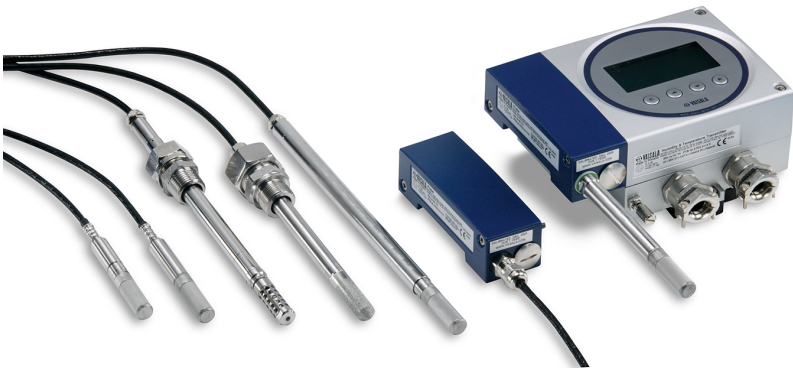


Safety Guide

Vaisala Transmitter Series

HMT360



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HMT360 Installation in Hazardous Locations



WARNING! Protected installation is mandatory in a hazardous environment.

In hazardous environments, always connect the transmitters via galvanic isolators or Zener barriers. A galvanic isolator or Zener barrier must also be used when the transmitter body is in a safe area, but the probe is installed in a hazardous environment. Examples of protected installations are provided on the next page. Also read the HMT360 User's Guide before starting the installation.

The transmitter does not include a galvanic isolator or a Zener barrier. They can be ordered as optional accessories from Vaisala.

2-wire Connection

Connect the unpowered power supply wires to the connectors: Ch 1 (humidity) and Ch 2 (temperature). Both channels require an own power supply. As Ch 1 is a main output, the transmitter does not operate if only Ch 2 is connected (Ch 2 is optoisolated from transmitter electronics).

Special Conditions for Safe Use Under EU ATEX Directive

1. The equipment with display window and/or with associated cable of the sensor head can be used in Zone 0 Group IIC areas only if the danger of ignition due to electrostatic charge is avoided.
2. With the installation of the equipment in Zone 0 Group II area it has to be ensured that sparks due to impact or friction do not occur.
3. The serial interface must only be used outside the explosion hazardous area. The associated serial interface cable 25905ZZ is to be used.
4. Allowed ambient temperature range is -40 °C ... +60 °C for the transmitter.
5. For the probe types HMP362, HMP364, HMP365, HMP367, and HMP368 the allowed ambient temperature range is -70 °C ... +120 °C for the temperature class T4 and the allowed ambient temperature range is -70 °C ... +180 °C for the temperature class T3.
6. For the probe type HMP361 the allowed ambient temperature range is -40 °C ... +60 °C and the temperature class is T4.
7. For the probe type HMP363 the allowed ambient temperature range is -40 °C ... +120 °C and the temperature class is T4.

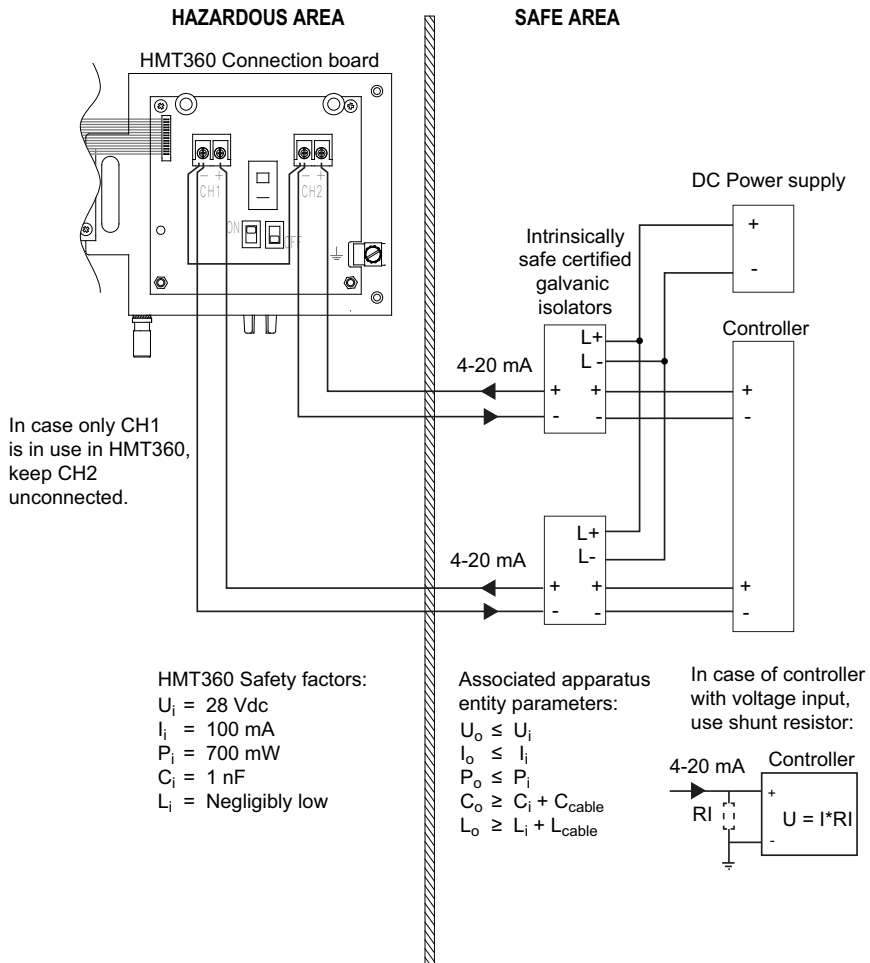


Figure 1 HMT360 Connected to a Galvanic Isolator



CAUTION! If both analog outputs are in use with a galvanic isolator, the Ch 1 (-) and Ch 2 (-) must be short circuited.

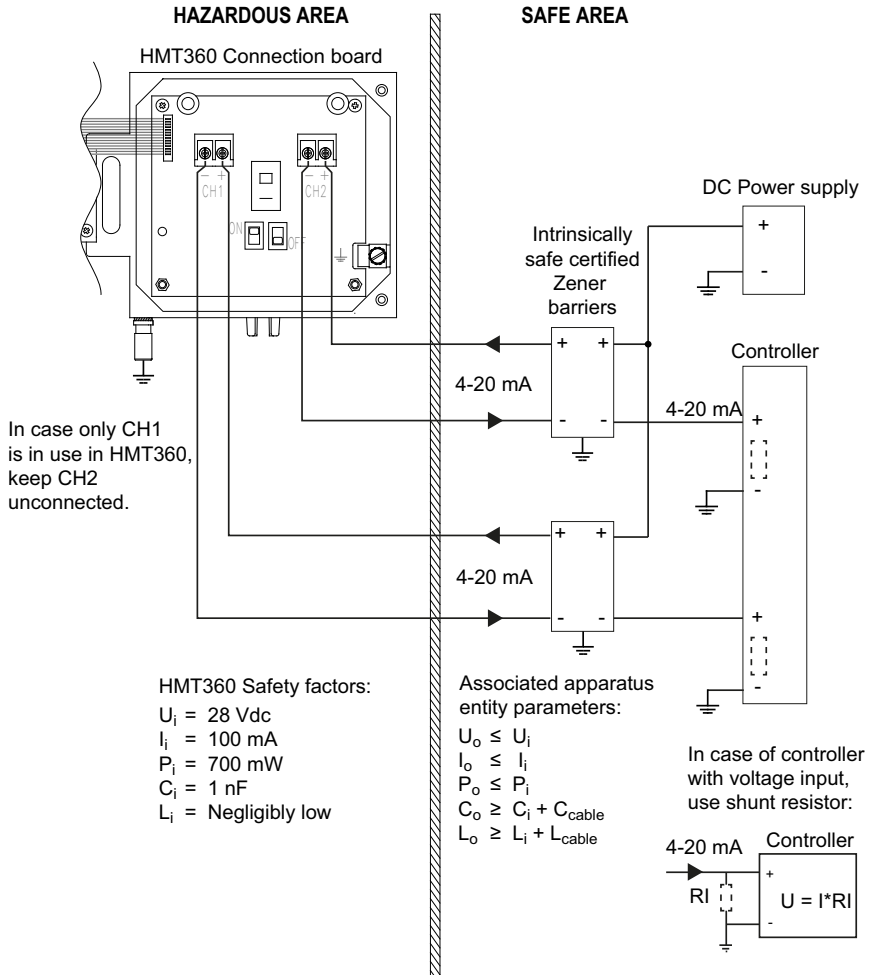


Figure 2 HMT360 Connected to a Zener Barrier

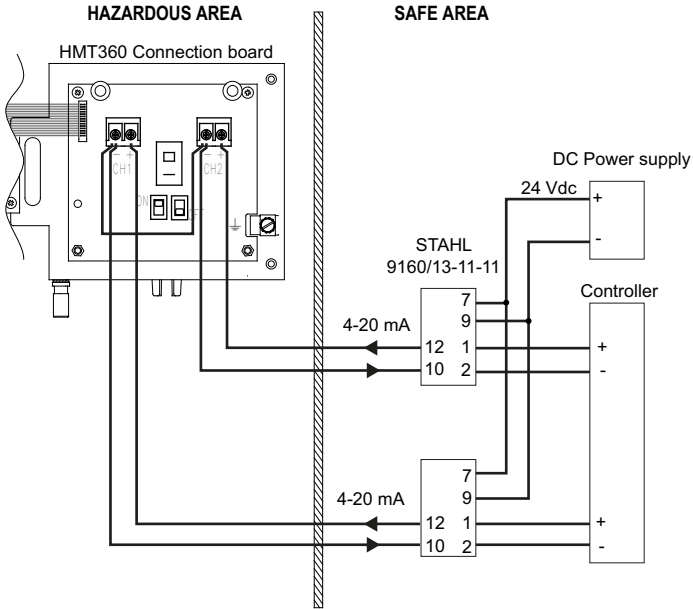


Figure 3 Example Connection to STAHL 9160/13-11-II Galvanic Isolator

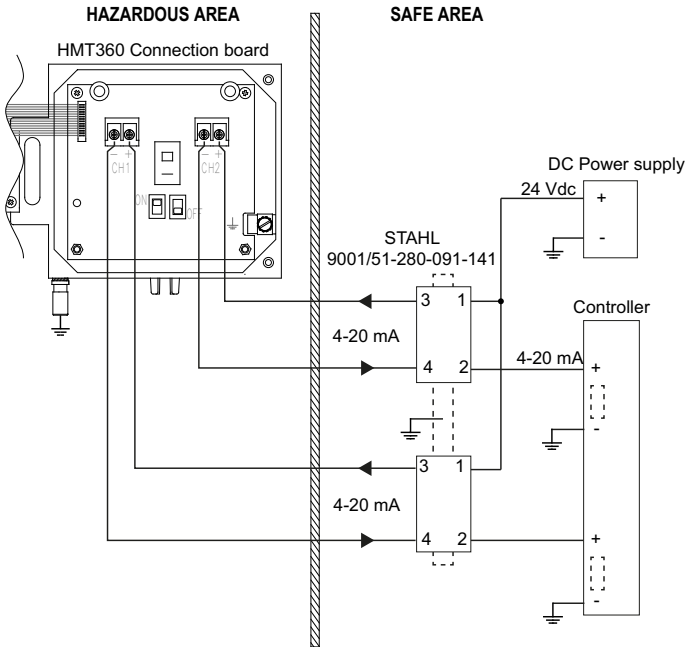


Figure 4 Example Connection to STAHL 9001/51-280-091-141 (Zener Barrier)

HMT360 Anforderungen bei der installation in gefährdeten bereichen



WARNUNG Sicherheitsbarrieren in Gefahrenbereichen unerlässlich.

Beim Einsatz des Messwertgebers in Gefahrenbereichen sind eigensichere Speisegeräte bzw. Sicherheitsbarrieren unerlässlich (selbst wenn der Messwertgeber in Sicherheit und nur die Sonde in einem gefährdeten Bereich installiert ist). Auf der Rückseite finden Sie Verdrahtungsbeispiele mit Sicherheitsbarrieren. Die Bedienungsanleitung enthält weitere Informationen.

Eigensichere Speisegeräte bzw. Sicherheitsbarrieren gehören nicht zum Lieferumfang. Eigensichere Speisegeräte sind bei Vaisala optional erhältlich.

2-Draht-Verbindung

Verbinden Sie die nicht stromführenden Leiter mit den Anschlüssen CH1 (Feuchte) und ggf. CH2 (Temperatur). Für beide Kanäle ist eine eigene Stromversorgung erforderlich. HINWEIS! Da CH1 der Hauptkanal ist, funktioniert der Messwertgeber nicht, wenn nur CH2 angeschlossen ist (CH2 ist optisch isoliert von der Elektronik des Messwertgebers).

Wichtige Hinweise für den sichereren Einsatz unter der ATEX-Richtlinie der EU

1. Die Geräteausführung mit Display und/oder mit einer Messsonde, die per Sondenkabel angeschlossen ist, darf in Bereichen der Zone 0, Gerätegruppe IIC nur verwendet werden, wenn die Gefahr einer Zündung durch elektrostatische Entladungen ausgeschlossen ist.
2. Während der Installation der Sensorköpfe in Bereichen der Gasgruppe IIC ist sicherzustellen, dass mit Schlag- und Reibfunken auch in selten auftretenden Störfällen nicht zu rechnen ist.
3. Die serielle Schnittstelle darf nur außerhalb des explosionsgefährdeten Bereichs verwendet werden. Das zugehörige Schnittstellenkabel 25905ZZ ist zu verwenden.
4. Für den Messwertgeber sind Umgebungstemperaturen zwischen -40 °C und +60 °C zulässig.
5. Für die Sondentypen HMP362, HMP364, HMP365, HMP367 und HMP368 gilt ein Umgebungstemperaturbereich von -70 °C bis +120 °C für Temperaturklasse T4 und -70 °C bis +180 °C für Temperaturklasse T3.
6. Für den Sondentyp HMP361 gilt ein Umgebungstemperaturbereich von -40 °C bis +60 °C für Temperaturklasse T4.
7. Für den Sondentyp HMP363 gilt ein Umgebungstemperaturbereich von -40 °C bis +120 °C für Temperaturklasse T4.

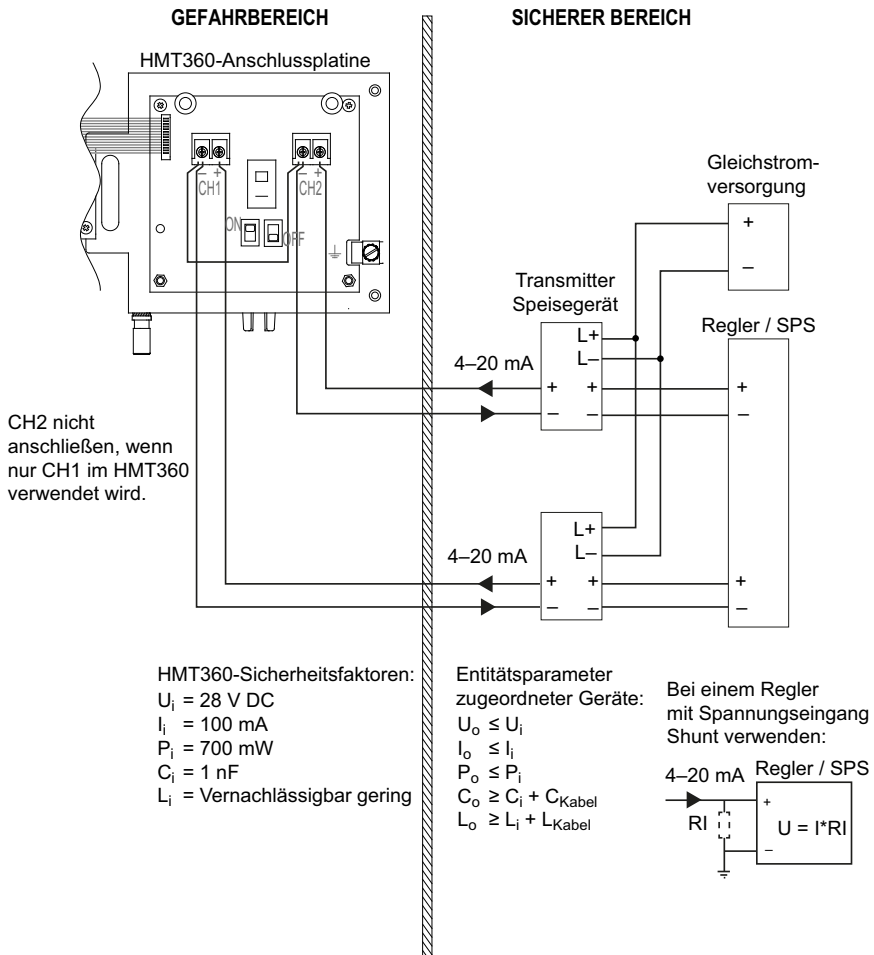


Abbildung 5 Anschluss des HMT360 an ein EX I zugelassenes Speisegerät



ACHTUNG Wenn beide Analogausgänge mit einem eigensicheren Speisegerät verwendet werden, müssen die Minusanschlüsse von Kanal 1 (CH1-) und Kanal 2 (CH2-) kurzgeschlossen sein.

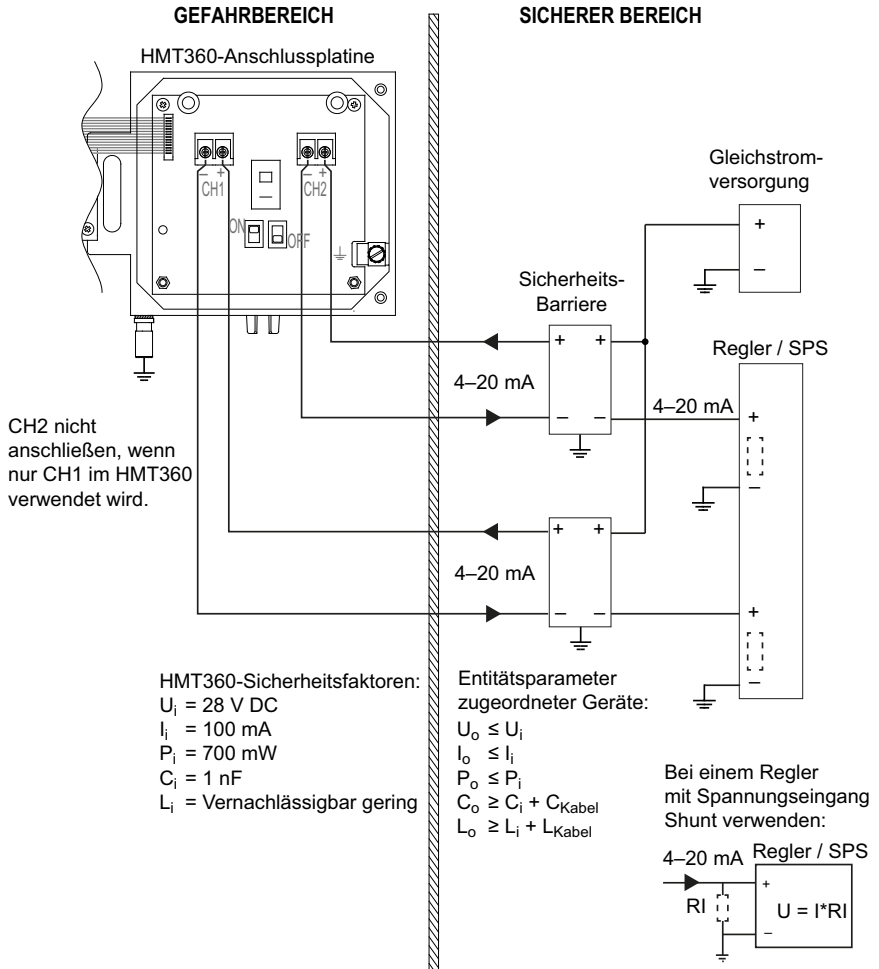


Abbildung 6 Anschluss des HMT360 an eine Sicherheitsbarriere

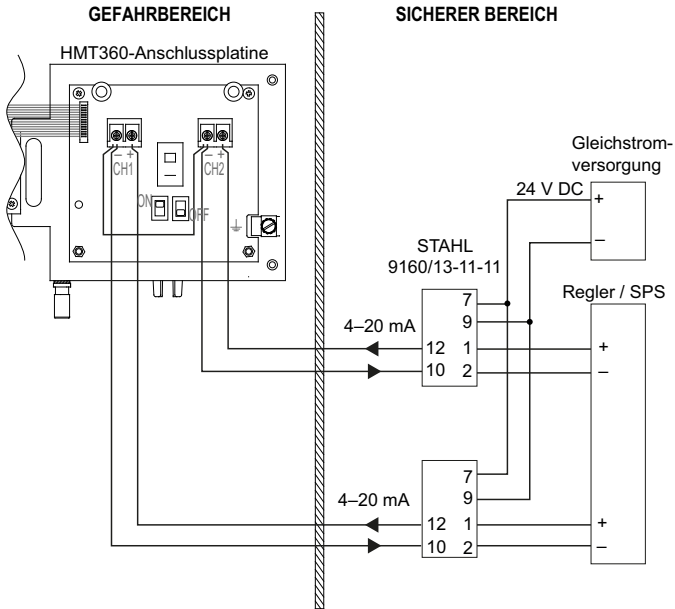


Abbildung 7 Beispiel für den Anschluss an das Speisegerät STAHL 9160/13-11-11

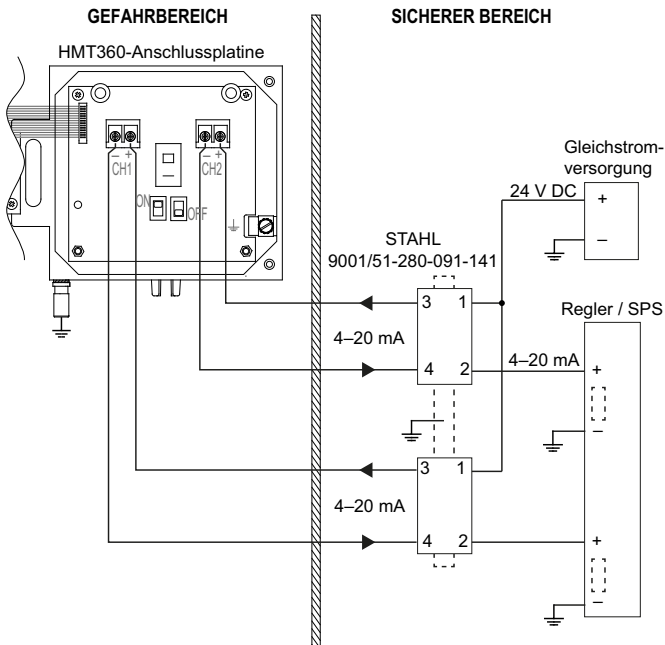


Abbildung 8 Beispiel für den Anschluss an die Sicherheitsbarriere STAHL 9001/51-280-091-141

HMT360 - INSTALLATION DANS DES ATMOSPHERES EXPLOSIVES



AVERTISSEMENT Les barrières sont essentielles dans les endroits dangereux.

Lors de l'utilisation du transmetteur dans des endroits dangereux, l'utilisation de séparateurs galvaniques ou de barrières est toujours primordiale (ceci même si le boîtier du transmetteur est situé du côté sans danger et que seule la sonde se situe dans la zone dangereuse). Vous trouverez des exemples de câblages comportant des barrières au verso. Pour des instructions plus détaillées, se reporter au Guide de l'Utilisateur.

Les séparateurs galvaniques ou barrières ne sont pas inclus avec le produit. Vous pouvez commander un séparateur galvanique en option auprès de Vaisala.

Connexion 2 fils

Raccorder les fils d'alimentation électrique aux connecteurs: CH1 (humidité) et CH2 (température). Les deux voies doivent avoir chacune une alimentation séparée. REMARQUE! Puisque CH1 est une sortie principale, le transmetteur ne fonctionne pas si seul CH2 est connecté (CH2 est opto-isolé du boîtier électronique du transmetteur).

Conditions spéciales pour une utilisation sécurisée conformément à la Directive européenne ATEX

1. L'équipement doté d'une fenêtre d'affichage et/ou d'un câble associé à la tête du capteur peut être utilisé dans les zones classées Zone 0, Groupe IIC uniquement si tout danger d'explosion provoqué par des charges électrostatiques est écarté.
2. L'installation de l'équipement dans une zone classée Zone 0, Groupe II exige l'absence de toute étincelle résultant d'un impact ou d'un frottement.
3. L'interface série doit être utilisée uniquement hors de la zone explosive. Le câble d'interface série 25905ZZ associé doit être utilisé.
4. La plage de température ambiante autorisée est comprise entre -40 °C et +60 °C pour le transmetteur.
5. Pour les sondes de type HMP362, HMP364, HMP365, HMP367 et HMP368, la plage de température ambiante autorisée est comprise entre -70 °C et +120 °C pour la classe de température T4 et entre -70 °C et +180 °C pour la classe de température T3.
6. Pour les sondes de type HMP361, la plage de température ambiante autorisée est comprise entre -40 °C et +60 °C et la classe de température est T4.
7. Pour les sondes de type HMP363, la plage de température ambiante autorisée est comprise entre -40 °C et +120 °C et la classe de température est T4.

