

# Safety Instructions

## **iTHERM TM111, iTHERM TM131**

ATEX: II 1/2G Ex db IIC, II 2G Ex db IIC, II 1/2D Ex  
ta/tb IIIC, II 2D Ex tb IIIC

IECEX: Ex db IIC Ga/Gb, Ex db IIC Gb, Ex ta/tb IIIC  
Da/Db, Ex tb IIIC Db



Document: XA01799T

Safety instructions for electrical apparatus for explosion-  
hazardous areas according to Directive 2014/34/EU  
(ATEX) →  5

- BG - Правила за техниката на безопасност за електрически средства за производство във взривоопасни зони. Ако не разбирате езика на това ръководство има възможност да спорьчате при нас едно ръководство, преведено на езика на Вашата страна.  
**ЕС декларация за съответствие**  
Производителят Endress+Hauser декларира с това заявление за съответствие и с предявяването на сертификата CE, че този продукт отговаря на изискванията на съответните европейски директиви. Прилаганите директиви, норми и документи са указани в заявлението за съответствие.
- CS - Bezpečnostní pokyny pro elektrické přístroje v místech s nebezpečím výbuchu. Pokud nemáte možnost přečíst si tento návod, můžete si u nás objednat návod přeložený do svého jazyka.  
**EU prohlášení o shodě**  
Společnost Endress+Hauser prohlašuje prostřednictvím tohoto prohlášení a použitím značky CE, že tento výrobek vyhovuje příslušným evropským směrnícím. Zmíněné směrnice, normy a dokumenty jsou uvedeny v Prohlášení o shodě.
- DA - Sikkerhedsforskrifter for elektriske apparater certificeret til brug i eksplosionsfarlige områder. Hvis du ikke forstår denne manual, kan en oversat kopi af den på dit eget sprog bestilles fra os.  
**EU-overensstemmelseserklæring**  
Med denne overensstemmelseserklæring og tilføjelsen af CE-mærket sikrer producenten Endress+Hauser, at produktet er i overensstemmelse med relevante europæiske direktiver. Dokumentation for overensstemmelsen gives i de anførte direktiver, standarder og dokumenter.
- EL - Οδηγίες ασφαλείας ηλεκτρικών συσκευών για επικίνδυνες για έκρηξη περιοχές. Σε περίπτωση που δεν μπορείτε να διαβάσετε αυτές τις οδηγίες, τότε μπορείτε να παραγγείλετε ένα αντίτυπο μεταφρασμένο στη γλώσσα σας.  
**Δήλωση συμμόρφωσης ΕΕ**  
Με αυτή τη δήλωση πιστότητας και την τοποθέτηση του σήματος CE ο κατασκευαστής Endress+Hauser δηλώνει, ότι αυτό το προϊόν συμμορφώνεται με τις ευρωπαϊκές οδηγίες που πρέπει να εφαρμοστούν. Οι οδηγίες, τα πρότυπα και τα έγγραφα που εφαρμόστηκαν αναφέρονται στη δήλωση πιστότητας.
