MOORE INDUSTRIES WORLDWIDE

October 2018

Description

The FDY PC-Programmable Frequency-to-DC Transmitter with Display monitors frequency, period, high or low pulse width, and contact closure signals. It converts the input signal to a proportional, input-tooutput isolated 4-20mA output ready for direct interface with a readout instrument, recorder, PLC, DCS, SCADA system or other readout instrument.

The 2-wire (loop-powered) FDY is ideal for use in a wide range of process and factory automation monitoring applications:

- Turbine Tachometer Generators
 - Turbine Flow Meters
- Magnetic Pickups Dry Contact Closures
- Variable Frequency Drives
 Rotating Equipment
 - Pulse and Frequency Output Transducers
 - Motor and Conveyor Speed

Figure 1. The FDY configures with application-specific operating parameters in just minutes using our single-window Intelligent PC Configuration Software





PC-Programmable Frequency-to-DC

Transmitter with Display

The FDY installs quickly and easily in harsh conditions using our protective field-mount enclosures, or on a surface, DIN-rail or relay track.

Features

- Exceptional accuracy and long-term stability. Typical accuracy is ±0.025% of span with up to 5 years between scheduled calibrations.
- Sets up in minutes with PC software. You can choose, and then view to confirm, all application-specific operating parameters.
- Versatile input choices. Measures frequency ranges between an amazingly low 0.005Hz up to 25kHz; periods from 40microseconds to 200sec; and pulse widths from 0.2msec to 200 seconds.
- User-configurable display. A 5-digit LCD shows the process variable in selectable engineering units.
- Input-to-output isolated and RFI/EMI protected. Resistant to unpredictable ground loops and the harmful effects of plant and equipment "noise".
- **Programmable moving average filter.** Minimizes measurement instability caused by the effects of bent turbine blades and other frequency variations.



Accurate Frequency Monitoring

In power generating stations, stand-by power systems, and cogeneration plants, the frequency of the generated power must be tightly controlled. The FDY provides extraordinary precision for this measurement, providing a 4-20mA signal for a narrow span centered on the set point (for example, 55-65Hz for a 60Hz system).





Make Consistent Flow Measurements

Flow measurements are often made with turbine flow meters. One common source of measurement inconsistencies is frequency variation due to bent blades.

Programmable Averaging Filter—To compensate for bent blades, the FDY incorporates a programmable moving average filter.

The user-selectable moving average is set to match the number of turbine blades. Taking a reading from each turbine blade, the FDY averages the readings to produce a "smoothed out" 4-20mA value proportional to the continuous averaged measurement. This advantage stretches the time between maintenance cycles needed to replace the rotor in the turbine meter by delivering accurate measurements even if the turbine blade(s) are damaged.

Custom Linearization Curves—Another potential for error is the effect of viscosity, which varies according to published curves. For liquids, the change is temperature related, while for gas, it is flow related. In some cases, the onboard linearization capability of the FDY can compensate for the viscosity effect using calibration data supplied by the meter manufacturer.





Increasing Pump Efficiency

Natural gas typically must be processed both to remove unwanted contaminants, and to separate it into different types of gas before it is usable. These gas processing plants require the raw gas to be pumped from low pressure to high pressure to produce usable products. Maintaining consistent pump speed is essential to this process to maintain efficiency and decrease wasted product.

Most pumps use jet engines to create the required pressure; however, a change in engine speed of just $\pm 0.1\%$ can vary the volume of the pump drastically. To ensure the pump is operating at the required level, it must be continuously monitored.

To accomplish this, a magnetic pickup is attached to the pump shaft (Figure 4). The pickup provides a frequency output. The FDY takes the pickup signal, converts it to a 4-20mA output proportional to the pump shaft speed, and transmits it to the DCS. Should there be an unwanted change in speed, it can be detected at the DCS.

Because of the FDY's superior accuracy, it is able to detect even slight changes in shaft speed to help ensure the pump is running at optimum efficiency.



Figure 4. Monitor pump speed to ensure optimum efficiency

Measuring Volumetric Flow Based On Shaft Rotational Speed

Many processes require the periodic addition of precise amounts of a regeant or similar additives using a pump. Because there is a direct correlation between shaft rotation speed and the volume of product pumped, this strategy delivers a precise volume of additive for each revolution of the shaft. In this application, the FDY is used to accurately measure the RPM of the shaft, and provide a 4-20mA signal directly proportional to volumetric flow (Figure 5). The flow information is used by the control system to provide on/off pump control.

Figure 5. Precision feedback of pump shaft revolutions per minute (RPM) for monitoring additive volume



Measuring Weight per Minute of Product Transported on Conveyer Belts

The FDY accepts the input from a magnetic pickup sensor, turbine tachometer generator, dry contact closure, or other frequency sensor. It converts the input to a user scaleable 4-20mA signal proportional to belt speed. This is useful for measuring and transmitting information from conveyer belts.

Mining and Cement Industries

The mining and cement industries often use conveyer belts to transport bulk solids. The amount of the product being moved is related to its cross sectional area, (determined by measuring the average height on the belt across a known width), the weight of the material, and the speed of the belt. (Typically, a non-contact device is used to measure the average height and provide a 4-20mA signal.) A weighing system accepts the analog inputs for height and speed and makes the calculations for weight per minute. Moore Industries' MDS I/O Equation Station may be used to provide this calculation functionality and then report the information to a monitoring system via 4-20mA signal, discrete status and/or MODBUS RTU data.

Paper Industry

In most paper production facilities, precision control of roller speeds is critical. Use the FDY to make a speed measurement using a frequency pickup on the roller shaft. Installed in Moore Industries' NEMA 4X (IP66) D-BOX enclosure or an explosion-proof BH enclosure, the FDY can be field-mounted in rugged and hazardous field environments.



