

BETA FLEX

THE MODULAR, DOCUMENTING CALIBRATOR

The BetaFLEX is the only truly modular calibrator available on the market today. Its capabilities can be altered using the extensive series of input/output modules that are loadable into two bays at the base of the BetaFLEX calibrator. The modules offer both measurement and simulation capabilities, permitting the BetaFLEX to meet the requirements of any given situation in the field.

Essentially, this hand-held calibrator is a keypad/display computer and each module is a parameter/range-specific calibrator. This module selection includes: DC voltage and current, temperature (RTD or thermocouple), frequency and pressure. When repair or recalibration is needed, only the module that requires attention is temporarily out of service.

Some of the many instruments the BetaFLEX can bring back into spec include: thermocouple transmitters, RTD transmitters, current isolators, all types of pressure transmitters (level, flow, differential pressure, absolute pressure, compound pressure and vacuum), I/P or P/I transducers, temperature recorders, data acquisition system i/o scanners, turbine flowmeters and converters.

The flexibility the BetaFLEX provides users is unparalleled. The BetaFLEX is basically whatever type of calibrator a user needs it to be. Users can even define and install their own custom temperature element curves (both RTD and thermocouple modules support this capability). Additionally, BetaFLEX automatically documents calibrations as they are performed, creating or updating a plant instrument database.



The BetaFLEX is designed to interface with the popular calibration software programs such as MasterCAL, Cornerstone, Honeywell Documint and Fisher Rosemount AMS as well as other programs with the Field Calibrator Interface standard. Another exclusive feature of the BetaFLEX is a valuable option enhancement called BetaSMART — a PCMCIA card slot that allows BetaFLEX to run programs from special PC cards to communicate with either Honeywell DE protocol smart transmitters or HART protocol smart transmitters. This BetaFLEX capability eliminates a separate communicator to adjust the calibration parameters of the smart instrument being tested making the process more accurate.

The BetaFLEX hand-held unit requires no maintenance and no periodic calibration, offering many years of trouble-free service. Techs will find that BetaFLEX provides extended periods of continuous field use, anywhere from 16 to 100 hours, depending on the modules used.

SPECIFICATIONS

OPERATING TEMPERATURE	-20 to 50°C (-4 to 122°F)	
STORAGE TEMPERATURE	0 to 50°C (32 to 122°F) with battery pack -30 to 70°C (-22 to 158°F) without battery pack	
RELATIVE HUMIDITY	0 to 95% non-condensing (operating and storage)	
DAMPING FACTOR	0, 2, 5, or 10 seconds running average for any input	
DISPLAY	128 x 128 pixel super twist LCD display with LED backlight; Channel 1 and 2 displayed simultaneously in normal display mode with 5-digit resolution	
POWER SUPPLY	6V high capacity rechargeable Nickel Metal Hydride (NiMo) battery pack, 3.5 Amp hours capacity	
BATTERY LIFE	PARAMETER	CONTINUOUS OPERATION TIME
BETAPORT-P MODULE	Any pressure measurement	100 hours
BETAPORT-D MODULE	Any DC measurement	100 hours
BETAPORT-D ₂ MODULE	12.0 mA DC output	8 hours
BETAPORT-R MODULE	Simulate 100Ω	16 hours
BETAPORT-T MODULE	100 mV DC output into 100 kΩ	16 hours
BETAPORT-F MODULE	100 Hz output into 100 kΩ	16 hours
CHARGING TIME	Approx. 3 hours from full discharge (while battery's installed or independently)	
PRESSURE CONNECTIONS	1/8" FNPT 316 SS	
ELECTRICAL CONNECTIONS	Standard banana jack on 3/4" (19 mm) centers	
WEIGHT	Less than 4 lb. (1.8 kg) with carrying case and accessories (typical)	
SIZE	4.3 x 9 x 2.4 in. (110 x 220 x 60 mm)	

BETAFLX MODULES

BetaPort-T Multicurve Module—Thermocouples

- Provides simulation and measurement of temperature using thermocouples
- Connections provided for thermocouple plugs
- Drive capacity of 8 milliAmps, which allows calibration of low impedance temperature recorders and indicators
- Automatic cold junction compensation provided in simulation and measurement modes (can be disabled and manual values entered at user's discretion)

BetaPort-R Multicurve RTD Module—RTDs

- Provides simulation and measurement of temperature using Resistance Temperature Detector (RTD) curves
- Operates for measurement in 2- or 3-wire modes and can simulate in 2-, 3- or 4-wire mode
- Works with devices that pulse the excitation current providing they operate with a constant current source (simulation mode only)

BetaPort-DC Module— DC Current and Voltage, Input Only

- Provides measurement only of DC voltage and current
- Comes standard with all BetaFLEX units

BetaPort-D₂ Module— DC Current and Voltage, Input and Output

- Provides input (measurement) and output (simulation) capabilities for common instrumentation DC current and voltage signals
- Sink and source in both current and voltage simulation modes
- Two-wire transmitter simulation mode with up to 48VDC power supply
- Ranges can be displayed as a percent of scale based on nominal built-in ranges

