Honeywell

STT171

STT3000 Smart Temperature Transmitter

Operator Manual

Doc. No.: 34-ST-25-25
Revision Date: 2/06

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Revision 0 – 2/06

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About This Document

Abstract

This document is intended to support the installation and operation of the Model STT171 Smart Temperature Transmitter.

Revision Notes

The following list provides notes concerning all revisions of this document.

Rev. ID	Date	Notes
0	2/06	This document is the initial Honeywell release of the STT171 Transmitter

Contacts

World Wide Web

The following lists Honeywell's World Wide Web sites that will be of interest to our customers.

Honeywell Organization	WWW Address (URL)
Corporate	*http://www.honeywell.com*
Industrial Measurement and Control	*http://www.honeywell.com/imc*

Telephone

Contact us by telephone at the numbers listed below.

	Organization	Phone Number	
United States and Canada	Honeywell	1-800-423-9883	Tech. Support
		1-888-423-9883	Q&A Faxback (TACFACS)
		1-800-525-7439	Service

Notices

Safety Instructions

Ex installation:

For safe installation of STT171 in a hazardous area, the following must be observed. The module must only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.

For installlation requirements and Ex data see section 4.3 ATEX Installation Data and the ATEX certificate.

Consigne de sécurité

Installation S.I. :

Pour l'installation de STT171 dans les zones dangereuses, conformez-vous aux consignes de sécurité suivantes : l'installation ne doit être réalisée que par du personnel qualifié connaissant la législation nationale et internationale ainsi que les directives et standards régissant ce domaine.

L'année de production ressort des deux premiers chiffres du numéro de série.

Pour les conditions d'installation et les données de sécurité intrinsèque, voir section 4.3 ATEX Installation Data et le certificat ATEX.

Sicherheitsinstruktion

Ex-Installation:

Für sichere Installation von STT171 in explosionsgefährdeter Umgebung muss folgendes beobachtet werden. Die Installation muss nur von qualifizierten Personen, die mit den nationalen und internationalen Gesetze, Direktiven und Standards des Gebiets bekannt sind, vorgenommen werden.

Die ersten beiden Ziffern der Seriennummer geben das Produktionsjahr an.

Für Einbauvorschriften und Ex-Daten siehe Abschnitt 4.3 ATEX Installation Data und das ATEX-Zertifikat.

CONTENTS

FIGURES

1. 2-WIRE PROGRAMMABLE TRANSMITTER MODEL STT171

1.1 Features

- RTD or Ohm Input
- High Measurement Accuracy
- 3-Wire Connection
- Programmable sensor error value
- For DIN form B sensor head mounting

1.2 Application

- Linearised temperature measurement with Pt100 or Ni100 sensors.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.

1.3 Technical Characteristics

- Within a few seconds the user can program the STT171 to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

