INOR





C520 / C520X /C520S / C520XS HART Compatible, Universal, Dual-input 2-wire Transmitters



The 520 transmitters are universal, isolated, dual-input temperature transmitters with additional voltage and resistance input. Typical characteristics are the high accuracy, reliable measurements, product safety and user efficiency.

The transmitters are compatible with the HART 6 protocol offering extended diagnostic information.

High Measurement Accuracy

Long-term stability	Drift over 5 years is the maximum of ± 0.05 °C or ±0.05 % of span
High precision	Example Pt 100: ± 0,1 °C or 0,05 % of span
Low temperature drift	±0.005 % of span per °C

High Reliability

Dual Sensor InputWith for example Pt100, 2- & 3-wire, T/C, Resistance and VoltageSensor Drift DetectionOne sensor with double elements, monitoring the temperature differenceSensor Back-upAutomatic switchover to backup sensorRobust design10g vibrations, robust terminals

High Safety

SIL 2 NAMUR EX-approvals According to IEC 61508-2 Compliant to NE 21, NE 43, NE 53, NE 89 and NE 107 ATEX, IECEx: Intrinsically safe

High User Efficiency

Easy configuration, installation and maintenance with ConSoft, HART6 Protocol, EDD plus DTM/FDT enabled systems

Features of the 520 transmitters

Basic accuracy and long-term stability

The combination of a high-efficient 50-point linearization and an electronic design based on the most precise and "zero-drift" technology results in a high basic accuracy and excellent long-term stability. The drift over 5 years is guaranteed to maximum of ± 0.05 °C or ± 0.05 % of the measuring span.

Ambient temperature stability

Features like continuous self-calibration of the input AD converter in every measurement cycle and a "zero-drift" current generation of the output DA converter have strongly reduced the ambient temperature influence to a minimum.

Customized linearization

For resistance and mV inputs, the 50-point Customized Linearization can provide a correct process value, in a choice of engineering units, for a sensor with non-linear input/output relation.

Adjustable filtering

For smoothing down instabilities on the input, an additional filter, with an adjustable filtering level can be activated.

Sensor matching doubles the accuracy

This function compensates for deviations (compared to actual standard values) in connected sensors. A reduction of the total measurement error, for the sensor/transmitter combination, of more than 50 % is typical.

Sensor backup

Dual-sensor input allows for backup between two sensors. Should a lead break or short-circuit be detected on one of the sensor circuits, an automatic switchover to the intact sensor will occur.

Single-sensor or dual-sensor input

The dual-sensor input for RTD, Resistance or Thermocouple allows for 3 output alternatives, each represented by a 4-20 mA signal:

- 1. The measured value of sensor 1
- 2. The measured value of sensor 2
- 3. A calculated value from sensor 1 and 2, e.g. Difference, Average, Minimum and Maximum.

Sensor drift monitoring

If an RTD or thermocouple with double sensor elements is used, the 520 transmitters can detect sensor drift by checking the reading from both elements. If the difference is above a user-defined level, this will be indicated in ConSoft and with a diagnostic HART message, and the output signal can be forced upscale or downscale.

Sensor isolation monitoring

The isolation resistance of thermocouples and RTD's as well as the cabling between sensor and transmitter is being monitored. If the isolation is below a user-defined level, this will be indicated in ConSoft and with a diagnostic HART message, and the output signal can be forced upscale or downscale. This feature requires an extra lead inside the thermocouple or RTD.

Measurements with RTD's and potentiometers

The 520 transmitters accept inputs from standardized Platinum RTDs acc. to IEC 60751 and JIS C 1604, Nickel RTD's acc. to DIN 43760 and Cu10 acc. to Edison Cu Windings No. 15.

Input for plain resistance, such as potentiometers, up to 4000 Ω is available.

2-, 3- or 4-wire connection can be chosen for single-input and 2- or 3-wire connection for dual-input (See Input connections below).

Measurements with Thermocouples and plain voltage

The 520 transmitters accept inputs from 10 types of standardized thermo-couples as well as plain mV input up to 1000 mV. For T/C input, the CJC (Cold Junction Compensation) is either fully automatic, by means of an internal accurate sensor, external with Pt100 sensor or fixed by entering an external CJ temperature.