Specifications

See Tables 2-7 Output Accuracy: 40.015% of span Overall Accuracy: 11 Induces the combined input ingut accuracies. 11 Induces the combined input ingut Age Advance: -30Kohms for DC and con- unit is the combined input ingut Age Advance: -30Kohms for DC and con- tact closure inputs: 2kohms for input 26V, 4kohms for input 48V at for inp	Performance	Input Accuracy:	Performance	maximum; AC input, 30Vac	Display	background; Bottom Row,
Output Accuracy: ±0.015% of spanmodel, 250/3c maximumblack digts on a reflective back digts on a reflective b		See Tables 2-7	(Continued)	maximum for 0.02-30AC	(Continued)	5.72mm (0.225 in) high
40.015% of spanfor 10-250AC modelbackgroundOverall accuracy of the unit is the combined inputhput Impedance: -30kohms for DC and con- tact closure input: ?kNnms typical@30Hz and 58kohms pricel@31Hz for input.Dispicy Update Rate: 100msecin indueds the combined effects of linearity, hys- teresis, repeatability, and adjustment resolution. Dees not include ambient temperature effect. Input Hysteresis: Stability: See Table 1 Minimum Frequency: Twice the lower range 200msec maximum, 200msec maximum, 200msec maximum, 200msec maximum, 200msec maximum, 200msec maximum, 200msec total form the time an input septided of its final value + actual input the output reaching 90% of its final value + actual inputfor 10-2:30AC model soft 200AC model total 200AC model total 200AC modelDispicy Update Rate: 100msec maximum, 200msec maximum, 200msec maximum, 200msec maximum, 200msec ontainum, 200msec maximum, 200msec maximum, 200msec maximum, 200msec ontainum, 200msec maximum, 200msec dist inal value + actual inputSupply Veltage - 12V 0.02% of span per 1V change of on input septided forequency higher than 100Hz and average of sampled for frequency higher than 100Hz and average of samples for low software configurable from 0 to 30 seconds with PC softwareAmbient Temperature terget/samples configurable from 0 to 30 seconds with PC softwareNoise Rejection: (100msec maximumDispingly Update Rate: to 30 seconds with PC softwareDispingly Update Rate: to 30 seconds with PC softwareNoise Rejection: (100ff is software (250 outnes)Dispingly Update Rate: to 100% to 30% + to 30 seconds with PC so		Output Accuracy:		model, 250Vac maximum		black digits on a reflective
Overall Accuracy: The overall accuracy of the unit is the combined effects of linearity, hys- treesis, repeatability, and adjustment resolution. Does not include ambient tempstature effect. Imput Hystersis: Sole Tables 5-7 Imput Preshold: See Tables 5-7 Stability: See Table 1 Stability: See Table 1 Display Update Rate: 10-250AC model; >125Kohms for 10-250AC model; >125Kohms for 10-250AC model; >125Kohms for 10-250AC model; >10-250AC model; >10-250AC model; 10-250AC model; 10-000C model; <th></th> <th>±0.015% of span</th> <th></th> <th>for 10-250AC model</th> <th></th> <th>background</th>		±0.015% of span		for 10-250AC model		background
overall accuracy of the unit is the combined input and output accuracies. It includes the combined 		Overall Accuracy: The		Input Impedance:		Display Update Rate:
unit is the combined input and output accuracies. It includes the combined effects of linearity, hys- feresis repeatability, and adjustment resolution. Does not include ambient temperature effect. Input Hysteresis: See Tables 5-7 Input Hysteresis: See Tables 5-7 Uog236A See Tables 5-7 Input Hysteresis: See Tables 5-7 Uog236A See Tables 5-7 See Tables 5-7 Uog236A See Tables 5-7 See Tables 5-7 See Tables 5-7 Uog236A See Tables 5-7 See T		overall accuracy of the		>30kohms for DC and con-		100msec
and output accuracies. It includes the combined effects of linearity, hys- teresis, repeatability, and adjustment resolution. teresis, repeatability, and adjustment resolution. temperature effect. temperature effect. temperature effect. Load Capability: See Table 5-7 Stability: See Table 5-7 Stability: See Table 5-7 Stability: See Table 5-7 Digital Input Fifeer: 3.6m A and 21.4m A for input under range and over range; 3.6m A and 23.6m A for input failure to each othewer range 10.236Aalphanumeric characters, puts signal decimal point, bottom is five alpha- numeric characters in 10.236A3.6m A and 21.4m A for input under range and over range; 3.6m A and 23.6m A for input failure 200msec typical from the upt under stape and over range; 3.6m A and 23.6m A for input failure 200msec typical from the specified power limits specified		unit is the combined input		tact closure inputs; 2kohms		Format: Top row is five
It includes the combined effects of linearity, hys- effects of linearity, hys- imput threashold: See Tables 5-7 Stability: See Tables 5-7 Stability: See Tables 1 Minimum Frequency: Twice the lower range Digital Input Filter: 3dB point is at 10kHz Stop Response Time: 200msec typical from the uput linearity and is applied to the output reaching 90% of its final value + actual input input walue + actual inputSupply Voltage - 12V 0.0236A of uput failure to range: 3.6mA and 23.6mA for input failure outputs): Negligible within specificat power linitis Power Supply Effect: tao.002% of span per 1V change of its scale of an input step change of 0% to 100% + actual inputStatup Time: Power Supply Effect: tao.002% of span per 1V change than 100Hz and average of 8 samples: Actual inputMinimum Bisplay affect than 100Hz and average of than 100Hz and average of than 100Hz and average of than 100Hz and average of softwareStatup Time: to applied to than 100Hz and average of than 100Hz and average of than 100Hz and average of than 100Hz and average of than 100Hz and average of softwareStatup Time: to applied to than 100Hz and average of than 100Hz and avera		and output accuracies.		for input >6V, 4kohms		alphanumeric characters,
effects of linearity, hys- teresis, repeatability, and adjustment resolution.typical@11kHz for input <8V for 0.02-30AC model; >125kohms for 10-250AC model; 125kohms for 10-250AC model; 125kohms for 10-250AC model; 125kohms 624Vpoint; bottom is five alpha- numeric characters Range: -99999 to 99999 		It includes the combined		typical@50Hz and 56kohms		plus sign and decimal
teresis, repeatability, and adjustment resolution.<60' for 0.02-30AC model; >1256kohms fornumeric characters Range: -9999 09 9999Does not include ambient temperature effect.10-250AC model1.00Input Threshold:508 ohms@24VSee Tables 5-7Supply Voltage – 12V 0.0236AAmbient Operating & Storage Conflitions Range:Stability: See Table 10.0236A-40°C to +65°C (40°F to +185°F)Minimum Frequency: Twice the lower range Totice the lower range Totice the lower range to pigital input Filter: 3dB point is at 10kHzSupply Voltage – 12V 0.0236AAmbient Operating & Storage (40°C to +65°C (40°F to +185°F))300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% change form 10% to 90% of its scale of an input step change of 36 to 100% + actual inputSamples Bamples: Adjustable from to 100 Seconds with PC software Low 268 points with PC softwareNoise Rejection: Configurable up to 18 seg- ments with PC software Configurable up to 18 seg- ments with PC software SoftwareWeight FDV HP: 227 grams (5 a ounces)Weight FDV HP: 227 grams (5 a ounces)Weight four Habing with glass cover: 1451 grams (3 pounds, 124 ounces)Weight FDV HP: 227 grams (3 pounds, 124 ounces)Software configurable to 1650 for grams (a ounces)BiselawDisplayType: LCD; Top Row, 10.16mm (04 in) high black digits on a reflectiveMinimum Display Span: Low Pash Pilter: configurable than 100Hz and average of		effects of linearity, hys-		typical@1kHz for input		point; bottom is five alpha-