BetaPort-F Module—Frequency

- Provides input (measurement) and output (simulation) of common frequency signals for process instrumentation applications
- Output amplitude adjustable from 0.05 to 12 volts peak-to-peak
- Input operates with amplitudes from 0.05 to 240 volts peak-to-peak
- Input noise threshold adjustable from 0.01 to 1.0 volts
- Outputs either bipolar sine or square wave signals
- Input mode works with either bipolar or zero-based signals

BetaPort-P Modules—Pressure

- Models include 12 gauge, 2 vacuum, 4 absolute, 2 compound and 3 differential
- BetaPort-P pressure modules with full-scale range of 300 psi or higher are built with an isolated sensor standard

BETAPORT-T SPECIFICATIONS

CURVE OR FUNCTION	RESOLUTION
TYPE J, K, T, E (NIST)	0.1°C
TYPE R/S (NIST)	1.0°C (0.1°C from 300 to 1768°C)
TYPE B (NIST)	1.0°C (0.1°C from 1000 to 1820°C)
TYPE N (NIST)	1.0°C (0.1°C from -101.1 to 1300°C)
TYPE G, C, D	1.0°C
TYPE L ('J' DIN)	0.1°C
TYPE U ('T' DIN)	0.1°C
TYPE M (PLATINEL)	1.0°C (0.1°C from 0 to 1400°C) 0.001 mV

BETAPORT-R SPECIFICATIONS

CURVE	RESOLUTION	ACCURACY ²
Pt 100, Pt 200 ($\alpha=385$)	0.1°C	$\pm 0.25^\circ\text{C}$
Pt 100 ($\alpha=390, 391, 392$)	0.1°C	$\pm 0.30^\circ\text{C}$
Pt 500 ($\alpha=385$)	0.1°C	$\pm 0.30^\circ\text{C}$
NI 120 ($\alpha=672$), NI 500 ($\alpha=519$)	0.1°C	$\pm 0.30^\circ\text{C}$
CU 10 ($\alpha=427$), CU 25 ($\alpha=426$), CU 50 ($\alpha=428$), CU 100 ($\alpha=428$)	1.0°C	$\pm 1.0^\circ\text{C}$
OHMS SIMULATE	0.01 Ohms	± 0.25 Ohms
OHMS MEASURE	0.1 Ohms	± 0.3 Ohms

BETAPORT-DC SPECIFICATIONS

FUNCTION & RANGE	ACCURACY (15 to 35°C)	RESOLUTION
VOLTAGE		
0 TO ± 249.99 MVDC	$\pm 0.01\%$ of FS, $\pm 0.01\%$ of Rdg	0.01 mVDC
0 TO ± 2.4999 VDC		0.0001 VDC
0 TO ± 24.999 VDC		0.001 VDC
CURRENT		
0 TO ± 24.999 mADC		0.001 mADC
0 TO ± 149.99 mADC		0.01 mADC
TRIP DETECT		
WET CONTACT	12VDC threshold, $\pm 10\%$	
DRY CONTACT	800 Ohm threshold, ± 200 Ohms	

BETAPORT-D₂ SPECIFICATIONS

FUNCTION & RANGE	ACCURACY (15 to 35°C)	RESOLUTION
VOLTAGE IN		
0 TO 110 mVDC	$\pm 0.01\%$, ± 1 LSD	0.01 mVDC
0 TO 5 VDC		0.0001 VDC
0 TO 12 VDC		0.001 VDC
0 TO 25 VDC	$\pm 0.025\%$, ± 1 LSD	0.01 VDC
VOLTAGE OUT		
0 TO 110 mVDC	$\pm 0.015\%$, ± 1 LSD	0.01 mVDC
0 TO 5 VDC		0.0001 VDC
0 TO 12 VDC		0.001 VDC
CURRENT IN		
0 TO 20 mADC	± 0.01 , ± 1 LSD	0.001 mADC
0 TO 50 mADC	± 0.025 , ± 1 LSD	0.1 mADC
CURRENT OUT		
0 TO 20 mADC	$\pm 0.015\%$, ± 1 LSD	0.001 mADC
TRIP DETECT		
WET CONTACT	12 VDC threshold, $\pm 10\%$	
DRY CONTACT	800 Ohm threshold, ± 200 Ohms	

BETAPORT-F SPECIFICATIONS

RANGE	UNITS	RESOLUTION	ACCURACY
100.00	kHz	0.01 kHz	$\pm 0.01\%$ of reading
10.000	kHz	0.001 kHz	(for all ranges)
1000.00	Hz	0.01 Hz	
100.00	Hz	0.001 Hz	
1000.00	CPM	0.1 CPM	
100.00	CPH	0.01 CPH	

BETAFLEX MODULES, CONTINUED

BETAPORT-P SPECIFICATIONS

TYPE & RANGE	ACCURACY %FS (15 TO 35°C)	OVERPRESSURE
GAUGE		
0 TO 5 PSIG (0 TO 350 MBAR)	±0.025%, ±0.003 psi	400%
0 TO 7.2 PSIG (0 TO 500 MBAR)	±0.035%, ±0.0025 psi	300%
0 TO 10 PSIG (0 TO 700 MBAR)	±0.025%, ±0.0025 psi	300%
0 TO 30 PSIG (0 TO 2 BAR)	±0.025%	300%
0 TO 50 PSIG (0 TO 3.5 BAR)	±0.025%	300%
0 TO 100 PSIG (0 TO 7 BAR)	±0.025%	300%
0 TO 150 PSIG (0 TO 10 BAR)	±0.035%	200%
0 TO 300 PSIG (0 TO 20 BAR)	±0.025%	200%
0 TO 1000 PSIG (0 TO 70 BAR)	±0.025%	200%
0 TO 1500 PSIG (0 TO 100 BAR)	±0.035%	200%
0 TO 3000 PSIG (0 TO 200 BAR)	±0.1%	200%
0 TO 5000 PSIG (0 TO 350 BAR)	±0.1%	200%
VACUUM		
0 TO -5 PSIG (0 TO -350 MBAR)	±0.025%, ±0.003 psi	400%
0 TO -15 PSIG (0 TO -1 BAR)	±0.025%, ±0.0025 psi	300%
ABSOLUTE		
0 TO 15 PSIA (0 TO 1 BAR)	±0.025%, ±0.0025 psi	300%
0 TO 30 PSIA (0 TO 2 BAR)	±0.025%	300%
0 TO 50 PSIA (0 TO 3.5 BAR)	±0.025%	300%
0 TO 100 PSIA (0 TO 7 BAR)	±0.025%	300%
COMPOUND		
-15 TO 15 PSIG (-1 TO 1 BAR)	±0.025%, ±0.0025 psi	300%
-15 TO 30 PSIG (-1 TO 2 BAR)	±0.025%, ±0.0025 psi	300%
DIFFERENTIAL		
0 TO 5 PSIG (0 TO 350 MBAR)	±0.025%, ±0.003 psi	400%
0 TO 30 PSIG (0 TO 2 BAR)	±0.025%	300%
0 TO 50 PSIG (0 TO 3.5 BAR)	±0.025%	300%

ORDERING INFORMATION

Standard Delivery includes: Hand-held unit, rechargeable NiMH battery pack, charger, BetaPort-D DC Module, NIST traceable calibration certificate, test leads, manual and carrying case

910360-001	BetaFLEX without PC card interface	\$ 2,195
910360-A01	BetaFLEX Kit without PC card interface, BetaPort-D ₂ , BetaPort-R, BetaPort-T and BetaPort-F	3,395
910360-011	BetaFLEX with PC card interface	2,495
910360-B11	BetaFLEX Kit with PC card interface, BetaPort-D ₂ , BetaPort-R, BetaPort-T and BetaPort-F	3,895

BETAFLEX MODULES

910357-001	Betaport-T multi-curve thermocouple I/O module	\$ 525
910356-001	Betaport-R multicurve RTD I/O module	525
917007-001	Betaport-D standard DC current and voltage input module (replacement)	395
910355-001	Betaport-D ₂ DC voltage and current I/O module	475
910358-001	Betaport-F frequency module	475

PRESSURE MODULES

910331-007	0 to 7.2 PSIG (0 to 500 mBar), Isolated 316SS wetted	\$ 695
910331-010	0 to 10 PSIG (0 to 700 mBar), Isolated 316SS wetted	695
910331-015	0 to 15 PSIG (0 to 1 Bar), Isolated 316SS wetted	695
910331-030	0 to 30 PSIG (0 to 2 Bar), Isolated 316SS wetted	695
910331-050	0 to 50 PSIG (0 to 3.5 Bar), Isolated 316SS wetted	695
910331-100	0 to 100 PSIG (0 to 7 Bar), Isolated 316SS wetted	695
910331-150	0 to 150 PSIG (0 to 10 Bar), Isolated 316SS wetted	695
910326-300	0 to 300 PSIG (0 to 20 Bar), Isolated 316SS wetted	695
910331-301	0 to 1000 PSIG (0 to 70 Bar), Isolated 316SS wetted	695
910326-315	0 to 1500 PSIG (0 to 100 Bar), Isolated 316SS wetted	695
910326-303	0 to 3000 PSIG (0 to 200 Bar), Isolated 316SS wetted	695
910326-305	0 to 5000 PSIG (0 to 333 Bar), Isolated 316SS wetted	695
910332-015	0 to 15 PSIA (0 to 1 Bar), Isolated 316SS wetted	695
910332-030	0 to 30 PSIA (0 to 2 Bar), Isolated 316SS wetted	695
910332-050	0 to 50 PSIA (0 to 3.5 Bar), Isolated 316SS wetted	695
910332-100	0 to 100 PSIA (0 to 7 Bar), Isolated 316SS wetted	695