SIL 2 compliance

Based on a hardware assessment according to IEC 61508-2, consisting of a FMEDA done by Exida, C520S and C520XS are suitable for use in SIL 2 rated Safety Instrumented Systems (SIS). See the Safety Manual for details.

ConSoft configuration software

The PC configuration software, ConSoft, is a versatile and user-friendly tool for transmitter configuration, loop check-up and sensor diagnostics. It runs on Windows NT, 2000, XP, Vista, Windows 7 and Windows 8. All features described in this data sheet are handled in a simple and fail-safe way.

ConSoft is part of the complete Configuration Kit ICON, which also contains a USB Interface and necessary cables.

Configuration alternatives

In addition to ConSoft (see above) the following configuration alternatives are available: Hand held communicator, e.g. FC375 (Emerson) Management systems, e.g. AMS (Emerson) and PDM (Siemens) EDD enabled systems – "520 EDD" available on our website. DTM/FDT enabled systems – "520 DTM" available on our website.

HART 6 compliance

The 520 transmitters are fully compliant with the HART 6 protocol as well as the previous HART 5.

HART 6 offers the possibility to receive diagnostic information such as sensor errors or sensor conditions, input wiring resistance too high, sensor backup mode, transmitter error etc. See User Instructions for details.

INOR

Specifications

Input RTD

Input RTD		
Pt100	(IEC 60751, α=0.00385)	-200 to +850 °C
Pt X (10 ≤ X ≤ 1000)	(IEC 60751, α=0.00385)	Corresp. to max. 4 000 Ω
Pt100	(JIS C 1604, α=0.003916)	-200 to +850 °C
Ni100	(DIN 43760)	-60 to +250 °C
Ni120	(Edison Curve No. 7)	-60 to +250 °C
Ni1000	(DIN 43760)	-50 to +180 °C
Cu10	(Edison Copper Windings No. 15)	-50 to +200 °C
Input connection	(Edison copper windings No. 15)	See "Input connections" below
Sensor current		≤300 µA
Maximum sensor wire resistance	2 and (wine connection	50 Ω/wire
Maximum sensor wire resistance	3- and 4-wire connection	
	2-wire connection	Compensation for 0 to 40 Ω loop resistance
Input Resistance / Potentiometer		
Range		0 to 4000 Ω
Range, potentiometer		100 to 4000 Ω
Zero adjustment		Within range
Minimum span		10 Ω
Customized linearization		Up to 50 points
Sensor current		≤300 µA
Input connections		See "input connections" below
Maximum sensor wire resistance		50 Ω / wire
Input Thermocouple		
T/C B	Pt30Rh-Pt6Rh (IEC 60584)	400 to +1800 °C
T/C C	W5-Re (ASTM E 988)	0 to +2315 °C
T/C D	W3-Re (ASTM E 988)	0 to +2315 °C
T/C E	NiCr-CuNi (IEC 60584)	-200 to +1000 °C
T/C J	Fe-CuNi (IEC 60584)	-200 to +1000 °C
T/C K	NiCr-Ni (IEC 60584)	
		-200 to +1350 °C
T/C N	NiCrSi-NiSi (IEC 60584)	-250 to +1300 °C
T/C R	Pt13Rh-Pt (IEC 60584)	-50 to +1750 °C
T/C S	Pt10Rh-Pt (IEC 60584)	-50 to +1750 °C
T/C T	Cu-CuNi (IEC 60584)	-200 to +400 °C
Input impedance		>10 MΩ
Input connections		See "Input connections" below
Maximum wire loop resistance		10000 Ω (Including T/C sensor)
Cold Junction Compensation (CJC)		Internal, external (Pt100) or fixed
Input Voltage Range		-10 to +1000 mV
Zero adjustment		
		Within range
Minimum span		2 mV
Customized linearization		Up to 50 points
Input impedance		>10 MΩ
Input connections		See "Input connections" below
Maximum wire loop resistance		500 Ω
Double inputs for RTD and Thermoo	ounle	
Measure mode	Single temperature	T1 or T2
	Differential temperature	T1 - T2 or T2 - T1
		0.5 * (T1 + T2)
	Average temperature	
	Minimum temperature	Lowest of T1 and T2
	Maximum temperature	Highest of T1 and T2
Sensor Backup	Single or Average mode	Failure on one sensor activates automatic switchover to the other sensor
Sensor Drift Monitoring	Single or Average mode	Adjustable acceptance level of the
	Single of Average mode	
		differential temperature of sensor 1 and 2



