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APPROVAL REPORT

EVALUATION OF MODIFICATIONS AND NEW OPTIONS FOR H41 and H51 AUTOMATION SYSTEMS MODULES FOR USE IN HAZARDOUS (CLASSIFIED) LOCATIONS

Prepared for:

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Project ID: 3017743
Suplements Project ID. 3008234
Class: 3611
Date of Approval: 22 SEP 2005
Authorized by:

Robert Martell, Assistant Vice President

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EVALUATION OF MODIFICATIONS AND NEW OPTIONS FOR H41 and H51 AUTOMATION SYSTEMS MODULES FOR USE IN HAZARDOUS (CLASSIFIED) LOCATIONS

From

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

I INTRODUCTION

1.1 HIMA Paul Hildebrandt GmbH + Co KG requested an examination of modifications and new module options to the apparatus described in Section 2.1 to be in compliance with the applicable requirements of the standards listed in section 1.4. Initial evaluation and testing of the suitability for use in hazardous (classified) location were conducted as part of examination 3008234.

The modifications consist of:
1) New model F8627 to replace the model F8625 with new Ethernet functionality.
2) Models F3333 and F3334 have minor component changes not affecting listing.
3) Model F5220 has a new layout and minor component additions not affecting listing.
4) New models F8650E, and F8652E, similar to the models F8650, F8652, F8650A, F8652A, but with increased RAM and Flash Eprom memory.
5) Model F6220, has minor component changes not affecting listing.
6) Model F8621A, has minor component changes not affecting listing.
7) New model F3248 is a 48 volt version of the F3240.
8) New model F8628 Profibus -DP- Communication
9) New model F6221 Analog Input module

1.2 This report supplements FM Approval Reports 3008234 and any subsequent revision reports.

1.3 This Report may be freely reproduced only in its entirety and without modification.

1.4 **Standards**

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

1.5 **Listing:** The listing for the Automation System modules are modified by this report and will appear in the Approval guide as shown below.

H41, H51, H41q, H51q, Automation Systems Modules
NI /I /2 /ABCD; T4 Ta = 60°C

Module Name Description

F3221 16 Fold Input Module
F3236 16 Fold Input Module, Safety related
F3237 8 Fold Input Module for Prox. Sw., Safety related
F3240 16 Fold Input Module, Safety related 120 V ac/dc
F3248 16 Fold Input Module, Safety related, 48 V ac/dc
F3322 16 Fold Output Module
F3330 8 Fold Output Module, Safety related
F3331 8 Fold Output Module, Safety related
F3333 4 Fold Output Module, Safety related
F3334 4 Fold Output Module, Safety related
F3422 8 Fold Relay Module
F3430 4 Fold Relay Module, Safety related
F5220 2 Fold Counter Module, Safety related
F6214 4 Fold Analog Input Module, Safety related
F6215 8 Fold Analog Input Module
F6216A 8 Fold Analog Input Module w/Transmitter Supply
F6220 8 Fold Thermocouple Input Module, Safety related
F6221 8 Fold Analog Input Module, Safety related
F6705 2 Fold Analog Output Module, Safety related
F6706 2 Fold Analog Output Module
F7126 (H51) Power Supply Module
F7130A (H41) Power Supply Module
F7131 (H51) Power Supply Monitoring w/Buffer Batteries
F7133 4 Fold Power Distribution
F7553 (H51) Coupling Module
F9430 (H11) 24 Binary or Digital Inputs 24 V dc;
24 Binary or Digital Outputs 24 V dc, 12 W
F8621A Coprocessor Module
F8625 Communications Module for Ethernet
F8626 Communications Module for Ethernet and Profibus
F8627 Communication Module for Ethernet 10/100MBit
F8628 Communication Module for Profibus-DP
H4135 Relay Module in Terminal Case, Safety related
H7505 Multifunctional Interface Module
H7506 Bus Terminal
K7915 Decoupling, Feeding, and Fusing Subrack
K9202 Cabinet Fan Module
K9203 Fan Module/19-inch Subrack
Z6015 EMC Filter

Special Condition of use:

1. The equipment shall be installed in compliance with the enclosure mounting, spacing and segregation requirements of the ultimate application, including having tool removable covers.

