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APPROVAL REPORT

**K7916 FEEDING DECOUPLING DIODE
FOR
HAZARDOUS (CLASSIFIED) LOCATIONS**

Prepared for:

**HIMA Paul Hildebrandt GmbH+Co KG
D-68782 Brühl Germany**

**Project ID. 3011396
Class 3611
Date: May 29, 2001**

Factory Mutual Research Corporation
1151 Boston-Providence Turnpike
P.O. Box 9102
Norwood, MA 02062

K7916 FEEDING DECOUPLING DIODE
FOR
HAZARDOUS (CLASSIFIED) LOCATIONS

From

HIMA Paul Hildebrandt GmbH+Co KG
D-68782 Brühl Germany

I INTRODUCTION

- 1.1 HIMA Paul Hildebrandt GmbH+Co KG has requested Approval of the apparatus listed in Section 1.2 to be in compliance with the applicable requirements of the following standards:

Title	No.	Issue Date
Electrical Equipment for Use in Hazardous (Classified) Locations General Requirements	3600	November 1998
Electrical Equipment for use in Class I, Division 2 Class II, Division 2 and Class III, Division 1 and 2	3611	October 1999
Electrical and Electronic Test, Measuring, and Process Control Equipment Including Supplement #1	3810	March 1989 July 1995

- 1.2 The following apparatus was evaluated as Nonincendive for use in Class I, Division 2, Groups A, B, C, and D hazardous indoor locations and will appear in the Approval Guide as follows:

K7916, Feeding Decoupling Diode
NI/1/2/ABCD; T6 Ta = 60°C

- 1.3 This report covers only the hazardous location applications of the products listed herein and may be reproduced only in its entirety without modification. These products have not been assessed for performance or reliability.

II DESCRIPTION

- 2.1 The K7916 is a part of the power supply concept for HIMA automation systems. It is used in combination with the Factory Mutual Research approved power supplies of the HIMA H41q, H51q systems. A feeding and decoupling diode for redundant power supplies is necessary because of the modular structure of the HIMA PES H41q, H51q systems and the high demand on uninterrupted operation .

III EXAMINATION AND TESTS

3.1 General

Representative samples of the K7916 were tested at HIMA Paul Hildebrandt GmbH in Bruhl, Germany, the manufacturer of the subject products, and witnessed by Mr. Nissing of Factory Mutual Systems in Germany

3.2 Class I, Division 2, Nonincendive Evaluation

3.2.1 General

Nonincendive Approval is based on the inability of spark or thermal effects, produced under normal conditions, to cause ignition of a specified mixture of flammable or combustible material in air.

3.2.2 Spark Ignition

3.2.2.1 Connectors - All connectors are mechanically fastened therefore no further evaluation was necessary.

3.2.2.2 Fuses - There are no fuses within the K7916

3.2.2.3 Sealed Devices/Relays – There are no seal devices or relays within the K7916

3.2.2.4 Switches – There are no switches within the K7916

3.2.2.5 Temperature Evaluation - Temperature tests were based on ambient temperature of 22°C. The maximum temperature rise of 28°C resulted from V1. The maximum theoretical temperature would be 93°C based on a maximum ambient temperature of 60°C including a 5°C of uncertainty. The temperature code for this temperature would be a T6.

3.2.3 Division 2 Wiring Methods/Provisions for Conduit Connections - The K7916 shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, therefore the enclosure must provide connections for Division 2 wiring practices.

3.3 Electrical Utilization Enclosure Requirements

3.3.1 General – Each of the apparatus listed in Section 1.2 must be mounted within an enclosure to prevent personal injury resulting from accessibility to live parts. This enclosure was not examined as part of this Approval but was considered to comply with the requirements of this Section.

3.3.2 Accessibility - The controller must be installed within the enclosure so that its circuits are accessible by the use of a tool only. A part is accessible when a.) the IEC articulate accessibility probe applied in every possible position to the exterior or exposed surfaces, including the bottom; or b) the IEC rigid accessibility probe applied with a maximum force of 30 newton (6.75 lbs. force) in every possible position to the exterior or exposed surface, including the bottom, touches the part.