1.4 Installation

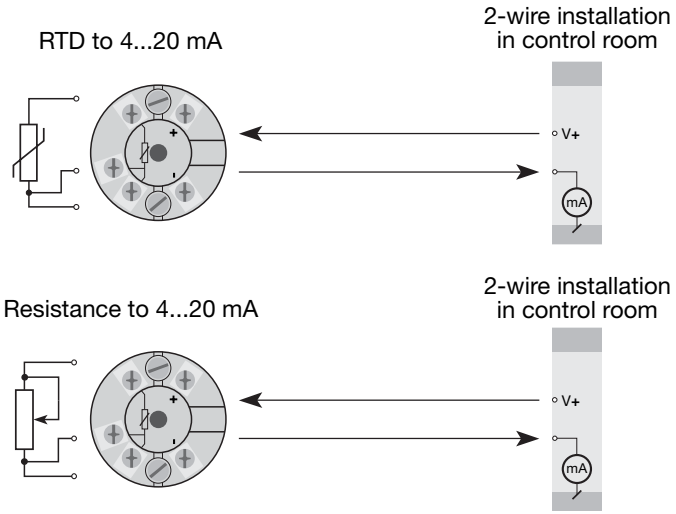


Figure 1-1 2-Wire installation in Control Room

1.5 Electrical Connections

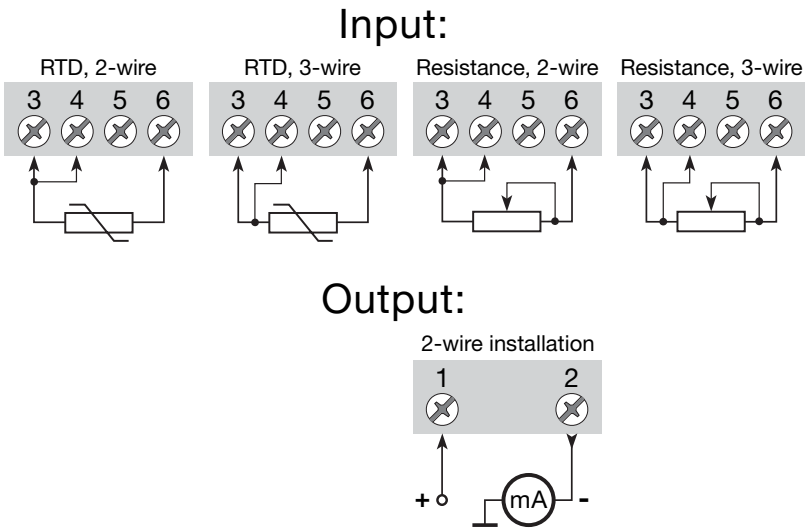


Figure 1-2 Electrical Connections

1.6 Block Diagram

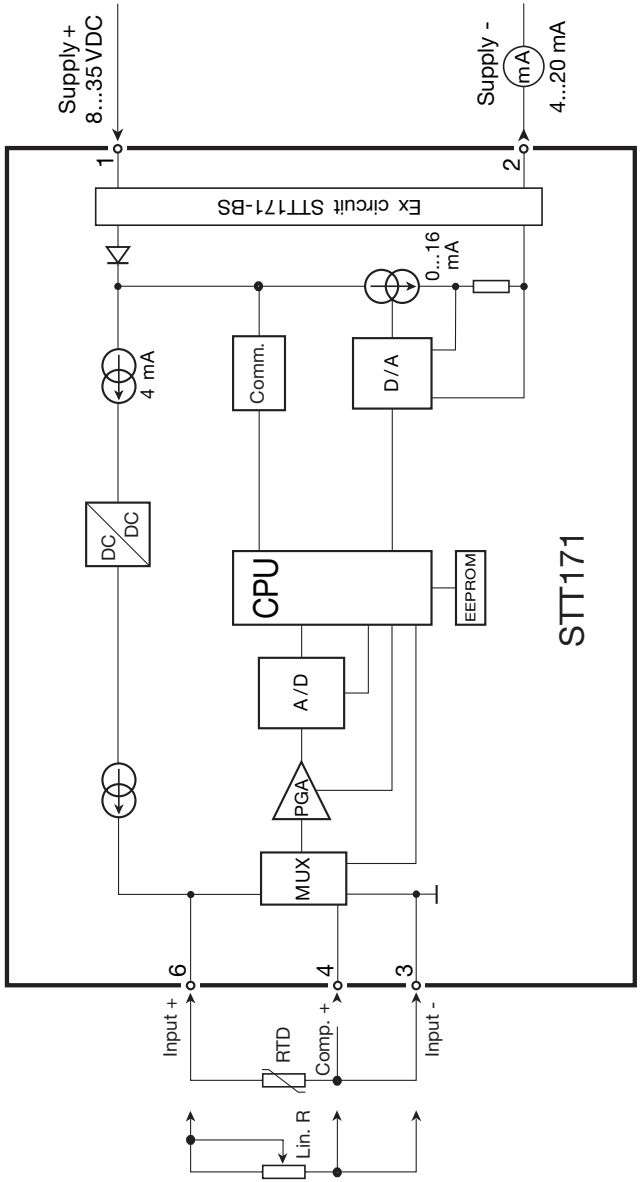


Figure 1-3 Block Diagram

1.7 Programming

- STT17C is a communications interface that is needed for programming the STT171.
- For programming, please refer to Figure 1 4 and the help function in STT17C.
- STT17C is not approved for communication with modules installed in hazardous (Ex) areas.

ORDER: STT17C

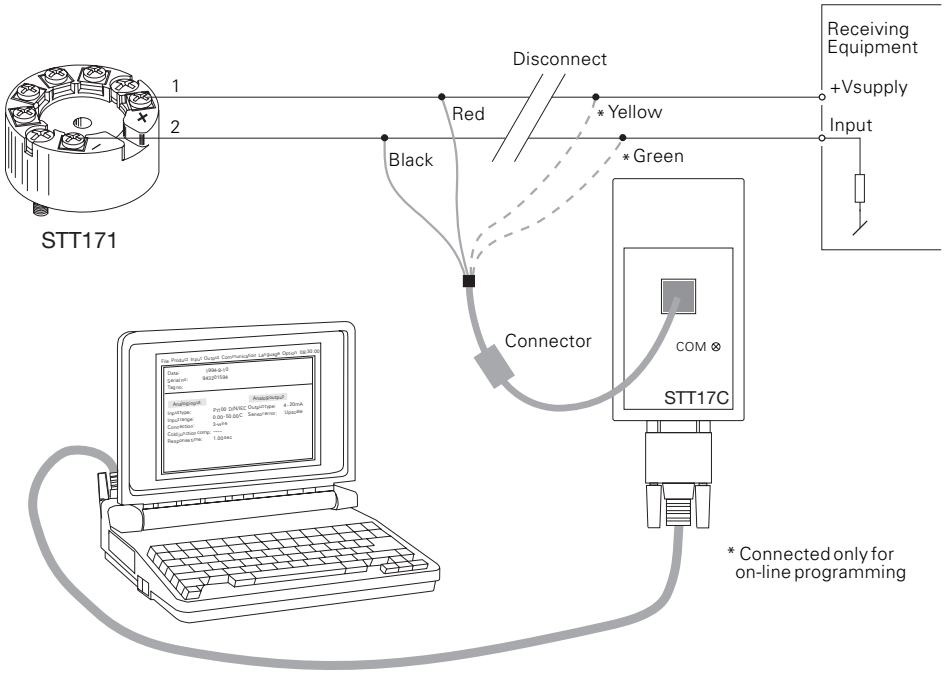


Figure 1-4 Programming

1.8 Mechanical Specifications

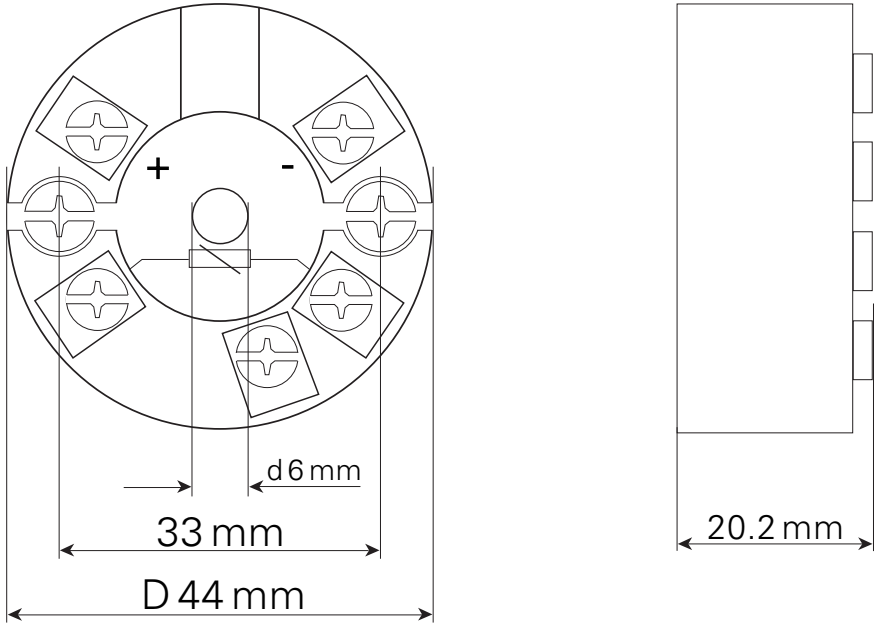
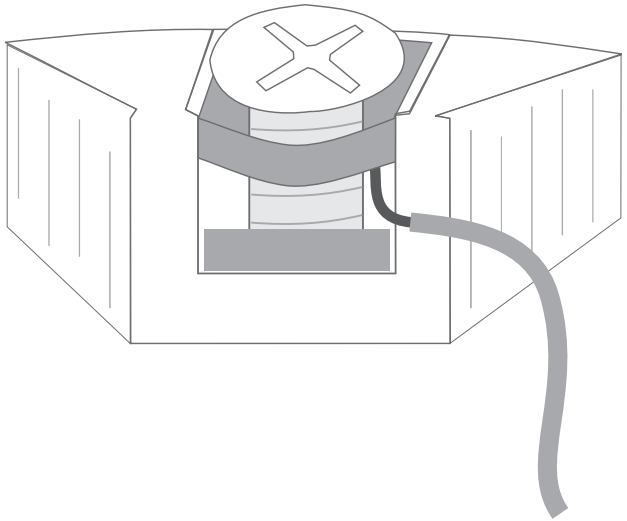