H41, H51, H41q, H51q, H41q, H51q, Automation Systems Modules

NI /I /2 /ABCD; T4 Ta = 60°C — 99001 / 1; nonincendive field wiring parameters per control drawing.

Model No. Description

F8650 Central Module [H51q]
F8650A Central Module [H51q]
F8650E Central Module [H51q]
F8652 Central Module [H41q]
F8652A Central Module [H41q]
F8652E Central Module [H41q]
F6217 8 Fold Analog Input Module

Special Condition of use:
1. The equipment shall be installed in compliance with the enclosure mounting, spacing and segregation requirements of the ultimate application, including having tool removable covers.

II DESCRIPTION

2.1 The HIMA automation system consists of the H41, H41q, H51, and H51q system families. All system families are based on the same hardware and software used to control process engineering plants where digital, and analog inputs or outputs are processed. Personal computers are used for configuration, logging, operation, and trend recording. The HIMA automation devices are installed in 19 inch sub-racks 5 units. The H41 system family is a compact system consisting of a sub-rack holding all components such as central unit power supplies, fusing, and power distribution, as well as input/output modules. The 51 system has a modular structure where a central rack containing the central unit, interface port extensions, monitoring, and power supplies may have up to 16 associated input/output sub-racks. The instrument has an operating temperature range of 0°C to 60°C.

III EXAMINATIONS AND TESTS

3.1 **General** - Representative samples as detailed below were evaluated and tested at HIMA Paul Hildebrandt GmbH in Brühl Germany. Testing at HIMA Paul Hildebrandt GmbH was witnessed by FM personnel. The examination and tests included temperature measurements, tests for determining shock and fire hazards, and an evaluation of the connectors to ensure they are not subject to separation. All were satisfactory and are summarized in the following sections.

3.2 Nonincendive Evaluation

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

3.2.2 **Thermal Evaluation –** The new and modified modules were evaluated under worse case normal operating conditions and worst case load to determine the maximum temperature rise of all components. All temperature measurements were made in an ambient range of 22.0°C to 24.0°C. The following is a list of the maximum measured surface temperatures recorded from the modules. Diode D1 on the F8650E and F8652 module had the highest recorded temperature rise of 54.1K. When adjusted for the maximum ambient temperature of 60°C the temperature class would be based on a temperature of 114.1° plus a 5K factor yields a temperature class based on 119.1°C or T4A. The current listing for the H41, H41q, H51, and H51q system families is T4, This is acceptable. The temperature Class of the individual modules is listed in the table below. Please note, this evaluation changes the Temp Class on the label for the F5220, from T5 to T4A and the Temp Class on the label for the F8621A from T6 to T5 as established under the original project 3008234. The temperature class for the new modules are also listed in the table below.

Module No	Component	Temp (°C)	Temp Class
F8627	D33	51.1	T5
F3333, F3334	V29	48.0	T5
F5220	V3	60.7	T4A
F8650E, F8652E	D1	76.9	T4A
F6220	N904	51.7	T5
F8621A	D1	48.9	T5
F3248	V73	52.9	T5

3.2.3 **Dielectric Tests** –Dielectric voltage withstand testing was conducted on the following units at the associated voltage for 1 minute across the associated connections. All samples tested passed without dielectric breakdown. This is acceptable.

Module	Point	Test Voltage	Results
F6221	Field to bus lines	500VDC	Pass
F6221	24VDC to bus lines	500VDC	Pass
F6221	bus lines to 24VDC	500VDC	Pass
F6220	Field to bus lines	500VDC	Pass
F6220	24VDC to bus lines	500VDC	Pass
F6220	bus lines to 24VDC	500VDC	Pass
F3248	bus lines to field	700VDC	Pass
F3334	bus lines to field	500VDC	Pass
F3333	bus lines to field	500VDC	Pass
Note: the F5220, F8627, F8650E and 8652E modules do not have isolation between input and output sections.			