- ES - Instrucciones de seguridad de aparatos eléctricos homologados para su utilización en áreas expuestas a riesgos de deflagración. Si no entiende este manual, puede pedir un ejemplar en su idioma.  
**Declaración UE de conformidad**  
Por la presente declaración y la inclusión de la marca CE, el fabricante Endress+Hauser, declara que el producto cumple con las directivas europeas pertinentes. Las directivas, normas y documentos de aplicación se indican en la declaración de conformidad.
- ET - Ohutusjuhised plahvatusohtlikus keskkonnas kasutatavate elektriseadmete kohta. Kui Te ei saa käesolevast juhendist aru, võite meilt tellida Teie riigikeelde tõlgitud juhendi.  
**EL i vastavusdeklaratsioon**  
Tootja Endress+Hauser kinnitab juurdelisatud vastavusdeklaratsiooni esitamisega ja CE-märgise kandmisega tootele, et käesolev toode vastab kohaldatavale Euroopa Liidu direktiivide nõuetele. Kohaldatavad direktiivid, standardid ja dokumendid on ära toodud vastavusdeklaratsioonis.
- FI - Turvallisuusohjeita sähkölaitteille, jotka on vahvistettu käytettäväksi räjähdysvaarallisilla alueilla. Jos et ymmärrä tätä käsikirjaa, voit tilata meiltä käännöksen omalla kansallisella kielelläsi.  
**EU-vaatimustenmukaisuusvakuutus**  
Valmistaja Endress+Hauser vakuuttaa täällä vaatimustenmukaisuustodistuksella ja CE-merkin kiinnittämisellä, että tämä tuote täyttää sovellettavien EU-direktiivien määräykset. Sovellettavat direktiivit, normit ja dokumentit on merkitty vaatimustenmukaisuustodistukseen.
- HR - Sigurnosni naputci za elektromaterijal u sredini u kojoj prijete opasnost od eksplozije. Ako Vam nije moguće čitati ovaj naputak, onda imate mogućnost da kod nas naručite naputak sastavljen na Vašem materninskom jeziku.  
**EU izjava o sukladnosti**  
Dobavljajući Endress+Hauser jamči ovom izjavom i stavljanjem oznake CE da ovaj proizvod udovoljava zahtjevima europskih direktiva koje su na snazi. U izjavi o usuglašenosti se navode direktive, norme i dokumenti koji su na snazi.
- HU - Biztonsági információk robbanásveszélyes területre való elektromos eszközökhöz. Amennyiben nem tudja elolvasni ezt az útmutatót, akkor megrendelheti az Ön anyanyelvére lefordítva is.  
**EU-megfelelőségi nyilatkozat**  
Az Endress+Hauser mint gyártó jelen megfeleléségi nyilatkozattal és a CE-jelzés felhelyezésével kijelenti, hogy ez a termék megfelel az alkalmazandó európai irányelveknek. Az alkalmazott irányelvek, szabványok és dokumentumok a megfeleléségi nyilatkozatban fel vannak tüntetve.

