

CERTIFICATE

(1) EU-Type Examination

(2) **Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **DEKRA 13ATEX0140 X** Issue Number: **2**

(4) Product: **Temperature Input Module (TIM) Type 9482/3*-08-1***

(5) Manufacturer: **R. STAHL Schaltgeräte GmbH**

(6) Address: **Am Bahnhof 30, 74638 Waldenburg, Germany**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential test report number NL/DEK/ExTR13.0045/01.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0 : 2018

EN 60079-7 : 2015 + A1 : 2018

EN 60079-11 : 2012

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:



II 2 (1) G Ex ia [ia Ga] IIC T4 Gb and

II (1) D [Ex ia Da] IIIC

(Type 9482/32-08-1*)

II 3 (1) G Ex ec ia [ia Ga] IIC T4 Gc and

II (1) D [Ex ia Da] IIIC

(Type 9482/33-08-1*)

Date of certification: 19 May 2020

DEKRA Certification B.V.

R. Schuller
Certification Manager



(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate DEKRA 13ATEX0140 X**

Issue No. 2

(15) **Description**

Temperature Input Module (TIM) Type 9482/3*-08-1*, for operation in the Remote I/O Systems IS1 and IS1+.

The module is connected to the system via a Bus Rail and it provides up to 8 intrinsically safe input circuits for connection of temperature sensors (channels 0 to 7). Each channel can be used as input for a 2-/3- or 4-wire RTD, potentiometer, thermocouple or mV sensor. Channels 6 and 7 can also be used for connection of an external cold junction compensation (CJC) via RTDs.

The intrinsically safe input circuits are infallibly galvanically isolated from the IS1 and IS1+ bus supply and data circuits up to a peak voltage of 60 V.

Module type 9482/32-08-1* is intrinsically safe and may be installed in an explosive gas atmosphere requiring equipment of category 2 G.

Module type 9482/33-08-1* is in type of protection Ex ec and may be installed in an explosive gas atmosphere requiring equipment of category 3 G.

Both types of modules may be installed in an explosive dust atmosphere requiring equipment of category 2 D or 3 D if mounted in a suitable enclosure that meets the requirements of an appropriate, recognized type of protection in accordance with EN IEC 60079-0.

The enclosure of the module provides a degree of protection IP20 according to EN 60529.

The Temperature Input Module (TIM) Type 9482/3*-08-1* may be disconnected or connected to the IS1 or IS1+ Bus Rail in the hazardous area and while in operation. The intrinsic safe Terminals X1 and X2 may also be connected or disconnected while in operation and in the hazardous area.

Refer to Annex 1 for electrical data and temperature data.

Electrical data

Refer to Annex 1.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/DEK/ExTR13.0045/01.

(17) **Specific conditions of use**

When installed in an explosive gas atmosphere:

The Temperature Input Module (TIM) Type 9482/3*-08-1* shall be placed in an enclosure or cabinet that meets the requirements of an appropriate, recognized type of protection in accordance with EN IEC 60079-0.

It shall be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate DEKRA 13ATEX0140 X** Issue No. **2**

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR13.0045/01.

(20) **Certificate history**

Issue 1 - 215299500	Initial certificate
Issue 2 - 224190000	Assessed per EN IEC 60079-0 : 2018 and EN 60079-7 : 2015 + A1

Annex 1

To IECEx DEK 13.0046X, NL/DEK/ExTR13.0045/01 and DEKRA 13ATEX0140 X, Issue 2.
Temperature Input Module (TIM) Type 9482/3*-08-1*

Electrical and thermal data:

Ambient temperature range:

-40 °C to +75 °C;

-40 °C to +65 °C (upside down installation).

Circuit connecting to the IS1 or IS1+ System:

Power supply (input); Plug to BusRail V101/ Pin 7, 8, 9, 10 (+), Pin 27, 28, 29, 30 (-):

in type of protection intrinsic safety Ex ia IIC, with the following maximum values:

$U_i = 26.2 \text{ V}$.

