

Mark* V1e and Mark V1eS Control Systems Equipment in Hazardous Locations (HazLoc) Instruction Guide

Sept 2020



Document Updates — continued

Rev	Location	Description
L	Appendix D Ambient Temperature Ratings	<p>Updated ambient temperature ratings as follows:</p> <ul style="list-style-type: none"> Removed: IS210JPDHG1A, IS220PDIAH1B, IS220PDOAH1B, IS220PPDAH1B, IS220YAICS1B, IS220YDIAS1B, IS220YDOAS1B, IS221PDIAH1B, IS221PDOAH1B, IS221PPDAH1B, IS221YAICS1B, IS221YDOAS1B, IS400JPDHG1A, IS410JPDHG1A, IS411JPDHG1A, IS420ESWAH1A, IS420ESWAH2A, IS420ESWAH3A, IS420ESWAH4A, IS420ESWAH5A, IS420ESWBH1A, IS420ESWBH2A, IS420ESWBH3A, IS420ESWBH4A, IS420ESWBH5A, IS420PVIBH1B, IS420YVIBS1B, IS421ESWAH1A, IS421ESWAH2A, IS421ESWAH3A, IS421ESWBH1A, IS421ESWBH2A, IS421ESWBH3A Added: IS210JPDHG1A, IS400JPDHG1A, IS410JPDHG1A, IS411JPDHG1A, ISx2yPAICH1B, ISx2yPDIAH1B, ISx2yPDOAH1B, ISx2yPPDAH1B, IS42yPVIBH1B, ISx2yYAICS1B, ISx2yYDIAS1B, ISx2yYDOAS1B, IS42yYVIBS1B, IS42yESWAH1A, IS42yESWAH2A, IS42yESWAH3A, IS42yESWAH4A, IS42yESWAH5A, IS42yESWBH1A, IS42yESWBH2A, IS42yESWBH3A, IS42yESWBH4A, IS42yESWBH5A, IS420UCSCH1, IS420UCSCH2, IS420UCSCS2
K	PAIC and YAIC Analog I/O Modules	Added IS400STAIS1A and IS400STAIS2A
	PDIA and YDIA Discrete Input Modules	Added IS400TBCIH2C and IS400TBCIS2C
	PTCC and YTCC Thermocouple Input Modules	Added IS400STTCS1A, IS400STTCS2A, and IS400BTCS1C
	YSIL Core Safety Protection Module	Added IS220YSILS1B
	Appendix A Classified Location Certifications, Mark VIe I/O Modules	Added IS400TBCIH2C to IS220PDIAH1B accessories
	Appendix A Classified Location Certifications, Mark VIeS Safety I/O Modules	Added IS400STAIS1A to IS220YAICS1A accessories
		Added IS400STAIS2A to IS220YAICS1B accessories
		Added IS400TBCIS2C to IS220YDIAS1A and IS220YDIAS1B accessories
		Added IS400STTCS1A, IS400STTCS2A, and IS400BTCS1C to IS220YTCCS1A accessories
		Added IS220YSILS1B with accessories
	Appendix B Classified Location Standards, Mark VIe I/O Modules	Added IS400TBCIH2C to IS220PDIAH1B accessories
	Appendix B Classified Location Standards, Mark VIeS Safety I/O Modules	Added IS400STAIS1A and IS400STAIS2A to IS220YAICS1A accessories
		Added IS400TBCIS2C to IS220YDIAS1A accessories
		Added IS400TBCIS2C to IS220YDIAS1B accessories
Added IS400STTCS1A, IS400STTCS2A, and IS400BTCS1C to IS220YTCCS1A accessories		
Added IS220YSILS1B with accessories		
Appendix C Equipment Markings, Mark VIe I/O Modules	Added IS400TBCIH2C to IS220PDIAH1B accessories	
Appendix C Equipment Markings, Mark VIeS Safety I/O Modules	Added IS400STAIS1A and IS400STAIS2A to IS220YAICS1A accessories	
	Added IS400TBCIS2C to IS220YDIAS1A accessories	
	Added IS400TBCIS2C to IS220YDIAS1B accessories	
	Added IS400STTCS1A, IS400STTCS2A, and IS400BTCS1C to IS220YTCCS1A accessories	
	Added IS220YSILS1B with accessories	
Appendix D Ambient Temperature Ratings	Updated the Ambient Temperature Ratings table to include IS220YSILS1B	