IV PROTECTION FROM ELECTRICAL SHOCK AND FIRE

The H41, H41q, H51, and H51q system families have been previously evaluated under Project ID 3008234 to ensure the apparatus offers protection against the risk of electrical shock, injuries and fire. Aside from the dielectric testing in section III additional testing was not required.

V MARKING

The following information appears on the apparatus identified in Section 1.5 and meets the applicable standard requirements:

- Manufacturer's name and manufacturing location.
- Type number and date code
- Maximum input and output ratings
- Maximum ambient temperature
- The FM Approval Mark
- Hazardous location ratings and environmental information

VI REMARKS

The remarks listed in Project ID. 3008234 are unchanged as a result of this evaluation.

VII FACILITIES AND PROCEDURES AUDIT

The manufacturing site in Bruhl Germany is subject to follow-up audit inspections. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this report.

VIII MANUFACTURERS RESPONSIBILITIES

The manufacturing responsibilities listed in Project ID. 3008234 are unchanged as a result of this evaluation.

XI DOCUMENTATION

The following drawings are new or revised and are filed under Project ID 3008234.

Drawing No.	Status	Issue	Description
S-F8627	New	00	F 8627 (BOM)
23-F8627-1	New	00	F8627 (SCHEMATIC DRAWING)
64-F8627-1	New	00	F8627-1 (COMPONENT LAYOUT)
P-F8627-1	New	00	F8627-1 (BOM)
S-F8627-1	New	00	F8627-1 (BOM)
23-F3334	Revised	03	VA-F3334 (SCHEMATIC DRAWING)
64-F3334	Revised	03	VA4-F3334 (COMPONENT LAYOUT)
S-F3334	Revised	03	VA4-F3334 (BOM)
S-F3333	Revised	04	VA4-F3333 (BOM)
23-F5220-1	New	01	F5220-1 (SCHEMATIC DRAWING)

Drawing No.	Status	Issue	Description
64-F5220-1	Revised	02	F5220-1 (COMPONENT LAYOUT)
P-F5220-1	New	01	F5220-1 (BOM)
P-F5220-2	New	01	F5220-2 (BOM)
S-F5220-1	Revised	01	F5220-1 (BOM)
54-F8650E	New	00	F8650E (ASSEMBLY)
S-F8650E	New	00	F8650E (BOM)
24-F8650E-2	New	00	F8650E-2 (SCHEMATIC DRAWING)
64-F8650-1	Revised	02	F8650-1 (COMPONENT LAYOUT)
P-F8650E-2	New	00	F8650E-2 (BOM)
P-F8650A-1	New	01	F8650A-1 (BOM)
S-F8650-1	Revised	02	F8650-1 (BOM)
24-F8650-1	Revised	02	F8650-1 (SCHEMATIC DRAWING)
S-F8650E-2	New	00	F8650E-2 (BOM)
54-F8652E	New	00	F8652E(ASSEMBLY)
64-F8620-3	New	02	F8620-3 (COMPONENT LAYOUT)
S-F8620-3	New	02	F8620 (BOM)
S-F8652E	New	00	F8652E(BOM)
S-F8652E	New	00	F8652E (BOM)
24-F8652-1	Revised	03	F8652-1 (SCHEMATIC DRAWING)
64-F8652-1	Revised	03	F8652-1 (COMPONENT LAYOUT)
P-F8652A-1	New	03	F8652A-1 (BOM)
S-F8652-1	Revised	03	F8652-1 (BOM)
23-F6220-1	New	01	F6220-1 (SCHEMATIC DRAWING)
64-F6220-1	Revised	01	F6220-1 (COMPONENT LAYOUT)
S-F6220-1	Revised	01	F6220-1 (BOM)
P-F6220-2	Revised	01	F6220-2 (BOM)
23-F6220-2	New	00	F6220-2 (SCHEMATIC DRAWING)
S-F6220-2	Revised	01	F6220-2 (BOM)
64-F6220-3	New	00	F6220-3 (COVER PLATE)
24-F8621A	Revised	02	FZM-F8621A (SCHEMATIC DRAWING)
54-F8621A	New	02	FZM-F8621A (ASSEMBLY)
64-F8621A	Revised	02	FZM-F8621A (COMPONENT LAYOUT)
S-F8621A	Revised	02	FZM-F8621A (BOM)
24-F3248	New	00	F3248 (SCHEMATIC DRAWING)
54-F3248	New	00	F3248 (ASSEMBLY)
S-F3248	New	00	F3248 (BOM)
S-F6221	New	00	F6221 (BOM) (SHORT)
S-F6221-1	New	01	F6221 (BOM)
23-F6221-1	New	01	F6221-1 (SCHEMATIC DRAWING)
23-F6221-2	New	00	F6221-2 (SCHEMATIC DRAWING)
64-F6221-1	New	00	F6221-1 (COMPONENT LAYOUT AND ART)
64-F6221-2	New	00	F6221-2 (COMPONENT LAYOUT AND ART)
P-F6221-2	New	00	F6221 (BOM) (SHORT)
S-F6221-2	New	00	F6221-2 (BOM)
54-F8628	New	00	F8628 (OUTLINE)
S-F8628	New	00	F8628 (BOM) (SHORT)