Shock Acc. to IEC-60068-2-31, test Ec EMC Standards EN 61326-1:2006; EN 61326-3-1:2009, NAN NE 21	Output			
HART protocol HART 6 HART protocol FSK 1200 Representation T1 or T2 or Difference, Average, Min or Max of T1 and T2 Resolution 1.5 µA Adjustable output filtering Level 0 to 7 (Deoff) Level 0 to 7 (Deoff) Adjustable output filtering Level 0 to 7 (Deoff) Permissible load 635 Ω 0.24 VDC incl. 250 Ω loop resistance Adjustable output filtering Currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of low sensor isolation Adjustable acceptance level for maximum deviation of low sensor isolation Adjustable acceptance level for maximum deviation of deviation between two sensors Adjustable acceptance level for maximum deviation failure Effects Output control acc. to NAMUR NE 43 Dutput control acc. to NAMUR NE 43 Dutput control acc. to NAMUR NE 43 Dutput control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor break, Sensor short-circuit, Sensor drift lony double RTD or T/C) and Low sensor is dividual upscale/downscale action when maximum sensor break, Sensor short-circuit, Sensor drift Low sensor isolation and Sensor resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Low sensor isolation and Sensor redundan switchever [Sensor back.up] General dat Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation CS20X/CS20XS ATEX: II 10 E K-ia IIC T6T4 Ga IECEX: K ia IIC T6T4 Ga				
HART physical layer FSK 1200 Representation FSK 1200 Representation FSK 1200 Representation FSK 1200 Representation F1 or 72 or Difference, Average, Min or Max of T1 and T2 Update time Single input: -300 ms; Double input: -600 i T5. pJA Adjustable output filtering Level 0 to 7 (0=off) Permissible load FSK 0 a 24 VDC incl. 250 0 loop resistance NAMUR Compliance Current limitations and failure currents acc. to NAMUR, NE 43 Ensor Isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift Ionly double RTD or T/C0 and Low sensor is c. to NAMUR NE 89 Individual upscale/downscale action were supply Control acc. to NAMUR NE 89 Individual upscale/downscale action were supply Control acc. to NAMUR NE 89 Individual upscale/downscale action were supply Control acc. to NAMUR NE 89 Individual upscale/downscale action were supply Control acc. to NAMUR NE 89 Individual upscale/downscale action were used Status information via HART communication Sensor break, Sensor short-circuit, Sensor drift Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation Ex-approvals C520X/C520XS ID to 34 VUC, I min Ex-approvals C520X/C520XS ID to 34 VUC, Standard power supply Environment conditions Ambient emperature Storage 40 to +85 °C Immunity performance Immunity performance Circuit 2. Sensor Executed Environment conditions Ambient emperature Standards Ex-approvals E			Temperature linear for RTD & T/C	
Representation T1 or T2 or D1fference, Average, Min or Max of T1 and T2 Update time Single input: -300 ms; Double input: -600 r Adjustable output filtering Level 0 to 7 (0-off) Permissible load 635 Ω 0 24 VDC incl. 250 Ω loop resistance NAMUR Compliance Current Limitations and failure currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Tift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for 5e break, Sensor short-circuit, Sensor drift lonly double RTD or T/Cl and Low sensor is lindividual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 89 Status information via HART communication acc. to NAMUR NE 107 and via Con5oft Selectable 50 Hz, 60 Hz or 50/60 Hz Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation and Sensor redundan switchover [Sensor backup] Ceneral data Every is 10 to 36 VDC, Standard power supply C520/C520XS Environment conditions Acto 11 ce 85 °C Humidity Ambient temperature Storage Condex-2-5, test 5°C Humidity Vibration Acc. to IEC 60068-2-31, test Ec EMC Mexing Envispretest influenc	HART protocol			
or Max of T1 and T2 Sector Vipdate time Single input: ~300 ms; Double input: ~600 i Resolution 1.5 μA Adjustable output filtering Level 0 to 7 (0-off) Permissible load 635 Q (0.24 VDC incl. 250 Q loop resistance NAMUR Compliance Current limitations and failure currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action when deviation Sensor Failure Effects Individual upscale/downscale action when Maximum sensor wire resistance exceeder Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeder Status information via HART communication Sensor break, Sensor back.up) General data Sensor break, Sensor back.up) Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation C520/C520S 10 to 30 VDC, 1min Ex-approvals C520/C520S 10 to 30 VDC, 1.S. power supply Environment conditions Acc. to IEC 60068-2-31, test Ec Ambient temperature Storage -40 to +85 °C	HART physical layer			
Update time Single input: -300 ms; Double input: -600 r Resolution 1.5 μA Adjustable output filtering Level 0 to 70 = 6fl; Permissible load 635 Ω B 24 VDC incl. 250 Ω loop resistance Adjustable output filtering Current limitations and failure currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Output control acc. to NAMUR NE 43 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 89 Sensor break, Sensor short-circuit, Sensor dacc. to NAMUR NE 107 and via ConSoft Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation C520X/C520XS Information via IC 75.0/262 10 to 36 VDC, Standard power supply Color +85 °C Operating -40 to +85 °C Environment conditions Array General dat Line frequency rejection Sclectable 50 °C <td colspan="2">Representation</td> <td></td>	Representation			