Document Updates — continued

Rev	Location	Description
G	<u>PAIC and YAIC Analog I/O Modules</u>	Separated IS220PAICH1A and IS220PAICH1B and added terminal boards for use with IS220PAICH1B
		Separated IS220YAICS1A and IS220YAICS1B and added terminal boards for use with IS220YAICS1B
	<u>PDIA and YDIA Discrete Input Modules</u>	Separated IS220PDIAH1A and IS220PDIAH1B and added terminal boards for use with IS220PDIAH1B
		Separated IS220YDIAS1A and IS220YDIAS1B and added terminal boards for use with IS220YDIAS1B
	<u>PDOA and YDOA Discrete Output Modules</u>	Separated IS220PDOAH1A and IS220PDOAH1B and separated the terminal boards for use per I/O pack
	<u>PSVO Servo Control Module</u>	Separated IS220PSVOH1A and IS220PSVOH1B
	<u>PVIB and YVIB Vibration Monitor Modules</u>	Separated IS220PVIBH1A and IS420PVIBH1B and added the terminal board for use with IS420PVIBH1B
		Separated IS220YVIBS1A and IS420YVIBS1B and added the terminal board for use with IS420YVIBS1B
	<u>Appendix A Classified Location Certifications, Mark VIe I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220PAICH1B, IS220PDIAH1B, IS220PDOAH1B, IS220PSVOH1B, IS420PVIBH1B
	<u>Appendix A Classified Location Certifications, Mark VIeS Safety I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220YAICS1A IS220YAICS1B with updated ATEX Zone 2, Group IIC certification IS221YAICS1B updated ATEX Zone 2, Group IIC certification IS220YDIAS1A IS220YDIAS1B specifications and certifications IS220YDOAS1A IS220YDOAS1B with updated ATEX Zone 2, Group IIC certification IS221YDOAS1B updated ATEX Zone 2, Group IIC certification IS420YVIBS1B
	<u>Appendix B Classified Location Standards, Mark VIe I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220PAICH1B, IS220PDIAH1B, IS220PDOAH1B, IS220PSVOH1B, IS420PVIBH1B
	<u>Appendix B Classified Location Standards, Mark VIeS I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220YAICS1A, IS220YAICS1B, IS220YDIAS1A, IS220YDIAS1B, IS220YDOAS1A, IS220YDOAS1B, IS420YVIBS1B
	<u>Appendix C Equipment Markings, Mark VIe I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220PAICH1B, IS220PDIAH1B, IS220PDOAH1B, IS220PSVOH1B, IS420PVIBH1B
<u>Appendix C Equipment Markings, Mark VIeS I/O Modules</u>	Added terminal boards in the Equipment column for the following I/O modules: IS220YAICS1A, IS220YAICS1B, IS220YDIAS1A, IS220YDIAS1B, IS220YDOAS1A, IS220YDOAS1B, IS420YVIBS1B	

3 Distributed I/O Module Instructions

The equipment listed in this chapter is certified for use in certain specified hazardous (classified) locations. Follow all applicable instructions in [Conditions of Safe Use](#) and within the specific section for each piece of equipment for proper use of this equipment in these locations.

3.1 PAIC and YAIC Analog I/O Modules

The following I/O pack and terminal board combinations are approved for use in hazardous locations:

- Mark VIe Analog I/O pack **IS220PAICH1A** with terminal boards (accessories) **IS200STAIH1A**, **IS200STAIH2A**, or **IS200TBAIH1C**
- Mark VIe Analog I/O pack **IS220PAICH1B** with terminal boards (accessories) **IS200STAIH1A**, **IS200STAIH2A**, or **IS200TBAIH1C**
- Mark VIeS Safety Analog I/O pack **IS220YAICS1A** with terminal boards (accessories) **IS200STAIS1A**, **IS400STAIS1A**, **IS200STAIS2A**, **IS400STAIS2A**, **IS200TBAIS1C**, or **IS400TBAIS1C**
- Mark VIeS Safety Analog I/O pack **ISx2yYAICS1B** (where x = 2 or 4 and y = 0 or 1) with terminal boards (accessories) **ISx0ySTAIS1A**, **ISx0ySTAIS2A**, or **ISx0yTBAIS1C**

3.1.1 Electrical Ratings

Item	Min	Nominal	Max	Units
<i>Power Supply</i>				
Voltage	PAICH1B / YAICS1B: 22.5 PAICH1A / YAICS1A: 27.4	PAICH1B / YAICS1B: 24.0/28.0 PAICH1A / YAICS1A: 28.0	28.6	V dc
Current	—	—	0.49	A dc
<i>Analog Inputs (1-8)</i>				
Voltage	-10	—	10	V dc
Current	0	—	20	mA dc
<i>Analog Inputs (9-10)</i>				
Current	-5	—	5	V dc
Current	-1	—	20	mA dc
<i>Analog Outputs</i>				
Voltage	0	—	16.3	V dc
Current	0	—	20	mA dc
<i>Analog Transmitter Power</i>				
Voltage	22.8	24.0	25.2	V dc
Current	—	—	21	mA dc

3.1.2 Field Wire Connections

Terminal Board	Terminal Block Type
ISx00STAI_1A, ISx00STAI_2A	Refer to the table Euro Style Box-type Terminal Blocks for wire size and screw torques.
ISx00TBAI_1C	Refer to the table Barrier-type Terminal Blocks for wire size and screw torques.