Figure 1-5 Mechanical Specifications

1.9 Mounting of Sensor Wires



Wires must be mounted between the metal plates

Figure 1-6 Mounting of Sensor Wires

2. TRANSMETTEUR 2-FILS PROGRAMMABLE STT171

2.1 Caractères

- Entrée RTD ou résistance
- Grande précision de mesure
- Connexion aux sondes à 3 fils
- Sécurité programmable
- Pour tête de sonde DIN B

2.2 Application

- Mesure linéarisée de la température avec un capteur Pt100 ou Ni100.
- Conversion d'une résistance linéaire en un signal courant standard analogique pour mesurer par exemple le niveau ou la position d'une vanne.

2.3 Caractéristiques techniques

- Le STT171 peut être programmé de manière simple et rapide.
- Compensation de ligne pour des entrées RTD et résistance avec un raccordement à 3 fils.

2.4 Installation

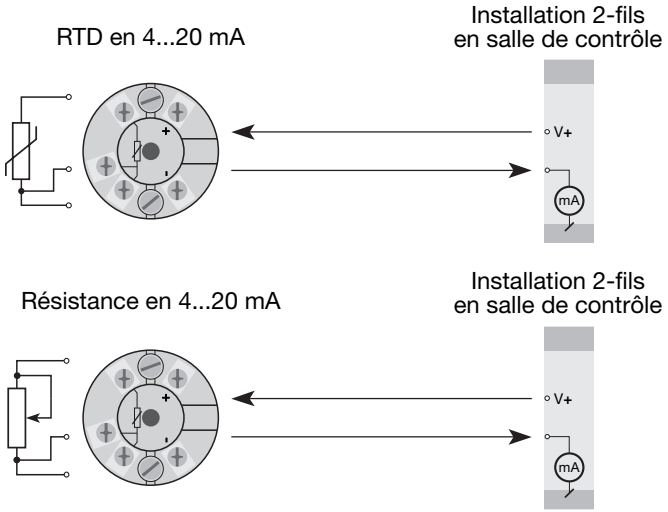


Figure 2-1 Installation 2-fils en sale de contrôle

2.5 Connexions

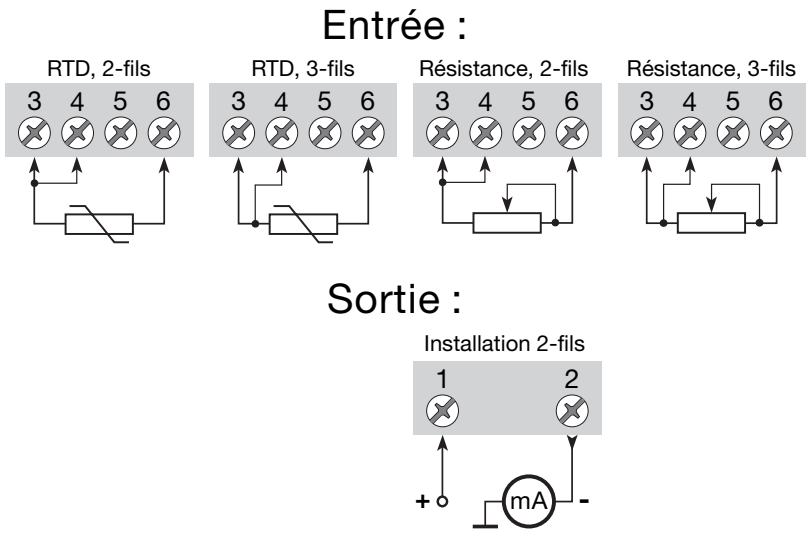


Figure 2-2 Connexions

2.6 Schema de Principe

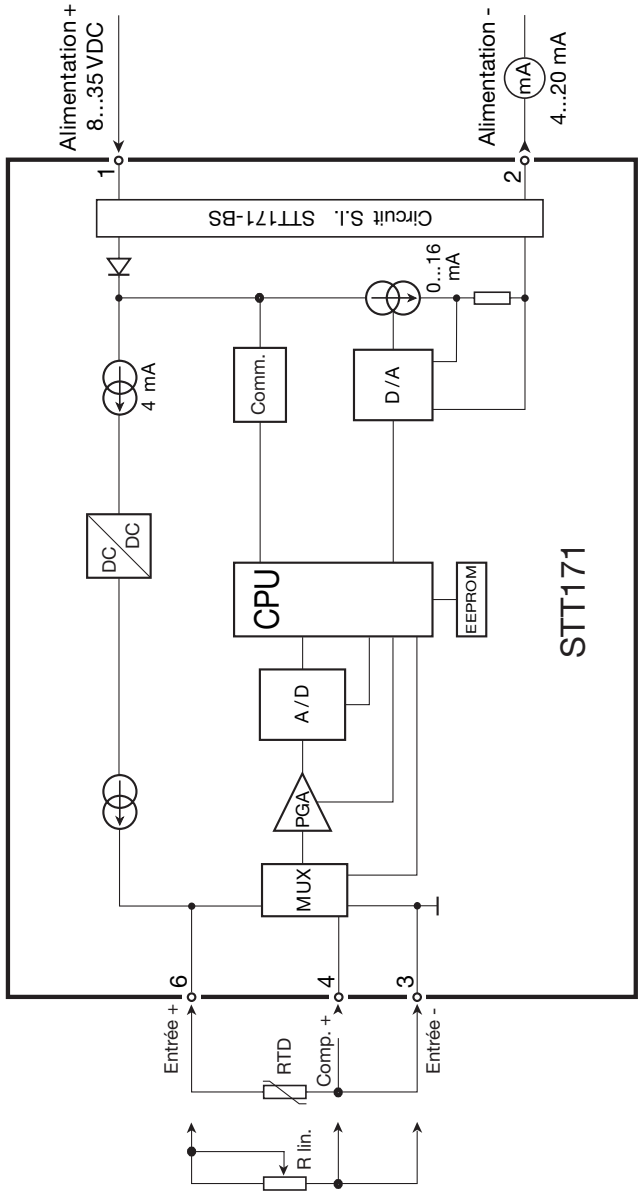


Figure 2-3 Schema de Principe

2.7 Programmation

- STT17C est un kit de programmation permettant de programmer le STT171.
- Pour le raccordement du STT17C, veuillez vous reporter au schéma ci-dessous et à l'aide en ligne du logiciel STT17C.
- STT17C ne doit pas être utilisé pour communication avec des modules installés en zone dangereuse.

Numéro de référence: STT17C

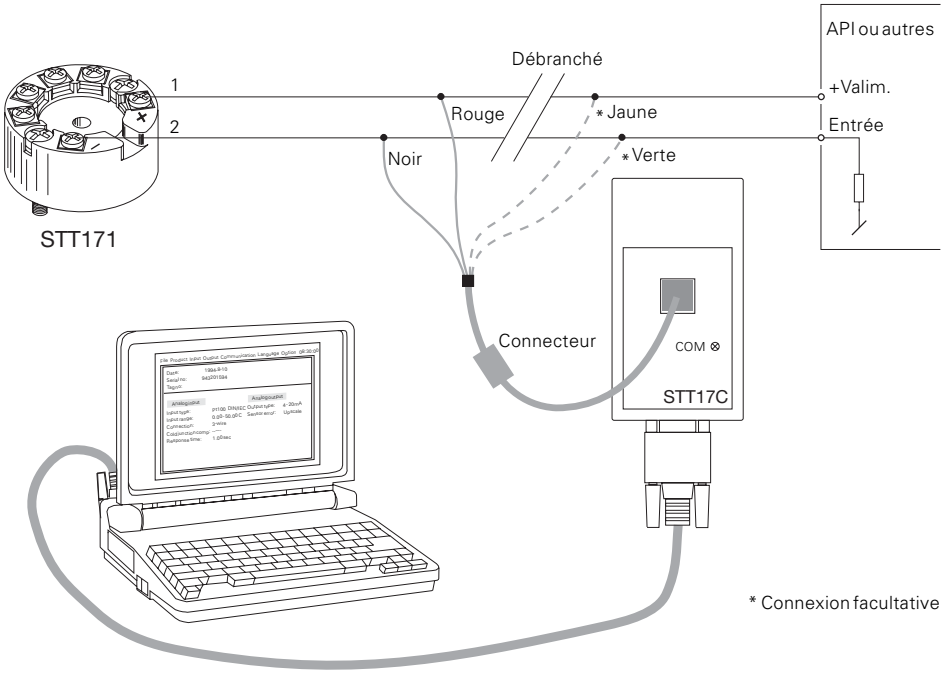


Figure 2-4 Programmation

2.8 Dimensions mécaniques

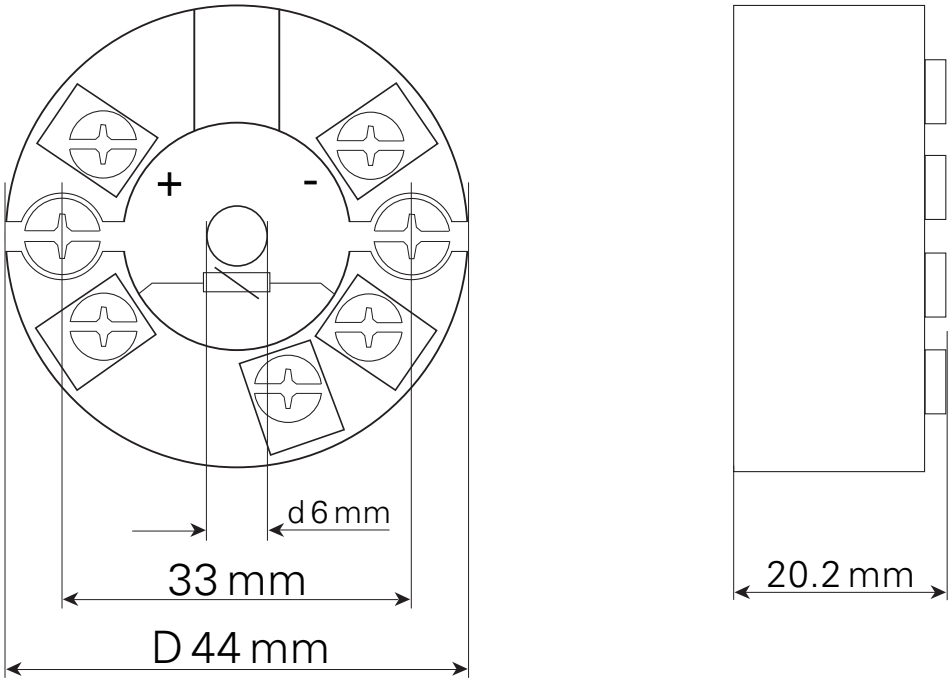
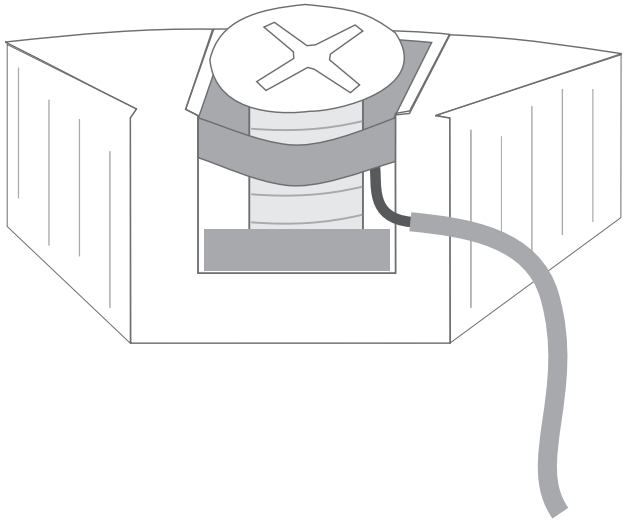