Resolution 1.5 µA Adjustable output filtering Level 0 to 7 (Dorff) Permissible load 635 Ω @ 24 VDC incl. 250 Ω loop resistance NAMUR Compliance acc. to NAMUR, NE 43 Sensor Isolation Monitoring Adjustable acceptance level for minimum isolation Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift lonly double RTD or T/Cl and Low sensors is acc. to NAMUR NE 89 Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeder Status information via HART communication Sensor break, Sensor short-circuit, Sensor short-circuit			or Max of T1 and T2	
Resolution 1.5 µA Adjustable output filtering Level 0 to 7 (Dorff) Permissible load 635 Ω @ 24 VDC incl. 250 Ω loop resistance NAMUR Compliance acc. to NAMUR, NE 43 Sensor Isolation Monitoring Adjustable acceptance level for minimum isolation Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift lonly double RTD or T/Cl and Low sensors is acc. to NAMUR NE 89 Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeder Status information via HART communication Sensor break, Sensor short-circuit, Sensor short-circuit	Update time		Single input: ~300 ms; Double input: ~600 ms	
Permissible load 635 0.0 24 VDC incl. 250 0. loop resistance NAMUR Compliance Current limitations and failure currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Sensor Failure Effects Output control acc. to NAMUR NE 43 Sensor short-circuit, Sensor short-circuit, Sensor drift Iondividual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift Compt control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 89 Sensor break, Sensor short-circuit, Sensor redundan switchover (Sensor backup) General data Line frequency rejection Isolation Ex-approvals Environment conditions Ambient temperature Storage -40 to +85 °C -40 to +85 °C	Resolution		1.5 µA	
NAMUR Compliance Current limitations and failure currents acc. to NAMUR, NE 43 Sensor Isolation Monitoring Adjustable acceptance level for minimum isolation Detection of low sensor isolation Adjustable acceptance level for maximum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift (only double RTD or T/C) and Low sensor is load to up to up to control acc. to NAMUR NE 89 Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor short-circuit, Sensor fund sensor redundan switchover [Sensor backup] General data Isolation Selectable 50 Hz, 60 Hz or 50/60 Hz Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, 1.S. power supply C520X/C520XS Environment conditions Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Ambient temperature Storage -40 to +85 °C Humidity 5 to 95	Adjustable output filtering		Level 0 to 7 (0=off)	
acc. to NAMUR, NE 43 Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor of rift (only double RTD or T/C) and Low sensor is Utput control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded status information via HART communication acc. to NAMUR NE 107 and via ConSoft Low sensor isolation and Sensor redundan switchover [Sensor backup] General data Line frequency rejection Isolation Ex-approvals C520X/C520XS ID to 36 VDC, Standard power supply C520X/C520XS ID to 36 VDC, Standard power supply Vibration Ambient temperature Storage -40 to +85 °C Mumidity Vibration Standards ENC Standard August ENC Standards ENC Standards ENC Standard ENC Standards ENC Standard ENC Standard ENC Standards ENC Standard ENC Standard ENC Standard ENC Standards ENC				
Sensor Isolation Monitoring Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift lonly double ATD or T/C) and Low sensor is of the total control acc. to NAMUR NE 43 Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift lonly double ATD or T/C) and Low sensor is of the total consor wire resistance exceeded. Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor redundan switchover [Sensor backup] General data Electable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS Ambient temperature Storage Ambient temperature Storage Ambient temperature Storage Ambient temperature Storage Ambient temperature Standards EMC Standards EMC Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Standards EN Ambient temperature Standards EMC Standards EMC Standards	NAMUR Compliance		Current limitations and failure currents	
Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift (only double RTD or T/C) and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Ceneral data Ex-approvals Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS 10 to 36 VDC, Standard power supply Chorenet conditions Ambient temperature Storage Ambient temperature Storage -40 to +85 °C Humidity 5 to 95 %RH Yibration Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 Hz Shock Acc. to IEC 60068-2-6, test Fc, 10 to 2000 Hz Maximum service Standards E12 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span			acc. to NAMUR, NE 43	
Detection of low sensor isolation Adjustable acceptance level for minimum isolation Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift (only double RTD or T/C) and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Ceneral data Ex-approvals Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS 10 to 36 VDC, Standard power supply Chorenet conditions Ambient temperature Storage Ambient temperature Storage -40 to +85 °C Humidity 5 to 95 %RH Yibration Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 Hz Shock Acc. to IEC 60068-2-6, test Fc, 10 to 2000 Hz Maximum service Standards E12 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span				
Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor vice resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Low sensor is loation and Sensor redundan switchover (Sensor backup) General data Ex-approvals C520X/C520XS Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS VDC, Standard power supply C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, Standard power supply C520X/C520XS Humidity 5 to 95 %RH Vibration	Sensor Isolation Monitoring			
Sensor Drift Monitoring Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is? Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is? Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded: Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft General data Selectable 50 Hz, 60 Hz or 50/60 Hz Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation Solov XC, 1 min Ex-approvals C520X/C520XS IECEX: Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S Operating -40 to +85 °C Munidity S to 95 %RH Vibration Acc: to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Cc: 0 IEC 60068-2-31, test Fc EMC Standards EN 61326-1:2006; EN 61326-3:2009, NAN NE 21	Detection of low sensor isolation			
Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Output control acc. to NAMUR NE 43 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 1G Ex ia IIC 76T4 Ga Power supply, polarity protected C520X/C520S C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 55 %RH Vibration Acc. to IEC 60068-2-31, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Fc EMC Standards EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span			minimum isolation	
Detection of deviation between two sensors Adjustable acceptance level for maximum deviation Sensor Failure Effects Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Output control acc. to NAMUR NE 43 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 1G Ex ia IIC 76T4 Ga Power supply, polarity protected C520X/C520S C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 55 %RH Vibration Acc. to IEC 60068-2-31, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Fc EMC Standards EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Sensor Drift Monitoring			
deviation Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift (only double RTD or T/C) and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Line frequency rejection Isolation Isolation Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation Ex-approvals C520X/C520XS ATEX: II 10 Ex ia IIC T6T4 Ga IECEx: Ex ia IIC T6T4 Ga IECEx: Ex ia IIC T6T4 Ga Power supply, polarity protected C520X/C520XS Operating -40 to +85 °C Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 55 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Enc to IEC 60068-2-12006; EN 61326-3-1:2009, NAM NE 21 Immunity performance Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Detection of deviation between two	Sensors	Adjustable acceptance level for maximum	
Sensor Failure Effects Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor low sensor isolation and Sensor redundan switchover [Sensor backup] General data Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply C520X/C520XS Environment conditions Ambient temperature Operating Ambient temperature Storage -40 to +85 °C Humidity 5 to 95 %RH Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EM EMC Standards EN 61326-1:2006; EN 61326-3:1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Detection of deviation between two	3013013		
Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor redundan switchover (Sensor isolation and Sensor redundan switchover (Sensor backup) General data Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Mumidity 5 to 95 % RH Vibration Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock En 61326-1:2006; EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span			deviation	
Output control acc. to NAMUR NE 43 Individual upscale/downscale action for Se break, Sensor short-circuit, Sensor drift [only double RTD or T/C] and Low sensor is Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor redundan switchover (Sensor isolation and Sensor redundan switchover (Sensor backup) General data Eine frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Mumidity 5 to 95 % RH Vibration Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Ext 162 -1:2006; EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Sensor Failure Effects			
break, Sensor short-circuit, Sensor drift (only double RTD or T/C) and Low sensor is Output control acc. to NAMUR NE 89 Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor Low sensor isolation and Sensor redundan switchover (Sensor backup) Ceneral data Line frequency rejection Ex-approvals Power supply, polarity protected Status temperature Storage Ambient temperature Ambient temperature Ambient t		3	Individual unscale/downscale action for Sensor	
Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft General data Low sensor isolation and Sensor redundan switchover [Sensor backup] General data Selectable 50 Hz, 60 Hz or 50/60 Hz Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards EN 61326-1:2006; EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	output control acc. to NAMOR NE 45		hreak Sensor short-circuit Sensor drift	
Output control acc. to NAMUR NE 89 Individual upscale/downscale action when Maximum sensor wire resistance exceeded Status information via HART communication acc. to NAMUR NE 107 and via ConSoft Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Ceneral data Low sensor isolation and Sensor redundan switchover (Sensor backup) General data Example of the sensor solution and Sensor redundan switchover (Sensor backup) General data Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, 1.S. power supply Environment conditions Ambient temperature Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Env 61326-3-1:2006; EN 61326-3-1:2009, NAN EMC Standards EN 61326-3-1:2009, NAN Mmunity performance Criteria A, Surge test influence max. ±0.5 % of span				
