

Industrial Automation Devices

H 6200 Data Sheet / Operating Instructions



HIMA Paul Hildebrandt GmbH + Co KG
Industrial Automation

HI 800 172 DEA

Important Notes

All HIMA products mentioned in this manual are protected with the HIMA trade-mark. As not differently noted down this is possibly also valid for other mentioned manufacturers and their products.

All listed modules are CE certified and meet the requirements of the EMC Guideline of the European Community.

All technical statements and data in this manual have been worked out very carefully, and effective checks and inspections have been applied. This manual may however contain flaws or typesetting errors. Therefore HIMA does not offer any warranties nor assume legal responsibility nor any liability for the possible consequences of any errors in this manual. HIMA would appreciate being informed on possible errors.

The technology is subject to changes without notice.

Delivery Conditions

For our deliveries and services apply the "General Conditions for Delivery of Products and Services of the German Electrical Industry" - edition January 2002 -, resp. the "Conditions of Delivery for System Software and Peripheral Devices for the HIMA Automation System" (e. g. programmer units, printers, screen monitors). The products of this price list are subject to the valid export regulations.

Eventual complaints can be recognized only when we are being notified within 14 days after receipt of the merchandize.

The prices shown in a special list are valid ex works, packing charges excluded. The prices are subject to change.



Analog isolator / power supply H 6200 with additional module Z 7362

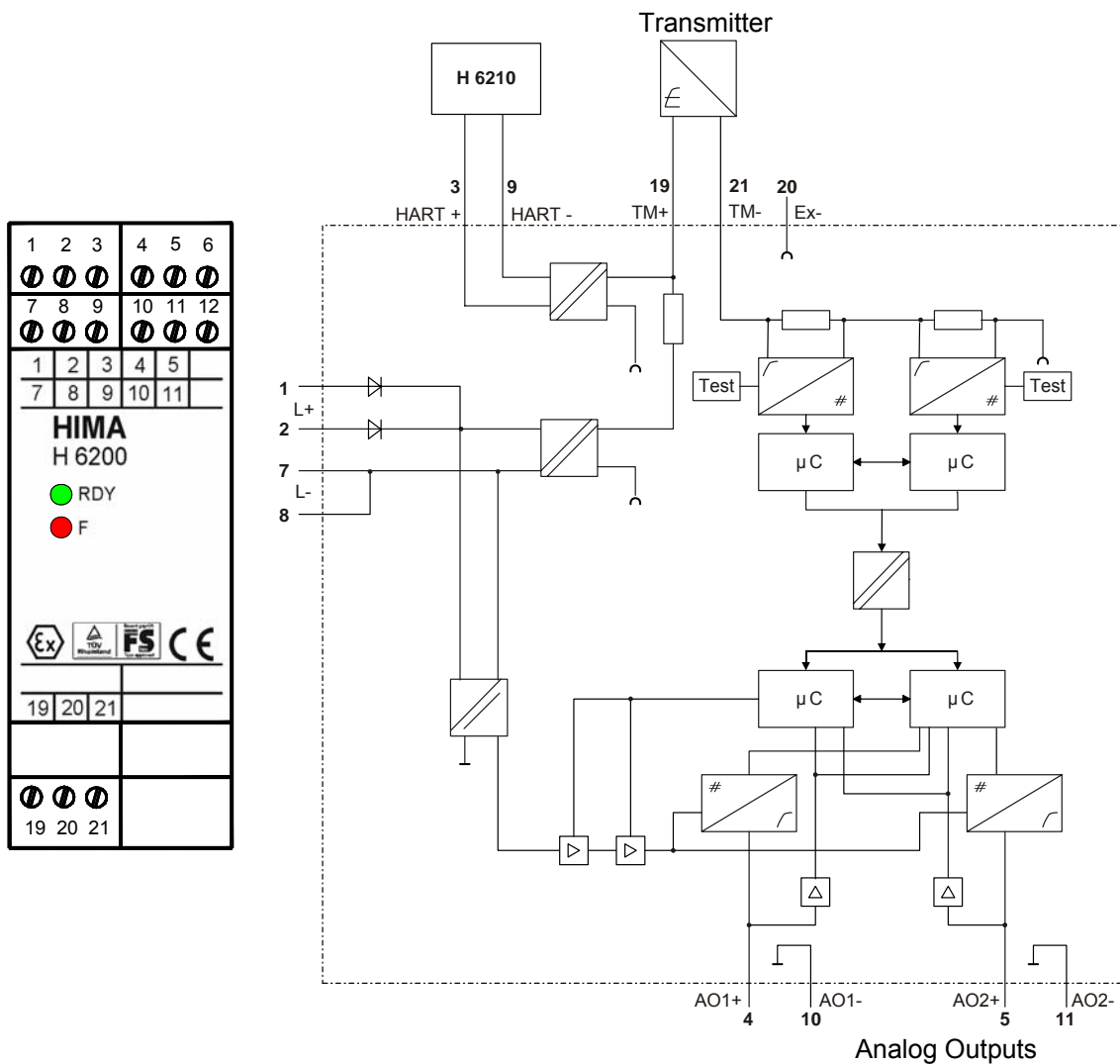
(Ex)i, safety-related, in electronic housing, HART

The module is TÜV - tested according to IEC 61508 for SIL 3,
according to EN 954-1 for category 3, 4.