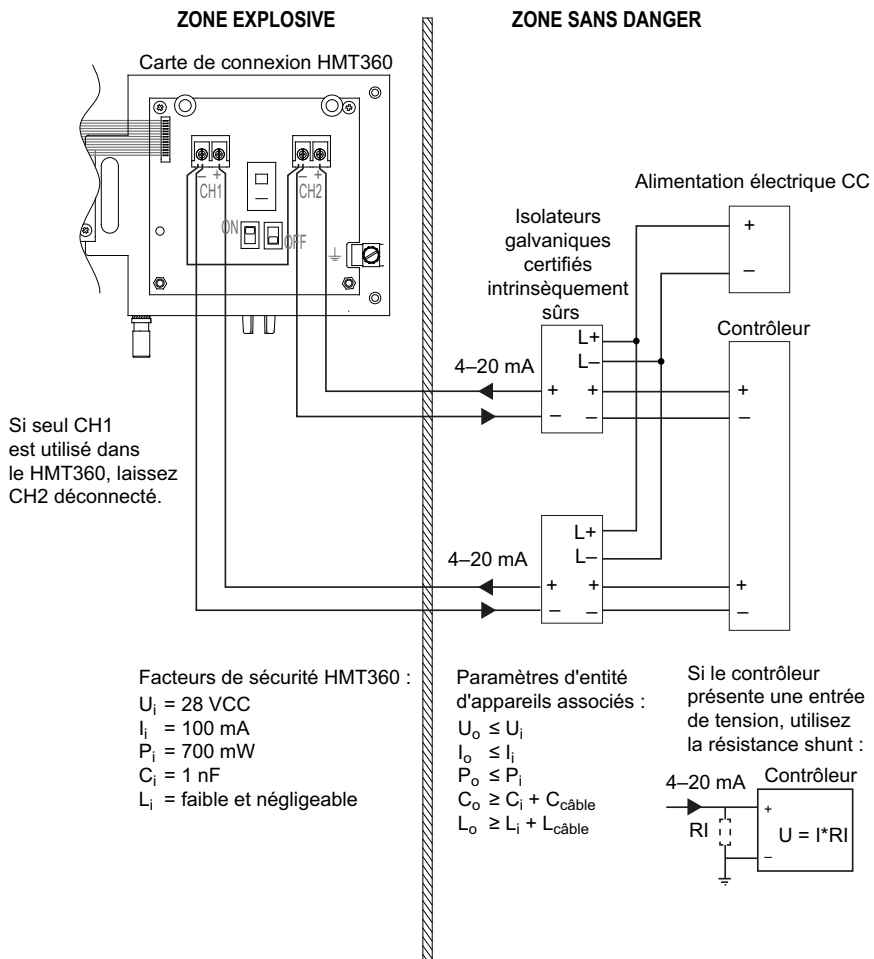


Figure 9 HMT360 connecté à un isolateur galvanique



ATTENTION Si les deux sorties analogiques sont utilisées avec un isolateur galvanique, CH1 (-) et CH2 (-) doivent être court-circuités.

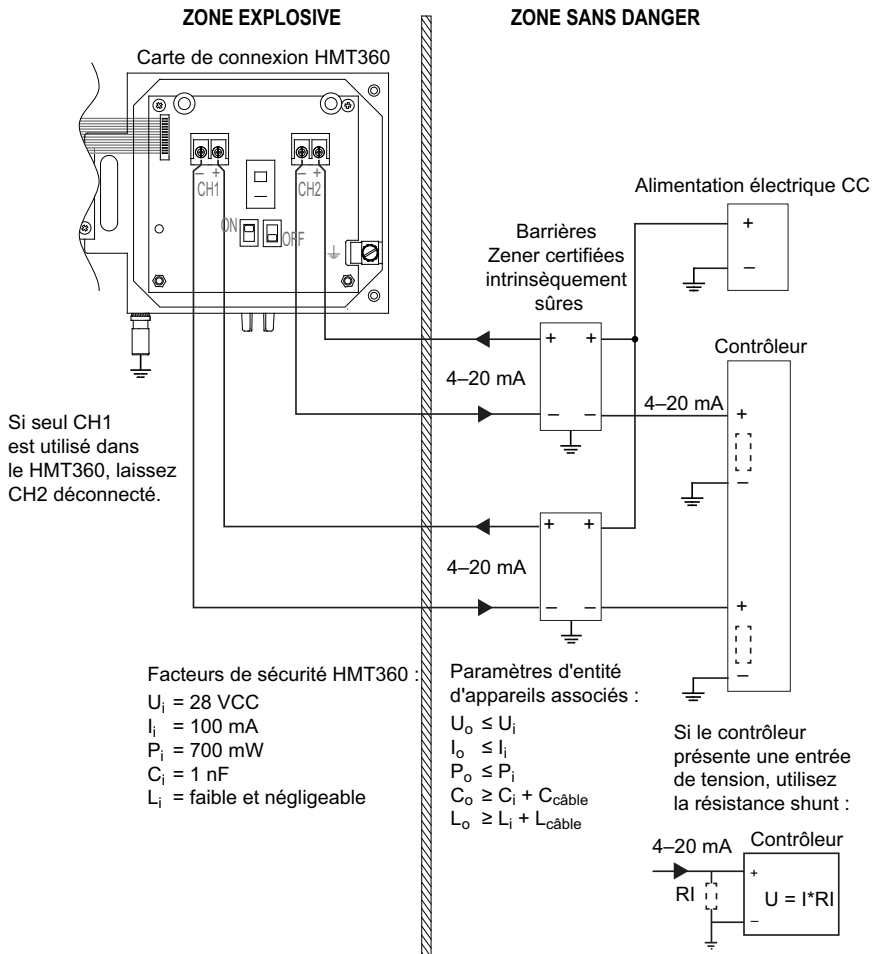


Figure 10 HMT360 connecté à une barrière Zener

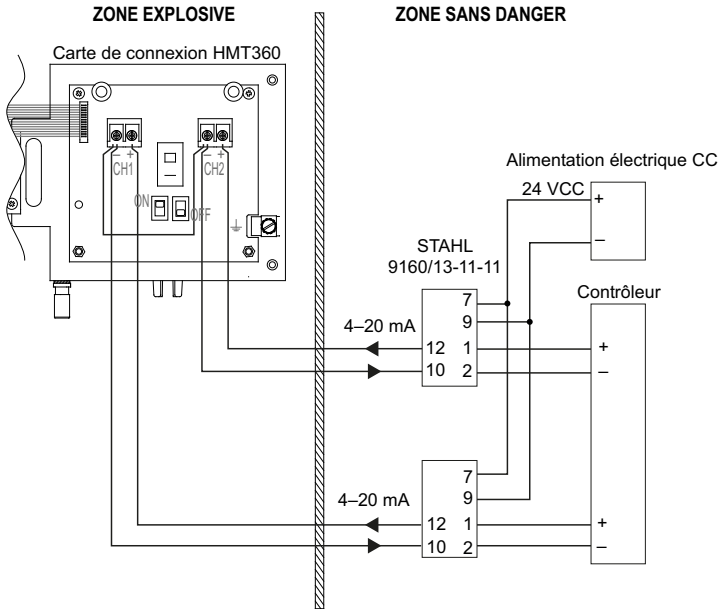


Figure 11 Exemple de connexion à un isolateur galvanique STAHL 9160/13-11-11

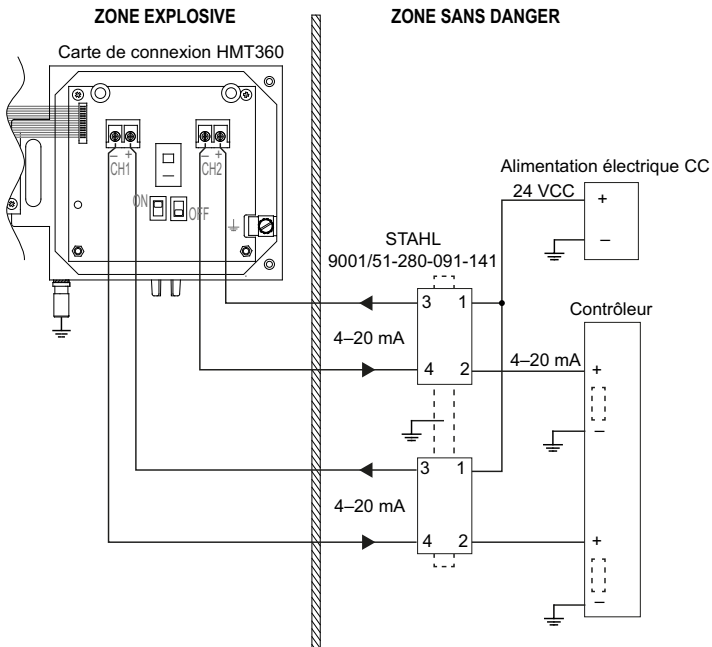

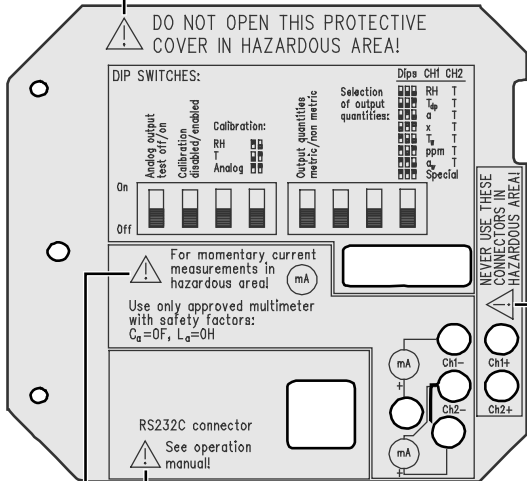




Figure 12 Exemple de connexion à un isolateur galvanique STAHL 9001/51-280-091-141 (barrière Zener)


Avertissements

 N'ouvrez pas ce boîtier de protection dans une zone dangereuse !




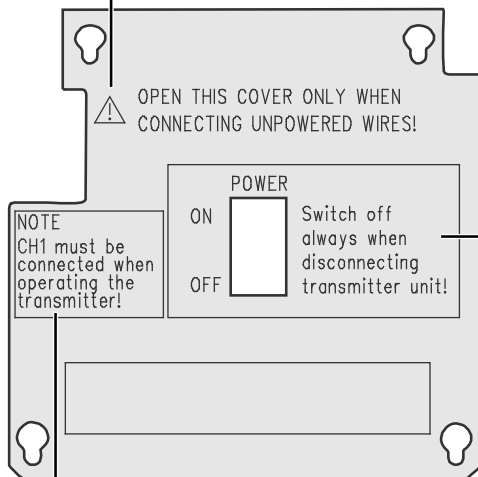
 N'utilisez jamais ces connecteurs dans une zone dangereuse !

 Reportez-vous au manuel d'utilisation !

 Pour les mesures de courant temporaires dans une zone dangereuse !

Utilisez uniquement un multimètre approuvé avec les facteurs de sécurité suivants : C_a=0F, L_a=0H

 Vous pouvez ouvrir ce boîtier uniquement lors du branchement de câbles non alimentés !



NOTE
CH1 must be connected when operating the transmitter!

POWER
ON Switch off always when disconnecting transmitter unit!
OFF



Vous devez toujours le mettre hors tension lorsque le transmetteur est débranché !



Remarque : CH1 doit être connecté lorsque le transmetteur est utilisé !

HMT360 - INSTALLATION I Ex-KLASSAT OMRÅDE



VARNING - RISK FÖR MASKINSKADA Det är viktigt att använda avskärmning i Ex-klassade miljöer.

När mätaren används i Ex-klassade miljöer är det alltid viktigt att använda galvaniska frånskiljare eller Ex-avskärmning (även om mätaren är placerad på den säkra sidan och endast mätproben i Ex-klassat område). På motsatta sidan häri ser du exempel på anslutningar med avskärmningar. Mer detaljerade anvisningar finns i Bruksanvisningen.

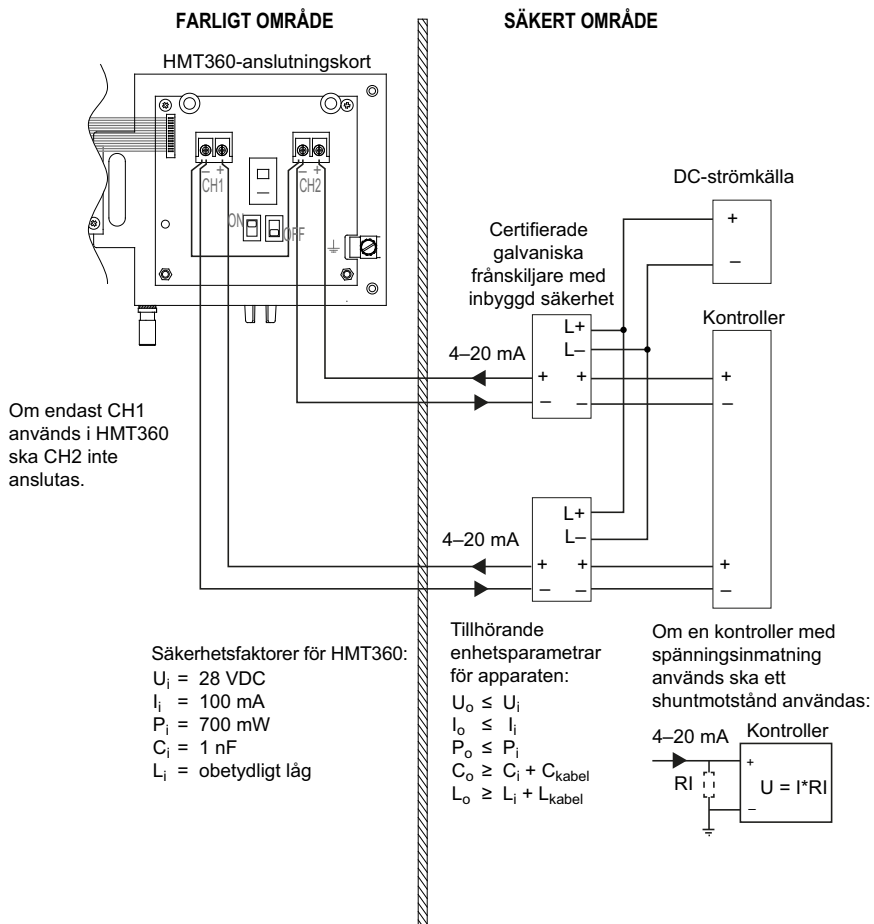
Galvaniska frånskiljare eller Ex-avskärmning medföljer ej i produktförpackningen. Du kan beställa en galvanisk frånskiljare från Vaisala som tillval.

2-trådsanslutning

Anslut de icke strömförande hjälpspänningsledningarna till anslutningarna: CH1 (fuktighet) och CH2 (temperatur). Båda kanalerna kräver egen hjälpspänning. OBS! Eftersom CH1 är en huvudutgång, fungerar inte mätaren om bara CH2 är ansluten (CH2 är optokopplad från mätarens elektronik).

Särskilda villkor för säker användning enligt EU:s ATEX-direktiv

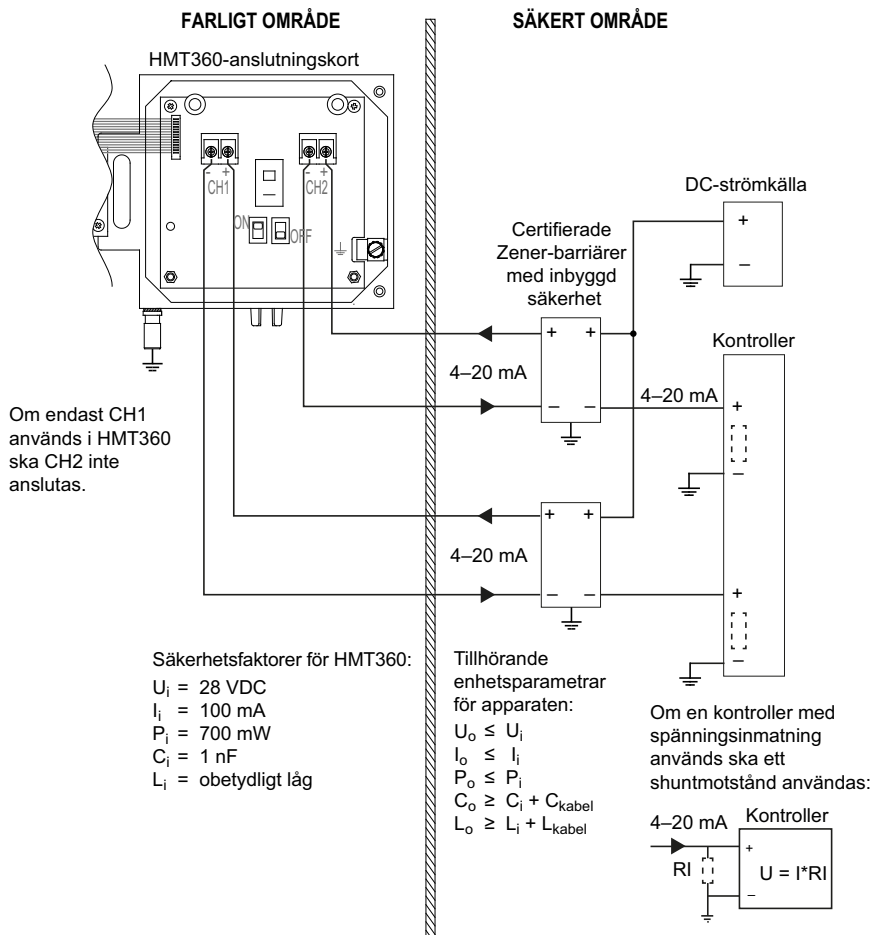
1. Utrustningen med displayfönster och/eller med tillhörande kabel från sensorhuvudet kan endast användas i Zon 0 Grupp IIC-områden om risken för antändning på grund av elektrostatisk laddning kan undvikas.
2. Om utrustningen installeras i ett Zon 0 Grupp II-område måste man garantera att gnistbildningar till följd av stötar eller friktion inte uppstår.
3. Datagränssnittet får endast användas utanför det explosionsfarliga området. Tillhörande datagränssnittskabel 25905ZZ ska användas.
4. Tillåtet omgivningstemperaturområde är -40 °C till +60 °C för mätaren.
5. För probtyperna HMP362, HMP364, HMP365, HMP367 och HMP368 är det tillåtna omgivningstemperaturområdet -70 °C till +120 °C för temperaturklass T4 och tillåtet omgivningstemperaturområde är -70 °C till +180 °C för temperaturklass T3.
6. För probtypen HMP361 är det tillåtna omgivningstemperaturområdet -40 °C till +60 °C och temperaturklassen är T4.
7. För probtypen HMP363 är det tillåtna omgivningstemperaturområdet -40 °C till +120 °C och temperaturklassen är T4.



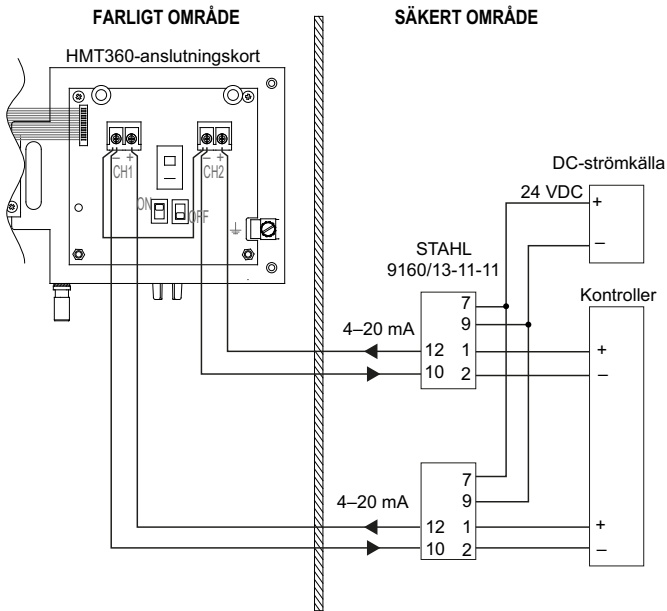
Figur 13 HMT360 ansluten till en galvanisk frångiljare



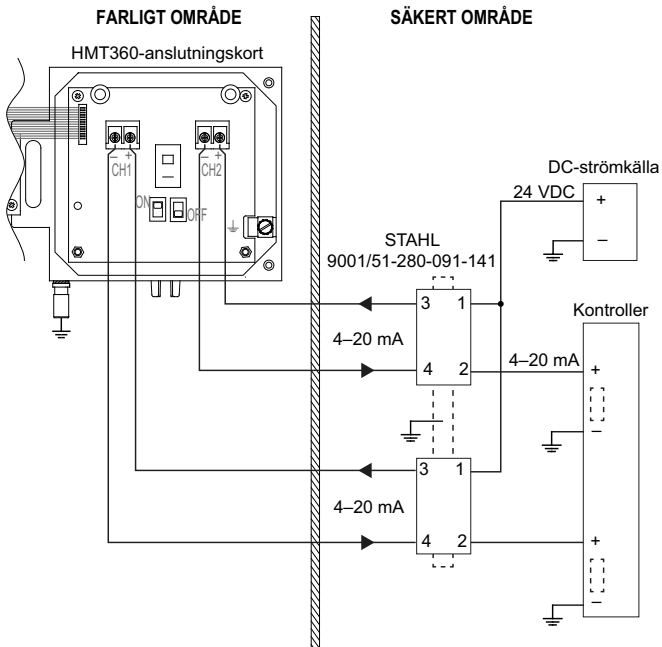
VARNING - RISK FÖR PERSONSKADA Om båda de analoga utgångarna används med en galvanisk frångiljare måste CH1 (-) och CH2 (-) kortslutas.



Figur 14 HMT360 ansluten till en Zener-barriär



Figur 15 Exempel på anslutning till STAHL 9160/13-11-11 galvanisk frånskiljare



Figur 16 Exempel på anslutning till STAHL 9001/51-280-091-141 (Zener-barriär)

HMT360:N ASENNUS RÄJÄHDYSVAARALLISEEN YMPÄRISTÖÖN



VAROITUS Suojaus on välttämätöntä räjähdysvaarallisessa ympäristössä.

Kun lähetintä käytetään räjähdysvaarallisissa paikoissa, galvaanisten eristimien tai estokerrosten käyttö on välttämätöntä. Huolehdi suojauksesta myös silloin kun lähetinrunko on asennettu turvalliseen paikkaan ja vain mittapää on räjähdysvaarallisessa tilassa. Seuraavilla sivuilla esitellään esimerkkejä suojaetuista kytkennöistä. Tutustu hyvin myös laitteen käyttöohjeeseen ennen kytkentöjä.

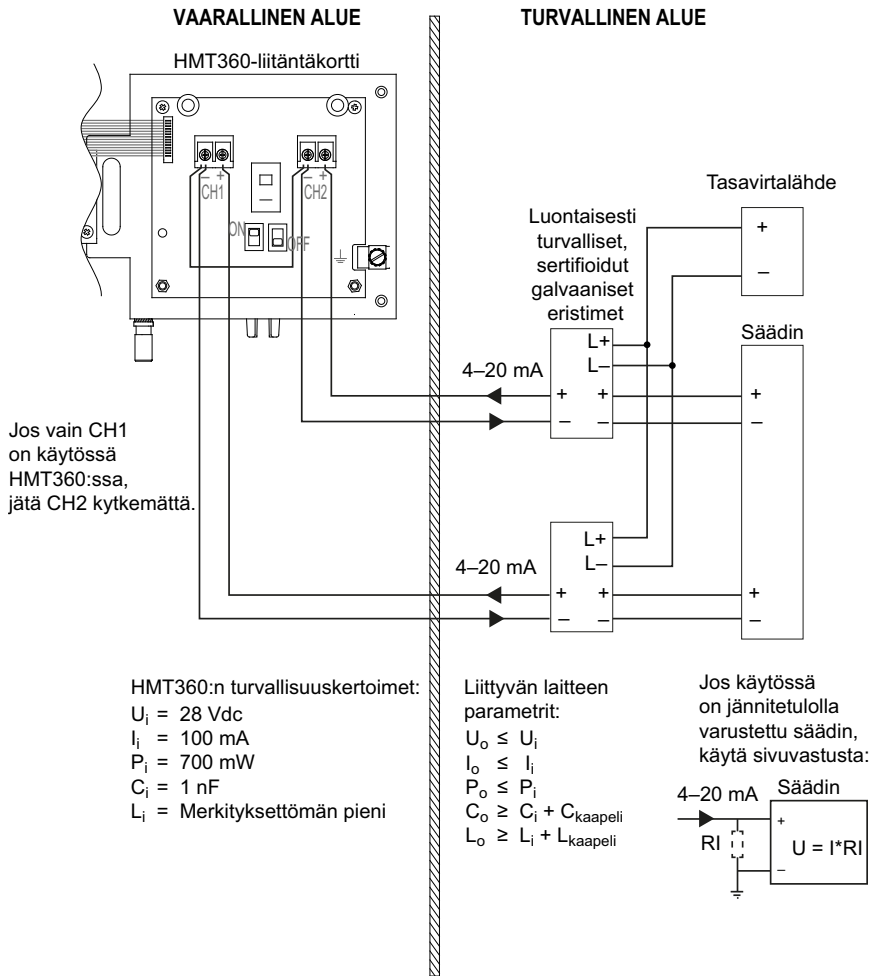
Laitte ei sisällä galvaanista eristintä tai muita estokerroksia. Voit tilata soveltuvat suojaukset Vaisalasta lisätarvikkeina.