Maximum sensor wire resistance exceeded Status information via HART communication Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Low sensor isolation and Sensor redundan switchover (Sensor backup) Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga IECEx: Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-4, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Output control acc. to NAMUR NE 89			
Status information via HART communication Sensor break, Sensor short-circuit, Sensor acc. to NAMUR NE 107 and via ConSoft Low sensor isolation and Sensor redundan switchover (Sensor backup) General data Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, 1.S. power supply Environment conditions Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span				
acc. to NAMUR NE 107 and via ConSoft Low sensor isolation and Sensor redundan switchover (Sensor backup) General data Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga IECEx: Ex ia IIC T6T4 Ga IECEX: Ex ia IIC T6T4 Ga VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Operating Humidity Sto 95 %RH Vibration Shock EMC Immunity performance Immunity performance Housing	Status information via HART communication			
switchover (Sensor backup) General data Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions A Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC -60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span				
General data Line frequency rejection Selectable 50 Hz, 60 Hz or 50/60 Hz Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS ATEX: II 16 Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	acc. to NAMOR NE TO7 and via cons	5011		
Line frequency rejectionSelectable 50 Hz, 60 Hz or 50/60 HzIsolation1500 VAC, 1 minEx-approvalsC520X/C520XSATEX: II 16 Ex ia IIC T6T4 GaPower supply, polarity protectedC520/C520S10 to 36 VDC, Standard power supplyC520X/C520XS10 to 30 VDC, I.S. power supply10 to 30 VDC, I.S. power supplyC520X/C520XS10 to 30 VDC, I.S. power supply10				
Line frequency rejectionSelectable 50 Hz, 60 Hz or 50/60 HzIsolation1500 VAC, 1 minEx-approvalsC520X/C520XSATEX: II 16 Ex ia IIC T6T4 GaPower supply, polarity protectedC520/C520S10 to 36 VDC, Standard power supplyC520X/C520XS10 to 30 VDC, I.S. power supply10 to 30 VDC, I.S. power supplyC520X/C520XS10 to 30 VDC, I.S. power supply10	General data			
Isolation 1500 VAC, 1 min Ex-approvals C520X/C520XS Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply C520X/C520XS 10 to 30 VDC, I.S. power supply C520X/C520XS 10 to 485 °C Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock EN 61326-1:2006; EN 61326-3-1:2009, NAN EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span			Selectable 50 Hz 60 Hz or 50/60 Hz	
Ex-approvalsC520X/C520XSATEX: II 1G Ex ia IIC T6T4 Ga IECEx: Ex ia IIC T6T4 Ga IECE IECE IECE IECE COUNTRY INTERVIEW INTERVIEWER INTERVIEWER INTERVIEWER IECE IECE Ex is a IIC T6T4 Ga IECE Ex is a IIC T6T4 Ga IECE Ex is a IIC to is 00 VDC, I.S. power supply IECE Ex is a IIC to is 00 VDC, I.S. power supply IECE Ex is a IIC to is 00 Country is				
IECEx: Ex ia IIC T6T4 Ga Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock EN 61326-1:2006; EN 61326-3-1:2009, NAN EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span Housing		C520X/C520XS	ATEX: II 1G Ex ia IIC T6 T4 Ga	
Power supply, polarity protected C520/C520S 10 to 36 VDC, Standard power supply C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span of span		0020,0020,0		
C520X/C520XS 10 to 30 VDC, I.S. power supply Environment conditions Ambient temperature Storage -40 to +85 °C Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC 60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span of span	Power supply polarity protected	0520/05205		
Environment conditions Ambient temperature Storage Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % Housing Of span	i ower supply, potanty protected			
Ambient temperature Storage -40 to +85 °C Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span of span				
Operating -40 to +85 °C Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span Housing	Environment conditions			
Humidity 5 to 95 %RH Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span of span	Ambient temperature	Storage		
Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	· · · ·	Operating	-40 to +85 °C	
Vibration Acc. to IEC 60068-2-6, test Fc, 10 to 2000 H Shock Acc. to IEC-60068-2-31, test Ec EMC Standards EMC Standards Immunity performance Criteria A, Surge test influence max. ±0.5 % of span	Humidity	· · · ·	5 to 95 %RH	
Shock Acc. to IEC-60068-2-31, test Ec EMC Standards EN 61326-1:2006; EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span			Acc. to IEC 60068-2-6, test Fc, 10 to 2000 Hz, 10 g	
EMC Standards EN 61326-1:2006; EN 61326-3-1:2009, NAN NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span				
NE 21 Immunity performance Criteria A, Surge test influence max. ±0.5 % of span Housing		Standards	EN 61326-1:2006; EN 61326-3-1:2009, NAMUR	
of span				
of span		Immunity performance	Criteria A, Surge test influence max. ±0.5 %	
			of span	
Mounting UIN B head or larger, UIN-rail lwith adapte				
	Material		PC/ABS, RoHS compliant	
	Flammability acc. to UL		VO	
		Single/stranded wires	Max. 1.5 mm², AWG 16	
Weight 50 g			5U g	
Protection, housing / terminals IP 65 / IP 00	Protection, housing / terminals		IP 65 / IP UU	