Drawing No.	Status	Issue	Description
23-F8627-1	New	00	F8627-1 (SCHEMATIC DRAWING)
64- F8627-1	New	00	F8627-1 (COMPONENT LAYOUT AND ART)
P- F8627-1	New	02	F8627-1 (BOM) (SHORT)
S- F8627-1	New	00	F8627-1 (BOM)
23-CM-Profi	New	02	23-CM-Profibus DP (SCHEMATIC DRAWING)
64-CM-Profi	New	01	CM-Profibus DP (COMPONENT LAYOUT AND ART)
S-CM-PROFI	New	02	CM-Profibus DP (BOM)
0001	New	07	FM- labels

X CONCLUSION

The apparatus described in 1.5 meets FM Approvals requirements. Since a duly signed Master Agreement is on file for this manufacturer, Approval is effective the date of this report.

EXAMINATION AND TESTING BY: **David Denison and Patrick Byrne**

PROJECT DATA RECORD: **3017743**

ORIGINAL TEST DATA: **PDR 3017743**

ATTACHMENTS: **Installation Drawing 99001 Rev 01**
Label Drawing 00001 Rev 06

REPORT BY:

David T. Denison
Engineer
Hazardous Locations

REPORT REVIEWED BY:

David Styrcula
Technical Team Manager
Hazardous Locations

HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits A1 V=24V, I=1000mA + load, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits A1dig V=24V, I=1000mA + load, T=60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3221 V=24V, I=130mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3236 V=24V, I=200mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3237 V=24V, I=105mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3240 V=24V, I=120mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3248 V=24V, I=120mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3322 V=24V, I=150mA + load, Tamb = 60 Deg C, T-rating T3 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3330 V=24V, I=180mA + load, Tamb = 60 Deg C, T-rating T3 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3331 V=24V, I=180mA + load, Tamb = 60 Deg C, T-rating T3 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3333 V=24V, I=120mA + load, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED

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HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3334 V=24V, I=130mA + load, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3422 V=24V, I=150mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F3430 V=24V, I=120mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F5220 V=24V, I=350mA + load, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6214 V=24V, I=250mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6215 V=24V, I=430mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6216A V=24V, I=430mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6217 V=24V, I=50mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6220 V=24V, I=300mA + load, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6221 V=24V, I=300mA + load, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6705 V=24V, I=130mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED

HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F6706 V=24V, I=100mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F7126 V=24V, I=2100mA, Tamb = 60 Deg C, T-rating T4 Test only in non hazardous environment See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F7130A V=24V, I=1850mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F7131 V=24V, I=20mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F7133 V=24V, I=35mA, Tamb = 60 Deg C, T-rating T4 De-energize power before removing fuse See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D F7553 V=24V, I=620mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits F8621A V=5V, I=360mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits F8625 V=5V, I=1000mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits F8626 V=5V, I=1000mA, Tamb = 60 Deg C, T-rating T4 See Installation Manual H41q / H51q for precautions!	FM APPROVED
HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D See drawing 99001 for non incendive field circuits F8627 V=5V, I=1000mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F8628 V=5V, I=1000mA, Tamb = 60 Deg C, T-rating T5
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F8650A V=5V, I=2000mA, Tamb = 60 Deg C, T-rating T4
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F8650E V=5V, I=2000mA, Tamb = 60 Deg C, T-rating T4
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F8652A V=5V, I=2000mA, Tamb = 60 Deg C, T-rating T4
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F8652E V=5V, I=2000mA, Tamb = 60 Deg C, T-rating T4
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
See drawing 99001 for non incendive field circuits
F9430 / H11 V=24V, I=140mA + load, Tamb = 60 Deg C,
T-rating T4
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
H4135 V=24V, I=40mA, Tamb = 60 Deg C, T-rating T5
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
H7505 V=24V, I=120mA, Tamb = 60 Deg C, T-rating T6
See Installation Manual H41q / H51q for precautions!

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HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
H7506, V=15V, I=500mA, Tamb = 60 Deg C, T-rating T6
See Installation Manual H41q / H51q for precautions!

FM APPROVED

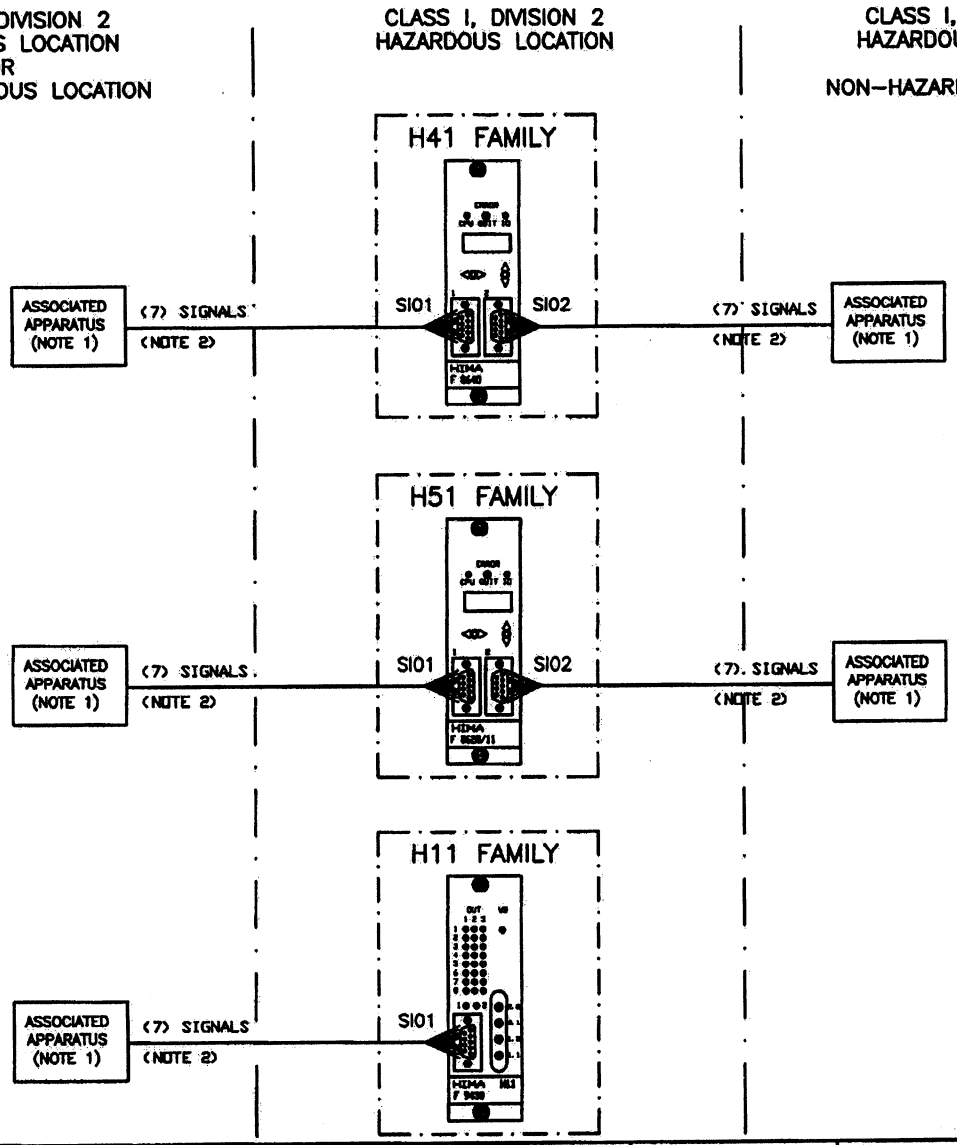
HIMA Paul Hildebrandt GmbH + Co KG
Class I Division 2 Groups A, B, C, D
K9202 V=24V, I=500mA, Tamb = 60 Deg C, T-rating T5
See Installation Manual H41q / H51q for precautions!

