SMART THERMOCOUPLE TRANSMITTER
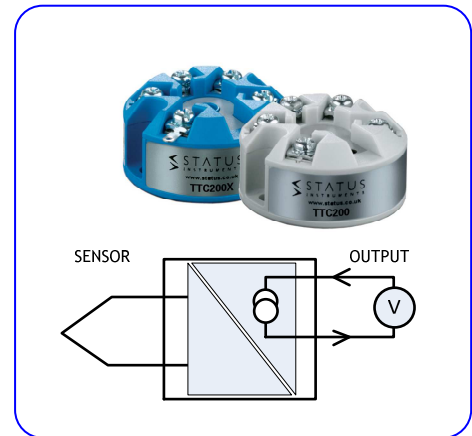
TTC200 TTC200X

> K, J, N, E, T, R, S, L, U, B, C(W5), D(W3), G(W) plus mV INPUTS

> ATEX AND IECEx APPROVED VERSION

> 22 SEGMENT USER LINEARISATION mV INPUT

> SENSOR OFFSET AND OUTPUT ALIGNMENT

> ISOLATED INPUT

> PROGRAMMABLE BURNOUT
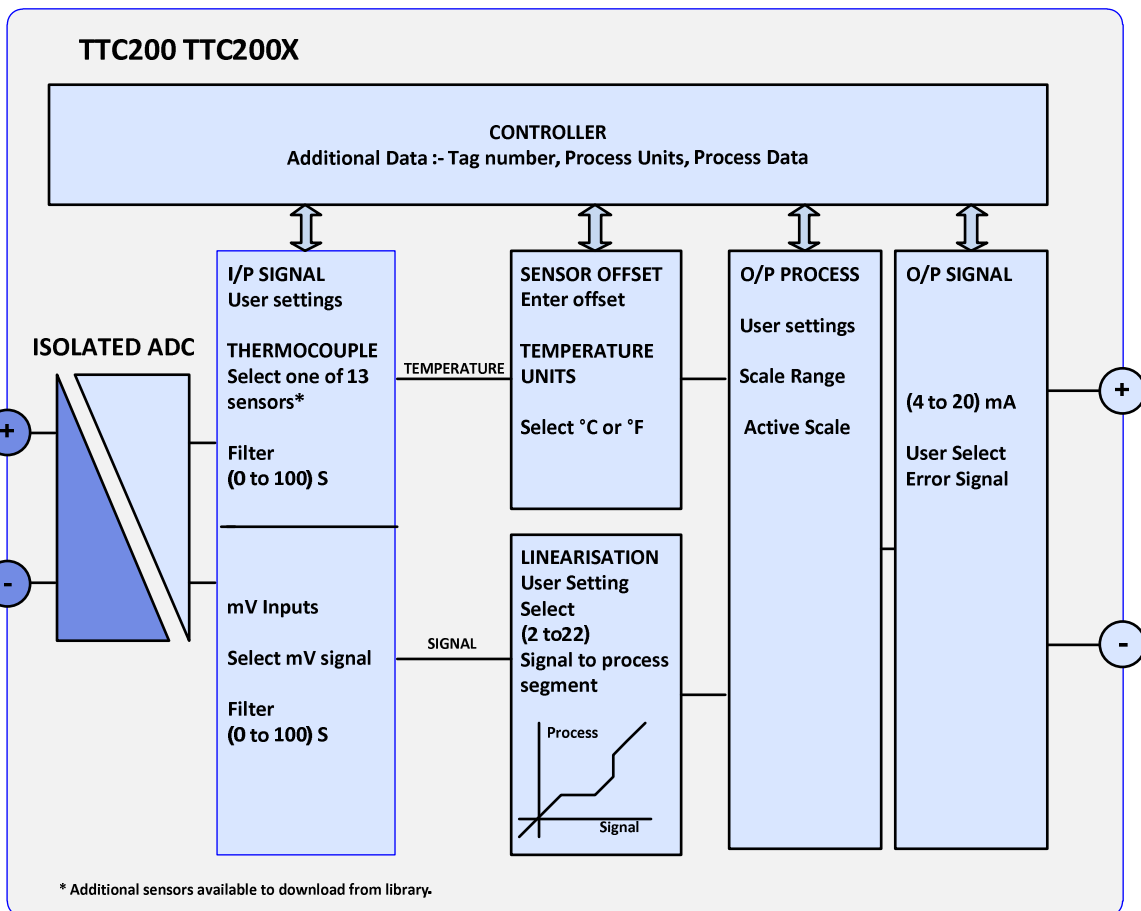

SENSOR   OUTPUT

INTRODUCTION

The TTC200 "smart" in head temperature transmitter accepts thermocouple temperature sensors and converts the sensor output over a configured range to a standard industrial (4 to 20) mA transmission signal. Two versions are available; standard and ATEX / IECEx approved for hazardous areas.

PC configuration allows the user to select TC type, Range, Filter, units, linearization and Burnout direction, without requiring calibration equipment. Additionally, the user may read live process data when connected to the PC, this allows for sensor offset, and output alignment calibration, where the user can enter values to match the actual process and therefore reducing system errors.

If required the desired range can be specified at the time of order, removing the need for user configuration.
If the range is not specified then the transmitter will be shipped with the default range of (0 to 1000) °C type K.

TTC200 TTC200X

CONTROLLER
Additional Data :- Tag number, Process Units, Process Data

ISOLATED ADC

I/P SIGNAL
User settings

THERMOCOUPLE
Select one of 13 sensors*

Filter
(0 to 100) S

mV Inputs

Select mV signal

Filter
(0 to 100) S

TEMPERATURE

SIGNAL

SENSOR OFFSET
Enter offset

TEMPERATURE UNITS

Select °C or °F

LINEARISATION
User Setting