Figure 2-5 Dimensions mécaniques

2.9 Montage des fils du capteur



Les fils doivent être montés entre les plaques métalliques

Figure 2-6 Montage des fils du capteur

3. 2-DRAHTPROGRAMMIERBARER MESSUMFORMER STT171

3.1 Das Unterscheidungsmerkmal

- Eingang für WTH oder Ω
- Hohe Messgenauigkeit
- 3-Leiter-Anschluss
- Programmierbare Sensorfehlanzeige
- Für Einbau in Anschlusskopf DIN Form B

3.2 Verwendung

- Linearisierte Temperaturmessung mit Pt100 oder Ni100 Sensoren.
- Umwandlung von linearer Widerstandsänderung in ein analoges Standard-Stromsignal, z.B. von Ventilen oder Niveau-Messwertgeber.

3.3 Technische Merkmale

- STT171 kann vom Benutzer innerhalb von wenigen Sekunden zur Messung in allen genormten WTH-Temperaturbereiche programmiert werden.
- Der WTH- und Widerstandseingang haben Leitungs-kompensation bei 3-Leiter-Anschluss.

3.4 Installation

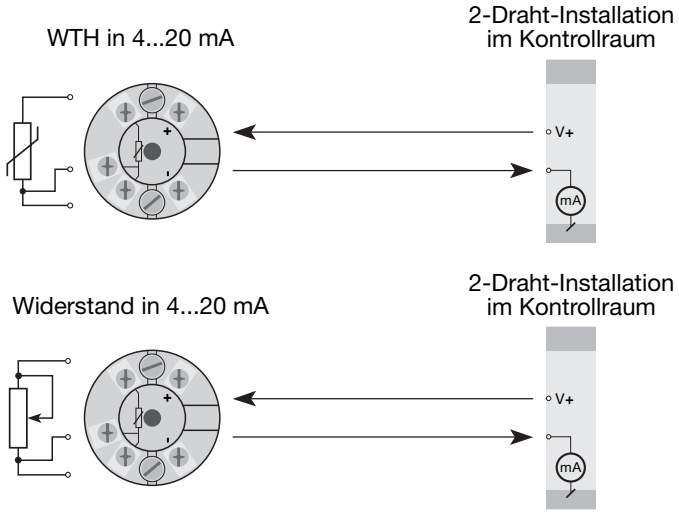


Figure 3-1 2-Draht-Installation

3.5 Anschlüsse

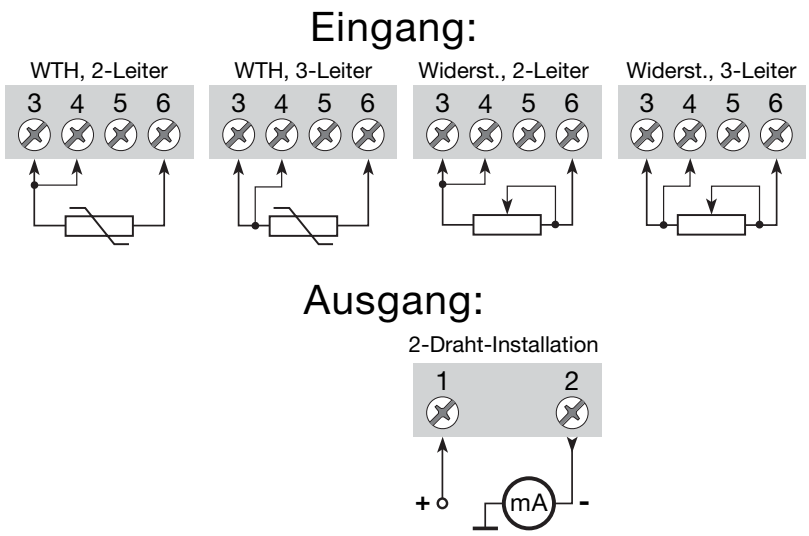


Figure 3-2 Anschlüsse

3.6 Blockdiagramm

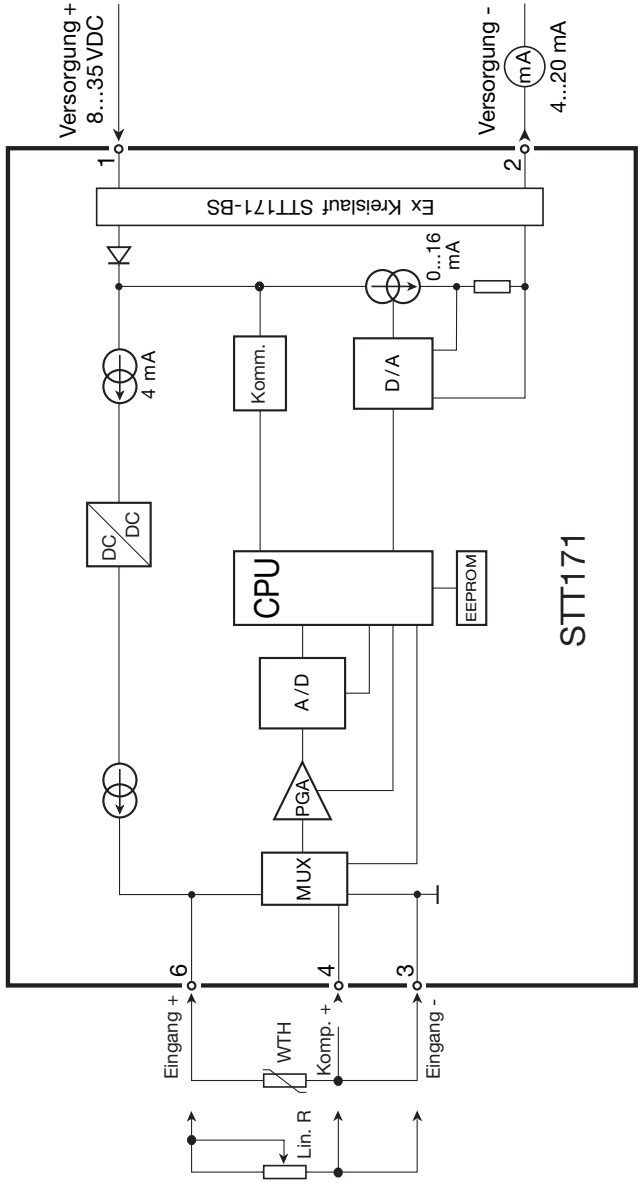


Figure 3-3 Blockdiagramm

3.7 Programmierung

- STT17C ist eine batteriegespeiste Schnittstelle zur Programmierung des PRetop STT171.
- Bezüglich Programmierung verweisen wir auf die nachfolgende Zeichnung und die “Hilfe”-Funktion im STT17C.
- STT17C darf nicht zur Kommunikation mit Modulen, die in Ex-gefährdeten Bereichen installiert sind, benutzt werden.

Bestellangaben: STT17C

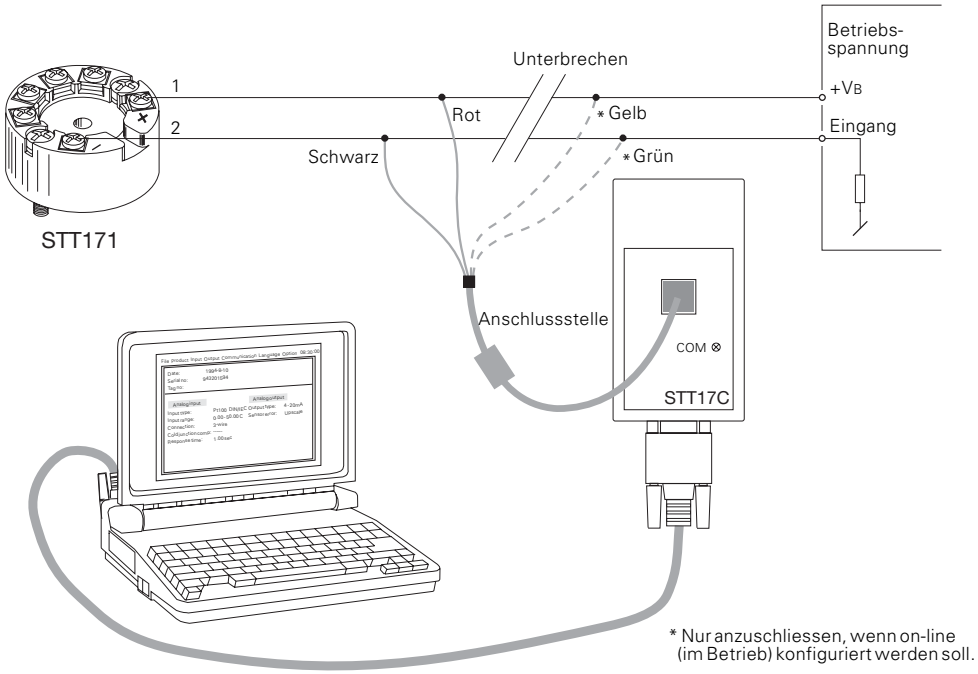


Figure 3-4 Programmierung

3.8 Abmessungen

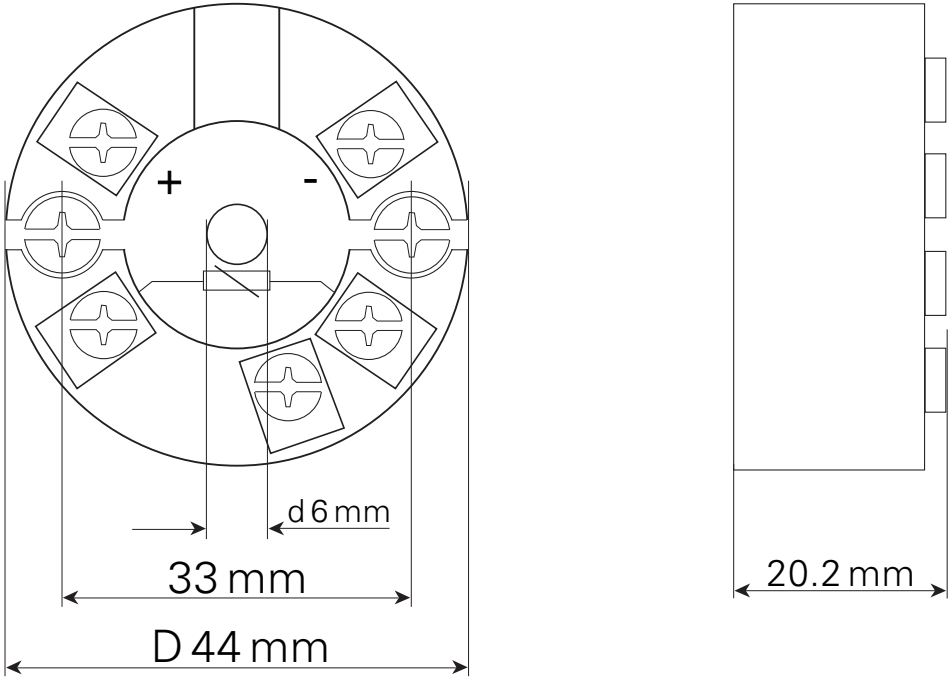
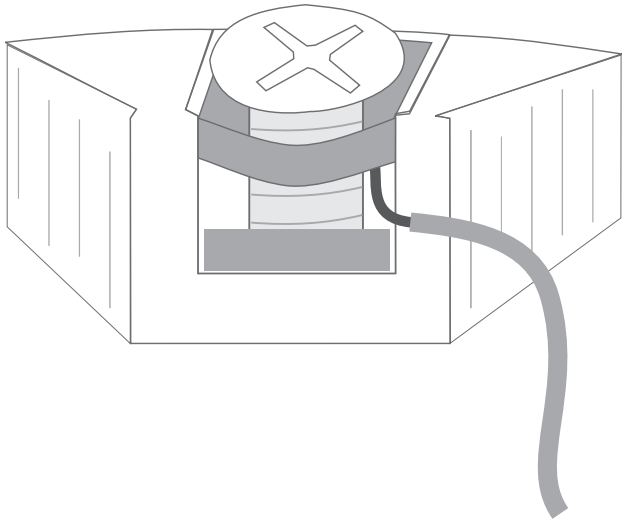


