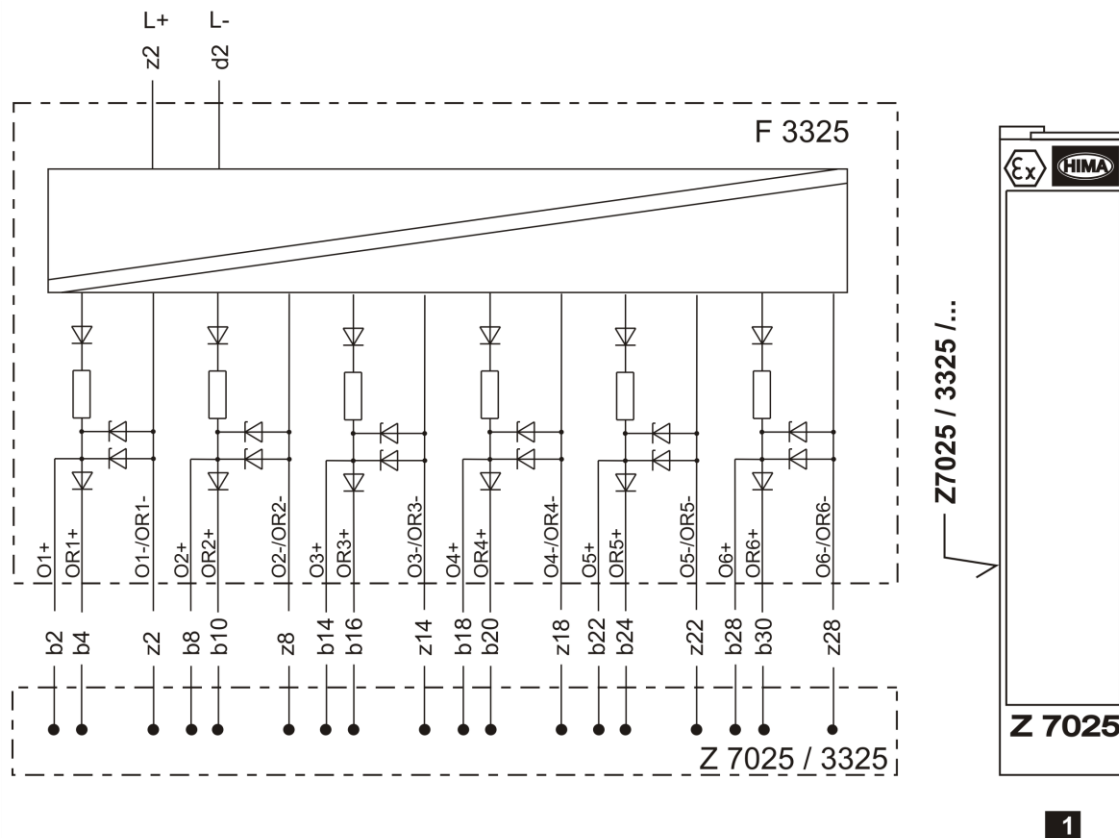




F 3325: Supply Module (Ex)i

- 6 channels for supplying the intrinsically safe circuits of the F 6221 module.
- Supply of transmitters 0/4...20 mA.
- EU Type Test Certificate: TÜV 18 ATEX 8171.
- For HIQuad X (SILworX) and HIQuad (ELOP II).



1 Cable plug, front view

Figure 1: Module Block Diagram and Cable Plug Front View

Specifications

Ex category	II (2) GD [Ex ib Gb] IIC, [Ex ib Db] IIIC
Nominal voltage	19 VDC at 20 mA load current
Open-circuit voltage	22 VDC
Short-circuit current	60 mA
Maximum load	250 Ω
Space requirement	4 HP
Current consumption	300 mA at 24 VDC (via backplane)

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The module may only be operated with forced cooling, fans K 9203A or K 9212. Systems without forced cooling must be retrofitted with fans as soon as an F 3325 is used.

Pins d6, d26, b6 and b26 of cable plug Z 7025 must be equipped with coding pins.