Select
(2 to22)
Signal to process segment

Process / Signal

O/P PROCESS
User settings

Scale Range

Active Scale

O/P SIGNAL

(4 to 20) mA

User Select
Error Signal

+

-

* Additional sensors available to download from library.

SMART THERMOCOUPLE TRANSMITTER

TTC200 connection

THERMOCOUPLE mV INPUT

Standard TC	Types K,J,E,N,T,R,S,L,U,B,C(w5),D(W3),G(W),library
mV	(-100 to 200) mV ± 0.02% of full scale.
Thermal Drift	Thermocouple offset 0.1 ˚C/˚C, span 0.05 ˚C/˚C
Cold Junction	Range (-40 to 85) ˚C, Tracking ± 0.2 ˚C, ± 0.05 ˚C/˚C

THERMOCOUPLE TYPES

Accuracy ±0.1 % of full scale ± 0.5 ˚C (plus sensor error)
K (-200 to 1370) J (-100 to 1200) E (-200 to 1000) N (-180 to 1300)
L (-100 to 600) U (0 to 600) B (0 to 1800) C – D – W (0 to 2300)

Accuracy ±0.2 % of full scale ± 0.5 ˚C (plus sensor error)
T (-200 to 400)

Accuracy ± 0.1 % of full scale plus ± 0.5 ˚C (range 800 to 1600)
R (0 to 1760), S (0 to 1760)

mV Accuracy ± 0.02 % of full scale (-100 to 200) mV

Thermocouple/ mV

OUTPUT

Type	Two wire (4 to 20) mA current Loop
Range	(4 to 20) mA ; Upscale burnout 21.5 mA ; Downscale Burnout 3.8 mA
Accuracy	(mA Out/ 2000) or 5 uA which ever is the greater, Drift 1 uA/˚C
Loop Effect	± 0.2 uA/ V
Max output load	TTC200 [(Vsupply-10)/20] K Ohms (Example 700 Ohms @ 24 V)
Loop Supply	(10 to 30) VDC

SUPPLY (10 to 30) VDC, < 1W Full Power

DC Supply

GENERAL

Response time	Start up 5 seconds, Update 160 mS, Response 500 mS, Warm up 2 minutes.
Isolation	Input to output 500 V dc.
Connections	Screw terminals 2.5 mm Maximum

USER INTERFACE

Type	USB 2.0
Baud rate	1200 baud
Equipment	PC running windows XP or later, USB configurator.