FM APPROVED

HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D K9203 V=24V, I=500mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED

HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D K7915 V=24V, I=63A, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions! **WARNING:** DO NOT REMOVE OR REPLACE WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NONHARZARDOUS!	FM APPROVED

HIMA Paul Hildebrandt GmbH + Co KG Class I Division 2 Groups A, B, C, D Z6015 V=24V, I=20mA, Tamb = 60 Deg C, T-rating T5 See Installation Manual H41q / H51q for precautions!	FM APPROVED



Entity Parameters: (Pins 3, 4, 8, 9)

Voc = 6V Isc = 150mA

Groups	A/B	C	D
Capacitance Ca (µF)	405	1000	1000
Inductance La (mH)	3.8	15	30

Entity Parameters: (Pins 2, 6)

Voc = 5V Isc = 120mA

Groups	A/B	C	D
Capacitance Ca (µF)	781	1000	1000
Inductance La (mH)	5	19	38

Notes:

1. Voc or Vt # Vmax, Isc or It # Imax, Ca $ Ci+Ccable, La $ Li+Lcable

2. Nonincendive entity parameters are for Pins 2, 3, 4, 5, 6, 8, and 9 of panel connectors used in models F8620/11, F8640, and F9430. Pins 1 and 7 are not used

3. Installation should be in accordance with National Electrical Code (ANSI/NFPA 70) for nonincendive field wiring.

4. The configuration of the Associated Apparatus must be FMRC Approved.

5. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.

6. No revision to drawing with prior FMRC Approval

Korrektur	Name	Korrektur	Name	Ausgabe	AS	Datum	Name	Ausgabe	AS	Datum	Name
					01						