2-lanka-kytkentä

Kytke jännitteettömät tehonsyöttöjohdot liittimiin: CH1 (kosteus) ja CH2 (lämpötila). Huomaa, että molemmat kanavat vaativat oman virtalähteen. Koska CH1 on päälähtö, lähetin ei toimi jos vain CH2 on kytkettynä (CH2 on optoerotettu lähettimen elektroniikasta).

EU:n ATEX-direktiivin mukaisen turvallisen käytön erityisehdot

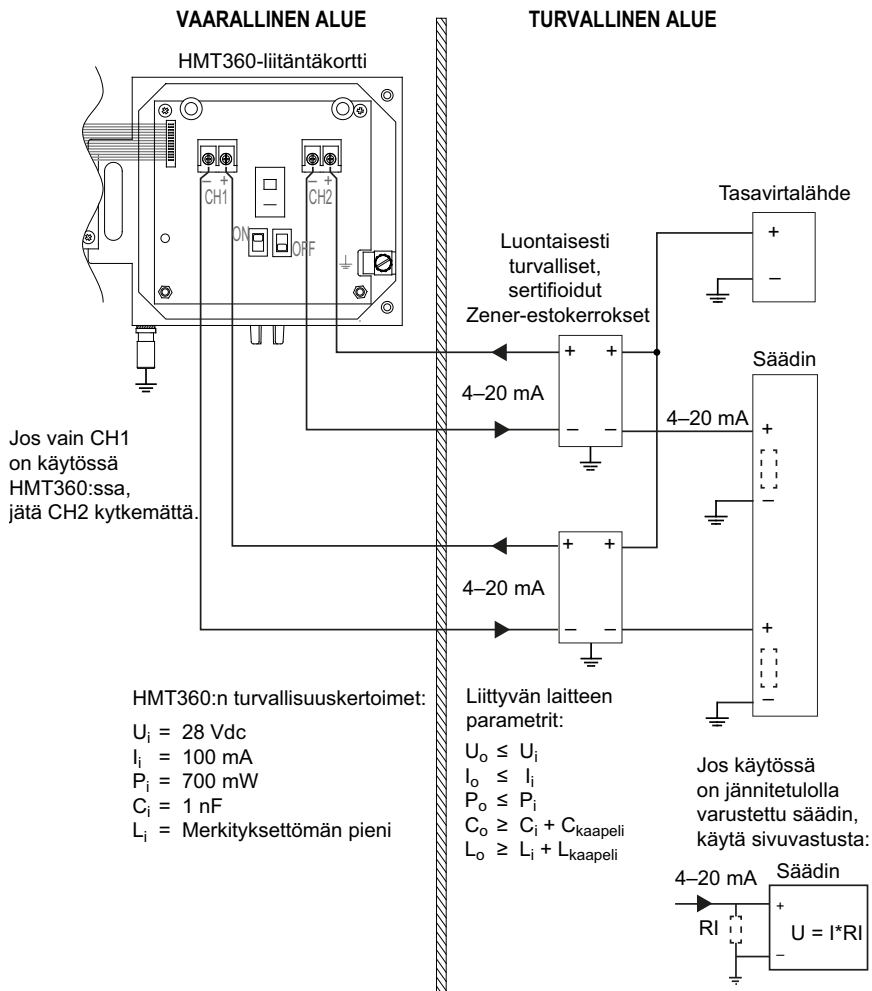
1. Näyttöikkunalla tai mittapään kaapelilla varustettua laitetta voidaan käyttää vyöhykkeen O ryhmän IIC alueilla vain, jos sähköstaattisen varauksen aiheuttama syttymisvaara pystytään välttämään.
2. Jos laite asennetaan vyöhykkeen O ryhmän II alueelle, tulee varmistaa, ettei iskujen tai kitkan vuoksi aiheudu kipinöintiä.
3. Sarjaliittymää saa käyttää vain räjähdysvaarallisen alueen ulkopuolella. Tällöin tulee käyttää sarjaliittymäkaapelia 25905ZZ.
4. Lähettimen sallittu ympäristön lämpötila on $-40...+60\text{ °C}$.
5. Mittapäätyyppien HMP362, HMP364, HMP365, HMP367 ja HMP368 sallittu ympäristön lämpötila on $-70...+120\text{ °C}$ lämpötilaluokassa T4 ja $-70...+180\text{ °C}$ lämpötilaluokassa T3.
6. Mittapäätyypin HMP361 sallittu lämpötila-alue on $-40...+60\text{ °C}$ ja lämpötilaluokka on T4.
7. Mittapäätyypin HMP363 sallittu lämpötila-alue on $-40...+120\text{ °C}$ ja lämpötilaluokka on T4.



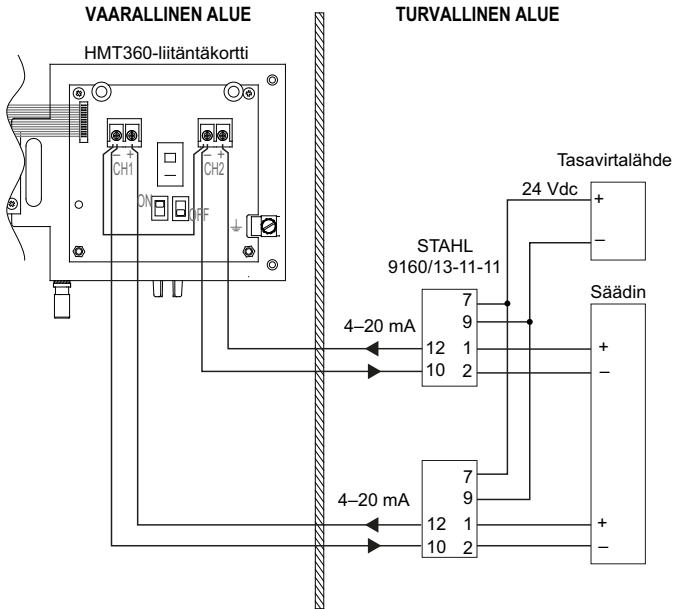
Kuva 17 Galvaaniseen erottimeen liitetty HMT360



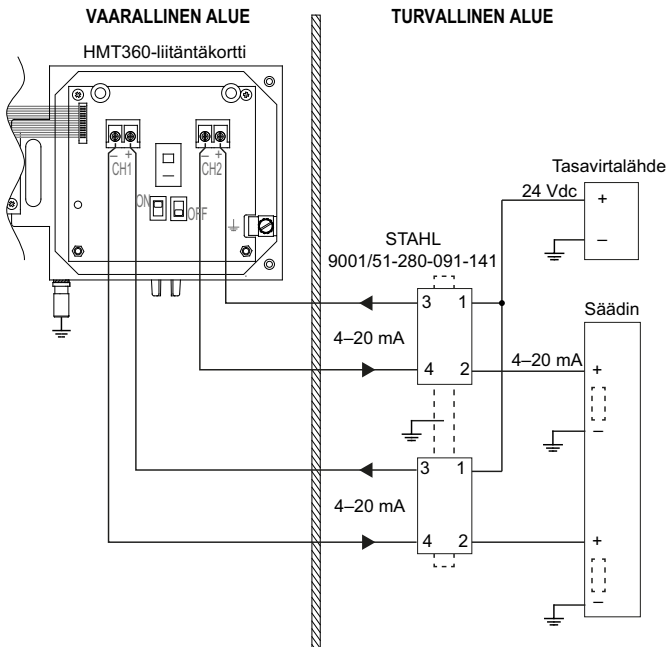
HUOMIO Jos kumpikin analogialähtö on käytössä galvaanista erotinta käytettäessä, Ch 1 (-) ja Ch 2 (-) täytyy oikosulkea.



Kuva 18 HMT360 kytkettynä zener-estokerrokseen



Kuva 19 Esimerkkiliitäntä galvaaniseen erottimeen STAHL 9160/13-11-11



Kuva 20 Esimerkkiliitäntä zener-estokerrokseen STAHL 9001/51-280-091-141

HMT360 - Instalace v nebezpečných prostředích



UPOZORNĚNÍ V nebezpečných prostředích jsou důležité bariéry.

Při používání snímače v nebezpečném prostředí je důležité použít galvanické oddělení nebo bariéry (a to i tehdy, pokud je tělo snímače umístěno na bezpečné straně a v nebezpečné oblasti je pouze čidlo). Na druhé straně najdete příklady zapojení s bariérou. Podrobnější pokyny viz Příručka uživatele.

Galvanické oddělení a bariéry nejsou součástí balení výrobku. Galvanické oddělení si můžete objednat od firmy Vaisala jako doplněk.

2vodičové připojení

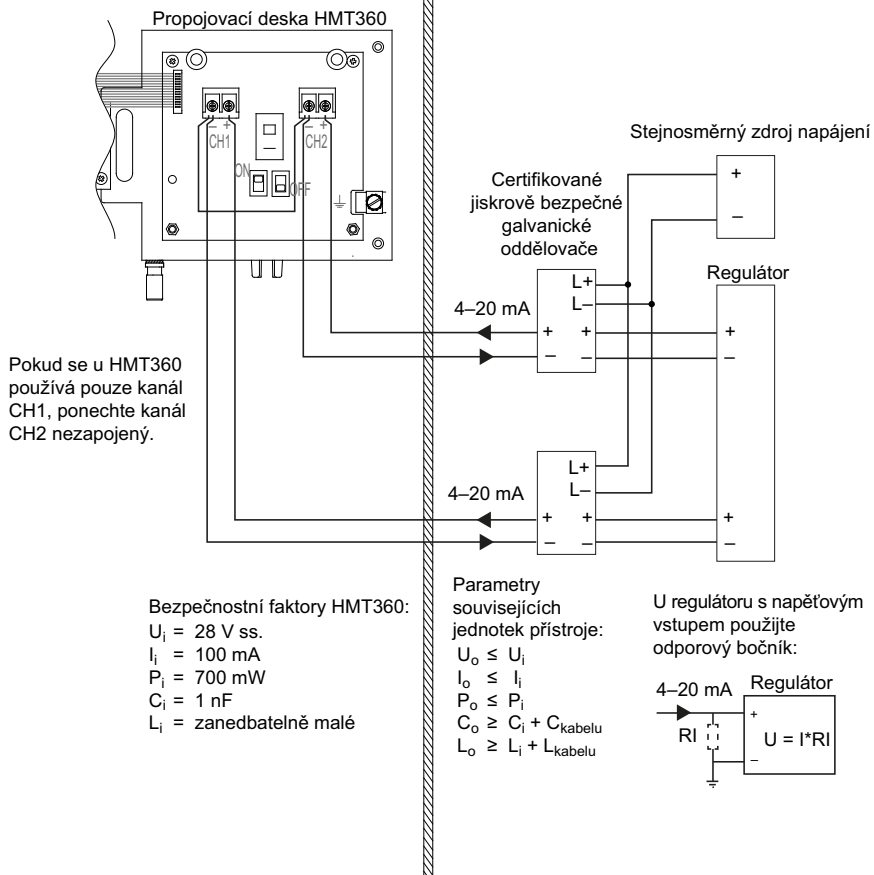
Připojte vodiče vypnutého zdroje napájení ke konektorům: CH1 (vlhkost) a CH2 (teplota). Oba kanály vyžadují vlastní zdroj napájení. **POZNÁMKA:** Protože CH1 je hlavní výstup, snímač nebude fungovat, pokud bude připojen pouze kanál CH2 (CH2 je opticky izolován od elektroniky snímače).

Zvláštní podmínky pro bezpečné použití v rámci směrnice EU ATEX

1. Zařízení s okénkem displeje a/nebo příslušným kabelem hlavy snímače lze v oblastech zóny 0 skupiny IIC použít pouze v případě, že je zabráněno nebezpečí vznícení v důsledku elektrostatického náboje.
2. Při instalaci zařízení v oblasti zóny 0 skupiny II je nutné zajistit, aby nedocházelo k jiskření v důsledku nárazu nebo tření.
3. Sériové rozhraní se smí používat pouze mimo prostředí, ve kterém existuje nebezpečí výbuchu. Je nutné použít přiřazený kabel sériového rozhraní 25905ZZ.
4. Přípustný rozsah okolní teploty pro vysílač je -40 až $+60$ °C.
5. Pro typy sond HMP362, HMP364, HMP365, HMP367 a HMP368 je pro teplotní třídu T4 přípustný rozsah okolní teploty -70 až $+120$ °C a pro teplotní třídu T3 je přípustný rozsah okolní teploty -70 až $+180$ °C.
6. Pro typ sondy HMP361 je přípustný rozsah okolní teploty -40 až $+60$ °C a teplotní třída je T4.
7. Pro typ sondy HMP363 je přípustný rozsah okolní teploty -40 až $+120$ °C a teplotní třída je T4.

PROSTŘEDÍ S NEBEZPEČÍM VÝBUCHU

BEZPEČNÁ OBLAST



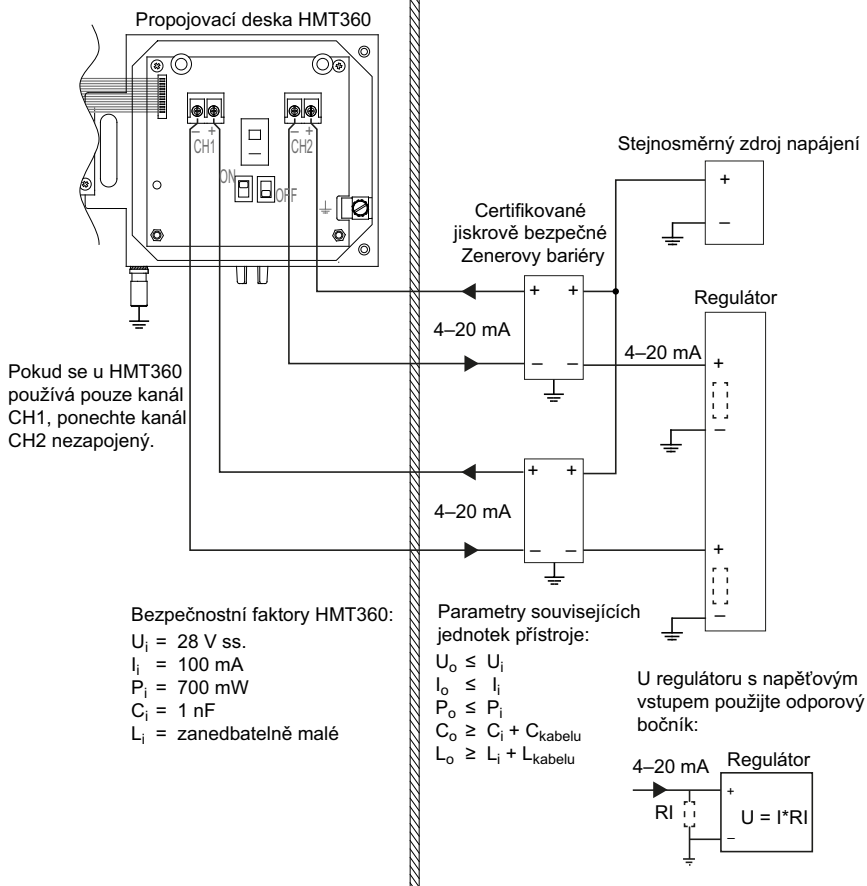
Obrázek 21 HMT360 připojená ke galvanickému oddělovači



POZOR Pokud oba analogové výstupy využívají galvanický oddělovač, je nutné zkratovat svorky Ch 1 (-) a Ch 2 (-).

PROSTŘEDÍ S NEBEZPEČÍM VÝBUCHU

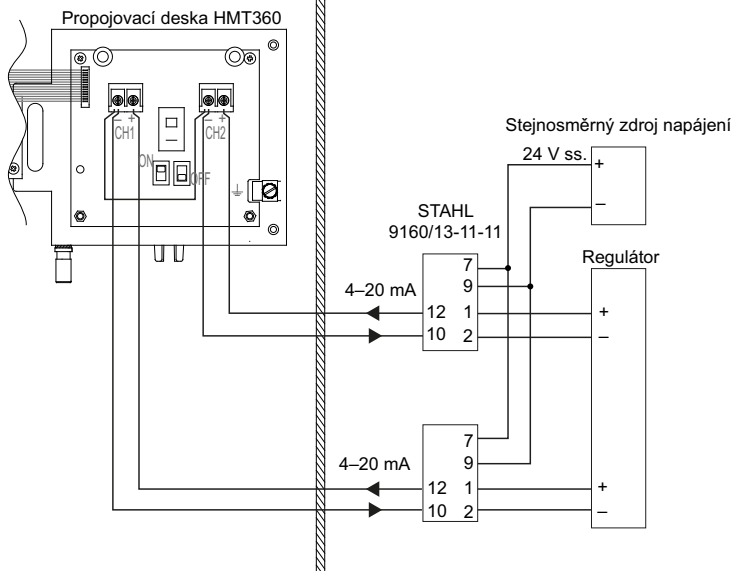
BEZPEČNÁ OBLAST



Obrázek 22 HMT360 připojená k Zenerově bariéře

PROSTŘEDÍ S NEBEZPEČÍM VÝBUCHU

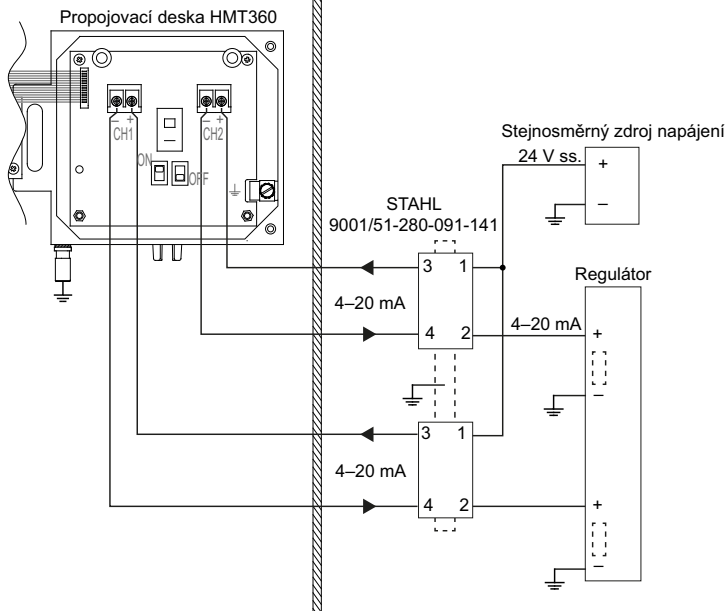
BEZPEČNÁ OBLAST



Obrázek 23 Ukázka zapojení galvanického oddělovače STAHL 9160/13-11-11

PROSTŘEDÍ S NEBEZPEČÍM VÝBUCHU

BEZPEČNÁ OBLAST



Obrázek 24 Ukázka zapojení STAHL 9001/51-280-091-141 (Zenerova bariéra)

A HMT360 telepítése veszélyes környezetben



FIGYELMEZTETÉS Nélkülözhetetlen gátak veszélyes környezetben.

Ha a távadót veszélyes környezetben használja, feltétlenül alkalmazzon galvanikus leválasztókat vagy gátakat (még ha a távadó teste a biztonságos oldalon van is, és csak a mérőszonda van a veszélyes környezetben). A másik oldalon példákat mutatunk be gátakkal történő bekötésre. Részletes útmutatás a felhasználói kézikönyvben található.

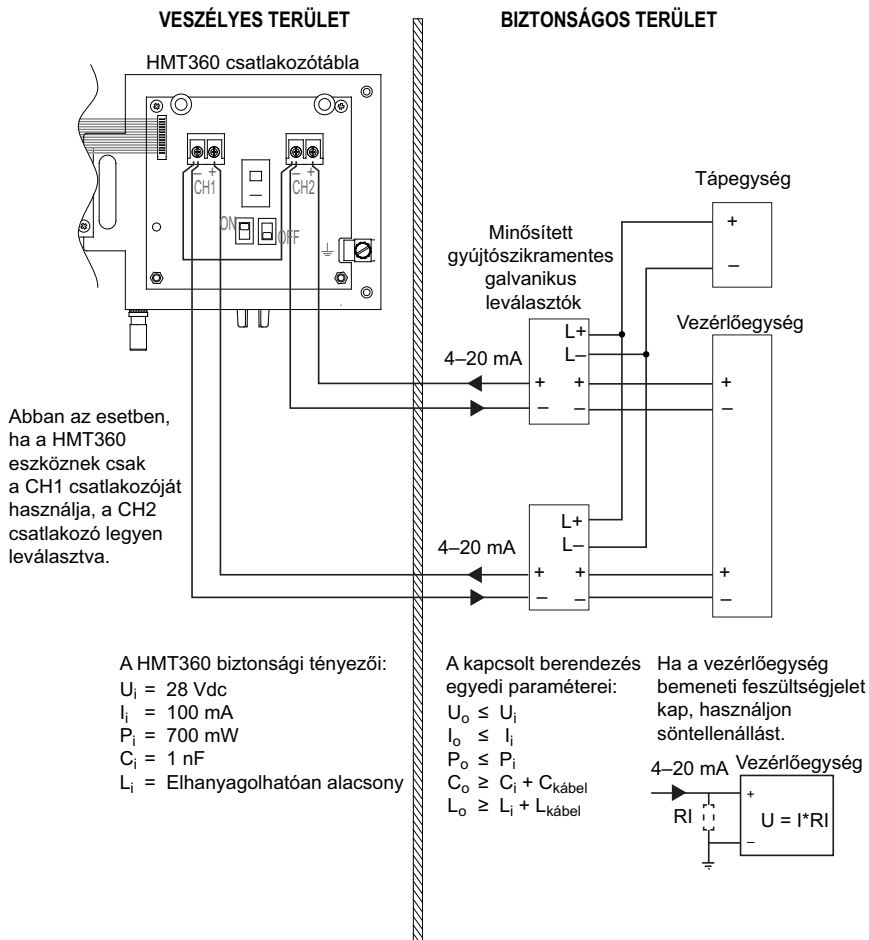
A termék csomagolása nem tartalmaz galvanikus leválasztókat vagy gátakat. Galvanikus leválasztók opcionális alkatrészként rendelhetők a Vaisalától.

Kéthuzalos csatlakoztatás

Csatlakoztassa az áramtalanított tápkábeleket a CH1 (páratartalom) és a CH2 (hőmérséklet) csatlakozóhoz. Mindkét csatornának saját tápellátásra van szüksége. MEGJEGYZÉS: Mivel a CH1 a fő kimenet, a távadó nem működik, ha csak a CH2 van bekötve (a CH2 és a távadó elektronikája között optikai csatolás leválasztást alkalmaztak).