Accuracy (reference 20 °C)	RTD and Thermocouple	See table below
	Resistance Digital accuracy ¹	0-1000 Ω : Max of ±20 m Ω or ±0.020 % of MV
		1000-4000 Ω : ±0.025 % of MV or max 0.5 Ω
	Resistance Analog accuracy ¹⁾	±0.03 % of span
	Voltage Digital accuracy ¹	±5 μV or ±0.010 % of MV
	Voltage Analog accuracy ¹⁾	±0.03 % of span
Temperature influence	RTD and Thermocouple	See table below
	Resistance	±0.005 % of span per °C
	Voltage	±0.005 % of span per °C
Cold Junction Compensation (CJC)		±0.5 °C within ambient temperature -40 to +85 °C
Temperature influence CJC		±0.005 °C per °C
Sensor wire influence	RTD and Resistance, 2-wire	Adjustable wire resistance compensation
	RTD and Resistance, 3-wire	Negligible, with equal wire resistance
	RTD and Resistance, 4-wire	Negligible
	Thermocouple and Voltage	Negligible
Supply voltage influence	Within specified limits	<±0.001 % of span per V
Long-term drift	·	Max of ±0.01 °C or ±0.01 % of span per year

^{1]} Total accuracy = Sum of digital and analog accuracy, calculated as an RMS (Root Mean Square) value