Mark VIeS Safety I/O Modules

Mark VIeS Safety I/O Modules Classified Location Certifications

Equipment	Non-hazardous	Class I, Division 2, Groups A, B, C, D	Class I, Zone 2, Group IIC	ATEX Zone 2, Group IIC
IS220YAICS1A Accessories: IS200STAIS1A IS400STAIS1A IS200STAIS2A IS400STAIS2A IS200TBAIS1C IS400TBAIS1C	UL E207685	UL E207685	UL E207685	UL DEMKO 12 ATEX 1114875X
ISx2yYAICS1B Accessories: ISx0ySTAIS1A ISx0ySTAIS2A ISx0yTBAIS1C	UL E207685	UL E207685	UL E207685	UL DEMKO 13 ATEX 1214780X
IS220YDIAS1A Accessories: IS200STCIS1A IS200STCIS2A IS200TBCIS2C IS400TBCIS2C IS400STCIS1A IS400STCIS2A	UL E207685	UL E207685	UL E207685	UL DEMKO 12 ATEX 1114875X
ISx2yYDIAS1B Accessories: ISx0ySTCIS1A ISx0ySTCIS2A IS40ySTCIS4A ISx0yTBCIS2C IS40yTBCIS3C	UL E207685	UL E207685	UL E207685	UL DEMKO 18 ATEX 2032X
IS220YDOAS1A Accessories: IS200TRLYS1F IS200TRLYS2F IS400TRLYS1F IS400TRLYS2F	UL E207685	UL E207685	UL E207685	UL DEMKO 12 ATEX 1114875X

Mark VIeS Safety I/O Modules

Mark VIeS Safety I/O Modules Classified Location Standards

Equipment	Non-hazardous	Class I, Division 2, Groups A, B, C, D	Class I, Zone 2, Group IIC	ATEX Zone 2, Group IIC
IS220YAICS1A Accessories: IS200STAIS1A IS400STAIS1A IS200STAIS2A IS400STAIS2A IS200TBAIS1C IS400TBAIS1C	UL 508 Ed. 17 CSA-C22.2 No. 142-M1987	ANSI/ISA-12.12.01-2015 CAN/CSA-C22.2 No. 213-15	UL 60079-0 Ed. 5 UL 60079-15 Ed. 3 CAN/CSA-C22.2 No. 60079-0:11 CAN/CSA-C22.2 No. 60079-15:12	EN 60079-0:2012 EN 60079-11:2012 EN 60079-15:2010
ISx2yYAICS1B Accessories: ISx0ySTAIS1A ISx0ySTAIS2A ISx0yTBAIS1C	UL 508 Ed. 17 CSA-C22.2 No. 142-M1987	ANSI/ISA-12.12.01-2015 CAN/CSA-C22.2 No. 213-15	UL 60079-0 Ed. 5 UL 60079-15 Ed. 3 CAN/CSA-C22.2 No. 60079-0:11 CAN/CSA-C22.2 No. 60079-15:12	EN 60079-0:2012 EN 60079-11:2012 EN 60079-15:2010
IS220YDIAS1A Accessories: IS200STCIS1A IS200STCIS2A IS200TBCIS2C IS400TBCIS2C IS400STCIS1A IS400STCIS2A	UL 508 Ed. 17 CSA-C22.2 No. 142-M1987	ANSI/ISA-12.12.01-2015 CAN/CSA-C22.2 No. 213-15	UL 60079-0 Ed. 5 UL 60079-15 Ed. 3 CAN/CSA-C22.2 No. 60079-0:11 CAN/CSA-C22.2 No. 60079-15:12	EN 60079-0:2012 EN 60079-11:2012 EN 60079-15:2010
ISx2yYDIAS1B Accessories: ISx0ySTCIS1A ISx0ySTCIS2A IS40ySTCIS4A ISx0yTBCIS2C IS40yTBCIS3C	UL 508 Ed. 17 CSA-C22.2 No. 142-M1987	ANSI/ISA-12.12.01-2015 CAN/CSA-C22.2 No. 213-15	UL 60079-0 Ed. 5 UL 60079-7 Ed. 5 (STCIS4A and TBCIS3C only) UL 60079-15 Ed. 3 (STCIS1A, STCIS2A, and TBCIS2C only) CAN/CSA-C22.2 No. 60079-0:11 CAN/CSA-C22.2 No. 60079-7:16 (STCIS4A and TBCIS3C only) CAN/CSA-C22.2 No. 60079-15:12 (STCIS1A, STCIS2A, and TBCIS2C only)	EN 60079-0:2012 EN 60079-11:2012 (does not apply to STCIS4A or TBCIS3C) EN 60079-7:2015