EC Type Examination Certificate 04 ATEX 7064

Type Examination Certificate 04 ATEX 7065 X

(Zone 2 and Zone 22)



1. Technical Data

Operating voltage	24V =, min. 20.4 V ($\cong - 15\%$), max. 28.8 V ($\cong + 20\%$)
Current consumption Ripple (W_{SS})	140 mA @ 20 mA transmitter current, 24 V $\leq \pm 15 \%$
Supply of transmitter: Supply voltage	15 V (min.) @ 21.5 mA, 16 V (typ.) @ 20 mA
Threshold where monitoring switches off the outputs	< 15 V
Current input: Nominal input current Range of use of input current Maximum input current Internal shunt for current meas. Electrical strength Interference voltage suppression	4..20 mA 0..23 mA 30 mA ca. 50 Ω 5 V max. > 60 dB (common mode 50/60 c/s)
In Ex applications, the cable shield has to be connected to the potential bonding. In non-Ex applications, the cable shield is connected to the PE terminal / busbar on the subrack.	
Current outputs 1..2: Nominal output current Range of use of output current Burden Burden if additional module Z 7362 is connected Refresh time of measurement value at the output Error @ 25 °C Temperature coefficient Temperature error @ -10 °C .. 60 °C	4..20 mA 0.5..23 mA 600 Ω (max.) 450 Ω (max.) 10 ms (typ.) 20 ms (max.) 0.1 % (typ.), 0.2 % (max.) 0.1 % (max.) at 10 K 0.4 % (max.)
Safety: Safe error margin Safe state Safety time	1% (max.) Output signal < 0.5 mA 100 ms (max.)
Ex Data: Ex Category Zone2 / Zone 22	II (1) GD [Eex ia] IIC II 3 GD Eex nA IIT4
HART: HART voltage, terminals 3/9 Input resistance, terminals 19/21 Input capacity, terminals 10/21	Max. 12 V _{PP} $R_x = 420 \Omega$ $C_x = 40.000 \text{ pF}$
Ambient temperature	0 °C..+60 °C @ 4..20 mA 0 °C..+50 °C @ 4..30 mA
Storage temperature	-40 °C..+85 °C
Protection class	IP20
Weight	200 g
Dimensions (H W D)	99 x 35 x 114.5 mm

The module complies with the following standards: IEC 61131-2, IEC 61010-1.

2. Operational States and Display Readings

The module is able to transfer the value 0..20 mA from the input signal to the outputs. In case of an error, the outputs are switched off.

The operational state is displayed by two LEDs:

RDY (Ready) green color,

F (Fault) red color

Possible states are

LED RDY (green)	LED F (red)	Operational State	Analog Outputs
On	On	Initialisation after power-up	are switched off
On	Off	Normal operation	mirror the input value
On	Off	<i>Overflow</i>	drive the maximum current
On	Off	<i>One output is not in use</i>	the other output mirrors the input value
On	Blinking	<i>Burden exceeded</i>	the output with the overload is switched off
On	Blinking	<i>Hardware-Failure of an output</i>	one output is switched off, the other one operates normal
On	Flashing	<i>Low transmitter supply voltage</i>	are switched off, or drive a current of 21.5 mA or more
Off	On	<i>Temperature Monitoring / System failure</i>	are switched off

Operational States

Overflow

in case of overcurrent at the input (> 23 mA), the analog outputs drive the maximum current of 23 mA.

One output is not in use (idle)

it is switched off. In intervals of < 10 s it is switched on, in case of a burden connected to it.

Burden exceeded

a too high burden is connected to one or both analog outputs. The output/s is/are switched off, and switched on after the next power-up.

Hardware-Failure of one output

this is switched off, and the other one works normally. The module has to be exchanged.

Low transmitter supply voltage

the transmitter supply voltage falls below 15 V. The Analog outputs are switched off, unless the input current is > 21.5 mA:

Temperature monitoring / System failure

the internal temperature monitoring was activated, the analog outputs are switched off. After switching off the supply voltage and after cooling down, the module can be put back into operation, and it turns on again its analog outputs.

If the error occurs again, either the system, or both analog outputs have failed. Then the module has to be exchanged.

3. Safety

PFD and PFH calculations have been carried out for the module in accordance to IEC 61508.

IEC 61508-1 sets a PFD of 10^{-4} to 10^{-3} and a PFH of 10^{-8} to 10^{-7} per hour for SIL 3.

For the module applies:

PFD : $6.8 * 10^{-5}$

PFH : $3.5 * 10^{-9}$

SFF : 99,6 %

3.1 Offline Proof-Test

The offline proof-test recognizes dangerous concealed faults that would affect the safe function of the plant.

