IH RD - 0201676

<https://www.phoenixcontact.com/pc/products/0201676>

Insulating sleeve, color: red



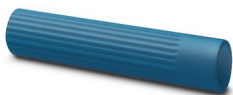
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## Insulating sleeve

Insulating sleeve - MPS-IH BU - 0201689

<https://www.phoenixcontact.com/pc/products/0201689>

Insulating sleeve, color: blue



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<https://www.phoenixcontact.com/pc/products/2811394>

## Insulating sleeve

Insulating sleeve - MPS-IH YE - 0201692

<https://www.phoenixcontact.com/pc/products/0201692>

Insulating sleeve, color: yellow



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## Insulating sleeve

Insulating sleeve - MPS-IH GN - 0201702

<https://www.phoenixcontact.com/pc/products/0201702>

Insulating sleeve, color: green





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## Insulating sleeve

Insulating sleeve - MPS-IH GY - 0201728

<https://www.phoenixcontact.com/pc/products/0201728>

Insulating sleeve, color: gray



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## Insulating sleeve

Insulating sleeve - MPS-IH BK - 0201731

<https://www.phoenixcontact.com/pc/products/0201731>

Insulating sleeve, color: black



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## Test plugs

Test plugs - MPS-MT - 0201744

<https://www.phoenixcontact.com/pc/products/0201744>



Test plugs, with solder connection up to 1 mm<sup>2</sup> conductor cross section, color: gray

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## Plastic label

Plastic label - UC-EMLP (11X9) - 0819291

<https://www.phoenixcontact.com/pc/products/0819291>



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: 11 x 9 mm, Number of individual labels: 10

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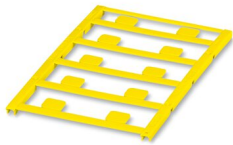
2811394

<https://www.phoenixcontact.com/pc/products/2811394>

## Plastic label

Plastic label - UC-EMLP (11X9) YE - 0822602

<https://www.phoenixcontact.com/pc/products/0822602>



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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## Plastic label

Plastic label - UC-EMLP (11X9) CUS - 0824547

<https://www.phoenixcontact.com/pc/products/0824547>



Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

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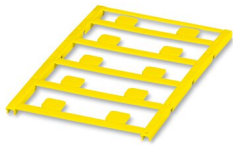
<https://www.phoenixcontact.com/pc/products/2811394>

## Plastic label

Plastic label - UC-EMLP (11X9) YE CUS - 0824548

<https://www.phoenixcontact.com/pc/products/0824548>

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm



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## Plastic label

Plastic label - UC-EMLP (11X9) SR - 0828094

<https://www.phoenixcontact.com/pc/products/0828094>

Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10



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## Plastic label

Plastic label - UC-EMLP (11X9) SR CUS - 0828098

<https://www.phoenixcontact.com/pc/products/0828098>



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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## Plastic label

Plastic label - US-EMLP (11X9) - 0828789

<https://www.phoenixcontact.com/pc/products/0828789>



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: 11 x 9 mm, Number of individual labels: 135

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## Plastic label

Plastic label - US-EMLP (11X9) YE - 0828871

<https://www.phoenixcontact.com/pc/products/0828871>



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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## Plastic label

Plastic label - US-EMLP (11X9) SR - 0828872

<https://www.phoenixcontact.com/pc/products/0828872>



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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## Device marker

Device marker - LS-EMLP (11X9) WH - 0831678

<https://www.phoenixcontact.com/pc/products/0831678>

Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



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## Device marker

Device marker - LS-EMLP (11X9) SR - 0831705

<https://www.phoenixcontact.com/pc/products/0831705>

Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



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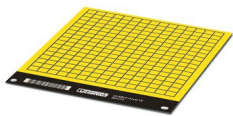
<https://www.phoenixcontact.com/pc/products/2811394>

## Device marker

Device marker - LS-EMLP (11X9) YE - 0831732

<https://www.phoenixcontact.com/pc/products/0831732>

Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



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