 adjustment resolution. >125kohms for Range: -9999 to 9999 to 99999 Minimum Display Span: Load Capability: 508 ohms@24V Stee Tables 5-7 Stability: See Table 1 Minimum Frequency: Twice the lower range Digital Input Filter: output Watage - 12V 0.0236A = -0hms 0.0236A = -0hms 0.0236A = -0hms 0.0236A = -0hms Conditions Range: -00 Ambient Operating & Storage -00°F to +85°C (40°F to +185°F) Load Effect (current range: 3.6mA and 21.4mA for input under range and over range: 3.6mA and 21.4mA for input under range and over range: 3.6mA and 21.4mA for input under range and over range: 3.6mA and 21.4mA for input under range and over range: 3.6mA and 21.4mA for input under range and over range: 3.6mA and 21.4mA for range: 3.6mA and 21.4mA for riput under range and over range: 3.6mA and 21.4mA for riput under range and over range: 3.6mA and 21.4mA for riput under range and over range: 3.6mA and 21.4mA for riput under range and over range: 3.6mA and 21.4mA for riput under range and over range: 3.6mA and 22.6mA range: 3.6mA and 22.6mA range: 3.6mA and 22.6mA range: 3.6mA and 22.6mA range: 3.6mA range: 3.6mA range: 3.6mA		teresis, repeatability, and		<6V for 0.02-30AC model;		numeric characters
Does not include ambient temperature effect. Input Hysteresis: See Tables 5-7 Stability: See Table 1 See Tables 5-7 Stability: See Table 1 Minimum Frequency: Twice the lower range Digital Input Filter: 3 dB point is at 10kHz 200msec maximum, 300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% of its final value + actual input this sea Time: 100msec maximum for the output to change form 10% to 90%, of its scale of an input step change of 0% to 100% + actual input10-250AC model Stopply Voltage - 12V 0.0236A range; 3.6mA and 23.6mA for input failure to range; 3.6mA and 23.6mA for input failure specified power limits power Supply Effect: the output reaching 90% of its final value + actual input time an input is applied to change of 0% to 100% + actual inputSupply Voltage - 12V Output facts to range; 3.6mA and 23.6mA for input failure power Supply Effect: than specification less actual inputAmbient Operating & Storage Conditions Range: -40°C to +65°C (40°F to +149°F)Rise Time: 100msec maximum for the output to change of 0% to 100% + actual inputStartup Time: Performance with is scaler power is asamples digustable from to 130 seconds with PC software StoolvmsStartup Time: Performance with 0.5% of span or less error; 20V/m@ 8 samplesRF/EMI Immunity: 30/W when tested acc cording to Second with PC software Configurable up to 18 seg- ments with PC software configurable up to 18 seg- ments with PC software configurable typical@100mVp-pinputWeight FDY HP: 227 grams (5.3 ounces)Weight FDY HP: 227 grams (5.3 ounces)FDY in BH hoosing with glass cover: 1451 grams (3 pounce) <t< th=""><th></th><th>adjustment resolution.</th><th></th><th>>125kohms for</th><th></th><th>Range: -99999 to 99999</th></t<>		adjustment resolution.		>125kohms for		Range: -99999 to 99999
temperature effect. Input Hysteresis: See Tables 5-7Load Capability: 508 ohms@24V1.00See Tables 5-7508 ohms@24VSee Tables 5-70.0236AStability: See Table 1Output Current Limiting: 0.0236AMinimum Frequency: Twice the lower range Twice the lower range Digital input Filter: 300msec typical from the the output reaching 90% of its final value + actual input3.8 mA and 21.4 mA for input failure case maximum, 0.00236A1.00300msec typical from the the output treaching 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 100Hz and average of samples4.0002% of span per 1V change1.00Rise Time: 100msec maximum for the output to change of 0% to 100% + actual inputStartup Time: Performance with in specification less than 100Hz and average of softwareRFI/EMI Immunity: 300/me when tested according to 8 samplesBolation: 500/Vms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Rippie: 10mV p- pmea- sured across a 250 ohm resistor Overcurrent Limiting: 25m A maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplay Type: LCD; Top Row, 10.16mm (0.4 inj high black digits on a reflectiveLoad Capability: annon: 12001.000 Ambient Company Ambient Temperature Configurable Up to 128 points with PC software configurable up to 16 seg- ments with PC software configurable up to 16 seg- ments with PC software (1 orannt 6 3 ources)1.000Horis Temperature <th></th> <th>Does not include ambient</th> <th></th> <th>10-250AC model</th> <th></th> <th>Minimum Display Span:</th>		Does not include ambient		10-250AC model		Minimum Display Span:
Input Hysteresis:508 ohms@24VSee Tables 5-7Supply Voltage - 12VInput Threshold:0.0236 - 12VStebility: See Table 10.0236 - 12VMinimum Frequency:3.8mA and 21.4mA forTwice the lower rangeinput filter:Digital Input Filter:508 ohms@24VStep Response Time:0.0236 - 12V300msec maximum,200msec typical from the200msec typical from thecoate Effect (current0003% of span per 1Vchangeof its final value + actualchange of 0% to 100% +actual inputsamplesrinputsamplesbetween input, output, andcase continuous, and willcase continuous, and willUniverarization: Configurablewithstand a 500Vac dielec-configurable up to 18 segr-withstand a 500Vac dielec-configurable up to 18 segr-minut with no breakdownMoving Average:Configurable up to 18 softwareConfigurable up to 18 softwareConfigurable up to 18 softwareConfigurable up to 18 softwareSto Vorcurrent Limiting:Configurable up to 18 software250 ohm mesistorConfigurable up to 18 softwareConfigurable		temperature effect.		Load Capability:		1.00
See Tables 5-7Supply Voltage - 12VAmbient Operating & StorageInput Threshold: See Tables 5-70.0236A-0.0236A-0.0236AMinimum Frequency: Twice the lower range Digital Input Filter: 		Input Hysteresis:		508 ohms@24V		
Input Threshold:Conditions Range:See Tables 5-70.0236AStability: See Table 10.0236AMinimum Frequency:3.8mA and 21.4mA forTwice the lower rangeinput under range and overDigital Input Filter:3.6mA and 23.6mA3dB point is at 10kHzfor input failureStep Response Time:Load Effect (current300msec maximum,specified power limits200msec typical from thePower Supply Effect:time an input is applied toto.002% of span per 1Vthe output reaching 90%changeof its final value + actualStartup Time: PerformanceinputStartup Time: Performancewithin specification lessapplied for frequency higherthan 100Hz and average ofsampleschange of 0% to 100% +actual inputactual inputDamping: Adjustable frombetween input, output, andcase continuous, and willwith stand a 500Vac dielec-softwaretic strengt test for oneminut with no breakdownRipple: 10mV p-p measureConfigurableup ded accors aLow Pass Filter:250 Ahm resistorOn/Off is softwareOvercurrent Limiting:Configurable250 Ahm ad 21.48VdcDisplay48Vdc output, maximumDisplayMaximum Voltages:AdVid ki digits on a reflective48Vdc output, maximumChange for for an input stepConfigurableDisplayDisplayType: LCD; Top Row,10.16mm (0.44 in) highbactad inpu		See Tables 5-7		Supply Voltage – 12V	Ambient	Operating & Storage