The **interval** for the repeat test for the module is set to **10 years** (Off-line Proof Test, see IEC 61508-4, paragraph 3.8.5).

The execution of the offline proof test depends on the configuration of the plant (EUC = equipment under control), which risk potential it has, and which standards for operation are applied and form the bases for the approval by the test authority in charge.

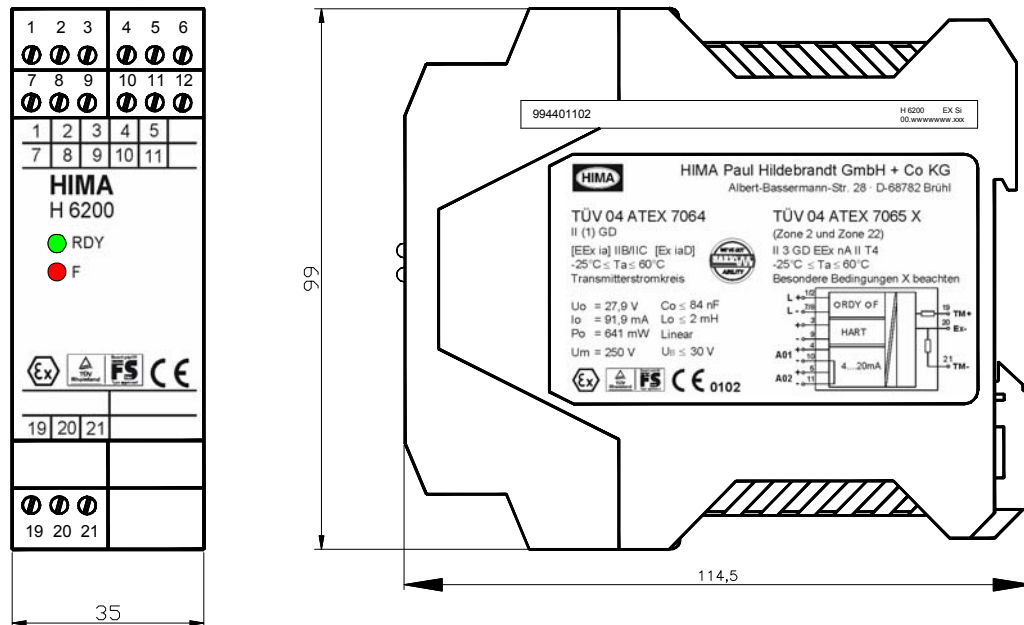
According to the standards IEC 61508 1-7, IEC 61511 1-3, IEC 62061, and VDI/VDE 2180 sheet 1 to 4, in case of safety-related systems the operating company has to arrange for proof tests.

The H 6200 can be proof tested by executing the full safety loop.

In practice the input and output field devices have a shorter proof test interval (e.g., every 6 or 12 months) than the H 6200. If the end-user tests the complete safety loop because of the field devices then the H 6200 is automatically included in these tests. No additional periodic tests are required for the H 6200.

If the proof test of the field devices does not include the H 6200 then the PES needs to be tested as a minimum once in 10 years. This can be done by executing **a restart** of the H 6200.

4. Mechanical Design and Dimensions



Terminal Assignment of the Module H 6200

Terminal No.	Designation	Function
1	L +	Supply voltage 24 V
2	L +	Terminals are decoupled by internal diodes
3	HART +	HART Terminal +
4	AO1 +	Analog output 1 +
5	AO2 +	Analog output 2 +
6		Not used
7	L -	Ground (internally connected)
8	L -	
9	HART -	HART Terminal -
10	AO1 -	Analog output 1 -
11	AO2 -	Analog output 2 -
12		Not used
19	TM +	Transmitter -
20	Ex-	Ex ground
21	TM -	Transmitter +

Voltage supply

The 24 VDC voltage supply of the module must be supplied from a power supply with protective separation.

The power supply must fulfil the requirements of SELV (Safety Extra Low Voltage) or PELV (Protective Extra Low Voltage); refer to EN 61010.

The power supply of the module must be protected externally with a fuse ≤ 16 A.

Connections

Using of shielded cables improves the EMC conditions significantly. In this case, the shield must be grounded.



Confusing the terminator plugs may damage the module, or the transmitter connected to it!



The module is grounded via the DIN rail. That is why the rail also has to be galvanically connected to the cabinet.

Only personnel who have knowledge of ESD protective measures are permitted to carry out system modifications and replace modules.



An electrostatic discharge can damage the built-in electronic components.

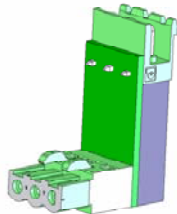
- Touch an earthed object to discharge any static in your body.
- When carrying out the work, make sure to use an ESD protected working area and wear an earthing strip.
- When the module is not in use, ensure it is protected from electrostatic discharges, e. g. keep it in its packaging.