Az európai ATEX irányelv szerinti biztonságos üzemeltetés feltételei

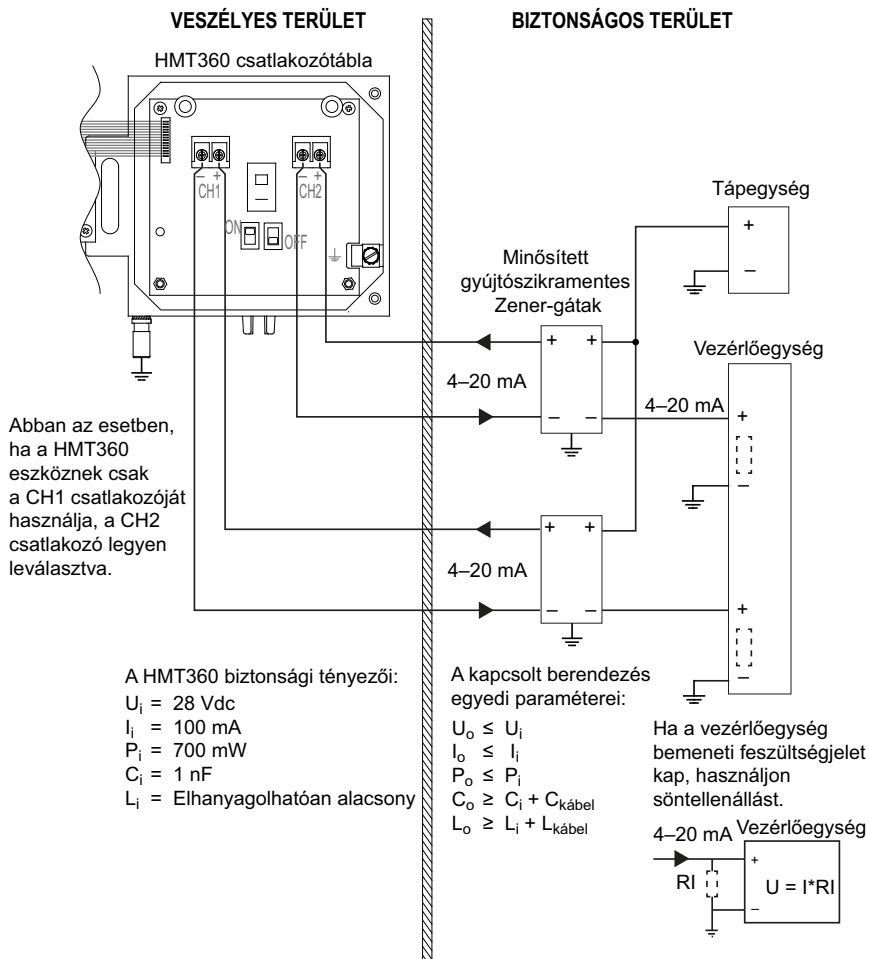
1. A kijelzővel rendelkező berendezések és/vagy az érzékelőfej csatlakozókábele csak abban az esetben használható a 0. zóna IIC csoportú területein, ha megakadályozható, hogy az elektrosztatikus feltöltődés miatt gyulladásveszély alakuljon ki.
2. A 0. zóna II csoportú területén telepített berendezés esetén biztosítani kell, hogy szikra még ütdés vagy súrlódás esetén se keletkezhesen.
3. A soros interfész kizárólag a robbanásveszélyes területen kívül használható. A soros interfész csatlakozókábeleként 25905ZZ típusú kábelt kell alkalmazni.
4. Az átalakító a -40 °C és +60 °C közötti környezeti hőmérséklet-tartományon belül használható.
5. A HMP362, HMP364, HMP365, HMP367 és HMP368 szondák esetén T4 hőmérsékleti osztálynál -70 °C és +120 °C közötti, T3 osztálynál pedig -70 °C és +180 °C közötti környezeti hőmérséklet megengedett.
6. A HMP361 típusú szonda esetén a megengedett környezeti hőmérséklet-tartomány -40 °C és +60 °C közötti, hőmérsékleti osztálya T4.
7. A HMP363 típusú szonda esetén a megengedett környezeti hőmérséklet-tartomány -40 °C és +120 °C közötti, hőmérsékleti osztálya T4.



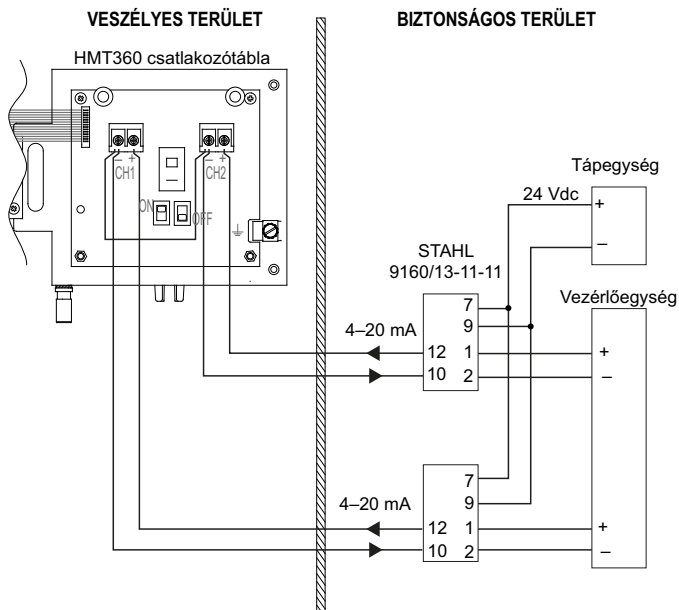
Ábra 25 Galvanikus leválasztóhoz csatlakoztatott HMT360



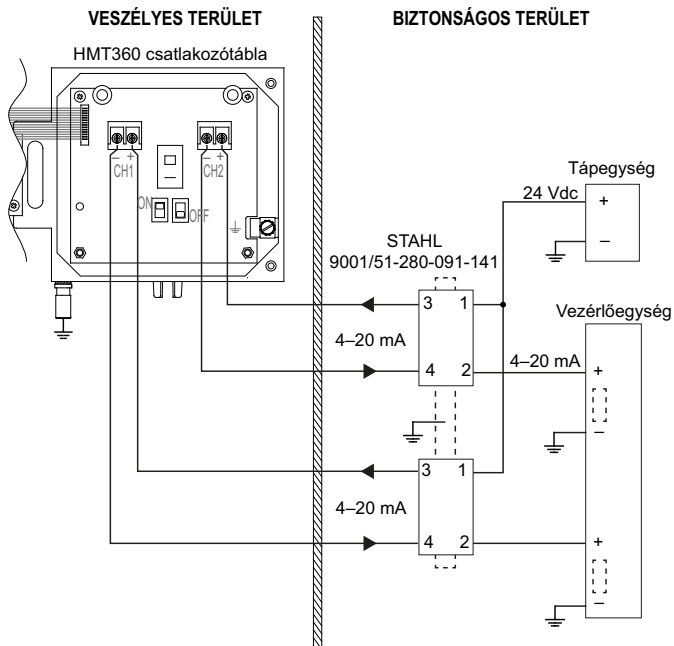
FIGYELMEZTETÉS Ha mindkét analóg kimenetet galvanikus leválasztóval használja, az CH1 (-) és a CH2 (-) csatornát rövidre kell zárni.



Ábra 26 Zener-gáthoz csatlakoztatott HMT360



Ábra 27 Csatlakozási példa STAHL 9160/13-11-11 típusú galvanikus leválasztóhoz



Ábra 28 Csatlakozási példa STAHL 9001/51-280-091-141 típusú Zener-gáthoz

HMT360 - Įrengimas pavojingose vietose



ISPĖJIMAS Pavojingose vietose būtinos užtvaros.

Jei siųstuvas naudojamas pavojingose vietose, būtina naudoti ir galvaninius skirtuvus arba užtvaras (net ir tais atvejais, kai siųstuvo korpusas yra saugioje pusėje, o pavojingose vietose yra tik zondas). Laidų pravedimo schemas, kai naudojamos užtvaros, pateiktos kitoje lapo pusėje. Išsamesnę informaciją rasite naudojimo instrukcijoje.

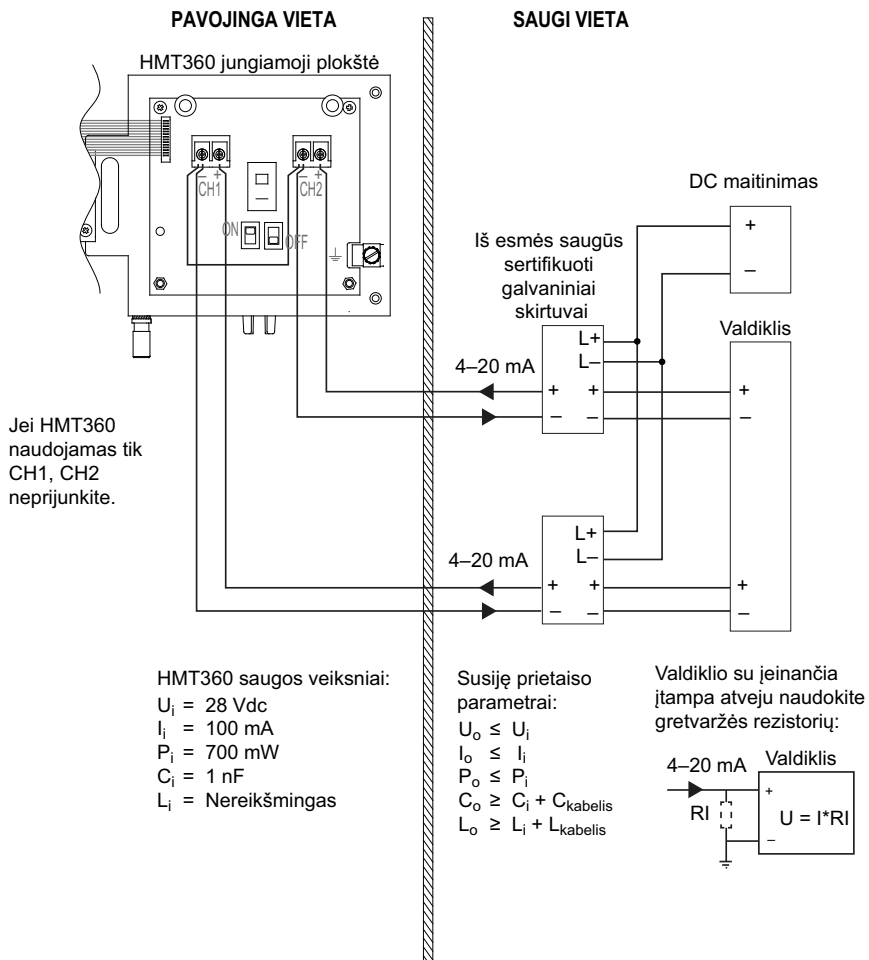
Šio gaminio pakuotėje galvaninių skirtuvų arba užtvarų nėra. Galvaninį skirtuvą kaip papildomą dalį galite užsakyti iš bendrovės „Vaisala“.

Prijungimas 2 laidais

Išjungę maitinimą, maitinimo laidus prijunkite prie šių kontaktų: CH1 (drėgnumas) ir CH2 (temperatūra). Abiems kanalams reikia atskiros maitinimo grandinės. PASTABA: Kadangi CH1 kanalas atlieka pagrindinės išvesties vaidmenį, prijungus tik CH2 siųstuvus neveikia (CH2 yra optoizoliuotas nuo siųstuvo elektroninių mazgų).

Specialios saugaus naudojimo sąlygos pagal ES direktyvą ATEX

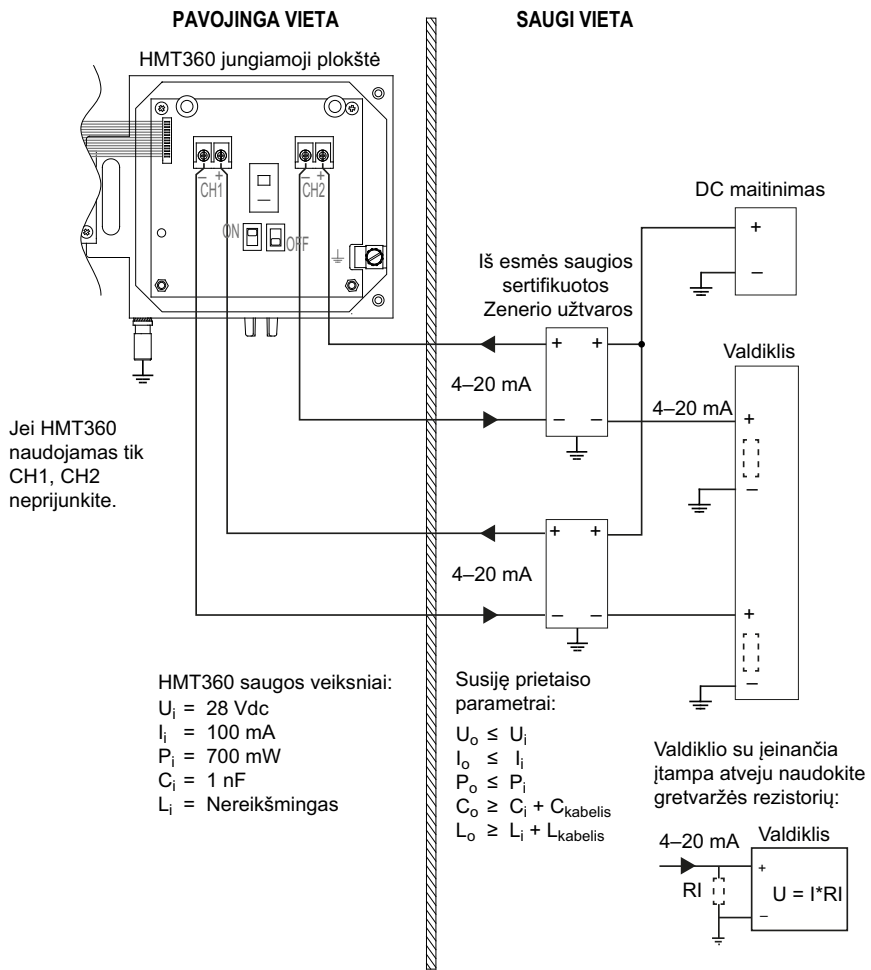
1. Įrangą su ekranu ir (arba) susietu jutiklio galvutės kabeliu galima naudoti 0 zonos IIC grupės vietose tik vengiant užsidegimo pavojaus dėl elektrostatinio krūvio pavojaus.
2. Montuojant įrangą 0 zonos II vietoje, reikia pasirūpinti, kad nekiltų kibirkščių dėl įtampos arba trinties.
3. Nuosekliosios sąsajos negalima naudoti vietoje, kurioje yra sprogo pavojus. Reikia naudoti susietą nuosekliosios sąsajos kabelį 25905ZZ.
4. Leidžiamas siųstuvo aplinkos temperatūros diapazonas yra $-40\text{ }^{\circ}\text{C}$ – $+60\text{ }^{\circ}\text{C}$.
5. Leidžiamas HMP362, HMP364, HMP365, HMP367 ir HMP368 tipų zondu aplinkos temperatūros diapazonas yra $-70\text{ }^{\circ}\text{C}$ – $+120\text{ }^{\circ}\text{C}$, kai temperatūros klasė T4, ir $-70\text{ }^{\circ}\text{C}$ – $+180\text{ }^{\circ}\text{C}$, kai temperatūros klasė T3.
6. Leidžiamas HMP361 tipo siųstuvo aplinkos temperatūros diapazonas yra $-40\text{ }^{\circ}\text{C}$ – $+60\text{ }^{\circ}\text{C}$, o temperatūros klasė yra T4.
7. Leidžiamas HMP363 tipo siųstuvo aplinkos temperatūros diapazonas yra $-40\text{ }^{\circ}\text{C}$ – $+120\text{ }^{\circ}\text{C}$, o temperatūros klasė yra T4.



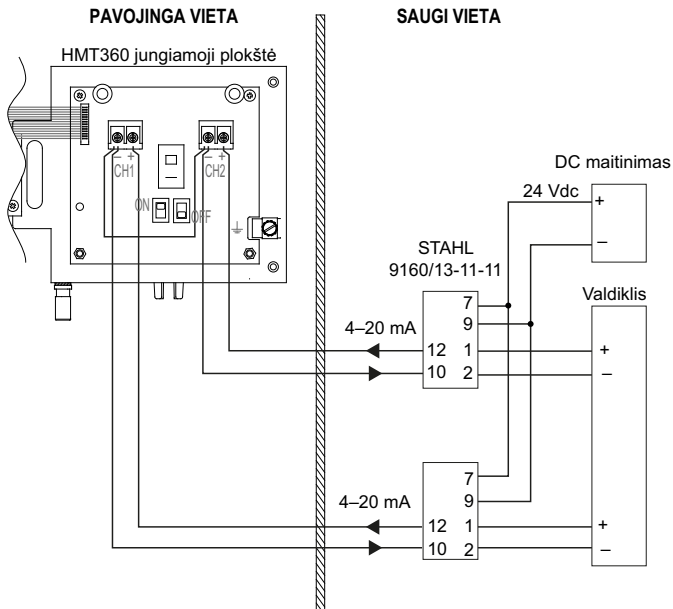
Piešinys 29 HMT360 prijungtas prie galvaninio skirtuvo



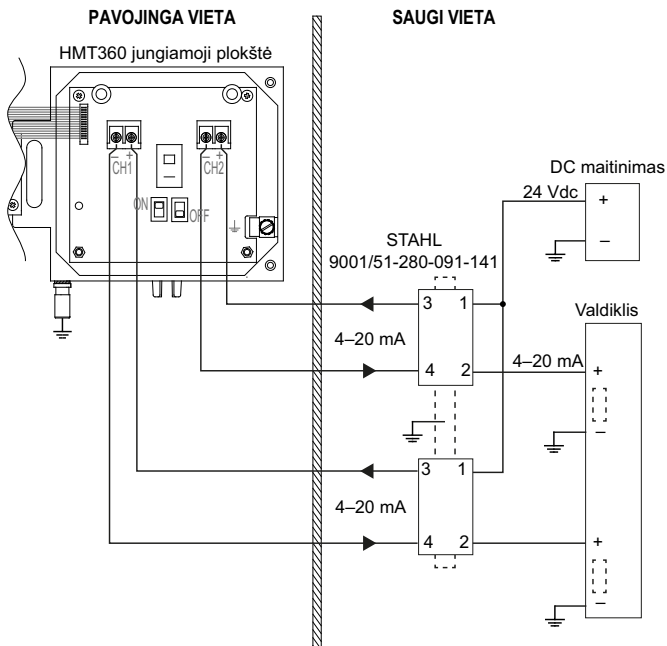
PERSPĖJIMAS Jei su galvaniniu skirtuvu naudojamos abi analoginės išvestys, CH1 (-) ir CH2 (-) būtina sujungti.



Piešinys 30 HMT360 prijungtas prie Zenerio užtvartos



Piešinys 31 Prijungimo prie galvaninės užtvartos STAHL 9160/13-11-11 pavyzdys



Piešinys 32 Prijungimo prie STAHL 9001/51-280-091-141 (Zenerio užtvartos) pavyzdys

HMT360 – Installazioni in luoghi pericolosi



AVVERTENZA Barriere essenziali nei luoghi pericolosi.

Quando si usa il trasmettitore in luoghi pericolosi, l'uso di barriere o di separatori galvanici è sempre essenziale (anche se il corpo del trasmettitore si trova nel lato sicuro e solo la sonda si trova nell'area pericolosa). Nell'altro lato della pagina si trovano alcuni esempi di cablaggio con barriere. Consultare la Guida Utente per informazioni più dettagliate.

Le barriere o i separatori galvanici non sono inclusi nella confezione del prodotto. E' possibile ordinare i separatori galvanici alla Vaisala come accessori.

Collegamento a 2 fili

Collegare i cavi dell'alimentatore, scollegato dalla rete elettrica, ai connettori: CH1 (umidità) e CH2 (temperatura). Entrambi i canali necessitano di un proprio alimentatore. NOTA, Dato che il CH1 è un'uscita principale, il trasmettitore non funziona se è collegato solo il CH2 (il CH2 è optoisolato dall'elettronica del trasmettitore).

Condizioni speciali di sicurezza in base alla di Direttiva UE ATEX

1. Le apparecchiature con finestra di visualizzazione e/o con cavo associato della testa del sensore possono essere utilizzate in aree Zona 0 Gruppo IIC solo in assenza di pericolo di infiammabilità dovuta a carica elettrostatica.
2. Nell'installazione delle apparecchiature nell'area Zona 0 Gruppo II, è necessario assicurarsi che non si sprigionino scintille da impatto o da attrito.
3. L'interfaccia seriale deve essere utilizzata esclusivamente al di fuori dell'area con pericolo di esplosione. È necessario utilizzare il cavo di interfaccia seriale 25905ZZ.
4. La gamma di temperatura ambientale consentita è da -40 °C a +80 °C per il trasmettitore.
5. Per i tipi di sonda HMP362, HMP364, HMP365, HMP367 e HMP368, la gamma di temperatura ambientale consentita va da -70 °C a +120 °C per la classe di temperatura T4 e da -70 °C a +180 °C per la classe di temperatura T3.
6. Per il tipo di sonda HMP361, la gamma di temperatura ambientale consentita va da -40 °C a +60 °C e la classe di temperatura è T4.
7. Per il tipo di sonda HMP363, la gamma di temperatura ambientale consentita va da -40 °C a +120 °C e la classe di temperatura è T4.

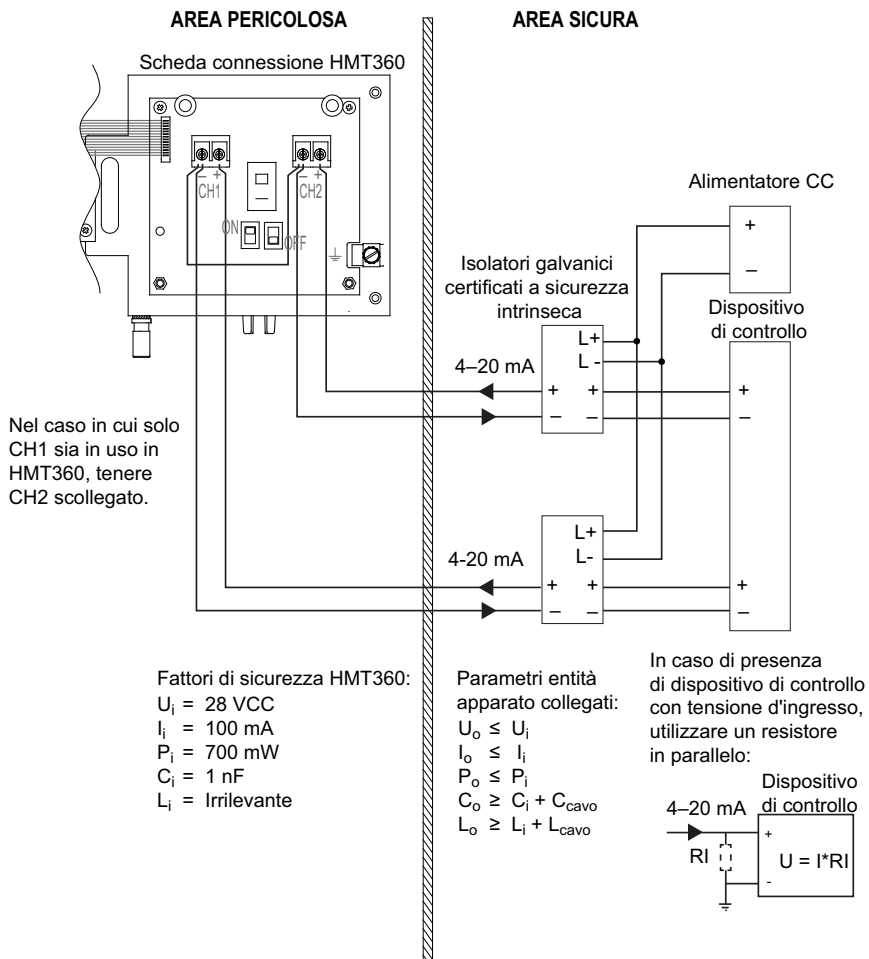


Figura 33 HMT360 connesso a un isolatore galvanico



AVVERTENZA Se entrambe le uscite analogiche sono utilizzate con un isolatore galvanico, Ch 1 (-) e Ch 2 (-) devono essere in di cortocircuito.