Figure 3-5 Abmessungen

3.9 Montage von Fühlerleitungen



Die Leitungen müssen zwischen den Metallplatten montiert werden

Figure 3-6 Montage von Fühlerleitungen

4. INSTALLATION DRAWINGS

4.1 FM Installation Drawing 50016324

4.1.1 Model STT171-BS and STT17-BS

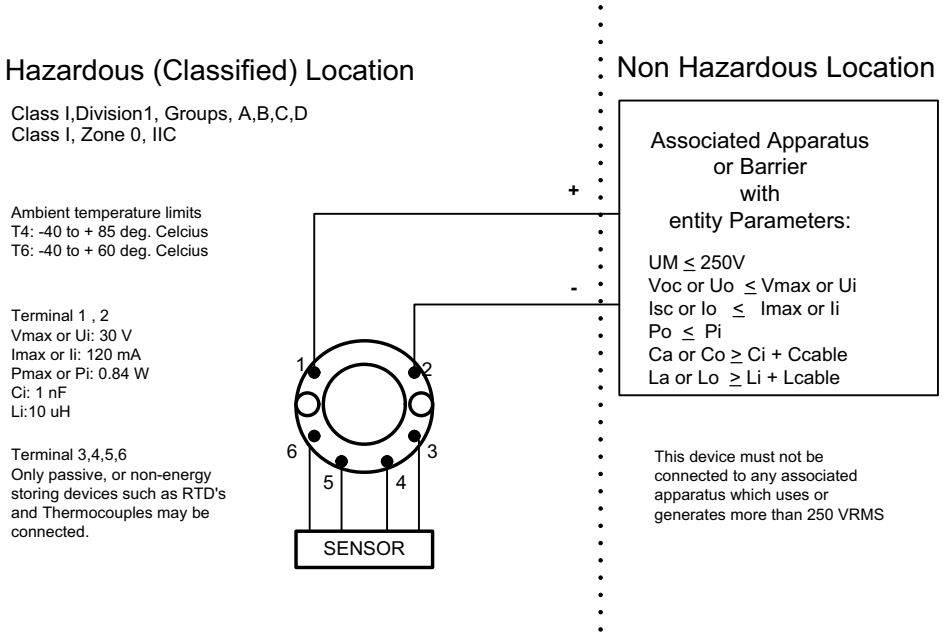


Figure 4-1 Model STT171-BS and STT173-BS
[FM Installation Drawing]

4.1.2 The Entity Concept

The Transmitter must be installed according to National Electrical Code (ANSI-NFPA 70).

Equipment that is FM-approved for intrinsic safety may be connected to barriers based on the ENTITY CONCEPT. This concept permits interconnection of approved transmitters, meters and other devices in combinations which have not been specifically examined by FM, provided that the agency's criteria are met. The combination is then intrinsically safe, if the entity concept is acceptable to the authority having jurisdiction over the installation.

The entity concept criteria are as follows:

The intrinsically safe devices, other than barriers, must not be a source of power.

The maximum voltage U_i (V_{max}) and current I_i (I_{max}), and maximum power P_i (P_{max}), which the device can receive and remain intrinsically safe, must be equal to or greater than the voltage (U_o or V_{OC} or V_t) and current (I_o or I_{SC} or I_t) and the power P_o which can be delivered by the barrier.

The sum of the maximum unprotected inductance (L_i) for each intrinsically device and the interconnecting wiring must be less than the inductance (L_a) which can be safely connected to the barrier.

The entity parameters U_o, V_{OC} or V_t and I_o, I_{SC} or I_t, and C_a and L_a for barriers are provided by the barrier manufacturer.