De-coupling of the Outputs Using the Additional Module Z 7362

If feeding an output with external voltage by the consumer cannot be avoided in case of external error (e.g. wiring faults, or not interference-free input circuits of the consuming system), the output must be de-coupled. For this purpose, connect the consumer using the de-coupling device Z 7362 available from HIMA.

The Z 7362 is plugged into the terminals 4, 5, and 6 in place of the pluggable terminals. Screw the lines to connect the consumers into the pluggable terminals and plug these into the additional module's terminals.

Additional module Z 7362:



Assembly

The device is fitted to a standard rail as described below:

- attach the guide on the back of the device to the upper edge of the standard rail,
- press the device against the rail, until the latch snaps in to lock the device onto the rail.

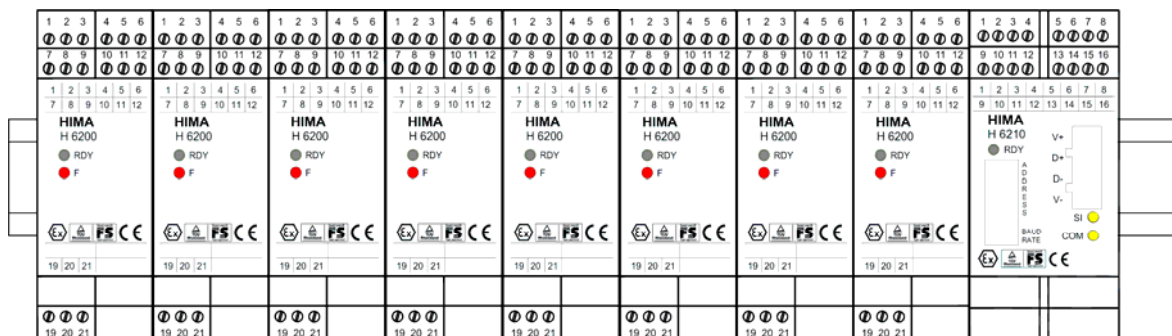
Removing the module from the standard rail:

- Insert a flathead screwdriver into the gap between the housing and the latch, use the screwdriver as a lever to move the latch downward, at the same time lifting the device off of the rail.

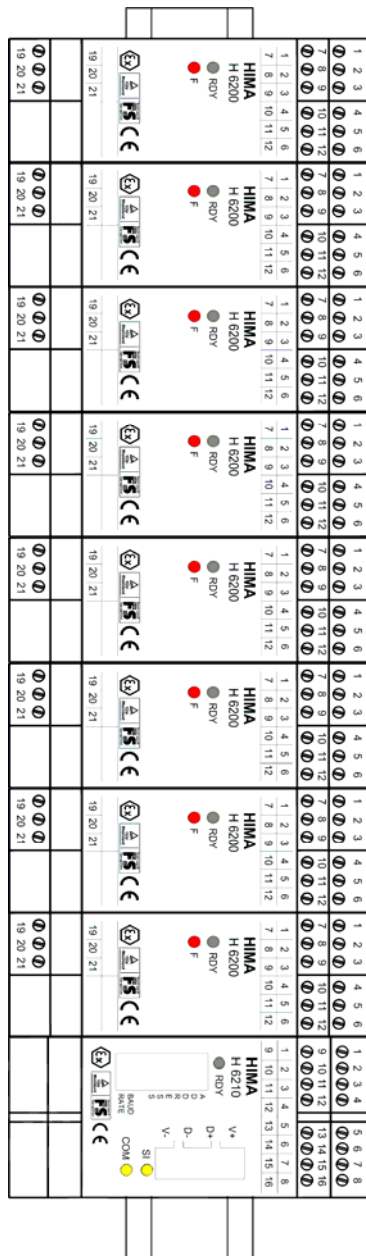
Arrangement of the Modules

- Note**
- In case of horizontal mounting position, there must be a distance of at least 100 mm to the next row of devices with power dissipation above and below the device; the same applies to the lateral gaps in the case of vertical mounting position.
 - The device may not be fitted above heating equipment or any source of heat.

A group of up to 8 isolators H 6200 shall be mounted next to an 8-fold multiplexer in a horizontal or vertical position on a DIN rail. The isolators can be placed close to each other and close to the multiplexer; a distance of 50 mm between each group must be observed



Horizontal mounting position



Vertical mounting position

In the case of vertical mounting position, the multiplexer H 6210 must always be mounted below the isolators H 6200.