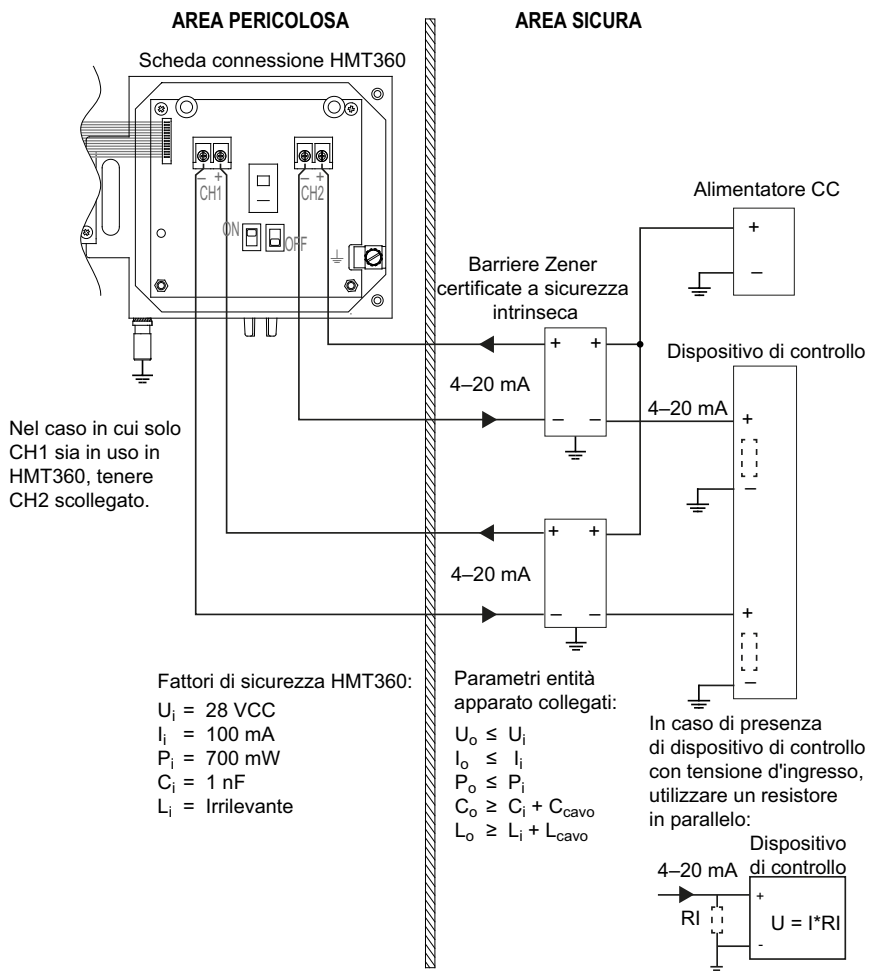


Figura 34 HMT360 connesso a una barriera Zener

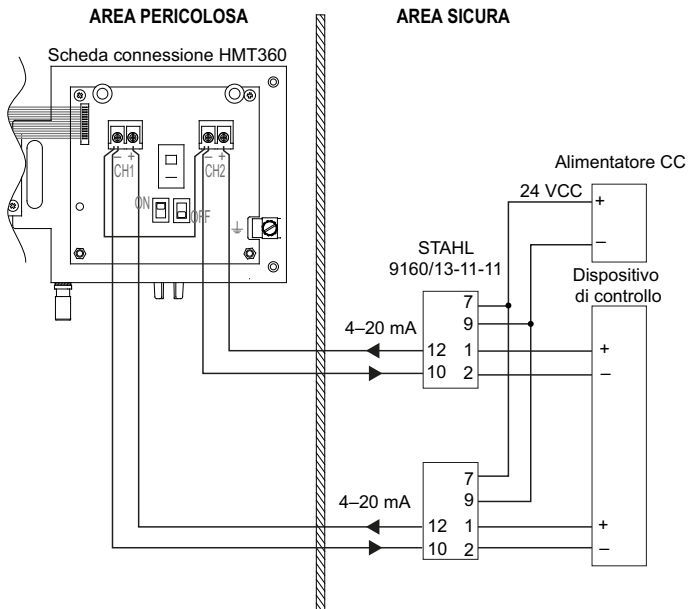


Figura 35 Connessione di esempio all'isolatore galvanico STAHL 9160/13-11-11

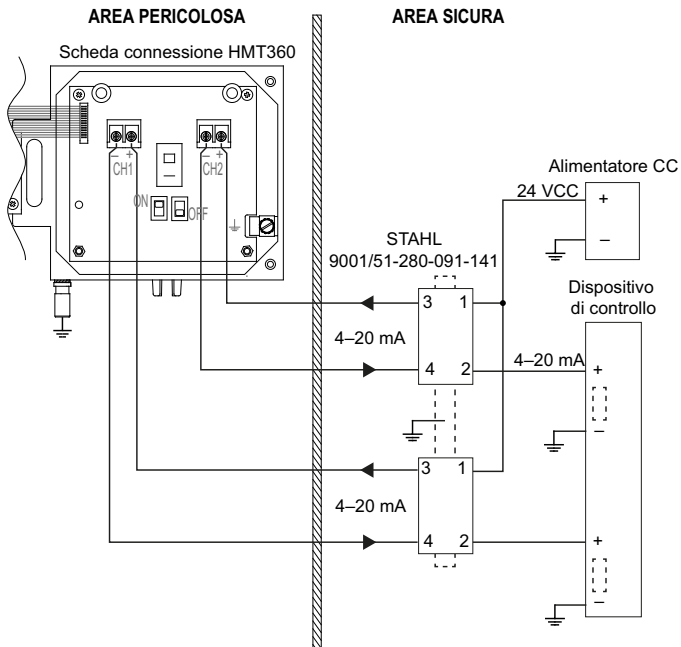


Figura 36 Connessione di esempio a STAHL 9001/51-280-091-141 (barriera Zener)

HMT360 – Instalaciones en ubicaciones peligrosas



AVISO Barreras esenciales en ubicaciones peligrosas.

Cuando se usa el transmisor en lugares peligrosos, es esencial el uso en todo momento de separadores galvánicos o barreras (incluso en el caso de que el cuerpo del transmisor esté situado en la zona segura y sólo la sonda esté en una zona peligrosa). En el reverso de la página puede encontrar ejemplos de conexiones con las barreras. Consulte la Guía del usuario para obtener instrucciones más detalladas.

El paquete del producto no incluye separadores galvánicos ni barreras. Puede solicitar separadores galvánicos a Vaisala como componentes opcionales.

Conexión de 2 cables

Conecte los cables de la fuente de alimentación inactiva a los conectores: CH1 (humedad) y CH2 (temperatura). Ambos canales precisan una fuente de alimentación propia. NOTA: teniendo en cuenta que CH1 es una salida principal, el transmisor no funciona si sólo está conectado CH2 (CH2 está optoaislado de los componentes electrónicos del transmisor).

Condiciones especiales para un uso seguro de acuerdo con la directiva ATEX de la UE

1. El equipo con ventana de visualización o con cable asociado del cabezal del sensor se puede utilizar en áreas Zona 0 Grupo IIC únicamente si se evita el peligro de encendido debido a una carga electrostática.
2. Al instalar el equipo en áreas Zona 0 Grupo II, hay que asegurarse de que no se produzcan chispas debido a impacto o fricción.
3. La interfaz serial solo debe utilizarse fuera de la zona con peligro de explosión. Se debe utilizar el cable de la interfaz serial asociado 25905ZZ.
4. El rango de temperatura ambiente permitido del transmisor es de -40 °C a +60 °C.
5. En el caso de los tipos de sonda HMP362, HMP364, HMP365, HMP367 y HMP368, el rango de temperatura ambiente permitida es de -70 °C a +120 °C para la clase de temperatura T4, y de -70 °C a +180 °C para la clase de temperatura T3.
6. En el caso del tipo de sonda HMP361, el rango de temperatura ambiente permitido es de -40 °C a +60 °C y la clase de temperatura es T4.
7. En el caso del tipo de sonda HMP363, el rango de temperatura ambiente permitido es de -40 °C a +120 °C y la clase de temperatura es T4.

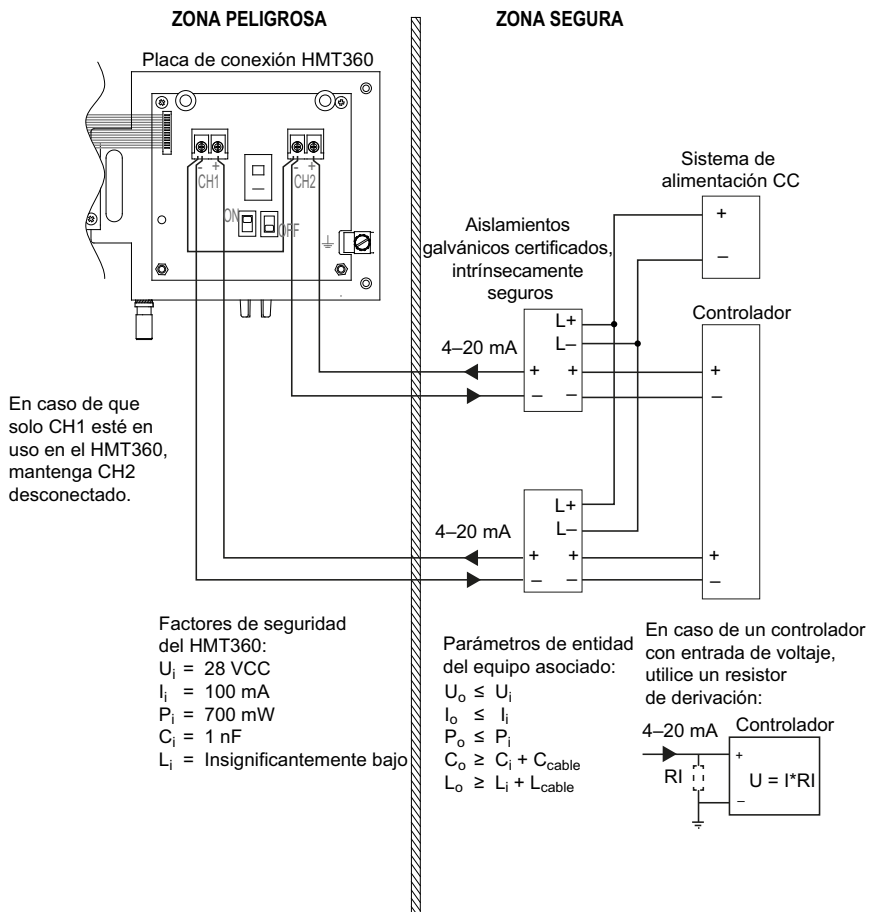


Figura 37 HMT360 conectado a un aislamiento galvánico



PRECAUCIÓN Si se están utilizando las dos salidas analógicas con un aislamiento galvánico, Ch 1 (-) y Ch 2 (-) deben cortocircuitarse.

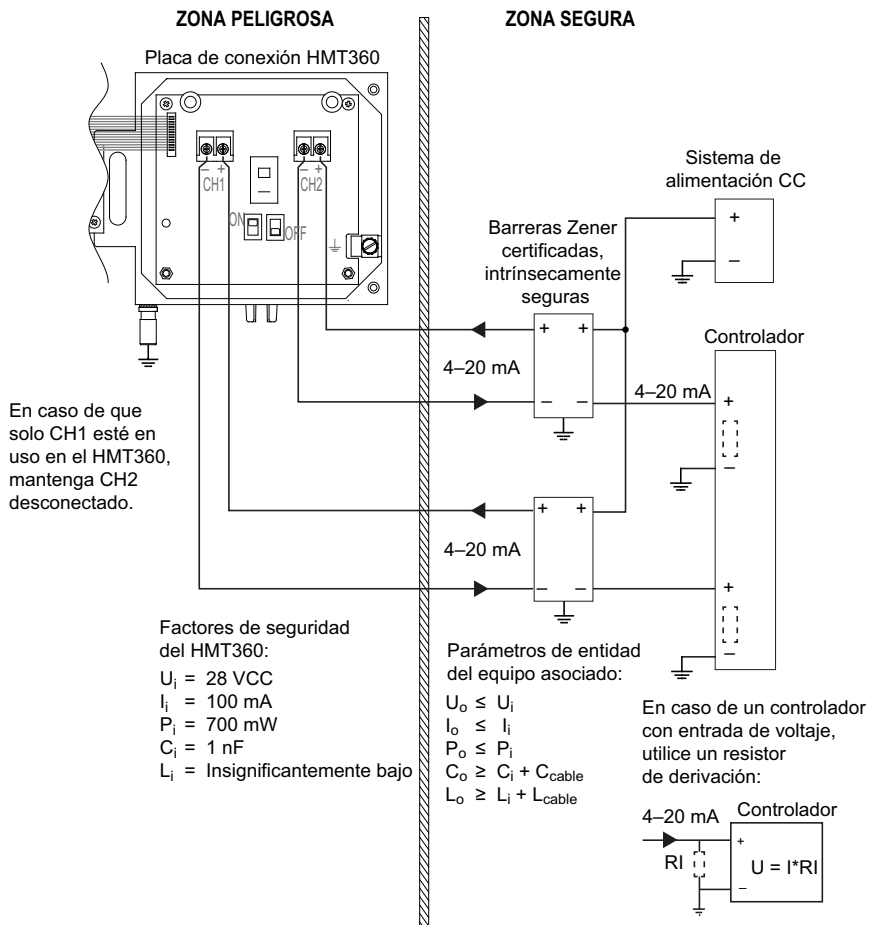


Figura 38 HMT360 conectado a una barrera Zener

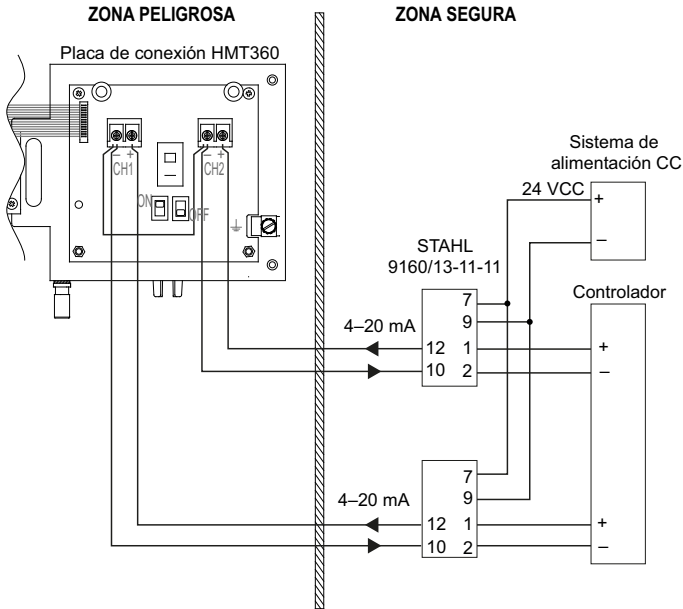


Figura 39 Ejemplo de conexión a un aislamiento galvánico STAHL 9160/13-11-11

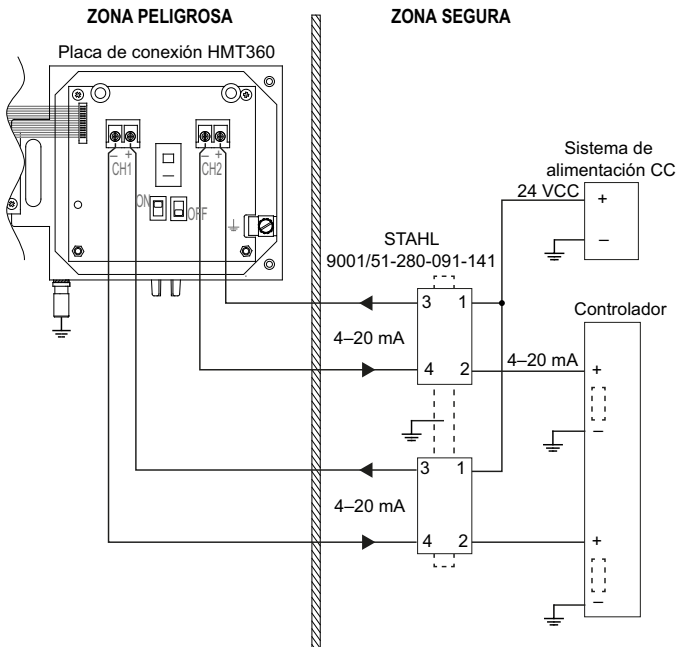


Figura 40 Ejemplo de conexión a STAHL 9001/51-280-091-141 (barrera Zener)

HMT360 – Instalacja w miejscach niebezpiecznych



OSTRZEŻENIE Niezbędne bariery w miejscach niebezpiecznych.

Używając nadajnika w miejscach niebezpiecznych należy zawsze pamiętać o stosowaniu separatorów galwanicznych lub barier (nawet jeśli obudowa nadajnika znajduje się po bezpiecznej stronie i tylko próbnik znajduje się w obszarze niebezpiecznym). Na kolejnych stronach zostały podane przykłady okablowania z barierami. Szczegółowe instrukcje znajdują się w Podręczniku użytkownika.

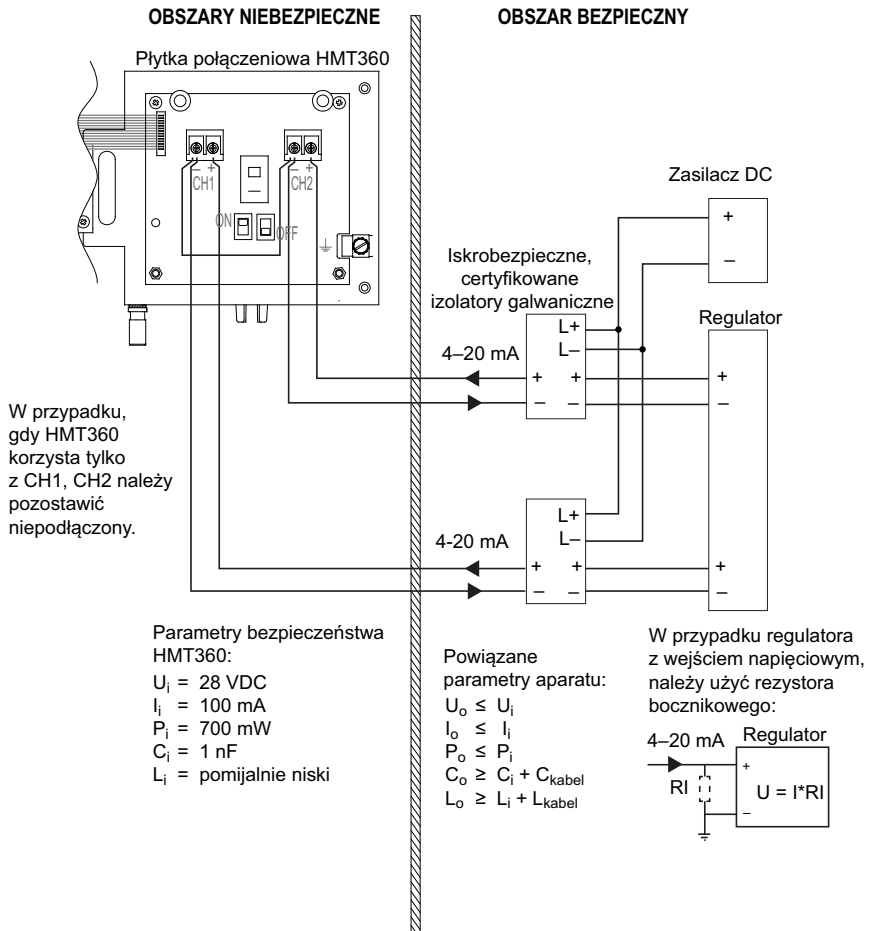
Separatory galwaniczne lub bariery nie zostały dołączone w opakowaniu produktu. Separator galwaniczny można zamówić jako wyposażenie dodatkowe w firmie Vaisala.

Złącze dwuprzewodowe

Podłączyć niezasilane przewody zasilające do złączy: CH1 (wilgotność) i CH2 (temperatura). Oba kanały wymagają własnego zasilania. UWAGA: Ponieważ CH1 to wyjście główne, nadajnik nie działa, jeśli zostanie podłączone tylko CH2 (CH2 jest optoizolowany od elektroniki nadajnika).

Specjalne warunki bezpiecznego stosowania zgodnie z dyrektywą UE ATEX

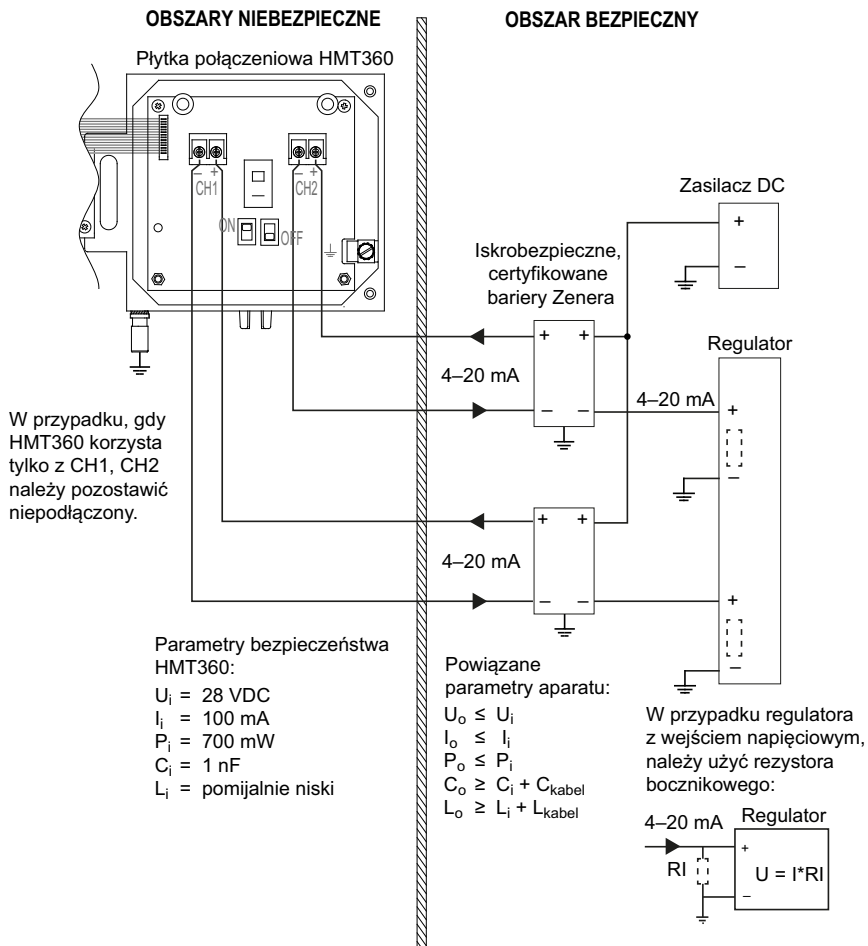
1. Urządzenie z oknem wyświetlacza i/lub odpowiednim kablem głowicy czujnika może być używane w obszarach Strefy 0 Grupy IIC, tylko jeśli można uniknąć zagrożenia zapłonem związanym z wyładowaniem elektrostatycznym.
2. W przypadku instalacji urządzenia w obszarze Strefy 0 Grupy II, konieczne jest upewnienie się, że nie wystąpią iskry związane z uderzeniem lub tarcie.
3. Interfejs szeregowy może być używany tylko poza strefą zagrożenia wybuchem. Konieczne jest użycie odpowiedniego kabla interfejsu szeregowego 25905ZZ.
4. Dopuszczalny zakres temperatury otoczenia w przypadku nadajnika to -40 °C ... +60 °C.
5. W przypadku sond typu HMP362, HMP364, HMP365, HMP367 i HMP368 dopuszczalna temperatura otoczenia to -70 °C ... +120 °C dla klasy temperaturowej T4 oraz -70 °C ... +180 °C dla klasy temperaturowej T3.
6. W przypadku sondy typu HMP361 dopuszczalny zakres temperatury otoczenia w przypadku nadajnika to -40 °C ... +60 °C, a klasa temperaturowa to T4.
7. W przypadku sondy typu HMP363 dopuszczalny zakres temperatury otoczenia w przypadku nadajnika to -40 °C ... +120 °C, a klasa temperaturowa to T4.



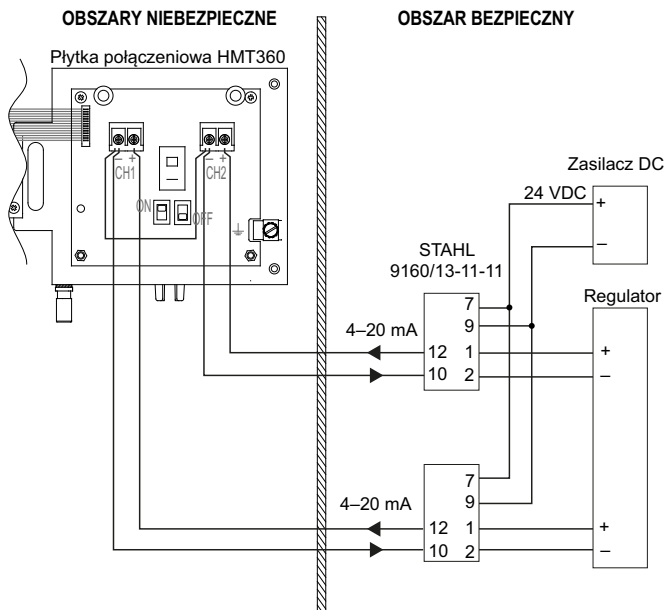
Rysunek 41 Sonda HMT360 podłączona do izolatora galwanicznego



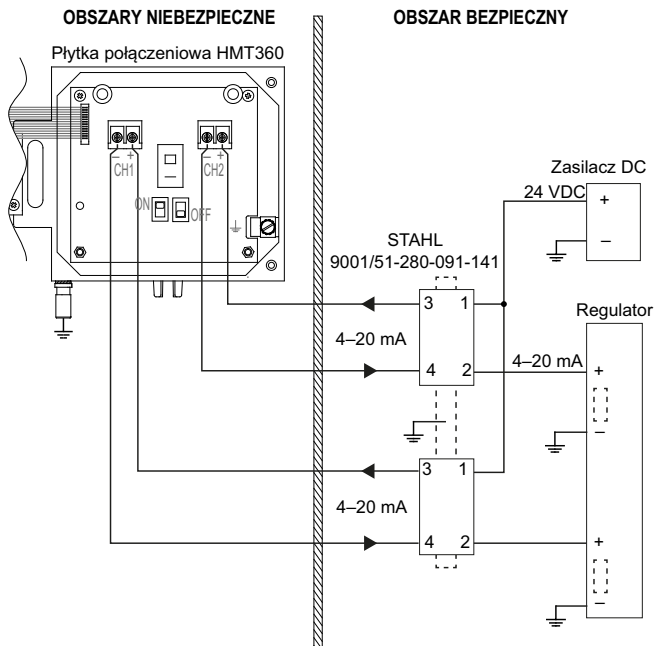
UWAGA Jeżeli w izolatorze galwanicznym są używane obydwie wyjścia analogowe, Ch1 (-) i Ch2 (-) muszą być zwarte.