See Tables 5-7U002007-40°C to +85°CStability: See Table 1Minimum Frequency: Nine the lower range3.8mA and 21.4mA for input under range and over range; 3.6mA and 23.6mA for input failure-40°C to +85°CDigital Input Filter: 3dB point is at 10kHzI.coat Effect (current outputs): Negligible within specified power limits-40°C to +85°C300msec maximum, 200msec typical from the the output reaching 90% of its final value + actual inputLoad Effect (current outputs): Negligible within specified power limits-40°C to +85°C300msec typical from the the output reaching 90% of its final value + actual inputDower Supply Effect: ±0.002% of span per 1V change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 1sec after power is between input, output, and case continuous, and will withstand a 500Vars between input, output, and case continuous and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10m Vp-p mea- sured across a 250 ohm resistorDisplayDisplay Type: LCD; Top Row, 10.6mm (0.4 in) high black digits on a reflectiveWeight FDY HP: 227 grams (3 poundes)Weight form d16.3 grunces)Weight form 48/dcDisplay adwide on a reflectiveSoloware to 10.4 (4 in) high to 10.4 (4 in) high to and 6.3 ounces)Soloware to +148/dc		Input Threshold:		$\frac{1}{0.0226}$ = Ohms	Conditions	Range:
Stability: See Table 1Output Currenting.(40°F to +183°F)Minimum Frequency: Twice the lower range Digital Input Filter:3.6mA and 21.4mA for input under range and over range; 3.6mA and 23.6mA(40°F to +183°F)Job point is at 10kHzfor input failure for input failureS. Operating Range: -40°C to +65°CJob point is at 10kHzfor input failure for input failureKelative Humidity: 0-95%, non-condensing300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputLoad Effect (current outputs): Negligible within specified power limits0.002% of span per 1V to 0.002% of span per 1V aximum for the output to than 1sec after power is applied for frequency higher of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 10Hz and average of 8 samplesRFI/EMI Immunity: 300/m when tested according to software softwareNoise Rejection: cording to SAMA 33.1 abc with 0.5% of span or less to a 30 seconds with PC software 250 ohm resistorLinearization: Configurable up to 128 points with PC software configurableNoise Rejection: Common mode, 120dB typical@100mVp-p inputWeight FDY HP: 227 grams (3 sounces)Keight FDY HP: 227 grams (3 sounces)Keight grams (3 pounce, 124 ounces)Weight FDY in D-BOX housing: 10.16mm (0.4 in) high 10 ack digits on a reflectiveNoise Rejection: (1 nound 6.3 ounces)Keight grams (1 nound 6.3 ounces)		See Tables 5-7		Output Current Limiting:		-40°C to +85°C
Minimum Frequency: Twice the lower range Digital liput Filter: 3dB point is at 10kHzDistration 21.3m And 0 ver range; 3.6mA and 23.6mA for input failureLS. Operating Range: -40°C to +65°C (440°F to +149°F)3dB point is at 10kHzLoad Effect (current outputs): Negligible within specified power limits-95%, non-condensing 0.95%, non-condensing300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputPower Supply Effect: ±0.002% of span per 1V change-95%, non-condensing 0.95%, non-condensingRise Time: 100msec maximum for the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 100Hz and average of 8 samplesRFUEMI Immunity: maximumBolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorDisplay Type: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveVeight FDY HP: 227 grams (3 pounds, 12.4 ounces)Weight FDY HP: 227 grams (3 pounds, 12.4 ounces)Sources)FDY in BH housing with glass cover: 1451 grams (3 pounds, 12.4 ounces)		Stability: See Table 1		3.8mA and 21.4 mA for		(-40°F to +185°F)
Twice the lower rangeInput Filter: range: 3.5 GmA and 23.6 mA for input failure-40°C to +65°C (40°F to +149°F)3dB point is at 10kHzInput filter: for input failure-40°C to +65°C (40°F to +149°F)3dB point is at 10kHzLoad Effect (current outputs): Negligible within specified power limits-40°C to +65°C (40°F to +149°F)300msec typical from the time an input is applied to of its final value + actual inputPower Supply Effect: the output reaching 90% of its scale of an input step change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance with inspecification less than 1sec after power is applied for frequency higher than 1sec after power is applied for frequency higher to to 30 seconds with PC softwareRFI/EMI Immunity: 30V/m when tested ac- cording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m@ 80-1000MHz, 14bC actual inputBolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistor Overcurrent Limiting: 25mA maximumDisplay Type: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveWeight FDY HP: 227 grams (3 pounds, 12.4 ounces)48Vdc output, maxi- mum: DC input 48VdcDisplay black digits on a reflectiveWeight reac (1 pound 6 3 ounces)10.16mm (0.4 in) high black digits on a reflectiveDisplay in 0.4 in) high black digits on a reflectiveWeight reac (1 pound 6 3 ounces)		Minimum Frequency:		input under range and over		I.S. Operating Range:
Digital Input Filter:Infinity, Online December3dB point is at 10kHzfor input failureStep Response Time:Load Effect (current300msec maximum,specified power limits200msec typical from thepower Supply Effect:time an input is applied toPower Supply Effect:time an input is applied toto.002% of span per 1Vchange from 10% to 90%to.002% of span per 1Vchange from 10% to 90%than 1sec after power isreactual inputStartup Time: Performancemaximum for the output toapplied for frequency higherchange of 0% to 100% +actual inputactual inputStartup Time: Adjustable fromlsolation: 500Vrmsto 30 seconds with PCbetween input, output, andLinearization: Configurablecase continuous, and willup to 128 points with PCwithstand a 500Vac dielec-softwaretric strength test for oneMoving Average:Configurable up to 128 points with PC softwareconfigurable up to 16 seg-gemet across aLow Pass Filter:250 ohm resistorOn/Offi s oftwareStartup Time:DisplayYipcal (200m/p-p inputMaximum Voltages:AgVdc output, maxi-48Vdc output, maxi-DisplayMaximum Di Clinput 48/dcblack digits on a reflectiveMaximum Of LinearieDiam (0.4 in) highblack digits on a reflective61 apunces)		Twice the lower range		range: $3 \text{6m}\Delta$ and $23 \text{6m}\Delta$		-40°C to +65°C
3dB point is at 10kHzIon hyper landsRelative Humidity: 0-95%, non-condensing Ambient Temperature300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputLoad Effect (current outputs): Negligible within specified power limits0-95%, non-condensing Ambient TemperatureRelative Humidity: 0-95%, non-condensing Ambient Temperature0-95%, non-condensing Ambient Temperature200msec typical from the time an input is applied to the output reaching 90% of its final value + actual input0.002% of span per 1V changemaximum; Digital Accu- racy, ±0.003% of span/°C maximumRise Time: 100msec change of 0% to 100% + actual inputStartup Time: Performance within specification less than 1sec after power is applied for frequency higher than 10Hz and average of 8 samples30//m when tested ac- cording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m@ 80-1000MHz, 1kHz AM, when tested according to softwareIsolation: 500Vrms between input, output, and case continuous, and will with stand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV P-p mea- sured across a 250 ohm resistorDisplay Type: LCD; Top Row, Type: LCD; Top Row, S		Digital Input Filter:		for input failure		(-40°F to +149°F)
Step Response Time:Output Direct (Mither outputs): Negligible within specified power limits0-95%, non-condensing Ambient Temperature200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputOutputs): Negligible within specified power limitsAmbient TemperatureRise Time: input200msec typical from the the output reaching 90% of its final value + actual inputStartup Time: Performance within specification less than 100Hz and average of s samplesStartup Time: Performance maximumMoving Average: cording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m @ 80-100MHz, 1kHz AM, when tested according to between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorDisplayDisplayType: LCD; Top Row, Type: LCD; T		3dB point is at 10kHz		Load Effect (current		Relative Humidity:
300msec maximum, 200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputOutputs) - file reactionAmbient Temperature Effect: t0.002% of span per 1V maximum; Digital Accu- racy, ±0.003% of span/°C maximum; Digital Accu- racy, ±0.00		Step Response Time:		outputs): Negligible within		0-95%, non-condensing
200msec typical from the time an input is applied to the output reaching 90% of its final value + actual inputPower Supply Effect: ±0.002% of span per 1V changeEffect: hput to output, ±0.007% of span/°C maximum. Digital Accu- racy, ±0.003% of span/°C maximumRise Time: 100msec maximum for the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 1sec after power is 8 samplesEffect: hput to output, ±0.007% of span/°C maximumRise Time: 100msec change of 0% to 100% + actual inputStartup Time: Performance than 190Hz and average of 8 samplesRFI/EMI Immunity: 30V/m when tested ac- cording to SAMA 33.1 abc with 0.5% of span or less error: 20V/m@ 8 osamplesIsolation: 500Vrms between input, output, and case continuous, and will with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC software Low Pass Filter: OV/Off is software configurableWeight FDY HP: 227 grams (5.3 ounces)DisplayDisplayType: LCD; Top Row, 10-f6mm (0.4 in) high black digits on a reflectiveWeight fDy in D-BOX housing: 811 grams		300msec maximum,		specified power limits		Ambient Temperature
time an input is applied to the output reaching 90% of its final value + actual inputto fore output reaching 90% the output and the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputto fore output reaching 90% than 100Hz and average of 8 samples than 100Hz and average of 8 samples±0.007% of span/°C maximum; Digital Accu- racy, ±0.003% of span of les software Display To tage po		200msec typical from the		Power Supply Effect:		Effect: Input to output,
the output reaching 90% of its final value + actual inputchange change from 10% to 90% maximum for the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification less than 10Hz and average of 8 samplesRFI/EMI Immunity: 30V/m when tested ac- cording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m@Isolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdownD to 30 seconds with PC software80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995Ripple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable UN P-p mea- sured across a 250 ohm resistorMoving Average: Configurable UN P-p mea- sured across a 250 ohm resistorWeightFDY HP: 227 grams (5.3 ounces)Maximum VD(tages: 48Vdc output, maxi- mumur DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveWeightFDY in D-BOX housing: 811 grams		time an input is applied to		+0.002% of span per 1V		±0.007% of span/°C
of its final value + actual inputStartupTime: Performance within specification lessracy, ±0.03% of span/*C maximumRise Time: 100msec maximum for the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputStartup Time: Performance within specification lessracy, ±0.03% of span/*C maximumIsolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistor0 to 30 seconds with PC software30V/m when tested ac- cording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m@ 80 samplesNoise Rejection: configurable minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorUniverse to resistorNoise Rejection: Configurable up to 128 points with PC software Low Pass Filter: On/Off is software configurable DisplayWeightFDY HP: 227 grams (5.3 ounces)Overcurrent Limiting: 25mA maximum Maximum VD(tages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveWeight software (1 pound 6.3 aunces)		the output reaching 90%		change		maximum; Digital Accu-
inputmaximumRise Time: 100msecwithin specification lessmaximumRise Time: 100msecwithin specification lessRFI/EMI Immunity:maximum for the output to change form 10% to 90%applied for frequency higherRFI/EMI Immunity:of its scale of an input step change of 0% to 100% + actual inputBamping: Adjustable from 0 to 30 seconds with PCRFI/EMI Immunity:Isolation: 500Vrms0 to 30 seconds with PC softwareBo-1000MHz, 1kHz AM, when tested according to B0-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995Noise Rejection: Common mode, 120dB typical@100mVp-p inputMaximumMoving Average: configurable up to 128 points with PC softwareWeightFDY HP: 227 grams (5.3 ounces)250 ohm resistorDon/Off is software configurableWeightFDY HP: 227 grams (3 pounds, 12.4 ounces)Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		of its final value + actual		Startup Time: Performance		racy, ±0.003% of span/°C
Rise Time: 100msecRF//EMI Immunity: 30V/m when tested ac- cording to SAMA 33.1 abcmaximum for the output to change from 10% to 90%applied for frequency higher than 1sec after power is applied for frequency higher than 10Hz and average of30V/m when tested ac- cording to SAMA 33.1 abcof its scale of an input step change of 0% to 100% + actual input8 sampleserror; 20V/m@Isolation: 500Vrms0 to 30 seconds with PC software80-1000MHz, 1kHz AM, when tested according to 1EC1000-4-3-1995between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdownLinearization: Configurable up to 128 points with PC softwareNoise Rejection: Comfgurable up to 16 seg- ments with PC software250 ohm resistor Overcurrent Limiting: 25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveWeight FDY in D-BOX housing: 811 grams (1 nound 6.3 ounces)		input		within specification less		maximum
maximum for the output to change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputanil iteration is points300/m when tested ac- cording to SAMA 33.1 abcisolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown0 to 30 seconds with PC software300/m when tested ac- cording to SAMA 33.1 abcWeight Bisple: 10mV p-p mea- sured across a 250 ohm resistorLinearization: Configurable up to 128 points with PC softwarewith 0.5% of span or less error; 20V/m@ 80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995Noise Rejection: configurable up to 128 points with PC softwareUinearization: Configurable up to 128 points with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p inputWeightFDY HP: 227 grams (5.3 ounces)Sources)DisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		Rise Time: 100msec		than 1sec after power is		RFI/EMI Immunity:
change from 10% to 90% of its scale of an input step change of 0% to 100% + actual inputchange from 100Hz and average of 8 samplescording to SAMA 33.1 abc with 0.5% of span or less error; 20V/m@Isolation: 500Vrms between input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistor0 to 30 seconds with PC software80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995Maximum Maximum mum DC input, 48VdcDamping: Adjustable from 0 to 30 seconds with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p inputDisplayMoxing Average: Configurable DisplayConfigurable Type: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveWeightChange from 10% to 90% with 0.5% of span or less error; 20V/m@ 80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995IEC1000-4-3-1995 Noise Rejection: Common mode, 120dBWeight mum DC input, 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams (1 nound 6.3 ounces)		maximum for the output to		applied for frequency higher		30V/m when tested ac-