If this assembly is not used, shielded cables with a maximum length of 3 m within the cabinet must be used:

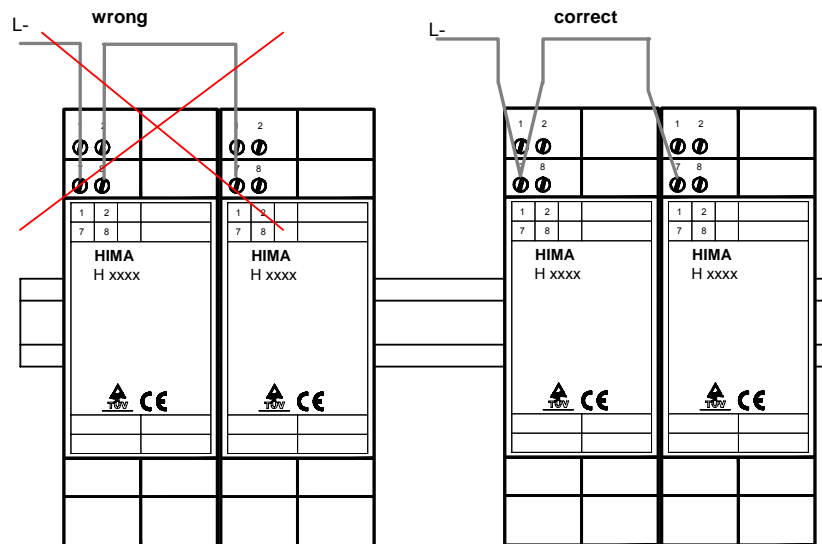
- If the H 6200s and the H 6210 are distributed, e.g. over several DIN rails, star wiring with pairwise twisted wires must be used.
- If the H 6210 is installed remotely from a group of H 6200s as shown above, then the wiring between the group of H 6200s and the H 6210 can be made using *one* cable.

Hint for wiring

If a module is defective, the pluggable terminals are pulled out, the module is replaced, and then the terminals are plugged in again.

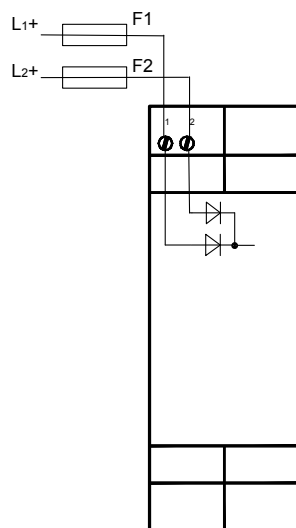
Attention has to be paid not to disconnect any other module from the power supply.

This may occur if the wiring is wrong – if the circuit is only closed in the module to be replaced. The picture shows the wrong and the correct wiring.



Enhancement of Availability

The analog isolator H 6200 allows feeding in the supply voltage L+ redundant and decoupled by internal diodes. A short-circuit in one power supply has no influence on the second one.



5. Operating Instructions

5.1 Application

The module can be used to supply 2-wire and 3-wire control (Ex)i transmitters, and to transfer their measuring value as an analog signal (4–20 mA) to consumers by two safety-related analog output terminals (SIL 3). These transmitters can be installed in hazardous areas from Zone 0 on.



- If in the hazardous area so-called hybrid mixture may occur, the use of this intrinsically safe circuit is **not permitted**. If the occurrence of hybrid mixtures has to be taken into account, always a special consideration of the individual case is necessary.
- Do **not** connect the output channels of the H 6200 to external voltage.
- If this cannot be avoided, decouple the external voltage as described on page 7.
- Modules, which were operated in general electrical systems, must **not** be used in Ex-plants **thereafter**.
- In addition, **only** the applications described in this document are admissible.

Moreover, the module can support bidirectional HART communication between an appropriate transmitter and a corresponding partner. This can be done using the HART multiplexer H 6210.

The cooperation between the devices H 6200 and H 6210 is described in the document HI 800 175 "HART Communication Manual".

5.2 Electrical Specifications Concerning Intrinsic Safety

For these specifications please refer to the EC Type Examination Certificate enclosed.

The maximum voltage U_m is 250 V.

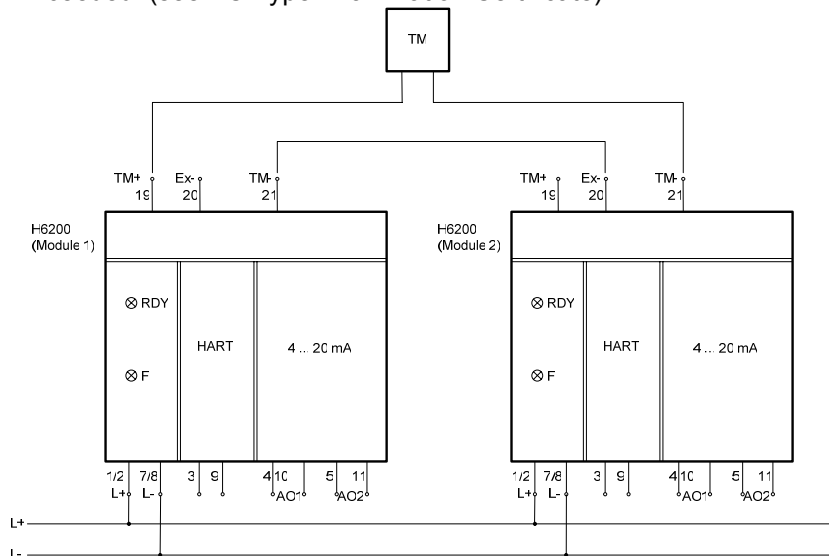
5.3 System Start-up

Prior to the first system start-up, an Ex-expert has to check the correct installation of the system, especially the supply voltage connections and the connections for the intrinsically safe circuits.

