



## Mark\* VIe Power Distribution Module Summary Sheet

The Mark\* VIe Power Distribution Module (PDM) offers a set of inter-connectable products to provide core system power for control electronics and I/O contact wetting and wiring protection within the control system. When using GE's power distribution parts, users benefit from the following features:

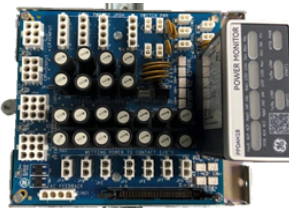
- Automatic power monitoring and diagnostics to the controller, which alerts operations and maintenance teams and eliminates manual programming and extra I/O for power monitoring
- Proven power distribution scheme with coordinated fault protection and isolation
- Segregation of control and contact wetting power to avoid field wiring issues from damaging control components
- Flexible redundancy schemes for most applications that support Dual or TMR options
- Simplified power schemes to reduce panel fabrication, assembly, and test time and shorten the panel build phase of projects

PDM products include:

- IS410JPDx series of DIN-rail mountable PDMs distribute control power and I/O wetting power within the control system
- Power Distribution Diagnostic Feedback I/O pack (IS420PPDAH1B) monitors control and wetting power and branch fusing. The PPDA I/O pack is mounted on either the IS410JPDGH1A or IS410JPDSG1A.
- Prefabricated power cable harnesses interconnect PDMs and system control and I/O components



*JPDG Dual Control & Wetting Power, with Cover*



*JPDG Dual Control & Wetting Power, no Cover*

The Mark VIe control system can support two or more independent sources of power. A typical configuration uses two separate AC grid power feeds as primary sources to bulk control and wetting supplies. An optional secondary power source could be a plant's 24, 48, or 125 V dc station battery system, which is charged by the local AC grid. This configuration keeps the control system powered during loss of AC power events and (with station battery) can support black start operations. The Mark VIe approach provides flexible, field-proven redundancy schemes for the power sources, power supplies, and power cables to Simplex and Redundant I/O, eliminates custom engineered solutions, and assures proper responses to failures in power delivery. The application designer can select the appropriate system reliability and fault coverage.

The PDM configuration provides isolation between core control power and I/O wetting power, protecting controller and I/O electronics from power surges or dips received from noisy field I/O. The PDM's built-in coordinated circuit protection isolates faults within the system and prevents the spread of issues. Examples are in branch protection by fuses, which prevents a module short from taking down supplies up stream. This also protects wire insulation and connectors from exceeding safe temperatures.

The [Power Distribution Module Specifications table](#) provides specifications for the IS410JPDx PDMs available for use in the Mark VIe and Mark VIeS control systems.

For information on applying the PDM product line in a Mark VIeS Functional Safety control system, as well as information on power configuration architectures, redundancy, power supplies, and cable harnesses, refer to the *Mark VIeS Functional Safety Control Systems Power Distribution Modules (PDM) Application Guide for General Market* (GEI-100861).

For additional details on each PDM and the PPDA I/O pack, refer to the *Mark VIeS Functional Safety Systems for General Market Volume II System Guide for General-purpose Applications* (GEH-6855\_Vol\_II), the chapter *PDM Power Distribution Modules*.