Rysunek 42 Sonda HMT360 podłączona do bariery Zenera



Rysunek 43 Przykład podłączenia do izolatora galwanicznego STAHL 9160/13-11-11



Rysunek 44 Przykład podłączenia do izolatora galwanicznego STAHL 9001/51-280-091-141 (bariery Zenera)

HMT360 - Uzstādījumi bīstamās vietās



BRĪDINĀJUMS Bīstamās vietās nepieciešamie norobežotāji.

Lietojot raidītāju bīstamās vietās, vienmēr svarīgi ir izmantot galvaniskos separatorus vai norobežotājus (pat, ja raidītāja korpusu novietots drošā vietā un tikai zonde atrodas bīstamā zonā). Lapas otrajā pusē jūs atradīsiet piemērus elektroinstalācijām ar norobežotājiem. Sīkākām instrukcijām, skatiet Lietotāja pamācību.

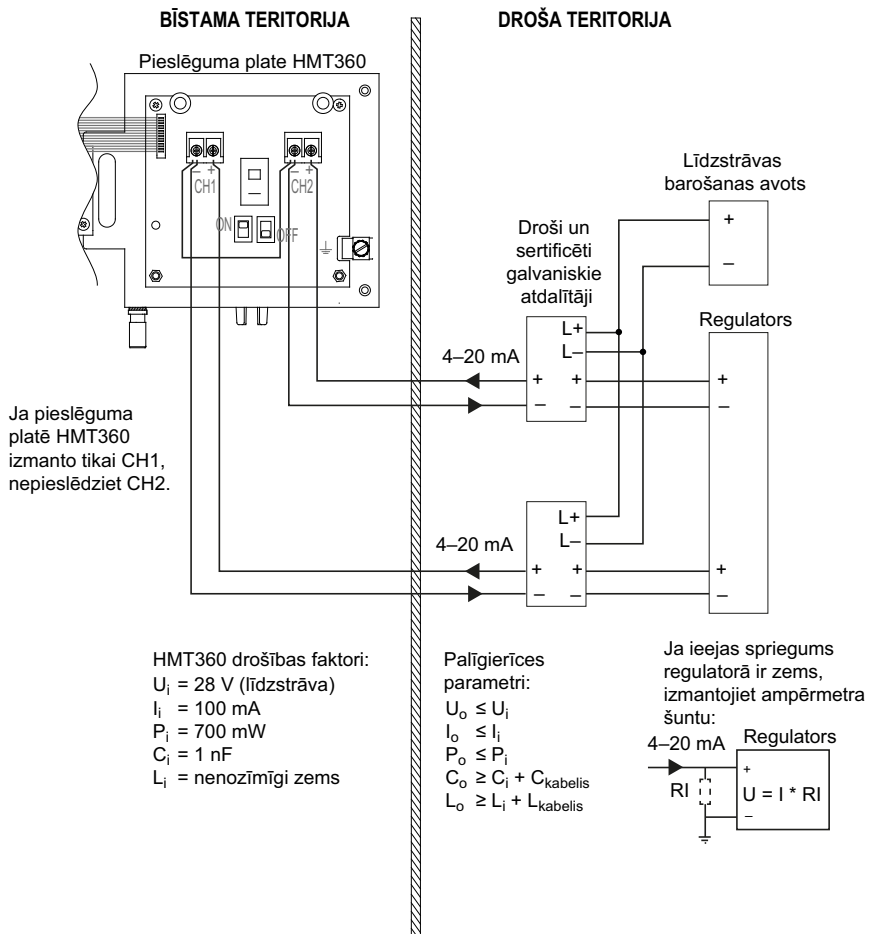
Galvaniskie separatori vai norobežotāji nav ietverti produkta komplektācijā. Jūs varat pasūtīt galvanisko separatoru kā papildu detaļu no Vaisala uzņēmuma.

Divvadu savienojums

Pievienot strāvai nepieslēgtos barošanas avotu vadus konektoriem: CH1 (mitrums) un CH2 (temperatūra). Abiem kanāliem nepieciešams savs barošanas avots. IEVĒROJĒT: Tā kā CH1 ir galvenais izejas jaudas kanāls, raidītājs nedarbojas, ja pievienots ir tikai CH2 (CH2 ir optoizolēts no raidītāja elektronikas).

Drošas lietošanas nosacījumi saskaņā ar ES ATEX direktīvu

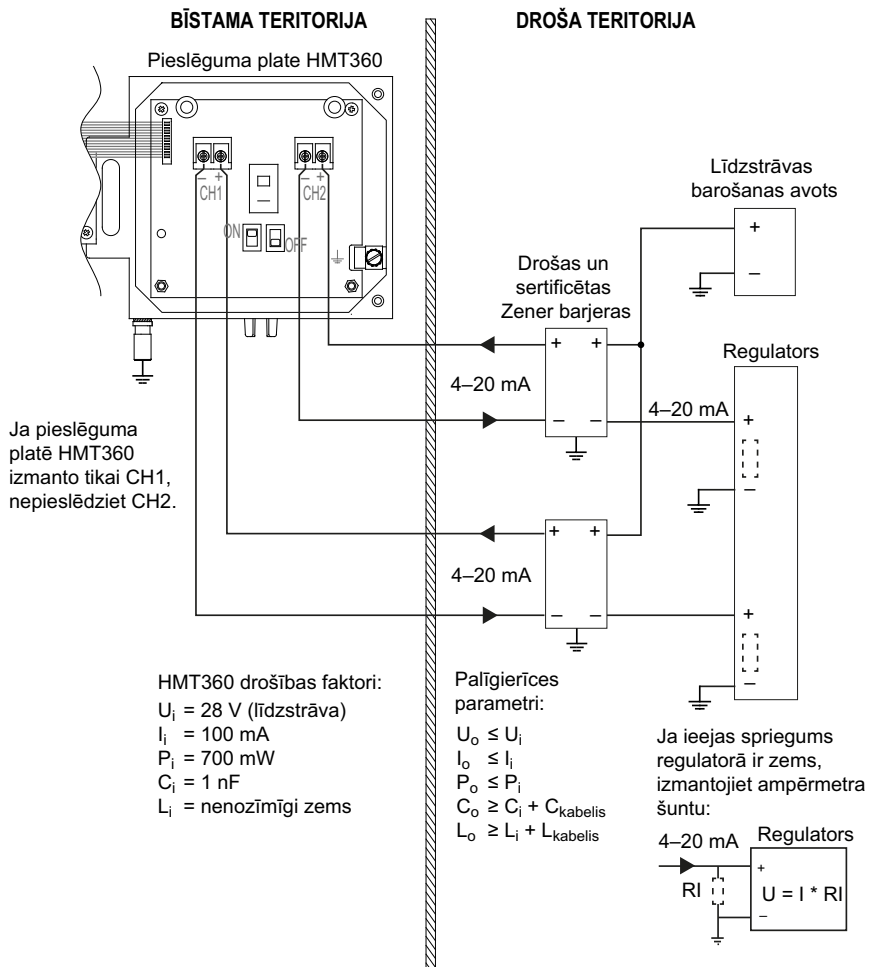
1. Aprīkojumu ar displeja logu un/vai sensora palīgkabeli drīkst lietot 0. zonas II C grupas teritorijās tikai gadījumā, ja lietošana nerada aizdegšanās draudus elektrostātiskā lādiņā dēļ.
2. Uzstādot aprīkojumu 0. zonas II grupas teritorijā, jāpārliedzina, ka trieciena vai berzes rezultātā nerodas dzirksteles.
3. Seriālo interfeisu drīkst lietot tikai ārpus sprādzienbīstamām teritorijām. Lietojiet seriālā interfeisa palīgkabeli 25905ZZ.
4. Raidītāja atļautais apkārtējās vides temperatūras diapazons ir no -40 °C līdz +60 °C.
5. Zondes tipiem HMP362, HMP364, HMP365, HMP367 un HMP368 atļautais apkārtējās vides temperatūras diapazons ir no -70 °C līdz +120 °C (temperatūras klasei T4) un no -70 °C līdz +180 °C (temperatūras klasei T3).
6. Zondes tipam HMP361 atļautais apkārtējās vides temperatūras diapazons ir no -40 °C līdz +60 °C (temperatūras klase T4).
7. Zondes tipam HMP363 atļautais apkārtējās vides temperatūras diapazons ir no -40 °C līdz +120 °C (temperatūras klase T4).



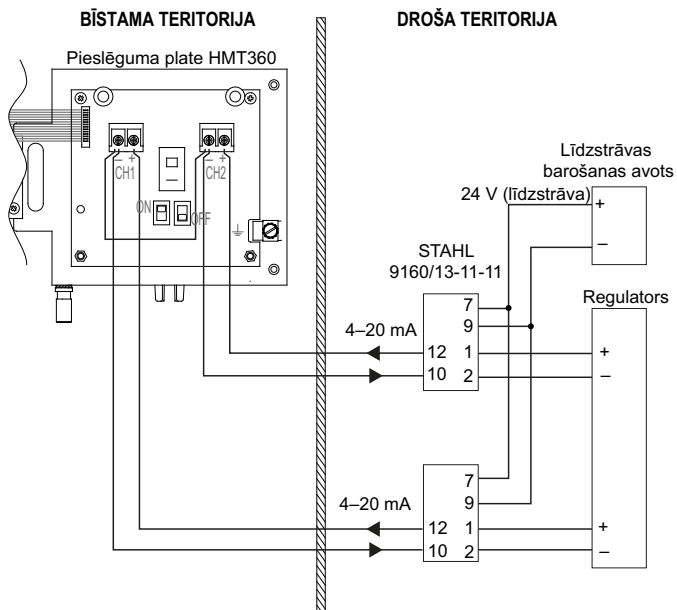
Attēls 45 Plate HMT360 pieslēgta galvaniskajam atdalītājam



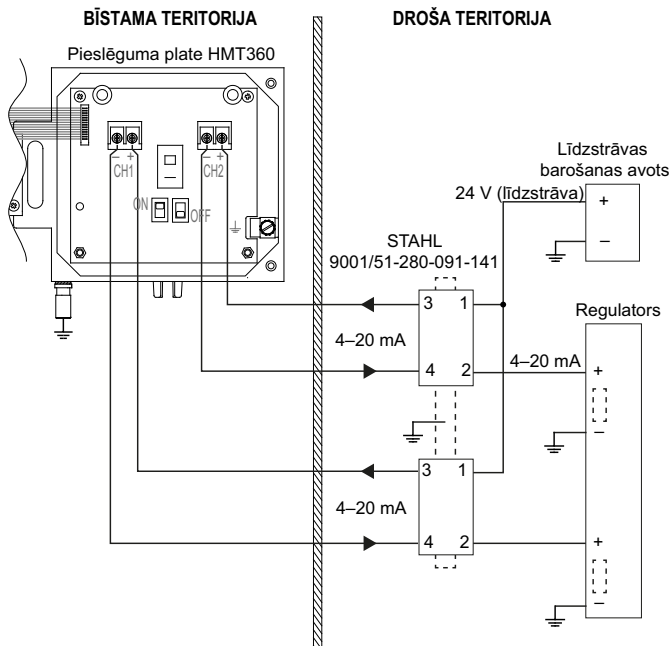
UZMANĪBU Ja kopā ar galvanisko atdalītāju izmanto abas analogās izvades ierīces, izveidojiet CH1 (-) un CH2 (-) īsslēgumu.



Attēls 46 Plate HMT360 pieslēgta Zener barjerai



Attēls 47 Piemērs: pieslēgums STAHL 9160/13-11-11 galvaniskajam atdalītājam



Attēls 48 Piemērs: pieslēgums STAHL 9001/51-280-091-141 galvaniskajam atdalītājam (Zener barjera)

HMT360 - INSTALLATIONER MED FARLIGE PLACERINGER



ADVARSEL Afskærmning er afgørende på farlige steder.

Når du bruger transmitteren på farlige steder, er det altid vigtigt at benytte galvaniserede separatorer eller afskærmninger (selv om transmitterenheden er placeret på den sikre side og kun sonden er placeret i det farlige område). På modsatte side finder du eksempler på ledningsnet med afskærmninger. Se i Brugervejledningen efter nærmere instruktioner.

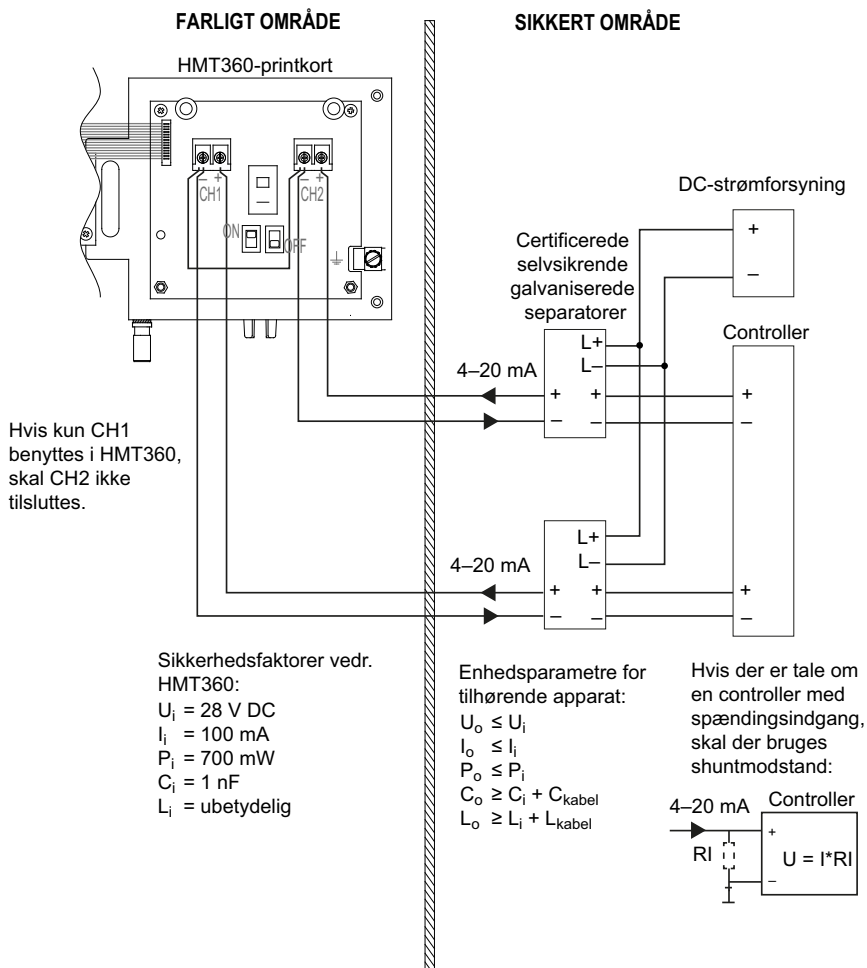
Galvaniserede separatorer eller afskærmninger følger ikke med produktpakken. Du kan bestille en galvaniseret separator fra Vaisala som ekstraudstyr.

Tolederforbindelse

Tilslut netledingerne i stikkene, før strømmen er tilsluttet. CH1 (luftfugtighed) og CH2 (temperatur). Begge kanaler kræver en særskilt strømforsyning. BEMÆRK! Når CH1 er hovedstikket, fungerer transmitteren ikke, hvis kun CH2 er tilsluttet (CH2 er optoisoleret mod transmittersens elektronik).

Særlige forhold vedrørende sikker brug i henhold til EU's ATEX-direktiv

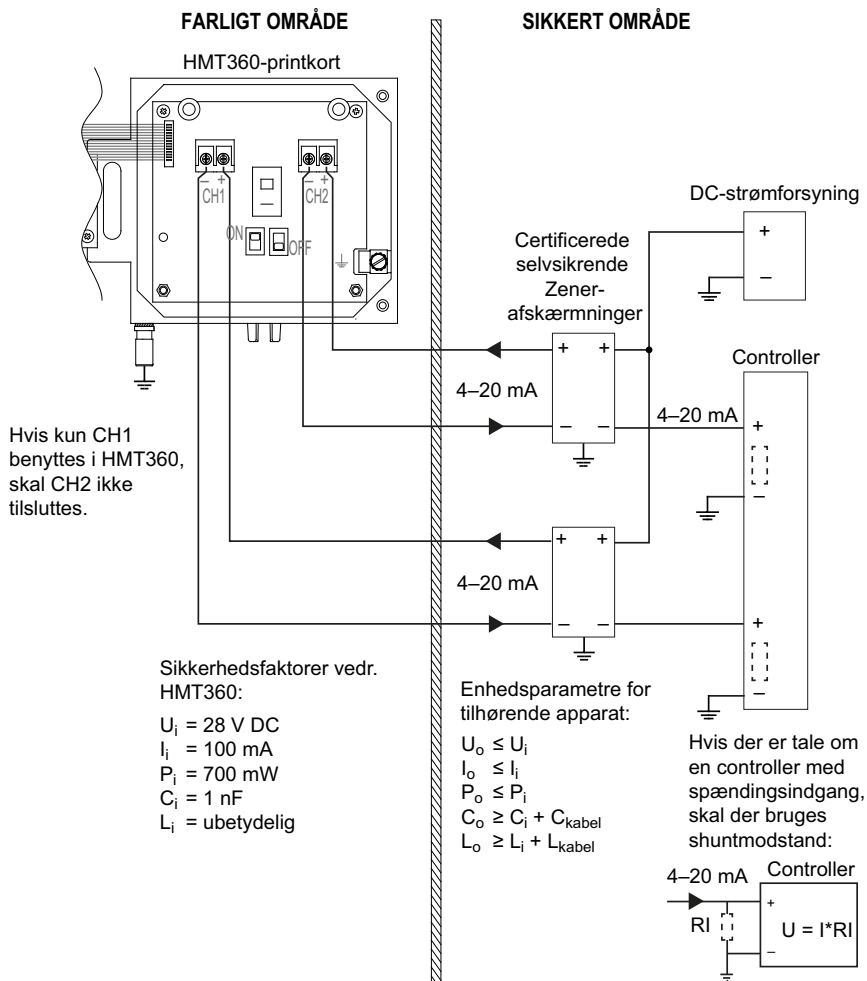
1. Udstyret med skueglas og/eller tilhørende kabel til sensorhovedet må kun anvendes i områder i zone 0 gruppe IIC, hvis der ikke er fare for antændelse på grund af elektrostatisk udladning.
2. Hvis udstyret installeres i et område i zone 0 gruppe II, skal det sikres, at der ikke kan dannes gnister ved tryk eller friktion.
3. Seriegrænsefladen må kun anvendes uden for området med eksplosionsfare. Det tilhørende seriegrænsefladekabel 25905ZZ skal anvendes.
4. Det tilladte omgivelsestemperaturområde for transmitteren er fra -40 °C til +60 °C.
5. For sondetyperne HMP362, HMP364, HMP365, HMP367 og HMP368 er det tilladte omgivelsestemperaturområde fra -70 °C til +120 °C for temperaturklasse T4, og for temperaturklasse T3 er det tilladte omgivelsestemperaturområde fra -70 °C til +180 °C.
6. For sondetypen HMP361 er det tilladte omgivelsestemperaturområde fra -40 °C til +60 °C, og temperaturklassen er T4.
7. For sondetypen HMP363 er det tilladte omgivelsestemperaturområde fra -40 °C til +120 °C, og temperaturklassen er T4.



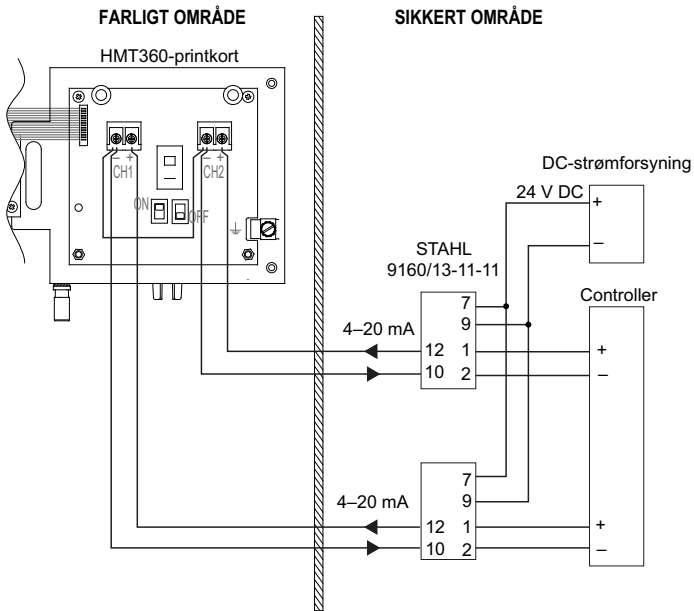
Figur 49 HMT360 med tilslutning til en galvaniseret separator



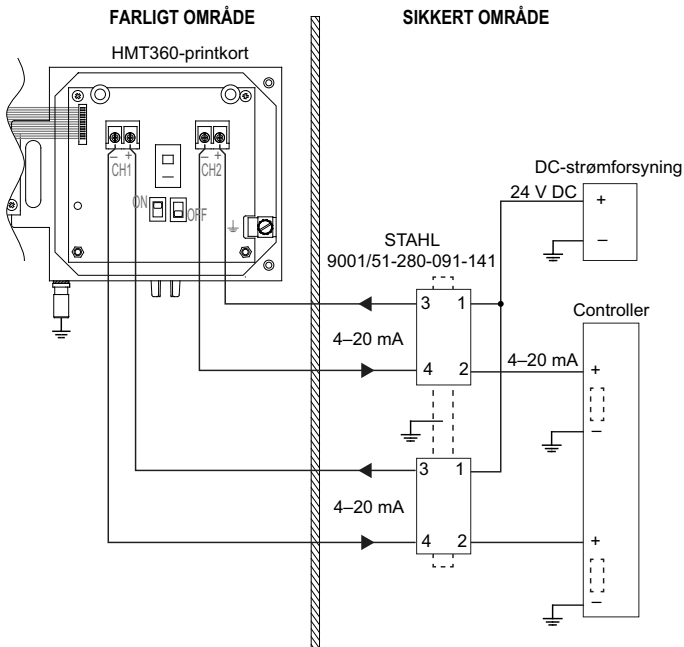
PAS PÅ Hvis begge analoge udgangsstik benyttes med en galvaniseret separator, skal CH1 (-) og CH2 (-) være kortsluttede.



Figur 50 HMT360 med tilslutning til en Zener-afskærmning



Figur 51 Eksempel på tilslutning til galvanisk separator af typen STAHL 9160/13-11-11



Figur 52 Eksempel på tilslutning til galvanisk separator af typen STAHL 9001/51-280-091-141 (Zener-afskærmning)

HMT360 – Paigaldused ohtlikesse kohtadesse



HOIATUS Ohtlikes kohtades olulised barjäärid.

Transmitteri kasutamisel ohtlikes paikades on alati oluline kasutada galvaanilisi eraldajaid või barjääre (isegi, kui transmitteri korpus asub turvalisel poolel ning ohtlikus alas on vaid sond). Te leiате lehe teasel küljel barjääridega ühendusnäiteid. Otsige detailsemaid juhiseid Kasutusjuhendist.

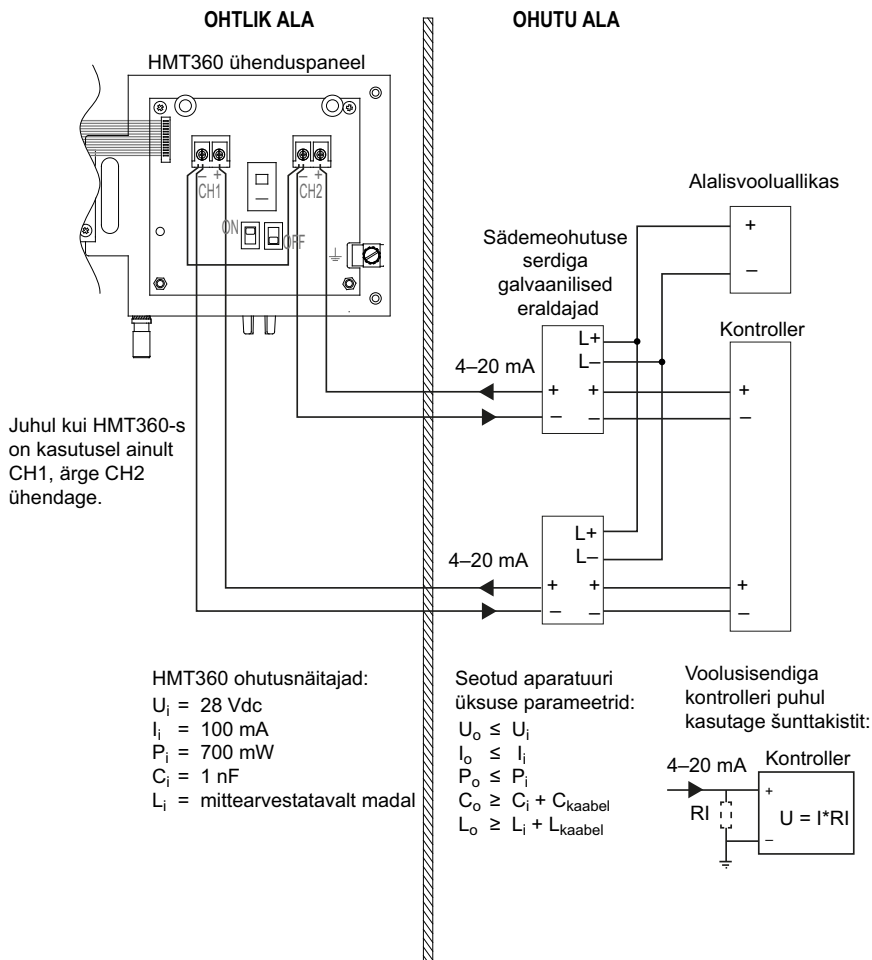
Galvaanilisi eraldajaid või barjääre tootega kaasas ei ole. Te saate tellida galvaanilise eraldaja Vaisalalt lisatarvikuna.