Installation

- The module must be installed outside of explosion hazardous areas.
- The electronic module including its connections has to be installed in a way that at least the system of protection IP 20 according to EN 60529: 1991 + A1: 2000 is achieved.
- The separation between intrinsically safe and not intrinsically safe terminals must be ≥ 50 mm.
- The separation between adjacent intrinsically safe terminals must be ≥ 6 mm.
- The separation between adjacent intrinsically safe terminals and PE or PA must be ≥ 3 mm.

- Two measurement circuits of two modules may be connected in series (see figure). In doing so, the same maximum permissible inductive and capacitive values must not be exceeded. (see EC Type Examination Certificate)



- Intrinsically safe and not intrinsically safe lines must be installed separately, or the intrinsically safe lines must be provided with additional insulation.
- Intrinsically safe lines must be identifiable, e.g. by a light blue colour (RAL 5015) of the insulation.
- Intrinsically safe lines must be marked, e.g. by a light blue colour (RAL 5015) of the insulation.
- The wiring has to be secured mechanically in a way, which ensures that in the event of an accidental disconnection, the distance (EN 50 020/ Part 7, Table 4) between the intrinsically safe and not intrinsically safe connections does not fall below the required minimum (e.g. by bundling).

The lines used must comply with the following insulation test voltages:

Intrinsically safe lines ≥ 1000 VAC

Not intrinsically safe lines ≥ 1500 VAC

For stranded wires, the line ends must be provided with wire end ferrules. The terminals must be suitable for clamping the wire cross section.

For installation of the module within zone 2 and zone 22, the following has to be taken into account:

- Considering the special conditions X, the module may be installed in zone 2 or zone 22. The special conditions X are to be taken from the appendix of the Type Examination Certificate.
- Good knowledge of the relevant standards for the installation in zone 2 and zone 22 is necessary.

The applicable regulations and standards have to be complied with, especially

EN 50014: 1997 + Corrigendum: 1998 + A1: 1999 + A2: 1999
(VDE 0170/0171, Part 1: 2000, DIN EN 50014: 2000-02)

EN 50020: 2002
(VDE 0170/0171, Part 7: DIN EN 50020: 2003-08)

EN 50039: 1980
(VDE 0170/0171, Part 10: 1982, DIN EN 50039: 1982-04)

EN 50281-1-1: 1998 + EN 50281-1-1/A1: 2002
(VDE 0170/0171 Part 15-1-1, DIN EN 50281-1-1: 1999-10
+ VDE 0170/0171 Part 15-1-1/A1, DIN EN 50281-1-1/A1: 2002-11)

EN 60079-15: 2003
(VDE 0170/0171 Part 16, DIN EN 60079-15: 2004-05)

EN 60079-14: 1997
(VDE 0165 Part 1, DIN EN 60079-14: 1998-08)

EN 50281-1-2: 1998 + EN 50281-1-2/A1: 2002
(VDE 0165 Part 2, DIN EN 50281-1-2: 1999-11
+ A1, DIN EN 50281-1-2/A1: 2002-11)

5.4 Maintenance

In case of a failure, the defective module must be replaced with the same, or with another approved type.



Any repair of the module must be carried out by the manufacturer only.



TÜV Rheinland Group

(1) EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

- (2) Equipment and Protective Systems intended for Use in Potentially Explosive Atmosphere - Directive 94/9/EC



- (3) EC-Type-Examination Certificate Number

TÜV 04 ATEX 7064

- (4) **Gerät:** H 6200 / HART-Trennverstärker Si, (Ex)i
- (5) **Hersteller:** HIMA Paul Hildebrandt GmbH + Co KG
- (6) **Anschrift:** D-68782 Brühl Albert-Bassermann-Straße 28
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents referred to.
- (8) The TÜV CERT-Zertifizierungsstelle for ex-protected products of TÜV Industrie Service GmbH, TÜV Rheinland Group, notified body No. 0035 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies this equipment 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 atmosphere, given in Annex II to the Directive. The examination and test results are recorded in the confidential report 194 /Ex064.00/04
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with
EN 50014: 1997 + A1: 1999 + A2: 1999 EN 50284: 1999
EN 50020: 2002 prEN 61241-0: 2002 31H/171/CDV (IEC 61241-11)
- (10) IF the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.
- (12) The marking of the equipment shall include the following:

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

[EEx iaD]
Köln, 31.08.04

Dipl.-Ing. K. Wettingfeld



DAR-Reg.-Nr.: ZLS-ZE-311/02

The Zentralstelle der Länder für Sicherheitstechnik (ZLS) – represented in the Deutschen Akkreditierungsrat – herewith confirms, that the TÜV CERT-Zertifizierungsstelle for equipment and protective systems intended for use in potentially explosive atmosphere in accordance with Directive 94/9/EC of the TÜV Industrie Service GmbH, TÜV Rheinland Group, Am Grauen Stein, 51105 Köln, complies with the requirements of § 9 Abs. 2 Gerätesicherheitsgesetz as well as the standard DIN EN 45 011 and has the competence, to certify explosion protected equipment in the scope of the Directive 94/9/EC according to the requirements of the notification of accreditation No. 5 ZLS/3926-1/122/03.