**Power Distribution Module Specifications**

| Item                                 | Power Distribution Module   |   |   |  |  |
|--------------------------------------|---|---|---|--|--|
|                                      | IS410JPDGH1A  | IS410JPDSG1A  | IS410JPDEG1A  | IS410JPDHG1A   | IS410JPDDG#A   |
| Product Name                         | Mark Vle Control & I/O Wetting Power Distribution   | Mark Vle Control Power Distribution   | Mark Vle I/O Wetting Power Distribution   | Mark Vle High Density Control Power Distribution   | Mark Vle I/O Wetting Power Branch Distribution   |
| Life-cycle Status                    | Active  | Active  | Active  | Active   | Active   |
| Redundancy Configurations            | Single or Dual Diode OR'd supplies  | Simplex, Dual, and TMR supplies   | Single or Dual Diode OR'd supplies  | Simplex, Dual, or TMR control power (R/S/T) distribution   | Fused, switched I/O wetting power distribution   |
| Power Monitoring I/O Pack            | IS420PPDAH1B (order separately)   | IS420PPDAH1B (order separately)   | None; shares PPDA via ribbon cable to JPDS  | —  | —  |
| 28 V dc Control Power Inputs         | Supports 2 externally Diode OR'd 28 V dc control power supplies, 40 A max   | Supports 2 externally Diode OR'd 28 V dc control power supplies, 20 A max   | —   | 28 V dc control power Inputs (J1), 13 A max  | —  |
| 28 V dc Control Power Outputs        | Qty 4 Control power fused bulk outputs, 7 A max<br>Qty 4 Control power self-recovering, poly-fused outputs, 2.0 A max<br>Qty 5 Control power self-recovering, poly-fused outputs, 0.8 A max | Qty 6 Control power fused bulk outputs, 13 A max<br>Qty 3 Control power un-fused Outputs, 3.0 A max<br>Qty 3 Control power self-recovering, poly-fused outputs, 0.8 A max | —   | Qty 24 Control power self-recovering, poly-fused outputs, 0.8 A max (8 each via JR1-8, JS1-8, JT1-8) | —  |
| 24/48 V dc I/O Wetting Power Inputs  | Supports 2 externally Diode OR'd 24/48 V dc floating I/O wetting power supplies, 40 A max, with optional bias to provide ground fault detection   | —   | Supports 2 externally Diode OR'd 24/48 Vdc floating I/O wetting power supplies, 24 A max, with optional bias to provide ground fault detection;<br>Supports externally Diode OR'd 24/48 V dc floating station battery, 30 A max | —  | 24/48 V dc contact wetting input (J28), 20 A max or 125 V dc contact wetting inputs (J125), 10 A max |
| 24/48 V dc I/O Wetting Power Outputs | Qty 7 I/O wetting fused bulk outputs, 10 A max  | —   | Qty 3 I/O wetting fused no switch bulk outputs, 10 A max.<br>Qty 3 I/O wetting fused & switched bulk outputs, 5 A max.  | —  | Qty 6 I/O wetting branch circuits fused, switched outputs (JD1-JD6), 7 A continuous max              |