of its scale of an input step change of 0% to 100% + actual inputattain of the arbitry of the scale of an input step 8 sampleswith 0.5% of span or less error; 20V/m@isolation: 500Vrms0 to 30 seconds with PC software80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995isolation: 500Vrms0 to 30 seconds with PC software80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995with stand a 500Vac dielec- tric strength test for one minute with no breakdownLinearization: Configurable up to 128 points with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p inputRipple: 10mV p-p mea- sured across a 250 ohm resistorLow Pass Filter: On/Off is software configurableWeightFDY HP: 227 grams (5.3 ounces)25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		change from 10% to 90%		than 100Hz and average of		cording to SAMA 33.1 abc
Change of 0% to 100% +Damping:Adjustable fromerror; 207/m@actual inputDamping:Adjustable from80-1000MHz, 1kHz AM,Isolation:500VrmssoftwareIEC1000-4-3-1995between input, output, and case continuous, and willLinearization:Configurablewithstand a 500Vac dielec- tric strength test for one minute with no breakdownLinearization:Configurable up to 128 points with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p inputRipple:10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC softwareWeight FDY HP: 227 grams (5.3 ounces)25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType:LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in BH housing: 811 grams		of its scale of an input step		8 samples		with 0.5% of span or less
actual inputDisplay input seconds with PC80-1000MHZ, 1kHZ AM,Isolation: 500Vrms0 to 30 seconds with PC0 to 30 seconds with PCbetween input, output, and case continuous, and willLinearization: ConfigurableIEC1000-4-3-1995withstand a 500Vac dielec- tric strength test for one minute with no breakdownLinearization: Configurable up to 128 points with PCNoise Rejection: Common mode, 120dBRipple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC softwareWeight FDY HP: 227 grams (5.3 ounces)Overcurrent Limiting: 25mA maximumLow Pass Filter: On/Off is software configurableWeight fDY in BH housing with glass cover: 1451 grams (3 pounds, 12.4 ounces)Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in Output, 6.3 ounces)		change of 0% to 100% +		Damping: Adjustable from		error; 20V/m@
Isolation: 500Vrmssoftwarewhen tested according tobetween input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorLinearization: Configurable up to 128 points with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p inputMoving Average: minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: configurable up to 16 seg- ments with PC software Low Pass Filter: On/Off is software configurableWeight FDY HP: 227 grams (5.3 ounces)Overcurrent Limiting: 25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in BH housing 811 grams 811 grams		actual input		0 to 30 seconds with PC		80-1000MHz, 1kHz AM,
Detween input, output, and case continuous, and will withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorLinearization: Configurable up to 128 points with PC softwareNoise Rejection: Common mode, 120dB typical@100mVp-p input Moving Average: Configurable up to 16 seg- ments with PC software 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC software Low Pass Filter: On/Off is software configurableWeight FDY HP: 227 grams (5.3 ounces) Overcurrent Limiting: 25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in DH BOX housing: 811 grams		Isolation: 500Vrms		software		when tested according to
Case continuous, and willup to 128 points with PCNoise Rejection:withstand a 500Vac dielec- tric strength test for one minute with no breakdownup to 128 points with PCCommon mode, 120dBRipple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC softwareWeight FDY HP: 227 grams250 ohm resistorLow Pass Filter: On/Off is software configurableWeight FDY HP: 227 grams25mA maximumDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in BH housing: 811 gramsMaximum Voltages: mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in On (0.4 in) high 811 grams		between input, output, and		Linearization: Configurable		IEC1000-4-3-1995
Withstand a 500Vac dielec- tric strength test for one minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC softwareWeight FDY HP: 227 grams (5.3 ounces)250 ohm resistorLow Pass Filter: On/Off is software configurableWeight FDY HP: 227 grams (5.3 ounces)250 ohm resistorDisplayOn/Off is software configurableFDY in BH housing with glass cover: 1451 grams (3 pounds, 12.4 ounces)Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		case continuous, and will		up to 128 points with PC		Noise Rejection:
Moving Average: minute with no breakdown Ripple: 10mV p-p mea- sured across a 250 ohm resistorMoving Average: Configurable up to 16 seg- ments with PC software Low Pass Filter: On/Off is software configurableWeight FDY HP: 227 grams (5.3 ounces)Overcurrent Limiting: 25mA maximum Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplay black digits on a reflectiveWeight FDY HP: 227 grams (5.3 ounces)Maximum Voltages: mum: DC input 48VdcDisplay black digits on a reflectiveFDY in BH housing with glass cover: 1451 grams 811 grams		withstand a 500vac dielec-		software		
Minute with no breakdownConfigurable up to 16 seg- ments with PC softwareWeight FDY HP: 227 gramsSured across aLow Pass Filter:(5.3 ounces)250 ohm resistorOn/Off is softwareFDY in BH housing withOvercurrent Limiting: 25mA maximumOn/Off is softwareglass cover: 1451 gramsMaximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		tric strength test for one		Moving Average:		typical@100mvp-p input
Kipple:Ioniv p-p mea- sured across aments with PC software Low Pass Filter:Weight PDT HP: 227 grains250 ohm resistorLow Pass Filter: On/Off is software 25mA maximum(5.3 ounces)25mA maximumOn/Off is software configurableglass cover: 1451 grams25mA maximumDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		Binnley 10m)(n n mon		Configurable up to 16 seg-	Mainht	EDV UD: 227 gromo
Surred across aLow Pass Filter:FDY in BH housing with250 ohm resistorOn/Off is softwareglass cover: 1451 grams0vercurrent Limiting:configurable(3 pounds, 12.4 ounces)25mA maximumDisplayType: LCD; Top Row,FDY in D-BOX housing:Maximum Voltages:10.16mm (0.4 in) high811 grams48Vdc output, maxi-black digits on a reflective811 grams		Rippie: Tomv p-p mea-		ments with PC software	weight	(5.3 outpoos)
Overcurrent Limiting: 25mA maximumOn/Off is software configurableglass cover: 1451 grams (3 pounds, 12.4 ounces)Maximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in BH nousing with glass cover: 1451 grams (3 pounds, 12.4 ounces)		Sureu across a		Low Pass Filter:		(J.J. OUTICES)
Overcurrent Limiting: 25mA maximumconfigurableglass cover: 1451 gramsMaximum Voltages: 48Vdc output, maxi- mum: DC input 48VdcDisplayType: LCD; Top Row, 10.16mm (0.4 in) high black digits on a reflectiveFDY in D-BOX housing: 811 grams		200 onini resistor		On/Off is software		
DisplayType:LCD; Top Row,FDY in D-BOX housing:48Vdc output, maxi- mum: DC input 48Vdcblack digits on a reflective811 grams				configurable		(3 pounds 12 4 ounses)
48Vdc output, maxi- mum: DC input 48Vdc dc d			Display	Type: LCD; Top Row,		(5 pourius, 12.4 ourices)
mum DC input 48Vdc black digits on a reflective (1 pound 6.3 ounces)		18V/de output maxi	. ,	10.16mm (0.4 in) high		811 grams
		mum DC input 48V/dc		black digits on a reflective		(1 pound 6.3 ounces)