Mark VIeS Safety I/O Modules

Mark VIeS Safety I/O Modules Equipment Markings

Equipment	US & CAN Class I Div 2	US & CAN Class I Zone 2	ATEX Zone 2
IS220YAICS1A Accessories: IS200STAIS1A IS400STAIS1A IS200STAIS2A IS400STAIS2A IS200TBAIS1C IS400TBAIS1C	Class I, Div 2, Groups A, B, C, D, T4	Class I, Zone 2, AEx nA nC [nC] IIC T4, Ex nA nL [nL] IIC T4 Gc X	Ex ic nA [ic] IIC T4 Gc
ISx2yYAICS1B Accessories: ISx0ySTAIS1A ISx0ySTAIS2A ISx0yTBAIS1C	Class I, Div 2, Groups A, B, C, D, T4	Class I, Zone 2, AEx nA nC [nC] IIC T4, Ex nA nL [nL] IIC T4 Gc X	Ex ic nA [ic] IIC T4 Gc
IS220YDIAS1A Accessories: IS200STCIS1A IS200STCIS2A IS200TBCIS2C IS400TBCIS2C IS400STCIS1A IS400STCIS2A	Class I, Div 2, Groups A, B, C, D, T4	Class I, Zone 2, AEx nA [nC] IIC T4, Ex nA [nL] IIC T4 Gc X	Ex nA [ic] IIC T4 Gc
ISx2yYDIAS1B Accessories: ISx0ySTCIS1A ISx0ySTCIS2A IS40ySTCIS4A ISx0yTBCIS2C IS40yTBCIS3C	Class I, Div 2, Groups A, B, C, D, T4	When used with accessories ISx0ySTCIS1A, ISx0ySTCIS2A, ISx0yTBCIS2C: Class I, Zone 2, AEx nA [nC] IIC T4, Ex nA [nL] IIC T4 Gc X When used with accessories IS40ySTCIS4A, IS40yTBCIS3C: Class I, Zone 2, AEx/Ex ec IIC T4 Gc X	When used with accessories ISx0ySTCIS1A, ISx0ySTCIS2A, ISx0yTBCIS2C: Ex ec [ic] IIC T4 Gc When used with accessories IS40ySTCIS4A, IS40yTBCIS3C: Ex ec IIC T4 Gc
IS220YDOAS1A Accessories: IS200TRLYS1F IS200TRLYS2F IS400TRLYS1F IS400TRLYS2F	Class I, Div 2, Groups A, B, C, D, T4	Class I, Zone 2, AEx nA nC IIC T4, Ex nA nL IIC T4 Gc X	Ex ic nA IIC T4 Gc

Appendix D Ambient Temperature Ratings

Note In the following tables, **y** = 0 or 1 for module part numbers.

Ambient Temperature Ratings

GE Part Number	Ambient Temperature Rating
IS200JPDLG1A	-30 to + 65 °C (-22 to +149 °F)
IS210BAPAH1A	
IS220PAICH1A	
IS220PAOCH1B	
IS220PCLAH1A	
IS220PCLAH1B	
IS220PDIAH1A	
IS220PDIIH1B	
IS220PDIOH1A	
IS220PDIOH1B	
IS220PDOAH1A	
IS220PHRAH1A	
IS220PHRAH1B	
IS220PPDAH1A	
IS220PPRAH1A	
IS220PPRAS1A	
IS220PPRAS1B	
IS220PPROH1A	
IS220PPROS1B	
IS220PRTDH1A	
IS220PRTDH1B	
IS220PSCAH1A	
IS220PSCAH1B	
IS220PSCHH1A	
IS220PSVOH1A	
IS220PSVOH1B	
IS220PTCCH1A	
IS220PTCCH1B	
IS220PTURH1A	
IS220PTURH1B	
IS220PVIBH1A	
IS220YAICS1A	
IS220YDIAS1A	
IS220YDOAS1A	
IS220YHRAS1A	
IS220YPROS1A	
IS220YSILS1A	
IS220YSILS1B	
IS220YTCCS1A	
IS220YTURS1A	
IS220YVIBS1A	
IS221PHRAH1B	