**Power Distribution Module Specifications (continued)**

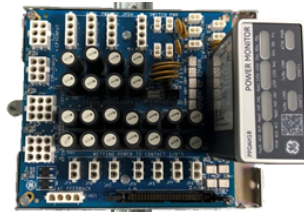
| Item  | Power Distribution Module   |   |   |  |   |
|---|---|---|---|--|---|
|   | IS410JPDGH1A  | IS410JPDSG1A  | IS410JPDEG1A  | IS410JPDHG1A                             | IS410JPDDG#A  |
| User-supplied I/O Wetting Power Fuses (for JPDD)            | —   | —   | —   | —  | Max fuse rating 250 V dc at 15 A.<br>For application flexibility, fuses are provided by user. IS410JPDDG2A supports 5 x 20 mm (0.20 x 0.79 in) fuses. IS410JPDDG3A supports 6.35 x 31.75 mm (0.25 x 1.25 in) fuses. |
| Cable Harnesses/PDM Interconnections                        | For cable harnesses, descriptions, and part numbers, refer to <i>Mark VIeS Functional Safety Control Systems Power Distribution Modules (PDM) Application Guide for General Market</i> (GEI-100861), the chapter <i>Standard Cable Harnesses for PDMs</i> . |   |   |  |   |
| Monitors Power Supply Health Contacts                       | Yes, up to 4 power supplies   | Yes, up to 3 power supplies   | Yes, up to 2 power supplies   | —  | —   |
| Health and Status LEDs                                      | PPDA self-checking, monitors 2 AC mains, power supplies, I/O wetting power ground fault, and glass/ceramic fuses, reports health to controller via IONet  | PPDA self-checking, monitors power supplies, reports health to controller via IONet | Reports ceramic fuse faults, I/O wetting supply ground fault, and I/O wetting power diagnostics to JPDS via 50-pin ribbon cable, J1 to J2 | —  | LED per circuit indicating fuse OK and switch On  |
| PPDA Input Power  | 28 V dc nominal, at 0.24 A  | 28 V dc nominal, at 0.24 A  | —   | —  | —   |
| PPDA Control Power cable to JPDG/JPDS                       | 336A4937RDG010, 10" cable, PPDA to JPDG JD4 (order separately)  | 336A4937RDG010, 10" cable, PPDA to JPDS P4 (order separately)                       | —   | —  | —   |
| Module Dimensions (includes cover and I/O Pack) (H x W x D) | 17.0 x 23.1 x 15.2 cm (6.7 x 9.1 x 6.0 in)  | 17.0 x 23.1 x 15.2 cm (6.7 x 9.1 x 6.0 in)  | 17.0 x 22.1 x 11.4 cm (6.7 x 8.7 x 4.5 in)  | 16.5 x 15.2 x 11.4 cm 6.5 x 6.0 x 4.5 in | 24.1 x 15.2 x 11.4 cm 9.5 x 6.0 x 4.5 in  |
| Mounting  | DIN-rail mounted  |   |   |  |   |
| Cooling   | Convection  |   |   |  |   |
| Safety Rated  | Non-interfering   |   |   |  |   |
| Hazardous Locations Capability                              | Class 1, Div 2 / Class 1, Zone 2 / ATEX<br>For ratings and further details, refer to the <i>Mark VIeS Functional Safety System Equipment in Hazardous Locations (HazLoc) Instruction Guide</i> (GEH-6861).  |   |   |  |   |
| G3 Compliant  | Yes   |   |   |  |   |
| Ambient Operational Temperature                             | -40 to 70°C (-40 to 158 °F)   |   |   |  |   |
| Storage Temperature   | -40 to 85°C (-40 to 185 °F)   |   |   |  |   |
| Humidity  | 95% non-condensing  |   |   |  |   |

**Power Distribution Module Specifications (continued)**

| Item                                 | Power Distribution Module |                    |                    |                    |  |
|--------------------------------------|---------------------------|--------------------|--------------------|--------------------|--|
|                                      | IS410JPDGH1A              | IS410JPDSG1A       | IS410JPDEG1A       | IS410JPDHG1A       | IS410JPDDG#A   |
| Module Replacement Part Number       | IS410JPDGH1A              | IS410JPDSG1A       | IS410JPDEG1A       | IS410JPDHG1A       | IS410JPDDG2A, with 5 x 20 mm (0.20 x 0.79 in) style fuse holders<br>IS410JPDDG3A, with 6.35 x 31.75 mm (0.25 x 1.25 in) style fuse holders |
| Module Cover Replacement Part Number | 151X1202YE12PP02BL        | 151X1202YE12PP02BL | 151X1202YE12PP01BL | 151X1202YE12PP03BL | IS410JPDDG2A:<br>151X1202YE12PP04BL<br>IS410JPDDG3A:<br>151X1202YE12PP04BL   |



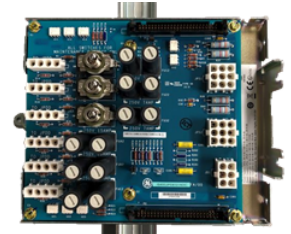
IS420PPDAH1B I/O Pack



IS410JPDGH1A, no Cover



IS410JPDSH1A, no Cover



IS410JPDEG1A, no Cover



JPDH, no Cover



JPDH, with Cover



JPDD, no Cover



JPDD, with Cover



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