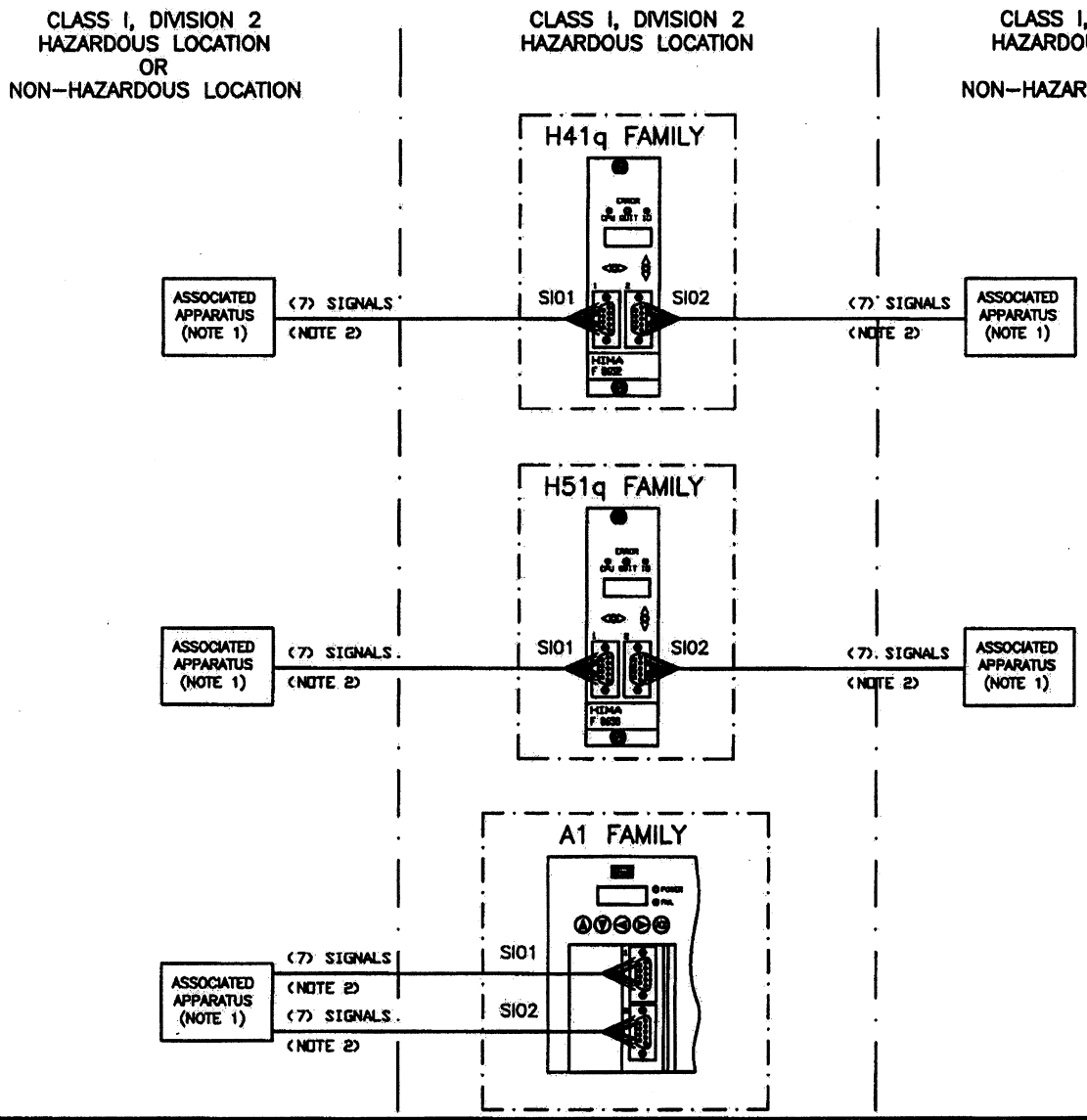
Ersatz für: AS00

Gepr.	18.03.99	AG
Gez.	18.03.99	Die
	Datum	Name

HIMA Paul Hildebrandt GmbH + Co KG
Industrie – Automatisierung
Brühl bei Mannheim

CENTRAL PROCESSORS
RS485 COMM. PORTS
99001

Blatt 1 von 2



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Inductance La (mH)	5	19	38

Notes:

1. Voc or Vt # Vmax, Isc or It # Imax, Ca $ Ci+Ccable, La $ Li+Lcable

2. Nonincendive entity parameters are for Pins 2, 3, 4, 5, 6, 8, and 9 of panel connectors used in models F8650, F8652, and A1.
Pins 1 and 7 are not used

3. Installation should be in accordance with National Electrical Code (ANSI/NFPA 70) for nonincendive field wiring.

4.The configuration of the Associated Apparatus must be FMRC Approved.

5.Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.

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Korrektur	Name	Korrektur	Name	Ausgabe	AS	Datum	Name	Ausgabe	AS	Datum	Name
					01						

Ersatz für. AS00

Gepr.	18.03.99	
Gez.	18.03.99	Die
	Datum	Name

HIMA Paul Hildebrandt
GmbH + Co KG
Industrie – Automatisierung
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