- IT - Istruzioni di sicurezza per apparecchiature elettriche certificate per l'utilizzo in aree con pericolo di esplosione. Se il presente manuale non risulta comprensibile potete ordinarne una copia tradotta nella vostra lingua.  
**Dichiarazione di conformità UE**  
 Con questa dichiarazione e con l'applicazione del marchio CE, il costruttore Endress+Hauser, assicura che il prodotto è conforme alle direttive europee vigenti. Prova della conformità è fornita dall'osservanza delle direttive, delle norme e dei documenti elencati.
- LT - Elektros įrenginio saugumo nurodymai, susiję su sprogimo zonomis. Jeigu negalite perskaityti šios instrukcijos, kreipkitės į mus, kad užsisakytumėte į jūsų gimtąją kalbą išverstą instrukciją.  
**ES atitikties deklaracija**  
 Gamintojas Endress+Hauser šia atitikties deklaracija ir CE ženkliniu patvirtina, kad gaminys atitinka taikytinas ES direktyvas. Taikomos direktyvos, normos ir dokumentai yra pateikiami atitikties deklaracijoje.
- LV - Drošības norādījumi elektrisko darba instrumentu lietošanai apgabalos, kas pakļauti sprādzienbīstamībai. Ja Jums nav iespēju izlasīt šos norādījumus, Jūs varat pasūtīt pie mums tulkojumus Jūsu valsts valodā.  
**ES atbilstības deklarācija**  
 Ražotājs Endress+Hauser ar šo atbilstības apliecinājumu un CE zīmola lietojumu apstiprina, ka produkts izgatavots saskaņā ar atbilstošajām Eiropas vadlīnijām. Piemērotās vadlīnijas, normas un dokumenti atrunāti atbilstības apliecinājumā.
- NL - Veiligheidsinstructies voor elektrisch materieel in explosiegevaarlijke omgeving. Wanneer u deze handleiding niet kunt lezen, kunt u een in uw landstaal vertaalde handleiding bij ons bestellen.  
**EU-conformiteitsverklaring**  
 De leverancier Endress+Hauser waarborgt met deze verklaring en het aanbrengen van het CE-teken, dat dit product overeenstemt met de geldende Europese richtlijnen. De geldende richtlijnen, normen en documenten zijn aangegeven in de conformiteitsverklaring.
- PL - Wskazówki dot. bezpieczeństwa dla urządzeń elektrycznych stosowanych w obszarze zagrożonym wybuchem. Jeśli niniejsza instrukcja napisana jest w języku, którym się nie posługujesz, możesz zamówić u nas przetłumaczony dokument.  
**Deklaracja zgodności UE**  
 Producent Endress+Hauser w niniejszej deklaracji zgodności wraz z nadaniem znaku CE oświadcza, że produkt ten jest zgodny z obowiązującą Europejską Dyrektywą. Zastosowane wytyczne, normy oraz dokumenty podane są w deklaracji zgodności.
- PT - Instruções de segurança para dispositivos eléctricos certificados para utilização em áreas de risco de incêndio. Se não compreender este manual, pode encomendar-nos directamente uma cópia na sua língua.  
**Declaração UE de conformidade**  
 Com esta declaração de conformidade e a aplicação da marca CE, o fabricante Endress+Hauser, garante que o produto obedece às directivas europeias a aplicar. As directivas, normas e documentos são apresentadas na declaração de conformidade.
- RO - Indicații de siguranță pentru mijloacele de producție electrice pentru zonele periclitare de explozie. Dacă nu puteți citi aceste instrucțiuni, atunci puteți comanda la noi instrucțiunile traduse în limba țării dumneavoastră.  
**Declarația UE de conformitate**  
 Producătorul Endress+Hauser declară prin declarația de conformitate alăturată și prin aplicarea semnelui CE că acest produs corespunde directivelor europene aplicabile. Directivele, normele aplicate și documentele sunt menționate în declarația de conformitate.
- SK - Bezpečnostné pokyny pre elektrické zariadenie prevádzkované v priestoroch s nebezpečenstvom výbuchu. Ak nemáte možnosť prečítať si tento návod, môžete si u nás objednať návod preložený do svojho jazyka.  
**EÚ vyhlásenie o zhode**  
 Spoločnosť Endress+Hauser vyhlasuje prostredníctvom tohto vyhlásenia o konformite a použitím značky CE, že tento výrobok vyhovuje príslušným európskym smerniciam. Zmieňované smernice, normy a dokumenty sú uvedené vo Vyhlásení o konformite.
- SL - Varnostni napotki glede električne opreme, namenjene za uporabo veksplodivnih območjih. Če teh navodil ne morete razumeti, lahko pri nas naročite prevod v vaš jezik.  
**Izjava EU o skladnosti**  
 Proizvajalec Endress+Hauser s to izjavo o skladnosti in navedbo oznake CE izjavlja, da je ta izdelek skladen s predpisanimi evropskimi smernicami. Upoštewane smernice, standardi in dokumenti so navedeni v izjavi o skladnosti.
- SV - Säkerhetsföreskrifter för elektrisk utrustning certifierad för användning i explosionsfarliga områden. Om du inte förstår denna manual, kan en översatt kopia på ditt eget språk beställas från oss.  
**EU-försäkran om överensstämmelse**  
 Endress+Hauser försäkras med vidstående försäkran om överensstämmelse och med CE-märkningen att denna produkt överensstämmer med de tillämpbara europeiska riktlinjerna. De tillämpade riktlinjerna, normerna och dokumenten anges i försäkran om överensstämmelse.