Accesories

Each FDY order comes with one copy of our Intelligent PC Configuration Software (Windows[®] compatible) on CD.

To order additional software or cables:

Part Number	Part
750-75E05-01	Intelligent PC Configuration Software
804-030-26	Fuse Protected, Non-Isolated USB Communication Cable (required by ATEX for products installed in Intrinsically-Safe areas)
803-039-26	Isolated Configuration Cable (9-pin Serial Port)
803-040-26	Non-Isolated Configuration Cable (9-pin Serial Port)

Table 1. Stability for All Models*

		Input-to-D)isplay (% of	Reading)	Display-to-Output (% of Output Span**		
		1 year	3 years	5 years	1 year	3 years	5 years
Frequency/Period		0.001	0.0017	0.0022			
Pulse	1 Sec	0.001	0.0017	0.0022	0.08	0.139	0.179
Width	0.1 Sec	0.0015	0.0026	0.0034			

NOTE:

AC indicates zero-crossing signal. DC indicates non-zero crossing signal.

*Combine Input-to-Display and Display-to-Output values to determine overall stability. **Consult factory for improved long-term drift specifications.

Table 2. DC Input Accuracy and Minimum Amplitude

Input Type	Input	Accuracy	Minimum Amplitude
	< 5kHz	0.01% ± 1 LSD	100 mV
Frequency	5kHz - 20kHz	0.05% ± 1 LSD	200 mV
	> 20kHz	0.10% ± 1 LSD	200 mV
	< 50µs	0.10% ± 1 LSD	200 mV
Period	50µs - 200µs	0.05% ± 1 LSD	200 mV
	> 200µs	0.01% ± 1 LSD	100 mV
Pulse Width	entire range	0.05% ± 1 LSD ± 2 μs	1 V
Contact Closure	entire range	0.01% ± 1 LSD	

Table 4. AC Input Accuracy and Minimum AmplitudeFor 10-250V Input Type

Input Type	Input	Accuracy	Minimum Amplitude
	< 5kHz	0.01% ± 1 LSD	10V
Frequency	5kHz - 20kHz	0.05% ± 1 LSD	10V
	> 20kHz	0.10% ± 1 LSD	10V
	< 50µs	0.10% ± 1 LSD	10V
Period	50µs - 200µs	0.05% ± 1 LSD	10V
	> 200µs	0.01% ± 1 LSD	10V

Table 3. AC Input Accuracy and Minimum Amplitude

Input Type	Input	Accuracy	Minimum Amplitude
	< 10Hz	0.01% ± 1 LSD	20 mV
Frequency	10Hz - 5kHz	0.01% ± 1 LSD	200 mV
	5kHz - 20kHz	0.05% ± 1 LSD	200 mV
	> 20kHz	0.10% ± 1 LSD	1 V
	< 50µs	0.10% ± 1 LSD	1 V
Period	50µs - 200µs	0.05% ± 1 LSD	200 mV
	200µs - 100ms	0.01% ± 1 LSD	200 mV
	> 100ms	0.01% ± 1 LSD	20 mV