USER INTERFACE FUNCTIONS

Scaling	User signal to process value scaling, for simplified setup.
Filter	Adjustable time constant (0 to100) Seconds.
User Linearisation (Profile)	(2 to 22) segments mV to process.
Process Units	4 Characters (signal input only)
Temperature units	˚C or ˚F (TC inputs only)
Tag Number	20 Characters
Process Output	Range in process units
User offset	Enter sensor offset (Temperature mode only).
Active scaling	Set output process range against active sensor input

>= IP65

85°C

-40°C

ENVIRONMENT

Operating Ambient	TTC200(-40 to 85) ˚C ; (10 to 90) % RH (non condensing)
	TTC200X Refer to user manual
Storage Ambient	(-50 to 85) ˚C; (10 to 90) % RH (non condensing)
Configuration Ambient	(10 to 30) ˚C
Installation Enclosure	>= IP65.

APPROVALS

CE BS EN 61326

SIDE VIEW   BASE VIEW

Ø 43.0 mm

21.0 mm

33.0 mm
CENTRES

MECHANICAL

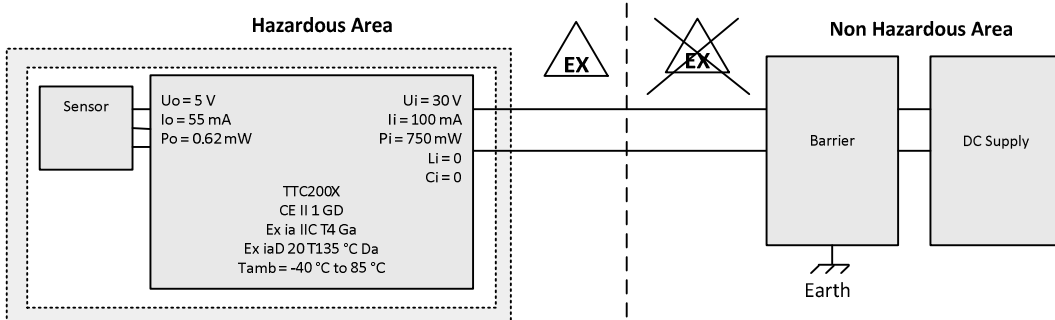|	
Style	Head mounted terminal block
Diameter	43 mm diameter; 21 mm height Weight 31 g (encapsulated)
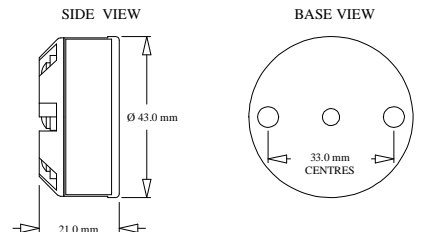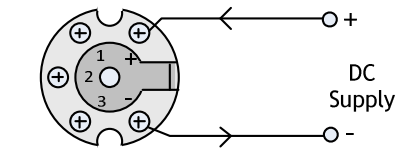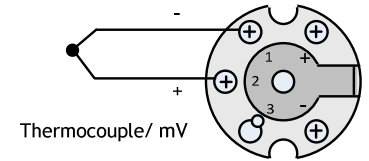
TTC200X ATEX /IECEx VERSION

⚠ Please refer to user manual document D2505_01 available at www.status.co.uk for details of the TTC200X ATEX / IECEx specification and the special conditions for safe use.

Hazardous Area   **Non Hazardous Area**

Sensor

EX   EX

Uo = 5 V
Io = 55 mA
Po = 0.62 mW

Ui = 30 V
Ii = 100 mA
Pi = 750 mW
Li = 0
Ci = 0

TTC200X
CE II 1 GD
Ex ia IIC T4 Ga
Ex iaD 20 T135 °C Da
Tamb = -40 °C to 85 °C

Barrier   DC Supply

Earth

Order code:

TTC200   Std Tx.
TTC200X   IS Ver.

STATUS INSTRUMENTS