Wiring

Refer to the corresponding tables for the wire color coding of the following cable plugs:

- Cable plug Z 7025/3325/Ex/Cx with blue cable (Table 1)
- Redundant cable plug Z 7025/3325/Ex/Cx/Rx with blue cable (Table 2)

Channel	Pin	Color	Connection
O1-	z2	WH	Cable: LiYCY 6 x 2 x 0.2 mm ²
O1+	b2	BN	
O2-	z8	GN	
O2+	b8	YE	
O3-	z14	GY	
O3+	b14	PK	
O4-	z18	BU	
O4+	b18	RD	
O5-	z22	BK	
O5+	b22	VT	
O6-	z28	GYPK	
O6+	b28	RDBU	
Cable shield			

Table 1: Wire Color Coding of the Cable Plug Z 7025/3325/Ex/Cx

Channel	Pin	Color	Connection
O1-	z2	WH	Cable: LiFYCY 6 x 2 x 0.2 mm ²
O1+	b2	BN	
OR1-	z2	GN	
OR1+	b4	YE	
O2-	z8	GY	
O2+	b8	PK	
OR2-	z8	BU	
OR2+	b10	RD	
O3-	z14	BK	
O3+	b14	VT	
OR3-	z14	GYPK	
OR3+	b16	RDBU	
O4-	z18	WHGN	
O4+	b18	BNGN	
OR4-	z18	WHYE	
OR4+	b20	YEBN	
O5-	z22	WHGY	
O5+	b22	GYBN	
OR5-	z22	WHPK	
OR5+	b24	PKBN	
O6-	z28	WHBU	
O6+	b28	BNBU	
OR6-	z28	WHRD	
OR6+	b30	BNRD	
Cable shield			

Table 2: Wire Color Coding of the Cable Plug Z 7025/3325/Ex/Cn/Rx

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In Ex applications, the cable shielding must be connected to the equipotential bonding. In non-Ex applications, the cable shield is connected to the protective ground rail of the rack.

Wiring to the F 6221 Module

Several wiring options exist for connecting the F 3325 to the F 6221 module; refer to the data sheet of the F 6221 module for details.

1-Channel Wiring for the F 3325 Supply Module

F 3325 module with passive transmitter, e.g., for channel 1 to channel 6 of the F 6221 module.

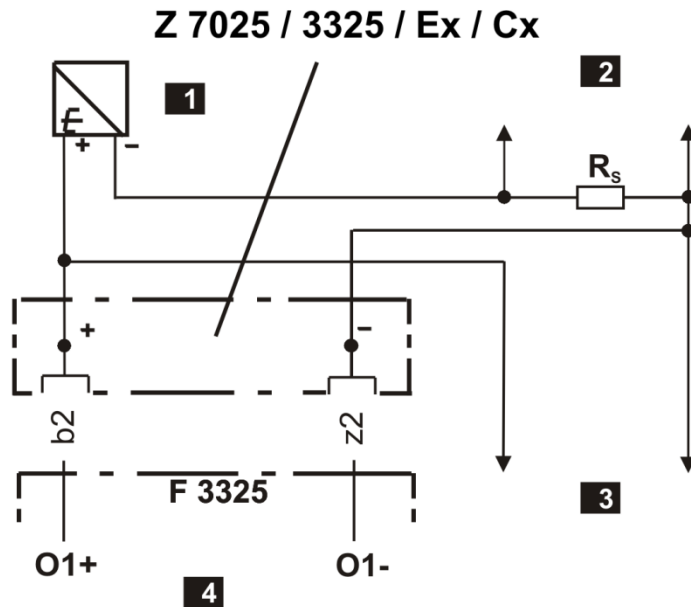


Figure 2: 1-Channel Wiring for the F 3325 Supply Module

1 Operating Instructions

This chapter describes important aspects when using the module in the HIQuad X and HIQuad system.

1.1 Use

The module is suitable for supplying Ex measuring transmitters (0/4...20 mA). These transmitters may be installed in areas with explosive atmosphere (zone 1 and higher).

WARNING



The outputs must not be supplied with external voltage.

The module may no longer be used in (Ex)i applications as associated equipment if it has been previously operated in a general electrical plant.

All applications other than those described in the data sheets for the F 3325 and F 6221 modules are not allowed!

1.2 Electrical Data Concerning Intrinsic Safety

For these specifications, refer to the Annex to the EU type test certificate TÜV 18 ATEX 8171.

1.3 Mounting

The module is mounted in a 19-inch rack. A mounting distance is not mandatory. The rack must be designed to allow dissipation of the generated power.

The module is connected to the intrinsically safe field circuits through cable plug Z 7025.

For further installation instructions, refer to the HIQuad X system manual (HI 803 211 E) or the HIQuad catalog (HI 800 263 E).

1.4 Configuration Notes

If used with intrinsically safe circuits (Ex)i, adjacent F 3325 slots may be equipped with any type of module.