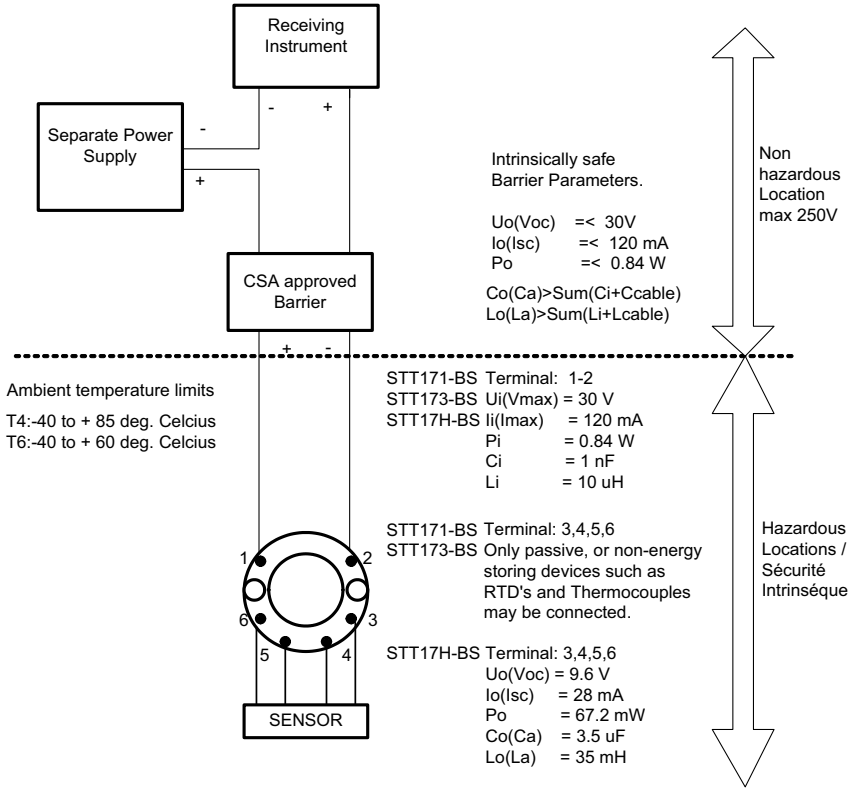
4.2 CSA Installation Drawing 50016326

4.2.1 Model STT171-BS, STT173-BS and STT17H-BS

Model STT171-BS, STT173-BS and STT17H-BS transmitters are approved as intrinsically safe in Zone 0 Group IIC or Class I, Division1, Group A,B,C,D when installed according to this Installation Drawing.

1. Connections with separate power supply and receiver.

Output: Standard 4 - 20mA loop



Warning:

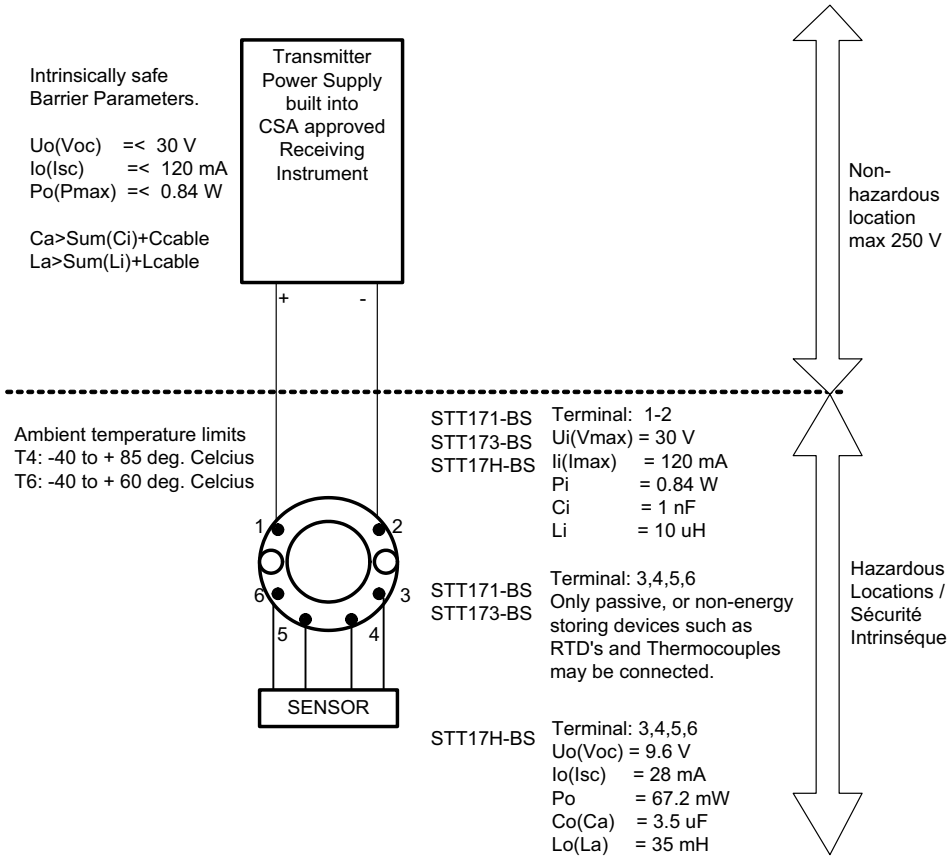
Substitution of components may impair intrinsic safety.

The transmitters must be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC).

Figure 4-2 Model STT171-BS, STT173-BS and STT17H-BS [Connections with separate power supply and receiver]

2. Connections with power supply and barrier built into receiver.

Output: Standard 4 - 20mA loop



Warning:

Substitution of components may impair intrinsic safety.

The transmitters must be installed in a suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC).

Figure 4-3 Model STT171-BS, STT173-BS and STT17H-BS [Connections with power supply and barrier built into receiver]

4.3 ATEX Installation Data

Ex / I.S. data:

Signal output / supply, terminal 1 and 2:

U_i ..... : 30 VDC

I_i ..... : 120 mADC

P_i ..... : 0.84 W

L_i ..... : 10 µH

C_i ..... : 1.0 nF

Sensor input, terminal 3, 4 and 6:

U_o ..... : 27 V

I_o ..... : 7 mA

P_o ..... : 45 mW

L_o ..... : 35 mH

C_o ..... : 90 nF

EEx / I.S. approval:

KEMA 06ATEX0042 X..... ⟨Ex⟩ II 1 GD, T80°C...T105°C
EEx ia IIC T6 / T4

Max. amb. temp. for T1...T4 ..... 85°C

Max. amb. temp. for T5 and T6 ..... 60°C

ATEX, applicable in zone..... 0, 1, 2, 20, 21 or 22

5. DECLARATION OF CONFORMITY

We declare under our sole responsibility that the following product in the STT 3000 Temperature Transmitter series:

STT171 Smart Temperature Transmitter

is in conformity with the following directives and standards:

EMC directive 2004/108/EC and later amendments

EN 61326

This declaration is issued in compliance with article 10, subclause 1 of the EMC directive. For specification of the acceptable EMC performance level, refer to the electrical specifications for the module.

The ATEX directive 94/9/EC and later amendments

EN 50014 and EN 50020

EN 50281-1-1 and EN 50284

ATEX certificate: KEMA 06ATEX0042 X

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