TÜV Rheinland Group

(13)

Annex to

(14)

EC Type Examination Certificate

TÜV 04 Atex 7064

(15)

Equipment description

The electronic device "H 6200 / HART isolating amplifier Si, (Ex)I" is a single isolating amplifier with a transmitter circuit (transmitter feed circuit and test circuit). It is designed as a terminal module.

The isolating amplifier transmits an analogue 4 .. 20 mA test signal from the intrinsically safe transmitter circuit to the intrinsically safe output circuits. The intrinsically safe transmitter circuit supplies certified loads (eg pressure transmitters) installed in the potentially explosive area. The isolating amplifier also allows the bi-directional transmission of an analogue HART signal between the intrinsically safe transmitter circuit and the intrinsically safe HART circuit.

As only the transmitter circuit is intrinsically safe, the terminal module must be erected outside of the potentially explosive area. The transmitter circuit is safely isolated from the other electric circuits for a rated voltage with a peak of up to 375 V.

Parameters

Supply voltage:	U_B	24 V DC (20 ... 30 V), approx. 4.1 W
	$U_{B(max)}$	≤ 30 V
	Connection:	1, 2 (L+); 7, 8 (L-)
	U_m	≤ 250 VAC / 125 VDC
Ambient temperature range:		-25 °C to +60 °C

This EC Type Test Certificate may only be circulated without alterations.
Extracts or alterations must be approved by TÜV CERT-Zertifizierungsstelle of TÜV Industrie Service GmbH,
TÜV Rheinland Group.
Page 2 of 4



TÜV Rheinland Group

Intrinsically safe output circuits (maximum):

H 6200	3-wire transmitter (terminals 19, 20 and 21) (feed and test circuit)	2-wire transmitter (terminals 19 and 21) (feed and test circuit)	Test circuit (terminals 20 and 21)
	$U_{O1} = 27.9 \text{ V}$	$U_{O1} = 27.9 \text{ V}$	$U_{O2} = 6.0 \text{ V}$
	$I_{O1} = 107.7 \text{ mA}$	$I_{O2} = 91.9 \text{ mA}$	$I_{O3} = 2.25 \text{ mA}$
	$P_{O1} = 752 \text{ mW}$	$P_{O2} = 641 \text{ mW}$	$P_{O3} = 3.4 \text{ mW}$
Character- istic:	Linear	Linear	Linear

The following maximum external inductances and capacities may be connected:

Type of protection: [EEx ia] IIB or [EEx iaD]:

3-wire transmitter		2-wire transmitter		Test circuit	
L_o	C_o	L_o	C_o	L_o	C_o
9 mH	654 nF	13 mH	654 nF	H 1	1000 μF

Type of protection: [EEx ia] IIC:

3-wire transmitter		2-wire transmitter		Test circuit	
L_o	C_o	L_o	C_o	L_o	C_o
1.2 mH	84 nF	2 mH	84 nF	H 1	40 μF

If concentrated external inductances and/or capacities are present, the following may only be connected:

Type of protection: [EEx ia] IIB or [EEx iaD]:

3-wire transmitter		2-wire transmitter		Test circuit	
L_o	C_o	L_o	C_o	L_o	C_o
9 mH	240 nF	10 mH	250 nF	100 mH	7.1 μF

Type of protection: [EEx ia] IIC:

3-wire transmitter		2-wire transmitter		Test circuit	
L_o	C_o	L_o	C_o	L_o	C_o
0.16 mH	83 nF	1 mH	49 nF	100 mH	1.5 μF

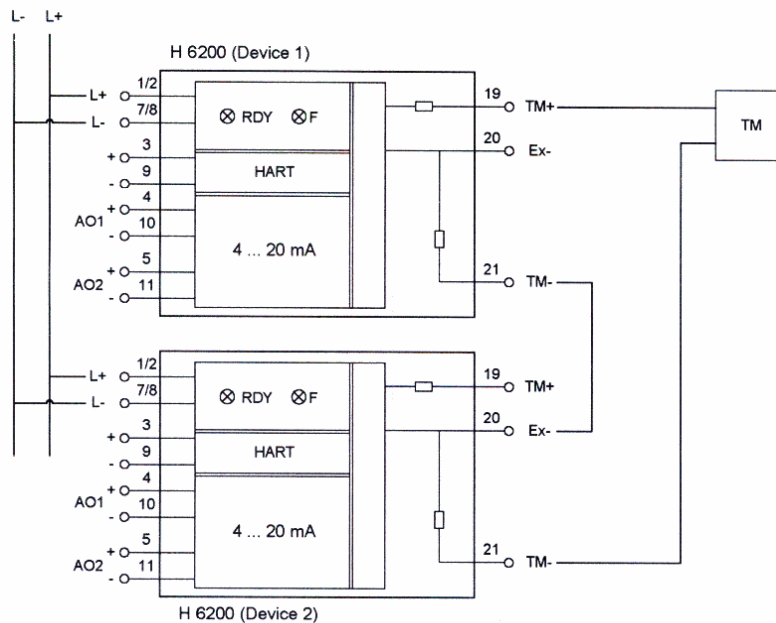
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TÜV Rheinland Group.
Page 3 of 4