The circuit is equipped with an internal current limitation that limits the current to 100 mA.

Address- and Databus (communication); Plug to BusRail V101/ Pin: 4 (Bus Red.); 5 (Bus Prim.);
14, 15, 16, 24 (Bank 1-4):

in type of protection intrinsic safety Ex ia IIC, only for connection to the internal Address- and
Databus of the IS1/IS1+ System with the following maximum values:

$U_o = 6.6 \text{ V}$; $I_o = 102 \text{ mA}$; $P_o = 168 \text{ mW}$

$U_i = 6.6 \text{ V}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$

Electronic switch control (input); Plug to BusRail V101/ Pin: 18, 19:

in type of protection intrinsic safety Ex ia IIC, with the following maximum values:

$U_o = 26.2 \text{ V}$; $I_o = 5.4 \text{ mA}$.

Intrinsically safe field circuits:

The values of L_o and C_o in the following tables are the maximum values for combined inductance and capacitance (including cable inductance and capacitance). The values for L_o and C_o marked in grey are the values determined according to the curves and tables of IEC 60079-11, Annex A. These grey marked values may be used for the assessment as per IEC 60079-11, clause 10.1.5.2. for the following connections.

Grounded - the channels are connected via a common ground together by installation.

Ungrounded - the channels are installed galvanically separated to each other and to ground

The source is linear in all applications.

The stated U_i is a sum on all inputs.

If an U_i is applied at one channel, the U_i might occur in addition to U_o at another channel. Therefore the L_o and C_o values are calculated with $U_{o \text{ ext}} = U_i + U_o$.

Annex 1

To IECEx DEK 13.0046X, NL/DEK/ExTR13.0045/01 and DEKRA 13ATEX0140 X, Issue 2.
Temperature Input Module (TIM) Type 9482/3*-08-1*

Ungrounded only RTD or Potentiometer

For connection of up to 8 passive, galvanically isolated and ungrounded I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC, with the following maximum values:

2-Wire:	Connector X1 / X2 – Channel 0 (1/4); Channel 1 (5/8) up to Channel 7 (29/32)													
Input	U _o = 6.42 V		U _i = n/a		U _{o ext} = n/a		I _o = 6.5 mA		P _o = 10.5 mW					
3-Wire:	Connector X1 / X2 – Channel 0 (1/3/4); Channel 1 (5/7/8); up to Channel 7 (29/31/32)													
Input	U _o = 6.42 V		U _i = n/a		U _{o ext} = n/a		I _o = 7.8 mA		P _o = 12.5 mW					
4-Wire:	Connector X1 / X2 – Channel 0 (1/2/3/4); Channel 1 (5/6/7/8); up to Channel 7 (29/30/31/32)													
Input	U _o = 6.42 V		U _i = n/a		U _{o ext} = n/a		I _o = 9.8 mA		P _o = 15.7 mW					
	Table for IIC							Table for IIB / IIIC						
L _o [mH]	100	50	20	2	0.2	0.02	0.002	100	50	20	2	0.2	0.02	0.002
C _o [µF]	1.1	1.2	1.4	2.0	3.2	7.0	25	5.8	6.3	7.1	10	19	51	570

Ungrounded RTD or Potentiometer connected in a mixed configuration with U_i

For connection of up to 8 passive, galvanically isolated and ungrounded I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. Thermocouples and external CJC circuit might also be connected, their calculation is below. Calculated with the following maximum values:

2-Wire:	Connector X1 / X2 – Channel 0 (1/4); Channel 1 (5/8) up to Channel 7 (29/32)													
Input	U _o = 6.42 V		U_i = 6.5 V		U _{o ext} = 12.92 V		I _o = 13.1 mA		P _o = 42.2 mW					
3-Wire:	Connector X1 / X2 – Channel 0 (1/3/4); Channel 1 (5/7/8); up to Channel 7 (29/31/32)													
Input	U _o = 6.42 V		U_i = 6.5 V		U _{o ext} = 12.92 V		I _o = 15.7 mA		P _o = 50.6 mW					
4-Wire:	Connector X1 / X2 – Channel 0 (1/2/3/4); Channel 1 (5/6/7/8); up to Channel 7 (29/30/31/32)													
Input	U _o = 6.42 V		U_i = 6.5 V		U _{o ext} = 12.92 V		I _o = 19.6 mA		P _o = 63.3 mW					
	Table for IIC							Table for IIB / IIIC						
L _o [mH]	100	50	20	5	1	0.5	0.2	100	20	10	2	1	0.5	0.1
C _o [µF]	0.19	0.25	0.31	0.40	0.54	0.63	0.78	1.3	1.7	1.9	2.5	3.0	3.5	5.7

2-Wire:	Connector X1 / X2 – Channel 0 (1/4); Channel 1 (5/8) up to Channel 7 (29/32)													
Input	U _o = 6.42 V		U_i = 3.5 V		U _{o ext} = 9.92 V		I _o = 10.0 mA		P _o = 24.9 mW					
3-Wire:	Connector X1 / X2 – Channel 0 (1/3/4); Channel 1 (5/7/8); up to Channel 7 (29/31/32)													
Input	U _o = 6.42 V		U_i = 3.5 V		U _{o ext} = 9.92 V		I _o = 12.0 mA		P _o = 29.8 mW					
4-Wire:	Connector X1 / X2 – Channel 0 (1/2/3/4); Channel 1 (5/6/7/8); up to Channel 7 (29/30/31/32)													
Input	U _o = 6.42 V		U_i = 3.5 V		U _{o ext} = 9.92 V		I _o = 15.0 mA		P _o = 37.3 mW					
	Table for IIC							Table for IIB / IIIC						
L _o [mH]	100	50	20	1	0.1	0.05	0.02	100	50	20	1	0.1	0.05	0.02
C _o [µF]	0.40	0.47	0.56	0.92	1.6	2.0	2.8	2.3	2.5	2.9	5.1	9.8	13	20

Annex 1

To IECEx DEK 13.0046X, NL/DEK/ExTR13.0045/01 and DEKRA 13ATEX0140 X, Issue 2.
Temperature Input Module (TIM) Type 9482/3*-08-1*

Grounded RTD or Potentiometer connected in a mixed configuration with U_i

For connection of up to 8 passive I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. Thermocouples and external CJC circuit might also be connected, their calculation is below. Calculated with the following maximum values:

2-Wire:	Connector X1 / X2 – Channel 0 (1/4); Channel 1 (5/8) up to Channel 7 (29/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$						$U_{o \text{ ext}} = 12.92 \text{ V}$	$I_o = 47.9 \text{ mA}$	$P_o = 155.0 \text{ mW}$					
3-Wire:	Connector X1 / X2 – Channel 0 (1/3/4); Channel 1 (5/7/8); up to Channel 7 (29/31/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$						$U_{o \text{ ext}} = 12.92 \text{ V}$	$I_o = 58.5 \text{ mA}$	$P_o = 189.0 \text{ mW}$					
4-Wire:	Connector X1 / X2 – Channel 0 (1/2/3/4); Channel 1 (5/6/7/8); up to Channel 7 (29/30/31/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$						$U_{o \text{ ext}} = 12.92 \text{ V}$	$I_o = 68.8 \text{ mA}$	$P_o = 222.0 \text{ mW}$					
	Table for IIC							Table for IIB / IIIC							
L_o [mH]	9	5	2	1	0.5	0.2	0.1	40	20	10	5	1	0.5	0.1	
C_o [μ F]	0.23	0.31	0.41	0.50	0.60	0.76	0.93	0.94	1.3	1.6	1.9	2.9	3.4	5.6	