**EU-Konformitätserklärung**  
**EU-Declaration of Conformity**  
**Déclaration UE de Conformité**

**Endress+Hauser**   
 People for Process Automation



**Company** Endress+Hauser Wetzlar GmbH+Co. KG, Obere Wank 1, 87484 Nesselwang  
 erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt  
 declares as manufacturer under sole responsibility, that the product  
 déclare sous sa seule responsabilité en qualité de fabricant que le produit

**Product** iTHERM thermometer  
 TM111, TM131

**Regulations** den folgenden Europäischen Richtlinien entspricht:  
 conforms to following European Directives:  
 est conforme aux prescription des Directives Européennes suivantes :

EMC 2014/30/EU (L 96/79)  
 ATEX 2014/34/EU (L 96/309)  
 RoHS 2011/65/EU (L 174/88)

**Standards** angewandte harmonisierte Normen oder normative Dokumente:  
 applied harmonized standards or normative documents:  
 normes harmonisées ou documents normatifs appliqués :

EN 61326-1	(2013)	EN 60079-0	(2012)	+ Cor. (2013)
EN 61326-2-3	(2013)	EN 60079-1	(2014)	
EN 61326-2-5	(2013)	EN 60079-26	(2015)	
EN 61010-1	(2010)	EN 60079-31	(2014)	
EN 50581	(2012)			

**Certification** EU-Baumusterprüfbescheinigung Nr. DEKRA 18ATEX0103 X  
 EU-Type Examination Certificate No.  
 Numéro de l'attestation d'examen UE de type  
 Ausgestellt von/issued by/délivré par DEKRA Certification B.V. (0344)  
 Qualitätssicherung/Quality assurance/Système d'assurance TÜV Nord Cert (0044)  
 qualité

Nesselwang, 15.05.2019  
 Endress+Hauser Wetzlar GmbH+Co. KG

Harald Hertweck  
 Managing Director

# iTHERM TM111, iTHERM TM131

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**Associated documentation**

This document is an integral part of the following Operating Instructions and Technical Information:

**Associated documentation for iTHERM TM111**

- Operating instructions: BA01915T/09
- Technical information: TI01445T/09

**Associated documentation for iTHERM TM131**

- Operating instructions: BA01915T/09
- Technical information: TI01373T/09

**Supplementary documentation**

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available: In the download area of the Endress+Hauser website: [www.endress.com](http://www.endress.com) → Download → Advanced → Documentation code: CP00021Z

**Manufacturer's certificates****EU Declaration of Conformity**

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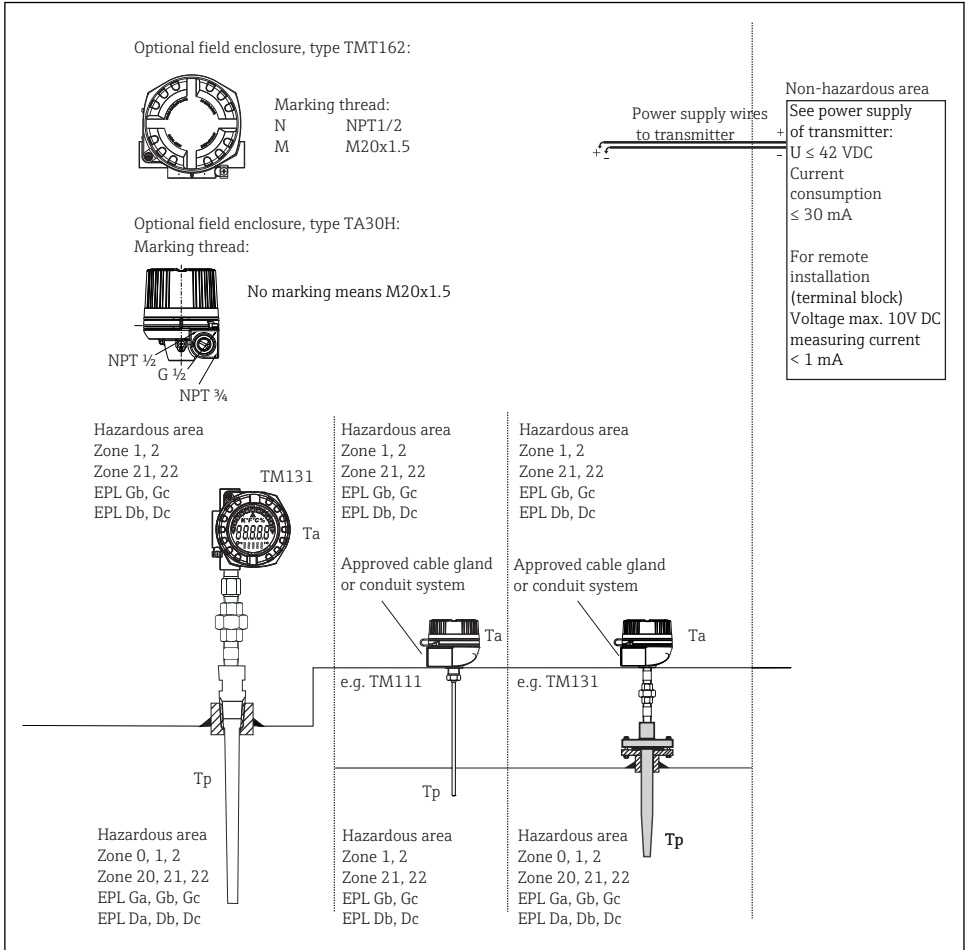
**IEC Declaration of Conformity**

Certificate number: IECEX DEK 18.0056X

Affixing the certificate number certifies conformity with the following standards (depending on the device version).