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If two test circuits are connected in series as shown below, the electric parameters for the 2-wire transmitter apply.

The level of protection of the electric circuits is not changed by the series connection.



(16) **Test report:** 194 / Ex 064.00 / 04

(17) **Special conditions for safe use**

None

(18) **Essential safety and health requirements**

are covered by the previously cited standards.

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Cologne, 31.08.2004

Klaus Wettingfeld
Dipl.-Ing. Klaus Wettingfeld

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Extracts or alterations must be approved by TÜV CERT-Zertifizierungsstelle of TÜV Industrie Service GmbH,
TÜV Rheinland Group.
Page 4 of 4



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(1) **TYPE-EXAMINATION CERTIFICATE**
(Translation)

- (2) Equipment and Protective Systems intended for Use in
Potentially Explosive Atmosphere - **Directive 94/9/EC**

- (3) Type-Examination Certificate Number



TÜV 04 ATEX 7065 X

- (4) **Gerät:** H 6200 / HART-Trennverstärker Si, (Ex)i
- (5) **Hersteller:** HIMA Paul Hildebrandt GmbH + Co KG
- (6) **Anschrift:** D-68782 Brühl Albert-Bassermann-Straße 28
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents referred to.
- (8) The TÜV CERT-Zertifizierungsstelle for ex-protected products of TÜV Industrie Service GmbH, TÜV Rheinland Group certifies this equipment 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 atmosphere, given in Annex II to the Directive.
The examination and test results are recorded in the confidential report 194 /Ex065.00/04
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with
EN 60079-15: 2003 **EN 50281-1-1: 1998**
- (10) IF the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.
- (12) The marking of the equipment shall include the following:

II 3 GD

EEx nA II T4

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Köln, 31.08.04

Dipl.-Ing. K. Wettingfeld

This Type Examination Certificate may only be circulated without alterations. German version is valid.
Extracts or alterations must be approved by TÜV CERT-Zertifizierungsstelle of TÜV Industrie Service GmbH,
TÜV Rheinland Group



TÜV Rheinland Group

(13) Annex to

(14) **Type Examination Certificate**
TÜV 04 ATEX 7065 X

(15) **Equipment description**

The electronic device "H 6200 / HART isolating amplifier Si, (Ex)I" is a single isolating amplifier with a transmitter circuit (transmitter feed circuit and test circuit). It is designed as a terminal module.

The isolating amplifier transmits an analogue 4 .. 20 mA test signal from the intrinsically safe transmitter circuit into the intrinsically safe output circuits. The intrinsically safe transmitter circuit, certified with the EC Type Test Certificate TÜV 04 Atex 7064, supplies certified loads (eg pressure transmitter) installed in the potentially explosive area. The isolating amplifier also allows the bi-directional transmission of an analogue HART signal between the intrinsically safe transmitter circuit and the intrinsically safe HART circuit.

Parameters

Supply voltage:	U_B	24 VDC (20 ... 30 V)
	$U_{B(max)}$	≤ 30 V
	Connection:	1, 2 (L+); 7, 8 (L-)

Ambient temperature range: -25 °C to +60 °C

The maximum power loss of the device is 3.5 W.

(16) **Test report:** 194 / Ex 065.00 / 04

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(17) **Special conditions for safe use**


- 1) To comply with category 3G, the isolating amplifier must be installed in an enclosure meeting the requirements of EN 60079-15 or EN 50021 with a protection type of at least IP 54.
- 2) To comply with category 3D, the isolating amplifier must be installed in an enclosure meeting the requirements of EN 50281-1-1 with a protection type of at least IP 54. If conductive dust occurs, protection type IP6X is required.
The maximum surface temperature of the enclosure must be determined.
- 3) When installing the isolating amplifier in an enclosure, the maximum power loss occurring must be taken into consideration.
- 4) The isolating amplifier can only be worked on with the power off. Exception: No potentially explosive atmosphere and no potentially explosive dust exists.
- 5) Observe the EC Type Test Certificate TÜV 04 Atex 7064 for the connection of the intrinsically safe transmitter circuit.

(18) **Essential safety and health requirements**

are covered by the previously cited standards.

TÜV CERT-Zertifizierungsstelle für Explosionsschutz

Cologne, 31.08.2004


Dipl.-Ing. Klaus Wettingfeld

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