Accuracy specifications and minimum spans for RTD and Thermocouples

Conformance level 95 % (20)

Input type	Temperature range	Minimum span	Accuracy	Temperature Influence
		-	Maximum of:	(Deviation from ref. temp. 20 °C)
RTD Pt100	-200 to +850 °C	10 °C	±0.1 °C or ±0.05 % of span	±0.005 % of span per °C
RTD PtX 1)	Corresp. to max. 4 k Ω	10 °C	±0.1 °C or ±0.05 % of span	±0.005 % of span per °C
RTD Ni 100	-60 to +250 °C	10 °C	±0.1 °C or ±0.05 % of span	±0.005 % of span per °C
RTD Ni 120	-60 to +250 °C	10 °C	±0.1 °C or ±0.05 % of span	±0.005 % of span per °C
RTD Ni 1000	-50 to + 180 °C	10 °C	±0.1 °C or ±0.05 % of span	±0.005 % of span per °C
RTD Cu10	-50 to +200 °C	83 °C	±1.5 °C or ±0.1 % of span	±0.01 % of span per °C
T/C type B	+400 to +1800 °C	700 °C	±1 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type C	0 to +2315 °C	200 °C	±1 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type D	0 to +2315 °C	200 °C	±1 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type E	-200 to +1000 °C	50 °C	±0.25 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type J	-200 to +1000 °C	50 °C	±0.25 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type K	-200 to +1350 °C	50 °C	±0.25 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type N	-100 to +1300 °C	100 °C	±0.25 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type N	-250 to -100 °C	100 °C	±1 °C ²	±0.05 % of span per °C
T/C type R	-50 to +1750 °C	300 °C	±1 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type S	-50 to +1750 °C	300 °C	±1 °C or ±0.1 % of span ²⁾	±0.005 % of span per °C
T/C type T	-200 to +400 °C	50 °C	±0.25 °C or ±0.1 % of span ^{2]}	±0.005 % of span per °C

^{1]} (10 \leq X \leq 1000) ^{2]} CJC error is not included

INOR

RTD Resistance 3 4 5 3 4 5 2-wire connection Low isolation 2-wire connection Low isolation detection lead detection lead 3 4 5 RTD 3 4 5 Resistance 3-wire connection 3-wire connection Low isolation Low isolation detection lead detection lead 3 5 RTD 3 4-wire connection 2 4 5 Resistance Low isolation 4-wire connection detection lead Low isolation detection lead Double RTD З 5 2-wire connection Low isolation 3 Potentiometer 2 5 4 3-wire connection T detection lead 3 5 Thermocouple 2 4 2 3 5 Double RTD 3-wire connection Low isolation detection lead





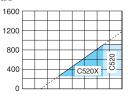
┯┥╘╪╱╱╞╸

Input connections

A-B and B-C are possible connections for HART modem or Communicator

Output load diagram

 $R_{LOAD}[\Omega] = [U-10]/0.022$



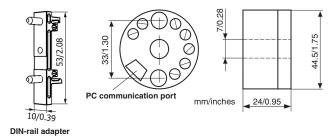
4 8 12 16 20 24 28 32 36 Supply voltage U (V DC)

Low isolation detection lead Combined RTD & Thermocouple 3 5 2 (RTD also for remote CJC) Low isolation detection lead 2 3 Voltage 4 5 m٧ 2 3 Double Voltage 1 4 5 m٧

2 3 4 5

Double thermocouple

Dimensions



Ordering information

C520	70C5200010
C520S, SIL 2 compatible	70C5200S10
C520X	70C520X010
C520XS, SIL 2 compatible	70C520XS10
ICON PC configuration kit (USB-conn.)	70CFGUS001
Configuration	70CAL00001
Head mounting kit	70ADA00017
DIN-rail adapter	70ADA00015