

# PI01e

## ABB Ability™ Symphony® Plus Hardware Selector



The PI01e Pulse Input module processes up to eight (8) Pulse Input signals. Each channel is individually CH-2-CH isolated and is independently configurable for Totalize, Frequency, Period, or Duration mode pulse inputs. FC 221 (I/O Device Definition) sets PI module operating parameters, and each input channel is configured using FC 229 (Pulse Input CH) to set individual input channel parameters such as pulse input mode, engineering units, High/Low alarm state, etc.

The PI01e module supports pulse counts from 0 to 16,777,215, frequency input range from 0.5 Hz to 100 kHz, Period range from 10 µsec to 2 seconds, and a duration range from 5 µsec to 1 second.

### Features and benefits

- Eight (8) individually CH-2-CH isolated Pulse Input channels supporting:
- Totalize: 0 to 16,777,215
- Frequency: 0.5 Hz to 100 kHz
- Period: 10 µsec to 2 seconds
- Duration: 5 µsec to 1 second
- In HN800 operating mode, PI01e supports optional module redundancy

| General info                |                                                                          |
|-----------------------------|--------------------------------------------------------------------------|
| Article number              | 7PAA001451R11                                                            |
| Type                        | Pulse Input                                                              |
| Signal specification        | 9-24 VDC                                                                 |
| Life cycle status           | ACTIVE                                                                   |
| Number of channels          | 8                                                                        |
| Signal type                 | PI                                                                       |
| HART                        | No                                                                       |
| SOE                         | No                                                                       |
| Redundancy                  | Yes                                                                      |
| Form factor                 | Compact (127 mm)                                                         |
| Mounting                    | EMB01S-PIO                                                               |
| MTBF (per MIL-HDBK-217-FN2) | PR: C = 252,114 Hours @ 30 °C 188,993 Hours @ 40 °C 87,738 Hours @ 70 °C |
| MTTR (Hours)                | PI01e MTTR = 1 hour                                                      |

| Detailed data                   |                                                                         |
|---------------------------------|-------------------------------------------------------------------------|
| Module power requirements       | 67 mA (typical) @ 24 VDC ± 10%                                          |
| Module power connection         | POWER TB on EMC_B0x, cHBX01L or VBX01T                                  |
| Field IO power                  | 1.3 mA typical, 1.5 mA max per CH @ 24 VDC ± 10%                        |
| Overvoltage category            | Category I for power, inputs or outputs. Tested according to EN 61010-1 |
| Max field cable length          | 600 meters (1968 feet)                                                  |
| Number of Channels              | 8 Pulse Input Channels                                                  |
| A/D Conversion                  | ±0 count                                                                |
| A/D Resolution                  | 0.0001                                                                  |
| A/D Update rate                 | 0.0001                                                                  |
| D/A Conversion                  | 0.0001                                                                  |
| Accuracy, FSR                   | Totalize: ±0 count Frequency: 0.01% Period: 0.01% Duration: 0.01%       |
| Temp effect on accuracy         | 0.015% @ 25°C (timebase accuracy)                                       |
| Field signal to Logic isolation | Galvanically isolated, 1500 V up to 1 minute                            |
| Channel isolation               | Individual CH-2-CH isolated, 1500 V up to 1 minute                      |

| Diagnostics         |                                                                              |
|---------------------|------------------------------------------------------------------------------|
| Front plate LED's   | R (Run), F (Fault), P (Primary), and B (Backup) + 8 Diagnostic & Status LEDs |
| Local availability  | R (Run), F (Fault), P (Primary), and B (Backup) + 8 Diagnostic & Status LEDs |
| Remote availability | HN800 device diagnostics via SPE                                             |

| Environment and certification          |                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------|
| Temperature, Operating                 | -40 to +70 °C Tested according to IEC/EN 60068-2-1, IEC/EN 60068-2-2                               |
| Temperature, Storage                   | -40 to +85 °C Tested according to MIL-STD-810G                                                     |
| Relative humidity                      | 20% to 95% @ 40°C non-condensing. Tested according to IEC/EN 60068-2-78, IEC/EN 61298-3            |
| Vibration (operational sinusoidal)     | 5 to 60 Hz 0.137 mm (0.0054 in.), 60 to 150 Hz 1.0 G. Tested according to IEC/EN 60068-2-6         |
| Vibration (transportation)             | 10 to 500 Hz. Tested according to MIL-STD-810G                                                     |
| Shock (storage)                        | 15 G, 11 msec. Tested according to IEC/EN 60068-2-27                                               |
| Drop                                   | 100 mm. Tested according to IEC/EN 60068-2-31                                                      |
| Protection class                       | IP20 according to EN 60529                                                                         |
| Altitude (operational)                 | Sea level to 3,048 meters (10,000 ft.) Tested according to MIL-STD-810G                            |
| Altitude (storage)                     | Sea level to 12,192 meters (40,000 ft.) Tested according to MIL-STD-810G                           |
| Air quality                            | ISA S71.04 G3 compliant versions                                                                   |
| ESD immunity                           | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-2, Severity level 3                           |
| Surge immunity                         | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-5, Severity level 3                           |
| Electrical fast transient immunity     | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-4, Severity level 3                           |
| Radiated RFI immunity                  | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-3, Severity level 3                           |
| Conducted Immunity                     | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3                           |
| Magnetic field immunity                | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-8, Severity level 4                           |
| Radiated emission                      | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3                           |
| Conducted emission                     | Tested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipment |
| Voltage dips and interruption immunity | Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-11                                            |
| CSA non-hazardous locations            | Certified for use as process control equipment in an ordinary (non-hazardous) location             |
| CSA hazardous, nonincendive locations  | Class I, Division 2, Groups A, B, C, D                                                             |
| CE Mark                                | CE Mark EMC directive 2004/108/EC & Low Voltage Directive 2006/95/EC                               |
| RoHS compliance                        | RoHS Directive 2015/863                                                                            |
| WEEE compliance                        | DIRECTIVE/2012/19/EU                                                                               |

| Compatibility               |                                    |
|-----------------------------|------------------------------------|
| Use with MTU                | EMB01S-PIO, HBS01e-EPD, VBS01e-EPD |
| Module keying code for base | slot #1 = 12, slot #2 = 17         |

| Dimensions |        |
|------------|--------|
| Width      | 27 mm  |
| Depth      | 127 mm |
| Height     | 127 mm |
| Weight     | 159 g  |

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