- IEC 60079-0: 2011
- IEC 60079-1: 2014
- IEC 60079-26: 2014
- IEC 60079-31: 2013

# Safety instructions



A0039265-EN

## Safety instructions: Installation of protection flameproof

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations (e.g. IEC/EN 60079-14).
- The housing of the thermometer must be connected to the potential matching line.

- Only the approved wire entries as specified in paragraph 10 of IEC/EN 60079-14, paragraph 16 of IEC/EN 60079-0, paragraph 13 of IEC/EN 60079-1 must be used.
- For connection through a conduit entry approved for this purpose the associated sealing facility shall be mounted directly to the housing.
- Seal the cable entries with certified cable glands and or blanking elements which have at least type of protection Ex db and Ex tb suitable for Group IIC and IIIC (degree of protection IP6X).
- The maximum specified ambient temperature  $T_a$  at terminal head not be exceeded.
- For operating the thermometer housing at an ambient temperature under  $-20\text{ °C}$  appropriate cables and cable entries permitted for this application must be used.
- For ambient temperatures higher than  $+70\text{ °C}$  use suitable heat-resisting cables or wires, cable entries and sealing facilities which can be applied for temperatures  $+5\text{ K}$  above ambient temperature.
- During operation, the cover must be screwed all the way in and the cover's safety catch must be fastened.
- The thermometer must be installed so, that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron/steel is excluded.

**⚠ WARNING**

**Explosive atmosphere**

- ▶ Do not open the electrical connection of the power supply circuit under voltage in an explosive atmosphere.

**Safety instructions:  
Installation of  
Dust ignition  
protection**

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations (e.g. IEC/EN 60079-14).
- Seal the cable entries tight with certified cable which have at least type of protection Ex tb suitable for Group IIIC (degree of protection IP6X).
- The housing of the thermometer must be connected to the potential matching line.
- For ambient temperatures higher than  $+70\text{ °C}$  use suitable heat-resisting cables or wires, cable entries and sealing facilities which can be applied for temperatures  $+5\text{ K}$  above ambient temperature.

**⚠ WARNING**

**Explosive atmosphere**

- ▶ In an explosive atmosphere, do not open the device when voltage is supplied (ensure that the IP6X housing protection is maintained during operation).



**Safety instructions:  
Partition wall**

- The provided thermowells are out of materials AISI316/W.1.4401, AISI316L/W.1.4404, AISI 316Ti/1.4571, Hastelloy® C-276, Alloy 600 or AISI446/W.1.4762.
- Install the thermometer in a partition wall which is in compliance with IEC/EN 60079-26 in reference to its ultimate application.
- Use only thermowells out of materials complying with IEC/EN 60079-0 chapter 8.3 (e.g. AISI316/W.1.4401, AISI316L/W.1.4404, AISI 316Ti/1.4571...).

**Safety instructions:  
Specific conditions of use**

- The flameproof joints are not intended to be repaired.
- Sensors of TM111 with a diameter smaller than 6 mm shall be protected by a thermowell.
- Following sensor options shall be protected by a thermowell:

**TM111-a b c d e f.....**

**f Sensor Type; Measuring range; Material:**

D 1xPT100 TF StrongSens; -50 to +500 °C; 316L

E 1xPT100 TF QuickSens; -50 to +200 °C; 316L

F 1xPT100 TF QuickSens; -50 to +400 °C; 316L

- TMT131 temperature sensors shall always be protected by a thermowell.
- It shall be verified, taking into account the worst case process and ambient temperatures,
  - that the temperature of the enclosure at the process connection point does not exceed the ambient temperature range of the assembly and
  - the temperature of the optionally used RBFF1NS union does not exceed the service temperature range of -50 to +150 °C for following option:

**TM131-a b c.....**

**c Thermometer Design:**

**M** Nipple-union connection NPT $\frac{1}{2}$ "

**N** Nipple-union-nipple connection NPT $\frac{1}{2}$ "

- Install only head transmitters not exceeding a maximum power dissipation of 2.2W with a temperature input rating not exceeding 10 V<sub>DC</sub> and 1 mA.
- For assure that the temperature assembly has a degree of protection of IP6X the user shall provide a thermowell or equivalent component at the process side.