Table 5. Maximum Configurable Input RangeAnd Minimum Span

Input Type	Max Configurable Range	Min Span
Frequency	0 - 25kHz	See Table 9
Period	0 - 70s	500µsec
Pulse Width	0 - 70s	500µsec
Contact Closure	0 - 20Hz	0.1Hz

Table 6. Frequency Input Parameters

	Threshold		Hysteresis		Filter	Measured Fre-
Input Range	Resolution	Range	Resolution	Range	(3db Point)	quency
100mV-30V (DC)	1mV	0.01-2.5V	1mV	0.01-1.5V	10kHz	0.02Hz to 25kHz
20mV-30V (AC)			1mV	0.002-0.15V	10kHz	0.5Hz to 25kHz
10V-250V(AC)			1mV	0.002-0.15V	10kHz	0.5Hz to 25kHz

Table 7. Period Input Parameters

	Threshold		Hysteresis		Filter	Measured
Input Range	Resolution	Range	Resolution	Range	(3db Point)	Period
100mV-30V (DC)	1mV	0.01 - 2.5V	1mV	0.01-1.5V	10kHz	40µsec to 50sec
20mV-30V (AC)			1mV	0.002-0.15V	10kHz	40µsec to 2sec
10V-250V (AC)			1mV	0.002-0.15V	10kHz	40µsec to 2sec

Table 8. Pulse Width Input Parameters

	Threshold		Hysteresis		Filter	Measured
Input Range	Resolution	Range	Resolution	Range	(3db Point)	Pulse Width
100mV-30V (DC)	1mV	0.01-2.5V	1mV	0.01-1.5V	10kHz	0.2msec to 50sec

Table 9.FrequencyRange Minimum Span

Maximum Frequency Range	Minimum Span
10Hz	0.1Hz
5kHz	1Hz
25kHz	25Hz

Ordering Information

Unit	Input	Output	Power	Options	Housings
FDY PC- Program- mable Frequency- to-DC Transmitter with Display	PRG Input Amplitudes Supported: 0.02-30Vac* 0.1-30Vdc* (Programmable with supplied configuration software, see Tables on Page 6 for details) 10-250V (This Input Type Has No Hazardous Area Approvals) Input Amplitudes Supported: 10-250Vac* 0.1-30Vdc* (Programmable with supplied configuration software, see Tables on Page 6 for details)	4-20MA User scaleable with supplied software	12-42DC Loop- Powered 12-30DC for -ISC, -ISF, -ISE	-FMEDA Unit comes with Failure, Modes, Effects and Diagnostic Analysis (FMEDA) data for evaluating the instrument for suitability of use in a safety- related applicatrion -ISC CSA approved IS (PRG Input Only) -ISF FM approved IS (PRG Input Only) -ISE ATEX IS approved	 BH2NG (*) or (‡) Aluminum Explosion-Proof enclosure with two, ½-inch NPT entry ports and a glass cover BH2TG (*) or (‡) Aluminum Explosion-Proof enclosure with two, ¾-inch NPT entry ports and a glass cover BH3MG (*) or (‡) Aluminum Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover BH3NG (*) or (‡) Aluminum Explosion-Proof enclosure with three, ½-inch NPT entry ports and a glass cover BH3TG (*) or (‡) Aluminum Explosion-Proof enclosure with two, ¾-inch NPT entry ports and a glass cover BH3MG (*) or (‡) Aluminum Explosion-Proof enclosure with two, ¾-inch NPT side-entry ports, one ½-inch NPT bottom-entry port, and a glass cover BH3MG (*) or (‡) Aluminum Explosion-Proof enclosure with two, №20 x 1.5 side-entry ports, one ½-inch NPT bottom-entry port, and a glass cover SB2NG (*) or (‡) 316 Stainless Steel 2-Hub, Explosion-Proof enclosure with two, ½-inch NPT entry ports and a glass cover SB2MG (*) or (‡) 316 Stainless Steel 2-Hub Explosion-Proof enclosure with two, ½-inch NPT entry ports and a glass cover SB2MG (*) or (‡) 316 Stainless Steel 2-Hub Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover SB2MG (*) or (‡) 316 Stainless Steel 2-Hub Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover SD2MG (*) or (‡) 316 Stainless Steel 2-Hub Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover) D1LC 1-Hub, D-BOX housing with low base, clear cover, NEMA 4X (IP66) enclosure D2LC 2-Hub, D-BOX housing with low base, clear cover, NEMA 4X (IP66) enclosure DN Snap-in mounting for HP case on TS-32 DIN-rail FL Mounting flanges on HP suitable for relay track or surface-mounting FLD Mounting flanges on HP suitable for 3½" relay track mounting * Either A or E suffix (comes supplied with 2" pipe mount hardware) A suffix indicates ANZEx/TestSafe (Ex d) Flameproof approvals (i.e. BH2M
*AC sigr cros	C indicates zero-cros nal; DC indicates no ssing signal	ssing n-zero		(PRG Input Only)	 E suffix indicates ATEX (Ex d and tb) Flameproof approvals (i.e. BH2MGE) P suffix indicates enclosure comes equipped with base plate and U-bolts for mounting on a 2-inch pipe (i.e. BH2NGP) See BH, SB and D-BOX Datasheets for additional information.

When ordering, specify: Unit / Input / Output / Power / Options [Housing] Model number example: FDY / PRG / 4-20MA / 12-42DC [BH2NGP] Note: Only PRG Input Type Has Hazardous Area Approvals; No Approvals for 10-250V Input.







Figure 8. BH Enclosure Dimensions



Figure 9. D-BOX Enclosure Dimensions





United States • info@miinet.com Tel: (818) 894-7111 • FAX: (818) 891-2816 Australia • sales@mooreind.com.au Tel: (02) 8536-7200 • FAX: (02) 9525-7296 Belgium • info@mooreind.be Tel: 03/448.10.18 • FAX: 03/440.17.97 The Netherlands • sales@mooreind.nl Tel: (0)344-617971 • FAX: (0)344-615920

China • sales@mooreind.sh.cn Tel: 86-21-62491499 • FAX: 86-21-62490635 United Kingdom • sales@mooreind.com Tel: 01293 514488 • FAX: 01293 536852