2-juhtmeline ühendus

Ühendage pingestamata voolujuhtmed klemmidega: CH1 (niiskus) ja CH2 (temperatuur). Mõlemad kanalid nõuavad oma vooluallikat. MÄRKUS: Et CH1 on põhiväljund, ei tööta transmitter, kui ühendatud on vaid CH2 (CH2 on transmitteri elektroonikast optiliselt isoleeritu).

Eritingimused ohutuks kasutamiseks vastavalt direktiivile EU ATEX

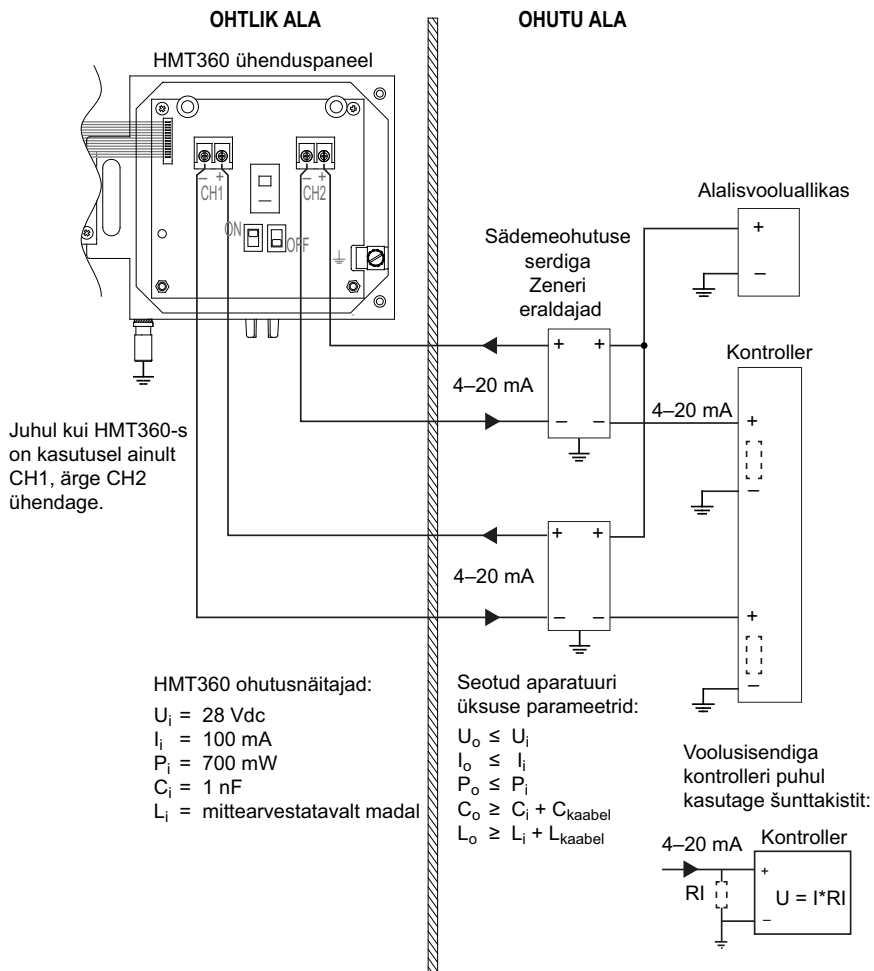
1. Ekraaniga ja/või anduri peaga seostatud kaabliga seadmeid tohib kasutada ainult 0 tsooni IIC grupi aladel, kui on välistatud süttimine elektrostaatilise laengu tõttu.
2. Seadme paigaldamisel 0 tsooni II grupi alale tuleb tagada, et ei oleks võimalust sädemete tekkeks löökide või hõõrdumise tõttu.
3. Jadaliidest tohib kasutada ainult väljaspool plahvatusohtlikku ala. Kasutada tuleb seotud jadaliidese kaablit 25905ZZ.
4. Transmitterile lubatud ümbritseva keskkonna temperatuurivahemik on -40 °C kuni $+60\text{ °C}$.
5. Sonditüüpidele HMP362, HMP364, HMP365, HMP367 ja HMP368 on ümbritseva keskkonna lubatud temperatuurivahemik -70 °C kuni $+120\text{ °C}$ temperatuuriklassi T4 puhul ja -70 °C kuni $+180\text{ °C}$ temperatuuriklassi T3 puhul.
6. Sonditübile HMP361 on lubatud ümbritseva keskkonna temperatuurivahemik -40 °C kuni $+60\text{ °C}$ ja temperatuuriklass on T4.
7. Sonditübile HMP363 on lubatud ümbritseva keskkonna temperatuurivahemik -40 °C kuni $+120\text{ °C}$ ja temperatuuriklass on T4.



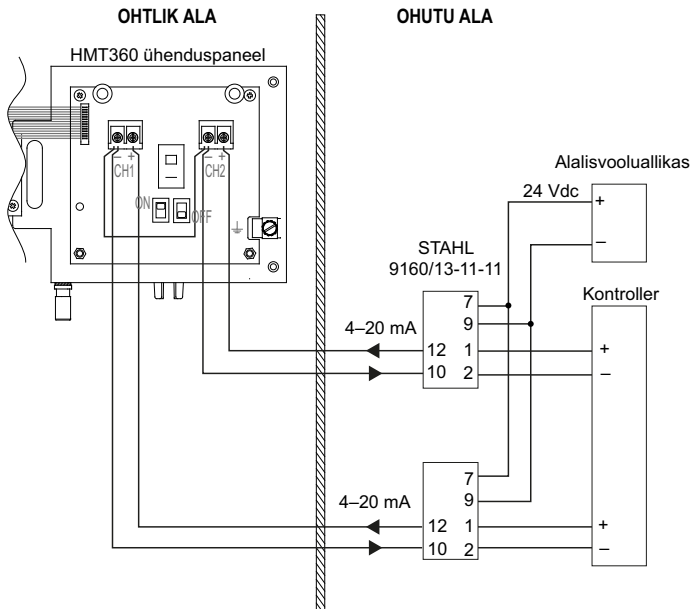
Joonis 53 Galvaanilise eraldajaga ühendatud HMT360



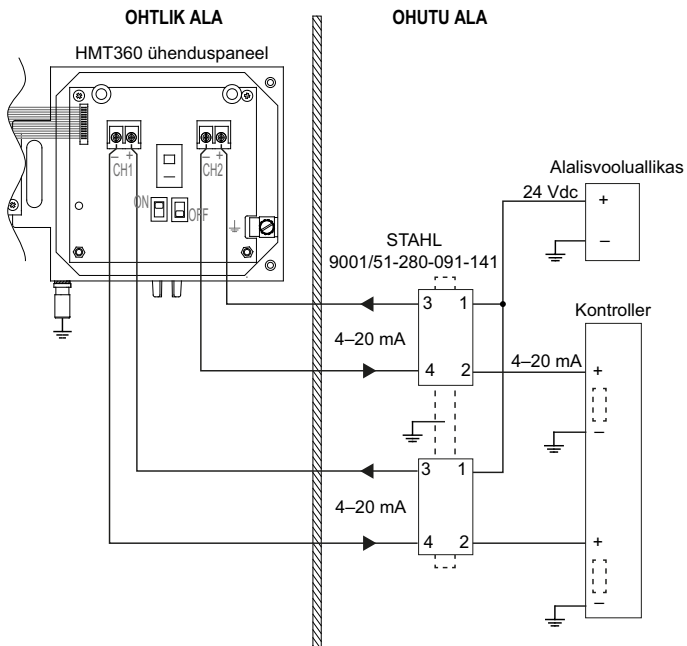
ETTEVAATUST Kui mõlemad analoogväljundid on kasutusel koos galvaanilise eraldajaga, siis tuleb CH1 (-) ja CH2 (-) lühistada.



Joonis 54 Zeneri eraldajaga ühendatud HMT360



Joonis 55 Näidisühendus STAHL 9160/13-11-11 galvaanilise eraldajaga



Joonis 56 Näidisühendus STAHL 9001/51-280-091-141-ga (Zeneri eraldaja)

HMT360 - INSTALLATIE OP GEVAARLIJKE LOCATIES



ATTENTIE Barrières essentieel op gevaarlijke locaties.

Wanneer de opnemer in gevaarlijke locaties wordt gebruikt, is het noodzakelijk een galvanische afscheider of barrière te gebruiken (ook wanneer het huis van de opnemer aan de veilige kant staat en alleen de sonde zich in de gevaarlijke gebied bevindt). Aan de ommezijde zijn voorbeelden van bedrading met barrières. Zie de handleiding voor meer gedetailleerde instructies.

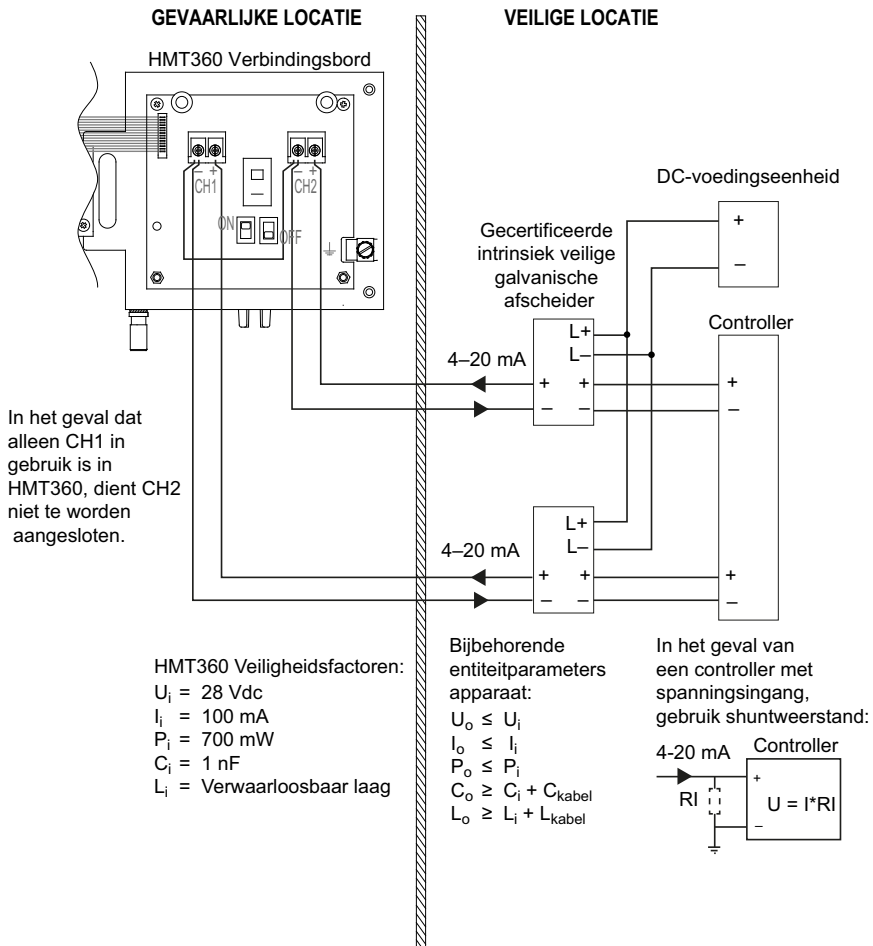
De produkt verpakking is exclusief de galvanische afscheiders of barrières. U kunt een galvanische afscheider bestellen van Vaisala als een optioneel onderdeel.

2-draad aansluiting

Sluit de draden van de voedingseenheid aan de connectoren: CH1 (vochtigheid) en CH2 (temperatuur). Beide kanalen moeten een eigen voedingseenheid hebben. NB. Omdat CH1 een hoofduitgang is, werkt de opnemer niet als alleen CH2 is aangesloten (CH2 is optogeisoleerd van de opnemer-elektronica).

Speciale voorwaarden voor veilig gebruik volgens EU ATEX-richtlijn

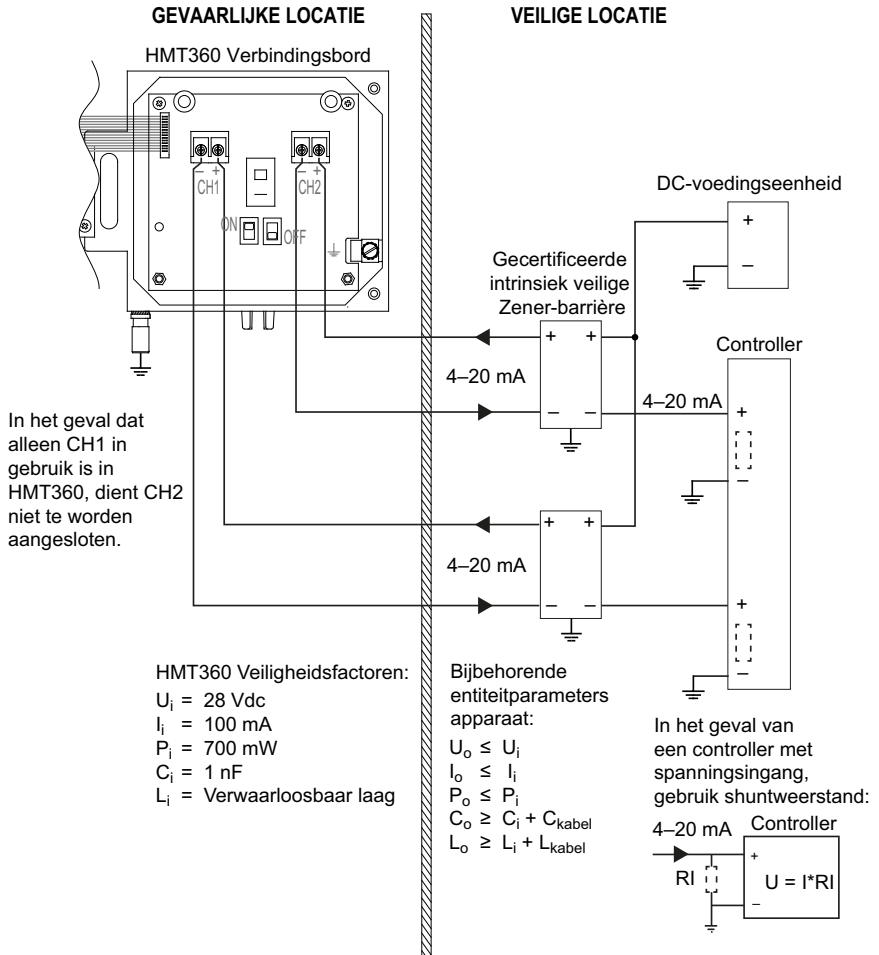
1. De apparatuur met displayvenster en/of met bijbehorende kabel of sensorkop kan worden gebruikt in Zone 0 Group IIC-gebieden, maar alleen als ontstekingsgevaar door elektrostatische oplading wordt vermeden.
2. Bij de installatie van de apparatuur in het Zone 0 Group II-gebied, moeten vonken door impact of wrijving worden voorkomen.
3. De seriële interface mag uitsluitend buiten het explosiegevaarlijke gebied worden gebruikt. De bijbehorende seriële interfacekabel (25905ZZ) dient te worden gebruikt.
4. Toegestane omgevingstemperatuur voor de transmitter is -40 °C ... +60 °C.
5. Voor de sondetypen HMP362, HMP364, HMP365, HMP367 en HMP 368 is de toegestane omgevingstemperatuur voor temperatuurklasse T4 -70 °C ... +120 °C en voor temperatuurklasse T3 -70 °C ... +180 °C.
6. Voor sondetype HMP361 is de toegestane omgevingstemperatuur -40 °C ... +60 °C en is de temperatuurklasse T4.
7. Voor sondetype HMP363 is de toegestane omgevingstemperatuur -40 °C ... +120 °C en is de temperatuurklasse T4.



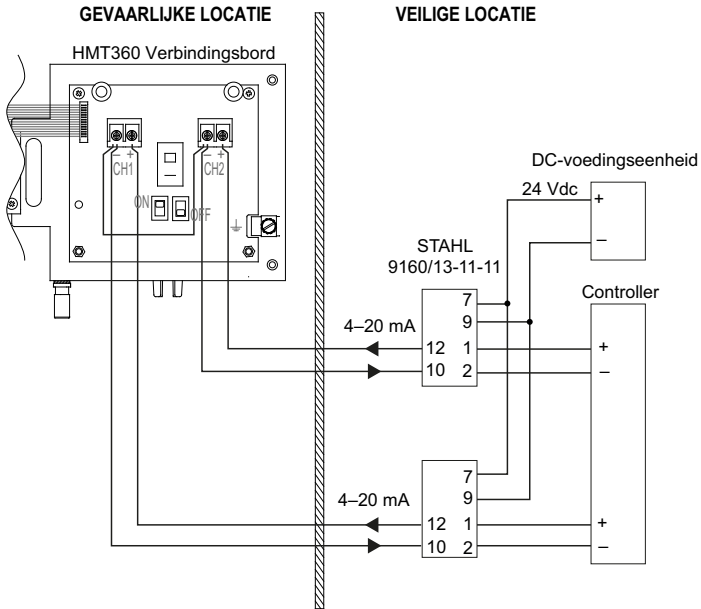
Figuur 57 HMT360 verbonden met een galvanische afscheider



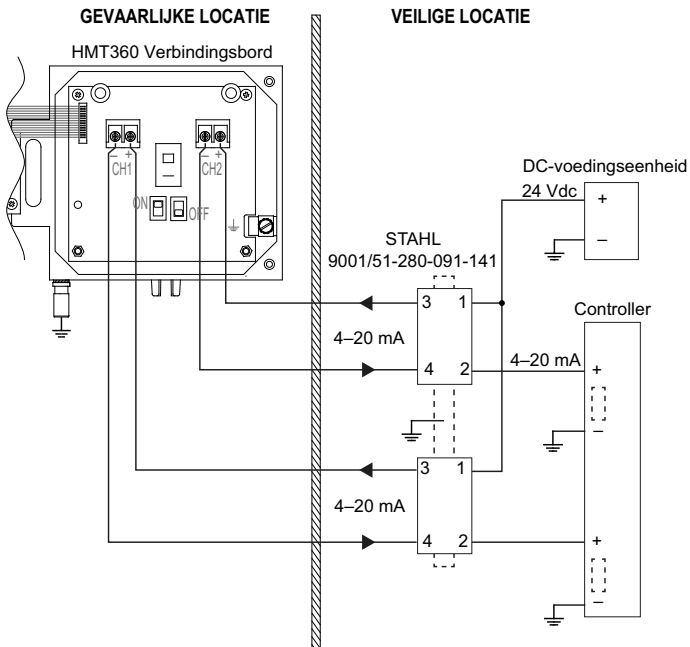
LET OP! Indien beide analoge uitgangen worden gebruikt met een galvanische afscheider, moeten CH 1 (-) en CH 2 (-) worden kortgesloten.



Figuur 58 HMT360 verbonden met een zenerbarrière



Figuur 59 Voorbeeldverbinding met STAHL 9160/13-11-11 galvanische afscheider



Figuur 60 Voorbeeldverbinding met STAHL 9001/51-280-091-141 (zenerbarrière)

Certification Documents

EU Declaration of Conformity

VAISALA

2016-07-06A/JTL

Page 1 (2)

EU DECLARATION OF CONFORMITY

Manufacturer: Vaisala Oyj
Post address: PL 26, FIN-00421 Helsinki
Street address: Vanha Nurmiyarventie 21, Vantaa, Finland

This declaration of conformity is issued under the sole responsibility of the manufacturer. Object of the declaration:

HMT360 -series Intrinsically safe Humidity and Temperature transmitters

The object of the declaration described above is in conformity with Directives:

ATEX Directive (2014/34/EU of 26 February 2014)
EMC Directive (2014/30/EU of 26 February 2014)
ROHS Directive (2011/65/EU of 8 June 2011)

The conformity is declared with using the following standards:

EN 60079-0 (2012)
EN 60079-11 (2012)

EC-type examination certificate number: VTT 09 ATEX 028X issue No:3

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - for use in industrial locations.

EN 55022:2010 Class B. Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Vantaa 2016-07-06



.....
Jukka Lyömiö
Standards and Approvals Manager

HMT360 TRANSMITTER: DESCRIPTION**Transmitter unit:**

The **HMT360** transmitters have independent transmitter body and probe units to be attached together. The HMP360 -series probes are used only with the HMT360 transmitter.

Probe types:

HMT360 transmitter can be equipped with the following probe units, with different kinds of sensor heads and cable lengths 2m, 5m and 10m.

The probe types covered by this D.O.C are:

HMP361 - short probe for wall mounting

HMT362 - small pressure-tight flanged probe

HMP363 - small probe head (diameter 13.5 mm) for tight spaces

HMP364 - probe for pressurized spaces up to 100 bar

HMP365 - probe for high temperatures up to +180 °C

HMP367 - probe for high humidities

HMP368 - probe for installations in pressurized pipelines (up to 40 bars)

- End of list -

VTT Production Quality Assessment Notification



PRODUCTION QUALITY
ASSESSMENT NOTIFICATION
VTT 09 ATEX Q 001

1 (1)



1. PRODUCTION QUALITY ASSESSMENT NOTIFICATION
2. Equipment or Protective Systems Intended for use in Potentially explosive atmospheres Directive 94/9/EC
3. Reference: VTT 09 ATEX Q 001
4. Equipment: Humidity and temperature transmitter with the protection concept intrinsic safety "i" and protection by enclosure "t"
5. Manufacturer: Vaisala Oyj
Vanha Nurmijärventie 21
FI-01670 Vantaa
Finland
6. VTT Expert Services Ltd, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of March 1994, notifies that the manufacturer has a production quality system which complies with Annex IV of the Directive. Compliance has been assured by compliance with the standard EN ISO/IEC 80079-34.
7. The Production Quality Assurance guarantees conformity of the equipment and the component with the protection concept referred in the clause 4. The equipment and the component can be placed on the market and put into service if properly installed and maintained and used for its intended purpose.
8. This notification, valid until 10.6.2018, is based upon an audit report VTT-S-02615-15 and the former notifications. This notification can be withdrawn if the manufacturer no longer satisfies to the requirements of Annex IV of the Directive. Results of periodical reassessments of the quality system are part of this notification.
9. The EC-Type Examination certificates covered by this Notification are agreed between the Manufacturer and VTT Expert Services Ltd.

Espoo, 5.6.2015

VTT Expert Services Ltd

Martti Siirola
Senior Expert

Risto Sulonen
Product Manager


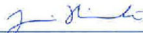

VTT Expert Services Ltd
Kivimiehentie 4, Espoo
P.O.Box 1001, FIN-02044 VTT, Finland

Tel + 358 20 722 111

FINAS
1900 (EN ISO/IEC 17020)
(Tyyppi A / Type A)



VTT IECEX Certificates

		IECEX Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>For rules and details of the IECEX Scheme visit www.iecex.com</small>			
Certificate No.:	IECEX VTT 09.0002X	Issue No. 3	Certificate history: <small>Issue No. 3 (2015-05-29) Issue No. 2 (2011-04-06) Issue No. 1 (2009-08-26) Issue No. 0 (2009-06-10)</small>
Status:	Current	Page 1 of 4	
Date of Issue:	2015-05-29		
Applicant:	Vaisala Oyj Vanha Nummijärventie 21 FI-01670 Vantaa Finland		
Electrical Apparatus:	Humidity and temperature transmitter type HMT360		
Optional accessory:			
Type of Protection:	Intrinsic safety		
Marking:	Ex ia IIC T4 Ga		
Approved for issue on behalf of the IECEX Certification Body:		Jenni Hirvelä	
Position:		Expert	
Signature: <i>(for printed version)</i>			
Date:		<u>2015-05-29</u>	
<p>1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEX Website.</p>			
Certificate issued by			
VTT Technical Research Centre of Finland Otakaari 7 B, Espoo P.O.Box 1000 FI-02044 VTT Finland			



IECEX Certificate of Conformity

Certificate No: IECEX VTT 09.0002X Issue No: 3
Date of Issue: 2015-05-29 Page 2 of 4
Manufacturer: **Valisala Oyj**
Vanha Nurmijärventie 21
FI-01670 Vantaa
Finland

Additional Manufacturing
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0
IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[FI\VT:ExTR39_3002403](#)

Quality Assessment Report:

[FI\VT:CAR09_0001503](#)



IECEx Certificate of Conformity

Certificate No: IECEx VTT 09.0002X

Issue No: 3

Date of Issue: 2015-05-29

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The humidity and temperature transmitter, type HMT 360, for the measurement of temperature and humidity with the following associated sensor heads:

HMP361 wall-mounting probe
HMP362 probe can be used in conjunction with sampling cells
HMP363 probe for restricted space
HMP364 probe for low and high pressure
HMP365 probe for elevated temperature
HMP367 probe for high moisture applications
HMP368 probe for pressure pipes or liquids

Electrical data (maximum values per channel):

U_i = 28 V
I_i = 100 mA
P_i = 700 mW
C_i = 1 nF
L_i negligibly low

CONDITIONS OF CERTIFICATION: YES as shown below:

- 1) The equipment with display window and/or with associated cable of the sensor head can be used in Zone 0 Group IIC areas only if the danger of ignition due to electrostatic charge is avoided
- 2) With the installation of the equipment in Zone 0 Group II area it has to be ensured that sparks due impact or friction do not occur,
- 3) The serial interface must only be used outside the explosion hazardous area. The associated serial interface cable 25905ZZ is to be used.
- 4) Allowed ambient temperature range is -40 °C...+60 °C for the transmitter.
- 5) For the probe types HMP362, HMP364, HMP365, HMP 367 and HMP368 the allowed ambient temperature range is -70 °C...+120 °C for the temperature class T4 and the allowed ambient temperature range is -70 °C...+180 °C for the temperature class T3.
- 6) For the probe type HMP361 the allowed ambient temperature range is -40 °C...+60 °C and the temperature class is T4.
- 7) For the probe type HMP363 the allowed ambient temperature range is -40 °C...+120 °C and the temperature class is T4.