## Thermal data

The relation between the type, electrical connection, temperature class, maximum surface temperature, ambient temperature range and process temperature range is shown in the following table.

Type	Electrical connection <sup>1)</sup>	Temperature class/Maximum surface temperature	Ambient temperature range	Process temperature range Insert diameter 3 mm, 6 mm dual	Process temperature range Insert diameter 6 mm
TM111 TM131	Terminal block (1A) <sup>2)</sup>	T6/T85 °C	-50 to +70 °C	-50 to +55 °C	-50 to +68 °C
		T5/T100 °C	-50 to +80 °C	-50 to +70 °C	-50 to +83 °C
		T4/T135 °C	-50 to +120 °C	-50 to +105 °C	-50 to +118 °C
		T3/T200 °C	-50 to +120 °C	-50 to +170 °C	-50 to +183 °C
		T2/T300 °C	-50 to +120 °C	-50 to +265 °C	-50 to +278 °C
		T1/T450 °C	-50 to +120 °C	-50 to +415 °C	-50 to +428 °C
	Flying leads (0A) or Transmitter TMT71 (2C) TMT72 (3A) TMT82 (3C, 3D) TMT84 (5A) TMT85 (4A) TMT180 (2A, 2B)	T6/T85 °C	-40 to +65 °C	-50 to +55 °C	-50 to +68 °C
		T5/T100 °C	-40 to +80 °C	-50 to +70 °C	-50 to +83 °C
		T4/T135 °C	-40 to +85 °C	-50 to +105 °C	-50 to +118 °C
		T3/T200 °C	-40 to +85 °C	-50 to +170 °C	-50 to +183 °C
		T2/T300 °C	-40 to +85 °C	-50 to +265 °C	-50 to +278 °C
TM131	Transmitter TMT162 (2D, 2E, 2F, 2G, 4B, 4C, 5B, 5C)	T6/T85 °C	-40 to +55 °C	-50 to +55 °C	-50 to +68 °C
		T5/T100 °C	-40 to +70 °C	-50 to +70 °C	-50 to +83 °C
		T4/T135 °C	-40 to +80 °C	-50 to +105 °C	-50 to +118 °C
		T3/T200 °C	-40 to +80 °C	-50 to +170 °C	-50 to +183 °C
		T2/T300 °C	-40 to +80 °C	-50 to +265 °C	-50 to +278 °C
		T1/T450 °C	-40 to +80 °C	-50 to +415 °C	-50 to +428 °C

1) TM111 suffix code h, TM131 suffix code l.

2) in an enclosure with a blind cover; TM111 suffix code i / TM131 suffix code m = A1, D1, H1, H3.

## Electrical connection data

Type	Electrical data
TM111 TM131	$U_b \leq 42 V_{DC}$ Current consumption $\leq 30 \text{ mA}$ Remote installation: Voltage max. $10 V_{DC}$ Measuring current $I < 1 \text{ mA}$

Category	Type of protection (ATEX)	Type
II1/2G	Ex db IIC T6...T1 Ga/Gb	TM131
II2G	Ex db IIC T6...T1 Gb	TM111
II1/2D	Ex ta/tb IIIC T85 °C...T450 °C Da/Db	TM131
II2D	Ex tb IIIC T85 °C...T450 °C Db	TM111

Type of protection (IEC)	Type
Ex db IIC T6...T1 Ga/Gb	TM131
Ex db IIC T6...T1 Gb	TM111
Ex ta/tb IIIC T85 °C...T450 °C Da/Db	TM131
Ex tb IIIC T85 °C...T450 °C Db	TM111



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