3.3.3 Dielectric Tests – Dielectric voltage withstand testing was conducted on the following units at the associated voltage for 1 minute across the associated connections

- 3.3.4 Flammability** – The circuit boards used in the transmitter have a 94V-0 rating. Flammability tests were waived.
- 3.3.5 Protection From Fire** – If the enclosure is non-metallic, it shall have the proper flammability rating.
- 3.3.6 Grounding** - A metallic enclosure must have a protective grounding terminal and marked as such. All accessible noncurrent conductive parts must be bonded to the protective grounding terminal.

IV MARKING

Marking information was reviewed and found to meet standard requirements. Manufacturer's marking drawing 01001 Rev.01 and the apparatus identified in Section 1.4 that meets Standard requirements:

- Manufacturer's name and manufacturing location.
- Model number and date code
- Hazardous location ratings
- Maximum input and output ratings
- Maximum ambient temperature
- Control Drawing Reference
- The Factory Mutual Research mark of Approval

V REMARKS

- 5.1** Installation, use and maintenance should be in accordance with the manufacturer's documents, the National Electrical Code (ANSI/NFPA 70) and any other applicable local codes.
- 5.2** Electrical equipment connected to associated apparatus should not use or generate more than 250 volts rms.
- 5.3** Tampering and replacement with non-factory components may adversely affect the safe use of the system.

VI FACILITIES AND PROCEDURES AUDIT

HIMA Paul Hildebrandt GmbH+Co KG design and manufacturing facilities in Brühl, Germany are subject to follow-up audit inspections. The facilities and quality control procedures in place have been found satisfactory to manufacture product identical to that examined and tested as described herein.

VII MANUFACTURER'S RESPONSIBILITIES

- 7.1 Documentation that is applicable to this Approval is on file at Factory Mutual Research and listed in Documentation File, Section VIII, of this report. No changes of any nature shall be made unless notice of the proposed change has been given and written authorization obtained from Factory Mutual Research. The Approved Product - Revision Report, Factory Mutual Research Form 797, shall be forwarded to Factory Mutual Research as notice of proposed changes.
- 7.2 On 100% of production, the transmitters listed in Section 1.2, Without / Lightning Protector, shall be dielectric tested. The supply terminals shall withstand for one minute, with no insulation breakdown, the application of 500 Vac or 707 Vdc with respect to the protective ground terminal. Alternatively, test potentials 20% higher may be applied for at least one second.

VIII DOCUMENTATION FILE

The following documents are critical to the latest revision.

Drawing No	Drawing Title	Revision
24-K7916	Stromlaufplan	04/12/01
54-K7916	Aufbauplan	04/12/01
S-K7916	Stueckliste	04/18/01
01001	K7916-Label	05/25/01

IX CONCLUSION

The apparatus described in Section 1.2 meets Factory Mutual Research requirements. Approval is granted when the Approval Agreement is signed and received by Factory Mutual Research Corporation.

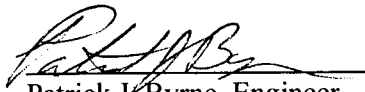
EXAMINATION AND TESTS BY: P. Byrne

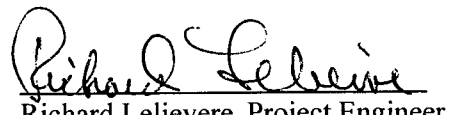
ORIGINAL DATA: Project Data Record J.I. 3011396

ATTACHMENTS: Manufacturer's label drawing 01001, Rev 05/25/01

WRITTEN BY:

REVIEWED BY:


Patrick J. Byrne, Engineer
Instrumentation Section
Approvals Division


Richard Lelievre, Project Engineer
Instrumentation Section
Approvals Division

HIMA Paul Hildebrandt GmbH + Co KG
 Class I Division 2 Groups A, B, C, D
 K7916 V=24V, Tamb = 60 Deg C, T-rating T6
 See Installation Manual for precautions!



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Korrektur	Name	Korrektur	Name	Ausgabe	AS	Datum	Name	Ausgabe	AS	Datum	Name	Ausgabe	AS	Datum	Name
Ersatz		HIMA Paul													
Gepr.	25.05.	Hö				GmbH + Co KG									
Gez.	25.05.	Die				Industrie -									
	Datum	Name				D-68782 Brühl bei									
												01001		Blatt 1	
												K7916 FM - label		von 1	

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Factory Mutual Research

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To:
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From:
Patrick J. Byrne

Subject:
Service and Proposal

Date:
05/30/01

Fax #:
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Pages:
9

Dear Mr. Holzel:

The following is a copy of the Approval

Best Regards

Patrick J. Byrne