1.5 Installation

- The module as associated equipment, included its connected components, must be installed to ensure achievement of degree of protection IP20 or better in accordance with EN 60529/IEC 60529.
- Either two intrinsically safe output circuits within a module may be connected in parallel, or an intrinsically safe output circuit within an F 3325 to an intrinsically safe input circuit within another F 3325. The reduced maximum values (C0, L0) resulting from this wiring must be taken into account (see the EU type examination certificate).
- A distance of ≥ 50 mm (arcing distance) must be ensured between external, intrinsically safe and non-intrinsically safe terminals.
- A distance of ≥ 6 mm (arcing distance) must be ensured between the external terminals of adjacent, intrinsically safe circuits.
- Intrinsically safe and non-intrinsically safe lines must be separated, or the intrinsically safe lines must be additionally insulated.
- Intrinsically safe lines must be marked, e.g., using a light blue color (RAL 5015) for the sheath.
- The wiring must be mechanically protected to guarantee that the minimum distance between intrinsically safe and non-intrinsically safe connection (EN 60079-11/IEC 60079-11) is not violated due to accidental disconnection.
- The wire shield must be connected to the equipotential bonding.

The wires in use must comply with the following insulation test voltages:

Intrinsically safe shielded wires \geq 500 VAC

If finely stranded wires are used, the wire ends must be provided with wire end ferrules. The terminals must be suitable for fastening the cross-sections of the cables in use.

Additionally, the applicable regulations and standards must be observed. In particular, these include:

- EN 60079-14:2014 / IEC 60079-14:2013
- EN 60079-0:2012 + A11:2013 / IEC 60079-0:2011, Revised + Cor.:2012 + Cor.:2013
- EN 60079-11:2012 / IEC 60079-11:2011 + Cor.:2012
- EN 60947-5-6:2000 / IEC 60947-5-6:1999

1.6 Start-Up

Proper installation, in particular the connections of the supply voltage and intrinsically safe circuits, must be checked by an explosion protection expert prior to starting up the module for the first time.

1.7 Maintenance

If failures occur, the defective module must be replaced with a module of the same type or with an approved replacement model.

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Only the manufacturer may repair the modules.

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

- (2) Equipment and Protective Systems intended for use in
Potentially Explosive Atmosphere - **Directive 2014/34/EU**
- (3) EU-Type Examination Certificate Number

TÜV 18 ATEX 8171

Issue: 00

- (4) Equipment: **HIQuad Module F 3325**
- (5) Manufacturer: **HIMA Paul Hildebrandt GmbH**
- (6) Address: **Albert-Bassermann-Str. 28
68782 Brühl, Germany**
- (7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The TÜV Rheinland Zertifizierungsstelle für Explosionsschutz of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 2014/34/EU of 26th February 2014, certifies this product which 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 557/Ex8171.00/18
- (9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:
- EN 60079-0: 2012+A11:2013 EN 60079-11: 2012**
- (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 EU-Type Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.
- (12) The marking of the equipment shall include the following:



**II (2) GD [Ex ib Gb] IIC
[Ex ib Db] IIIC**

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz

Cologne, 2018-10-09

Dipl.-Ing. Klauspeter Graff

This EU-Type Examination Certificate without signature and stamp shall not be valid.
This EU-Type Examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the
TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

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(13) Annex

(14) **EU Type Examination Certificate**
TÜV 18 ATEX 8171

Issue: 00

(15) Description of equipment

15.1 Equipment and type:

HIQuad Module F 3325

15.2 Description / Details of Change

General product information

The module F3325 can be used to supply Ex measuring transmitters (0/4 to 20 mA). These transmitters can be installed in potentially explosive atmospheres from zone 1 on.

The cable shield for Ex applications has to be put to potential equalization. In non Ex applications the cable shield is connected to PE bar on the subrack.

Technical DataAmbient temperature: $T_a = 0^{\circ}\text{C} \dots + 60^{\circ}\text{C}$

Supply circuit UB:

 $U_n = 24 \text{ V DC } (-15\%, +20\%) \text{ (max. 30VDC)}$ $U_m = 40\text{V}$

(terminal X1 z2(L+), d2(L-))

Intrinsically safe values for the control circuits,

type of protection [Ex ib Gb] IIC/IIB

or [Ex ib Db] IIIC/IIIB

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single circuit:	parallel circuit:
U _o : 23.2 V	U _o : 23.2 V
I _o : 75.6 mA	I _o : 151.2mA
P _o : 657.7 mW	P _o : 1315.4 mW
Trapezoidal (R = 460.6Ω)	

Maximum allowed external capacitance *or* inductance:

Ex ia / Ex ib	single circuit		parallel circuit	
	IIC	IIB/IIIC/IIIB	IIC	IIB/IIIC/IIIB
L _o	6 mH	25 mH	-	7 mH
C _o	138 nF	1.01 µF	-	1.01 µF

(16) Test-Report No. 557/Ex8171.00/18(17) Special Conditions for safe use

None

(18) Basic Safety and Health Requirements

Covered by afore mentioned standard

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz

Cologne, 2018-10-09


 Dipl.-Ing. Klauspeter Graffi

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Page 2 / 2 of Annex to TÜV 18 ATEX 8171

Issue: 00