IECEX Certificate of Conformity

Certificate No: IECEX VTT 09.0002X

Issue No: 3

Date of issue: 2015-05-29

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The probe sensors may be situated in other ambient temperature than the transmitter according to the conditions of certification mentioned above.



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX VTT 12.0016X** issue No.: **0** Certificate history:

Status: **Current**

Date of Issue: **2013-02-01** Page 1 of 3

Applicant: **Vaisala Oyj**
Vanha Nummijärventie 21
FI-01670 Vantaa
Finland
Finland

Electrical Apparatus: **Humidity and Temperature transmitter type HMT 360**
Optional accessory:

Type of Protection: **Ex ta**

Marking: **Ex ta IIIC T₅₀₀ 80 °C Da**

Approved for issue on behalf of the IECEx Certification Body: **Tiina Ala-Ouinen**

Position: **Manager, Services**

Signature:
(for printed version)

Date:

1.2.2013

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

VTT Expert Services Ltd.
Kivimiehentie 4, Espoo
P.O.Box 1001
FI-02044 VTT
Finland





IECEX Certificate of Conformity

Certificate No.: IECEX VTT 12.0016X
Date of Issue: 2013-02-01 Issue No.: 0
Page 2 of 3
Manufacturer: Vaisala Oyj
Vanha Nummijärventie 21
FI-01570 Vantaa
Finland
Finland

Additional Manufacturing location
(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex product covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identification documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0
IEC 60079-31 : 2008 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
Edition: 1

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
FI/VTT/EX/12.001/0/00

Quality Assessment Report:
FI/VTT/QAR09.0001/02



IECEX Certificate of Conformity

Certificate No.: IECEX VTT 12.0016X

Date of Issue: 2013-02-01

Issue No.: 0

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The humidity and temperature transmitter, type HMT 360 protected with a stainless steel cover, for the measurement of temperature and humidity with the following associated sensor heads:

- HMP361 wall-mounting probe
- HMP362 probe can be used in conjunction with sampling cells
- HMP363 probe for restricted space
- HMP364 probe for low and high pressure
- HMP365 probe for elevated temperature
- HMP367 probe for high moisture applications
- HMP368 probe for pressure pipes or liquids

Electrical data (maximum values per channel):

$U_i = 28 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 700 \text{ mW}$, $C_i = 1 \text{ nF}$, L_i negligibly low

CONDITIONS OF CERTIFICATION: YES as shown below:

The permissible ambient temperature range is $-40 \text{ }^\circ\text{C} \leq T_{\text{amb}} \leq +60 \text{ }^\circ\text{C}$.

The serial interface must only be used outside the explosion hazardous area. The associated serial interface cable 25906ZZ is to be used.

The transmitter must be supplied with appropriate associate Exi apparatus to fulfil the input values.

The transmitter shall be protected against impacts with a protective cover.



1. **EC-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective Systems Intended for use in
Potentially explosive atmospheres
Directive 94/9/EC**

3. Reference: **VTT 09 ATEX 028X Issue 3**

4. Equipment: **Humidity and temperature transmitter**

Certified types: **HMT 360**

5. Manufactured by: **Vaisala Oyj**

6. Address: **Vanha Nurmijärventie 21
FI-01670 Vantaa
Finland**

7. This equipment and any acceptable variations thereto are specified in the schedule and possible supplement(s) to this certificate and the documents therein referred to.

8. VTT Expert Services Ltd, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of March 1994, certifies that the assembly has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

9. The examination and test results are recorded in confidential Report no. VTT-S-02274-15.

10. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0 (2012)
EN 60079-11 (2012)**



11. If the sign "X" is placed after the certificate number, it indicates that this equipment is subject to special conditions for safe use specified in the schedule to this Certificate
12. This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the directive 94/9/EC.

Further requirements of the Directive may apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
13. The marking of the equipment shall include the following:



II 1 G Ex ia IIC T4 Ga

Espoo, 29.05.2015

VTT Expert Services Ltd

Kari Koskela
Expert

Martti Siirola
Senior Expert

14. **Schedule**

15. **EC-TYPE EXAMINATION CERTIFICATE VTT 09 ATEX 028X Issue 3**

16. Description of equipment:

The humidity and temperature transmitter, type HMT 360, for the measurement of temperature and humidity with the following associated sensor heads:

- HMP361 wall-mounting probe
- HMP362 probe can be used in conjunction with sampling cells
- HMP363 probe for restricted space
- HMP364 probe for low and high pressure
- HMP365 probe for elevated temperature
- HMP367 probe for high moisture applications
- HMP368 probe for pressure pipes or liquids

Electrical data (maximum values per channel):

$U_i = 28 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 700 \text{ mW}$, $C_i = 1 \text{ nF}$, L_i negligibly low

7. Report No. VTT-S-02274-15

18. Special conditions for safe use

- 1) The equipment with display window and/or with associated cable of the sensor head can be used in Zone 0 Group IIC areas only if the danger of ignition due to electrostatic charge is avoided.
- 2) With the installation of the equipment in Zone 0 Group II area it has to be ensured that sparks due impact or friction do not occur.
- 3) The serial interface must only be used outside the explosion hazardous area. The associated serial interface cable 25905ZZ is to be used
- 4) Allowed ambient temperature range is $-40 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$ for the transmitter.
- 5) For the probe types HMP362, HMP364, HMP365, HMP 367 and HMP368 the allowed ambient temperature range is $-70 \text{ }^\circ\text{C} \dots +120 \text{ }^\circ\text{C}$ for the temperature class T4 and the allowed ambient temperature range is $-70 \text{ }^\circ\text{C} \dots +180 \text{ }^\circ\text{C}$ for the temperature class T3.
- 6) For the probe type HMP361 the allowed ambient temperature range is $-40 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$ and the temperature class is T4.
- 7) For the probe type HMP363 the allowed ambient temperature range is $-40 \text{ }^\circ\text{C} \dots +120 \text{ }^\circ\text{C}$ and the temperature class is T4.

Certificate without signatures shall not be valid.

This certificate, including the schedule, may only be reproduced in its entirety and without any change.

19. Essential Health and Safety Requirements

Met by compliance with the standards listed on the front page.

Certificate history

Issue	Date	Report No.	Comment
-	2009-06-11	VTT-S-03434-09	Prime certificate
1	2009-08-26	-	EPL Ga marking added Expansion of ambient temp. range
2	2011-04-06	VTT-S-02707-11	Changes in HM360PRB documents
3	2015-05-29	VTT-S-02274-15	Allowed ambient temperature range of the probes added.

Espoo, 29.05.2015

VTT Expert Services Ltd



Kari Koskela
Expert



Martti Sirola
Senior Expert



1. **EC-TYPE EXAMINATION CERTIFICATE**

2. **Equipment or Protective System Intended for use
in Potentially explosive atmospheres
Directive 94/9/EC.**

3. Reference: **VTT 04 ATEX 023X Issue 1**
4. Equipment: **Humidity and temperature transmitter**
Certified types: **HMT 360**
5. Manufactured by: **Vaisala Oyj**
6. Address: **Vanha Nurmijärventie 21
FI-01670 Vantaa
Finland**

7. This equipment and any acceptable variations thereto are specified in the schedule and possible supplement(s) to this certificate and the documents therein referred to.
8. VTT Expert Services Ltd, notified body number 0537, in accordance with Article 9 of the Council Directive 94/9/EC of March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres given in Annex II to the Directive
9. The examination and test results are recorded in confidential reports no TUO26-044075 and VTT-S-08067-12.
10. Compliance with the Essential Health and Safety Requirements has been assured by compliance with the standards:

**EN 60079-0:2012
EN 60079-31:2009**



11. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
12. This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. This certificate does not cover these.
13. The marking of the equipment or protective system shall include the following:




II 1 D

Ex ta IIIC T₅₀₀ 80 °C Da**-40 °C ≤ T_{amb} ≤ +60 °C**

Espoo, 1.2.2013

VTT Expert Services Ltd.

Risto Sulonen
Product ManagerMartti Siirola
Senior Expert

14.

Schedule

15.

EC-TYPE EXAMINATION CERTIFICATE VTT 04 ATEX 023X Issue 1

16.

Description of Equipment

The humidity and temperature transmitter, type HMT 360 protected with a stainless steel cover, for the measurement of temperature and humidity with the following associated sensor heads:

- HMP361 wall-mounting probe
- HMP362 probe can be used in conjunction with sampling cells
- HMP363 probe for restricted space
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- HMP367 probe for high moisture applications
- HMP368 probe for pressure pipes or liquids

Electrical data (maximum values per channel):

$U_i = 28 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 700 \text{ mW}$, $C_i = 1 \text{ nF}$, I_i negligibly low

Documents:

Mentioned in the test report VTT-S-08067-12

17.

Report No. VTT-S-08067-12

18.

Special conditions for safe use:

The permissible ambient temperature range is $-40 \text{ }^\circ\text{C} \leq T_a \leq +60 \text{ }^\circ\text{C}$.

The serial interface must only be used outside the explosion hazardous area. The associated serial interface cable 25905ZZ is to be used.

The transmitter must be supplied with appropriate Exi apparatus to fulfil the input values.

The transmitter must be protected with a protective cover against impacts.

19.

Essential Health and Safety Requirements

Certificate without signatures shall not be valid.

This certificate, including the schedule, may only be reproduced in its entirety and without any change.

Met by compliance with the standards referred in point 9.

Certificate history:

Issue	Date	Report No.	Comment
-	7.4.2004	TUO26-944075.	Prime certificate
1	1.2.2013	VTT-S-08067-12	Tested and documents and labels updated according to the new standards.

Espoo, 1.2.2013

VTT Expert Services Ltd



Risto Sulonen
Product Manager



Martti Siirola
Senior Expert

Certificate without signatures shall not be valid.

This certificate, including the schedule, may only be reproduced in its entirety and without any change.

FM Certificate of Compliance



FM Approvals
 1151 Boston Providence Turnpike
 P.O. Box 9102, Norwood, MA 02062 USA
 T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

HMT360abcdefghijklAmn. Transmitter and Probe or Transmitter only.

IS / I,II,III / 1 / ABCDEFG / T5 Ta = 60°C - DRW211603, Entity;
 NI / I, 2 / ABCD / T5 Ta = 60°C; S / II,III / 2 / FG / T5 Ta = 60°C
 Entity Parameters:

Terminals	V_{Max} (V)	I_{Max} (mA)	P_{Max} (W)	C_i (nF)	L_j (μ H)
Ch 1: + and -	28	100	0.7	1	0
Ch 2: + and -	28	100	0.7	1	0

- a = Probe type: 0, 1, 2, 3, 4, 5, 7 or 8.
- b = Transmitter type: any single letter A-Z.
- c = Display: 1 or 2.
- d = Output channels: 1 or 2.
- e = Analog output signal (Ch1): any single letter A-Z.
- f = Analog output signal (Ch 2): any single letter A-Z.
- g = Output range: any single letter A-Z.
- h = Units: 1 or 2.
- i = Cable bushings: A, B, C or 4.
- j = Manual: Any single letter A-Z.
- k = Cable length: (any single letter) A-Z or 0, 1, 2 or 3.
- l = Humidity sensor: 0, 1, 2, 3, 4, 5, 6, 7 or A.
- m = Sensor protection: 0, 1, 2, 3, 4, 6 or 7.
- n = Installation kit: A-Z or 0.

To verify the availability of the Approved product, please refer to www.approvalguide.com
 FM Approvals HLC 5/13 0003010615
 Page 1 of 2



Equipment Ratings:

Intrinsically Safe Class I, II, III, Division 1, Groups A, B, C, D, E, F, & G; also as Class I, Zone 0, AEx ia IIC; in accordance with Entity requirements when installed per installation drawing DRW211603; and Nonincendive Class I, Division 2, Groups A, B, C, & D; Suitable for Class II & III, Division 2, Groups F & G, for use in an indoor hazardous (classified) locations with a temperature rating of T5, Ta = 60°C.

FM Approved for:

Vaisala Oyj
Helsinki, Finland

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	2011
Class 3610	2010
Class 3611	2004
Class 3810	2005

Original Project ID: 3010615

Approval Granted: January 9, 2002

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3016167	March 14, 2003		
3017701	August 7, 2003		
030916	November 3, 2003		
051221	May 24, 2006		
091102	November 5, 2009		
3048304	August 8, 2013		

FM Approvals LLC

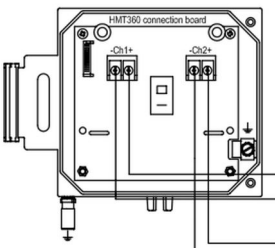
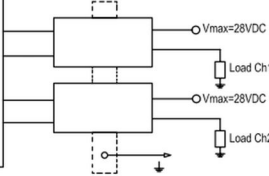


J.E. Marquedant
Group Manager, Electrical

8 August 2013

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com
FM Approvals HLC 5/13 0003010615
Page 2 of 2

3	2																						
REV	QTY	DESCRIPTION / INFO / ECO No.																					
B		List of approved probe types added																					
	ECO212870	RHA																					
<p>Wiring diagram for intrinsically safe operation of the HMT360-series humidity and temperature transmitter.</p>																							
D		D																					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">HAZARDOUS AREA</p>  <p style="text-align: center;">SAFE AREA</p> <p>Use FM approved associated apparatus; zener barriers or galvanic separators with entity concept parameters: $V_{oc} < 28V$ $I_{sc} < 100mA$ $C_a > C_i + C_{cable}$ $L_a > L_i + L_{cable}$</p>  </div> <div style="width: 50%;"> <p>HMT360 transmitter series has following approved probe options:</p> <p>HMP361, HMP362, HMP363, HMP364, HMP365, HMP367 & HMP368</p> <p>HMT360-series transmitters are approved for use in Classes I, II and III, Division 1, Groups A - G and Division 2, Groups A - D, F and G.</p> <p>Safety factors for HMT360-series transmitters are: $V_{max}=28V$, $I_{max}=100mA$, $C_i=1nF$, $L_i=0$, $P_i=0.7W$</p> <p>NOTE:</p> <ol style="list-style-type: none"> Barrier installation must be completed in accordance with ANSI/ISA RP 12.6 and the National Electrical Code. Intrinsically safe barrier ground must be less than 1 ohm. Maximum safe area voltage is 250V. </div> </div>																							
C		C																					
B		B																					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">General tolerance</td> <td colspan="2" style="text-align: center;">ISO 2768-m</td> </tr> <tr> <td>Material</td> <td>Weight</td> <td></td> </tr> <tr> <td>Supplier code</td> <td colspan="2"> <p style="text-align: center;">VAISALA</p> </td> </tr> <tr> <td>Finish</td> <td colspan="2"> <p style="text-align: center;">Title</p> <p style="text-align: center;">Assembly Instruction HMP360 and HMT360 VIN/HM</p> </td> </tr> <tr> <td style="text-align: center;">FIRST ANGLE PROJECTION</td> <td colspan="2"> <p style="text-align: center;">DOCUMENT CREATION DATA</p> <p style="text-align: center;">YYYY-MM-DD INITIALS</p> <p>Creator 01-07-18 ARH</p> <p>Reviewer 01-11-19 ARH</p> <p>Approved 05-04-11 RHA</p> <p>Active ID ACAD</p> </td> </tr> <tr> <td colspan="2"> <p style="text-align: center;">DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED</p> </td> <td> <p style="text-align: center;">Size Code</p> <p style="text-align: center;">DRW211603</p> <p style="text-align: center;">Scale</p> </td> </tr> <tr> <td colspan="2"></td> <td style="text-align: center;"> <p style="text-align: center;">Rev: B</p> </td> </tr> </table>			General tolerance	ISO 2768-m		Material	Weight		Supplier code	<p style="text-align: center;">VAISALA</p>		Finish	<p style="text-align: center;">Title</p> <p style="text-align: center;">Assembly Instruction HMP360 and HMT360 VIN/HM</p>		FIRST ANGLE PROJECTION	<p style="text-align: center;">DOCUMENT CREATION DATA</p> <p style="text-align: center;">YYYY-MM-DD INITIALS</p> <p>Creator 01-07-18 ARH</p> <p>Reviewer 01-11-19 ARH</p> <p>Approved 05-04-11 RHA</p> <p>Active ID ACAD</p>		<p style="text-align: center;">DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED</p>		<p style="text-align: center;">Size Code</p> <p style="text-align: center;">DRW211603</p> <p style="text-align: center;">Scale</p>			<p style="text-align: center;">Rev: B</p>
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NOTE: This information is CONFIDENTIAL and PROPRIETARY to VAISALA. It is furnished with the understanding that it is not to be disseminated outside the organization of VAISALA. Those material may subject the recipient to U.S.C. Section 1835 if it is used for any purpose that trade secrets and confidential or financial information shall not be disclosed to third parties.

CSA Certificate of Compliance



Certificate of Compliance

Certificate: 1300863

Master Contract: 213862

Project: 2759392

Date Issued: November 13, 2014

Issued to: Vaisala Oyj

P.O. Box 26
Helsinki, 00421
Finland
Attention: Jorma Lehtonen

The products listed below are eligible to bear the CSA Mark shown



Issued by: Zahra Amini

PRODUCTS

CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non - Incendive Systems - For Hazardous Locations

Class I, Div.1 and Div.2, Groups A, B, C and D; Class II, Div.1 and Div.2, Groups G and Coal Dust; Class III

HMT 360 series, humidity and temperature transmitters, rated 28V, 4-20 mA, and provides intrinsically safe outputs to HMP36* series probe when connected as per installation drawing DRW213478, Maximum ambient temperature 60°C, Temperature Code T4.

APPLICABLE REQUIREMENTS

CSA Std C22.2 No. 142-M1987 - Process Control Equipment

CSA Std C22.2 No. 213-M1987 -Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

CSA Std C22.2 No. 157-1992 -Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations



Certificate: 1300863

Master Contract: 213862

Project: 2759392

Date Issued: November 13, 2014

MARKINGS

- CSA Monogram
- Company name
- Model number
- Serial number
- Electrical ratings
- Exia Symbol
- Hazardous Location Designation
- Temperature Code T4 (135°C)
- Reference to installation drawing DRW213478
- Maximum Ambient Temperature (60°C)
- Statements re Intrinsically Safe
- Caution re. Substitution of components...
- Caution re. Do not disconnect

Lvs	Qty	Change	Revisory/ ECO no	Design	Date/Rev	Date Appr
C		Probe types and barrier/isolator info updated	ECO212844	KKe	2006-06-20 RHA	2006-06-20 HJJ

Wiring diagram for intrinsically safe operation of the HMT360-series humidity and temperature transmitter.

HAZARDOUS AREA

Vaisala offers following barrier and galvanic isolator types:

Manufacturer: Type: Vaisala code:

Barrier: R. Stahl 9001/51-280-091-141 210664

Isolator: R. Stahl 9160/13-11-11 212483

If other barrier or galvanic isolator types are used, Vaisala or CSA do not take responsibility for the selected barrier's or galvanic isolator's suitability!

Cable parameters shall be less than 60pF/ft (197pF/m) and 0.2µH/ft (0.67µH/m). The maximum cable length is 2000ft (600m).

HMT360-series transmitters are approved for use in

Division 1 and 2, Class I, Groups A, B, C, and D.

Division 1, and 2, Class II, Group G and coal dust.

Division 1, and 2, Class III.

NOTE:

1. Each channel must be supplied through separate shielded cables.
2. When using galvanic separators CH1- and CH2- must be short circuited with an external wire.
3. When using transmitter in Class I, Division 2 the main switch shall not be operated or the unit shall not be disconnected unless power has been switched off, or area is known to be non hazardous.
4. Use only conduit connection in Division 2.
5. Substitution on components may impair intrinsic safety or suitability for Division 2.
6. Only intrinsically safe installation is allowed in Class II and Class III environments.
7. Intrinsically safe barrier ground must be less than 1 ohm.
8. Maximum safe area voltage is 250V.

HMT360-series transmitters shall be used with following probes:

Probe HMP361 with 127mm long pipe.

Probe HMP362 with 2, 5 or 10 m length cable

Probe HMP363 with 2, 5 or 10 m length cable

Probe HMP364 with 2, 5 or 10 m length cable

Probe HMP365 with 2, 5 or 10 m length cable

Probe HMP367 with 2, 5 or 10 m length cable

Probe HMP368 with 2, 5 or 10 m length cable

The material for associated cable is FEP (Tetrafluoropropylene) or for HMP363 also PUR (Polyurethane) available.

To avoid static discharge shall the cable cover with conductive material.

Drawn: KKe 2002-08-21	Arch no:	Serial no:	Sheet:	Cooperator's ref. no:
Revised: IML 2002-10-06	Installation Drawing		Vaisala Oyj Vanhanurmijärventie 21 Vantaa Finland	
Appr: KKe 2002-10-06				
Design: DRW213478B				
Revisions:				
Revised by:				

TIIS Certificate of Compliance



防爆構造電気機械器具型式検定合格証

申請者	東京都新宿区神楽坂6丁目42番 ヴァイサラ株式会社		
製造者	Vanha Nurmijärventie 21 FI-01670 Vantaa Finland Vaisala Oyj		
品名	湿・温度変換器		
型式の名称	HMT3603A22BCA1A3BD5A10 (同一型式は別表のとおり)		
防爆構造の種類	本質安全防爆構造 (ia)		
対象ガス又は蒸気の 爆発等級及び発火度	IICT4		
規格	本安回路許容電圧	28V	
	本安回路許容電流	100mA	
	本安回路許容電力	700mW	
	内部キャパシタンス	0.001μF	
	内部インダクタンス	無視できる値	
	周囲温度	-40℃～+60℃	
使用条件			
型式検定合格番号	第TC20238号		
有効期間	平成24年9月12日から平成27年9月11日まで		
	平成27年9月12日から平成30年9月11日まで		
	平成 年 月 日から平成 年 月 日まで		
	平成 年 月 日から平成 年 月 日まで		

機械等検定規則による型式検定に合格したことを証明する。

平成24年9月12日

型式検定実施者 公益社団法人 産業安全技術協会長



PCEC Conformity Certificate



防爆合格证

CONFORMITY CERTIFICATE OF EXPLOSION-PROOF

证号
Certificate No. CB14.2164

产品名称
Name of Product: 本安型温湿度/露点变送器
型号及规格
Type of Product: HMT360 系列
防爆标志
Marking: Ex ia II CT4 Ga
技术文件
Technical Documents: /
图号
Drawing No.: /
备注
Note (s):
1. 环境温度 $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$;
2. 本安参数: $U_i: 28\text{V}$, $I_i: 100\text{ mA}$, $P_i: 700\text{mW}$, $C_i: 1\text{nF}$, $L_i: 0\text{mH}$.
3. 本证可代表以下产品型号:
HMT3601, HMT3603, HMT3604, HMT3605, HMT3607, HMT3608.
4. 制造商: Veisala Oyj
5. 制造商地址: Vanha Nurmi järventie21, FI-01670 Vantaa, Finland

经对上述产品图样及技术文件的审查和样品的检验, 其符合以下标准:

By verifying the drawings and technical documents and checking samples, the product complies with the following standards:

GB3836.1-2010

GB3836.4-2010

发给给: 维萨拉(北京)测量技术有限公司

本证失效日期:
Date of Expire: 2019-09-23

发证日期:
Date of Issue: 2014-09-23

中心印章
Center seal



中心主任
Director

荆弘光

石油和化学工业电气产品防爆质量监督检验中心
Supervision & Test Center of Ex-products of China Petroleum & Chemical Industry

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