2-Wire:	Connector X1 / X2 – Channel 0 (1/4); Channel 1 (5/8) up to Channel 7 (29/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$						$U_{o \text{ ext}} = 9.92 \text{ V}$	$I_o = 36.6 \text{ mA}$	$P_o = 91.0 \text{ mW}$					
3-Wire:	Connector X1 / X2 – Channel 0 (1/3/4); Channel 1 (5/7/8); up to Channel 7 (29/31/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$						$U_{o \text{ ext}} = 9.92 \text{ V}$	$I_o = 44.8 \text{ mA}$	$P_o = 111.0 \text{ mW}$					
4-Wire:	Connector X1 / X2 – Channel 0 (1/2/3/4); Channel 1 (5/6/7/8); up to Channel 7 (29/30/31/32)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$						$U_{o \text{ ext}} = 9.92 \text{ V}$	$I_o = 52.6 \text{ mA}$	$P_o = 131.0 \text{ mW}$					
	Table for IIC							Table for IIB / IIIC							
L_o [mH]	17	10	5	2	1	0.2	0.02	71	50	10	2	1	0.2	0.02	
C_o [μ F]	0.34	0.46	0.58	0.74	0.78	1.3	2.8	1.4	1.8	2.9	4.2	4.9	7.8	20	

Ungrounded Thermocouple or mV Sources in a mixed configuration with U_i

For connection of up to 8 passive or active, galvanically isolated and ungrounded I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. RTD and Potentiometer might also be connected, their calculation is above. The external CJC circuit might also be connected, the calculation is below. Calculated with the following maximum values:

	Connector X1 / X2 – Channel 0 (2/3); Channel 1 (6/7) up to Channel 7 (30/31)														
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$						$U_{o \text{ ext}} = 12.92 \text{ V}$	$I_o = 6.53 \text{ mA}$	$P_o = 21.1 \text{ mW}$					
	Table for IIC							Table for IIB / IIIC							
L_o [mH]	100	50	10	5	1	0.5	0.2	100	50	10	1	0.5	0.2	0.1	
C_o [μ F]	0.30	0.32	0.38	0.42	0.55	0.63	0.79	1.5	1.6	1.9	3.0	3.5	4.6	5.7	

Annex 1

To IECEx DEK 13.0046X, NL/DEK/ExTR13.0045/01 and DEKRA 13ATEX0140 X, Issue 2.
Temperature Input Module (TIM) Type 9482/3*-08-1*

Grounded Thermocouple or mV Sources in a mixed configuration with U_i

For connection of up to 8 passive or active I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. RTD and Potentiometer might also be connected, their calculation is above. The external CJC circuit might also be connected, the calculation is below. Calculated with the following maximum values:

Connector X1 / X2 – Channel 0 (2/3); Channel 1 (6/7) up to Channel 7 (30/31)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 6.5 \text{ V}$					$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 25.0 \text{ mA}$		$P_o = 81.0 \text{ mW}$		
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	72	50	10	2	1	0.5	0.2	100	20	5	1	0.5	0.2	0.1
C_o [μF]	0.17	0.22	0.34	0.46	0.53	0.62	0.78	1.2	1.6	2.1	3.0	3.5	4.5	5.7

Connector X1 / X2 – Channel 0 (2/3); Channel 1 (6/7) up to Channel 7 (30/31)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 3.5 \text{ V}$					$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 19.2 \text{ mA}$		$P_o = 48.0 \text{ mW}$		
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	100	50	10	2	1	0.2	0.02	100	20	5	1	0.5	0.1	0.02
C_o [μF]	0.33	0.43	0.60	0.80	0.92	1.3	2.8	2.2	2.9	3.6	5.0	6	9.8	20

Ungrounded RTD for external CJC circuit connected in a mixed configuration with U_i

For connection of up to 8 passive, galvanically isolated and ungrounded I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. Thermocouples and RTD and Potentiometer might also be connected, their calculation is above. Calculated with the following maximum values:

2-Wire: Connector X2 – Channel 6 and 7 (25/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 6.5 \text{ V}$					$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 13.1 \text{ mA}$		$P_o = 43.0 \text{ mW}$		
3-Wire: Connector X2 – Channel 6 and 7 (25/29/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 6.5 \text{ V}$					$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 17.4 \text{ mA}$		$P_o = 56.2 \text{ mW}$		
4-Wire: Connector X2 – Channel 6 and 7 (25/28/29/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 6.5 \text{ V}$					$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 26.1 \text{ mA}$		$P_o = 84.3 \text{ mW}$		
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	66	50	20	5	1	0.5	0.2	100	20	5	1	0.5	0.2	0.1
C_o [μF]	0.17	0.21	0.29	0.39	0.53	0.62	0.78	1.2	1.6	2.1	2.9	3.5	4.5	5.7

2-Wire: Connector X2 – Channel 6 and 7 (25/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 3.5 \text{ V}$					$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 10.0 \text{ mA}$		$P_o = 24.9 \text{ mW}$		
3-Wire: Connector X2 – Channel 6 and 7 (25/29/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 3.5 \text{ V}$					$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 13.4 \text{ mA}$		$P_o = 33.2 \text{ mW}$		
4-Wire: Connector X2 – Channel 6 and 7 (25/28/29/32)														
Input	$U_o = 6.42 \text{ V}$		$U_i = 3.5 \text{ V}$					$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 20.1 \text{ mA}$		$P_o = 49.7 \text{ mW}$		
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	100	50	10	2	1	0.2	0.02	100	20	5	1	0.5	0.1	0.02
C_o [μF]	0.31	0.43	0.60	0.80	0.91	1.3	2.8	2.2	2.8	3.6	5.0	6	9.8	20

Annex 1

To IECEx DEK 13.0046X, NL/DEK/ExTR13.0045/01 and DEKRA 13ATEX0140 X, Issue 2.
Temperature Input Module (TIM) Type 9482/3*-08-1*

Grounded RTD for external CJC circuit connected in a mixed configuration with U_i

For connection of up to 8 passive I.S. circuits in type of protection intrinsic safety Ex ia IIB/IIC, Ex ia IIIC. Thermocouples and RTD and Potentiometer might also be connected, their calculation is above. Calculated with the following maximum values:

2-Wire:	Connector X2 – Channel 6 and 7 (25/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$		$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 47.9 \text{ mA}$		$P_o = 155.0 \text{ mW}$						
3-Wire:	Connector X2 – Channel 6 and 7 (25/29/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$		$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 68.6 \text{ mA}$		$P_o = 222.0 \text{ mW}$						
4-Wire:	Connector X2 – Channel 6 and 7 (25/28/29/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 6.5 \text{ V}$		$U_{o \text{ ext}} = 12.92 \text{ V}$		$I_o = 87.1 \text{ mA}$		$P_o = 281.1 \text{ mW}$						
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	5.6	5	2	1	0.5	0.2	0.1	25	20	10	5	1	0.5	0.1
C_o [μ F]	0.25	0.27	0.39	0.48	0.58	0.75	0.92	1	1.1	1.5	1.9	2.8	3.4	5.6

2-Wire:	Connector X2 – Channel 6 and 7 (25/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$		$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 36.8 \text{ mA}$		$P_o = 91.1 \text{ mW}$						
3-Wire:	Connector X2 – Channel 6 and 7 (25/29/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$		$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 52.6 \text{ mA}$		$P_o = 131.0 \text{ mW}$						
4-Wire:	Connector X2 – Channel 6 and 7 (25/28/29/32)													
Input	$U_o = 6.42 \text{ V}$	$U_i = 3.5 \text{ V}$		$U_{o \text{ ext}} = 9.92 \text{ V}$		$I_o = 66.8 \text{ mA}$		$P_o = 166.0 \text{ mW}$						
	Table for IIC							Table for IIB / IIIC						
L_o [mH]	10	5	2	1	0.2	0.1	0.02	44	20	10	2	1	0.1	0.02
C_o [μ F]	0.37	0.53	0.71	0.85	1.3	1.6	2.8	1.5	2.3	2.8	4.1	4.9	9.8	20

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation.