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FAST TRACK 8800

FastTrack™ 8800 Controller Technical Data Book

INSTRON

The difference is measurable

FastTrack™ 8800 Electronics Technical Specifications

FastTrack 8800 Tower	
Single Axis System	
Number of free slots	Five
Maximum number of 8 channel data acquisition units/tower	Five
Maximum number of additional IACs	Five
Dimensions	
Height	650mm (26in)
Width	280mm (11in)
Depth	530mm (21in)
Weight (fully populated)	32kg (71lb)
Power Consumption	
Power consumption	800VA maximum
Supply and Environmental	
Supply voltage	90-132 & 180-264V (No adjustment required)
Supply frequency	45-65Hz (No adjustment required)
Operating temperature range	10 to 38°C (50 to 100°F)
Storage temperature range	-40 to 66°C (-40 to 151°F)
Operating humidity range	10 to 90% non-condensing
Storage humidity range	0 to 95% non-condensing, non-frosting
Operator Interface	Hardware Operator Panel for immediate access or FastTrack Console software via high speed GPIB (HS488®) for high performance software interface.
Integrated Axis Controller (IAC) **Position (stroke) and load as standard**	
Number of free strain channel/signal conditioner slots	2 per IAC
Optional control channels	1 or 2 per IAC (provide signal conditioning and closed loop control)
Optional signal conditioners	1 or 2 per IAC (provide conditioning only)
Closed Loop Control	
Type	PID (proportional, integral derivative), lag, feed forward (2 term)*, notch (4 term)* and external compensation input (eg. acceleration or pressure feedback)
Configuration	Serial (standard), parallel* or cascade*
Control loop update rate	5kHz
Autoloop shaping**	Position (stroke), load and strain
Adaptive loop shaping** update rate	Proportional and integral terms continuously updated at 1kHz
Proportional gain range	-100dB to +100dB
Integral gain	0 to $200S^{-1}$
Derivative gain	0 to 50mS
Static transfer accuracy	0.003% of full scale of channel into which control is transferred
Servo valve dither	Variable 0 to 10% drive 200Hz to 500Hz
Servo valve null	Auto-adjust
Servo valve limits	Independent settings for low/high pressure, variable ±120% of full scale * Options available through FastTrack Console ** Auto and adaptive loop shaping are available with serial control loop
Calculated Control	Different feedback signals may be processed and combined in order to monitor and/or control on calculated variables eg. average strain, true stress or strain, mean position/difference of two opposed actuators, cross compensation for pressure/temperature. Other functions may be generated using a look up table.
External Inputs and Outputs per IAC	
Digital logic outputs	4 off, programmable. Via event detectors or directly by high speed GPIB (HS488)
Digital logic inputs	4 off, programmable. Actions: No action, actuator off, stop (hold in position control), hold (in current control mode), transfer (no text mode), log data, reset
Analog outputs	4 off, 10V zero suppressed and scalable
Analog outputs	Selectable from feedback signals, demand, error
Analog inputs	1 off, 10V scalable

Signal Conditioning	
Compatible transducer types	Resistive bridges (eg. strain gauged load cells and extensometers), AC devices (eg. LVDT) and DC (eg. pre-conditioned devices)
Transducer recognition/ calibration	Automatic with Instron® devices, manual with others
Excitation frequency	5kHz
Excitation voltage	1 to 17V RMS
Input sensitivity (ratiometric devices)	0.62mV/V to 4.7V/V
Input sensitivity	(DC devices) ±10V
Balance range	±100% of full scale
Over range	±100% of full scale
Data rate	5kHz
Resolution	1 part in 500,000 of ±full scale (19 bits)
Noise level	Less than 0.001% RMS of full scale (100Hz bandwidth)
Accuracy	0.25% of reading or 0.005% of full scale (whichever is greater)
System Accuracies (with Instron transducers)	
Position	Accurate to ±0.5% of transducer full travel
Load	Accurate to ±0.005% of load cell capacity or 0.5% of indicated load, whichever is greater. Meets or surpasses ISO7500-1 Class 0.5, ASTM E 4, EN10002-2 Class 0.5, JIS (B7721, B7733)
Strain	Accurate to ±0.005% of transducer capacity or ±0.25% of reading ±transducer accuracy, whichever is greater. Meets or surpasses ISO9513 Class 0.5, 1, 2, ASTM E 83 Class B1, B2, C, D, EN 10002-4 Class 0.5, 1, 2 and JIS7741 Grade 0.5, 12 depending on the extensometer used
Dynamic load measurement errors	An Instron Dynacell™ combined with the 8800 electronics automatically compensates for inertia In a typical testing machine the errors in dynamic force measurement can be reduced to less than 0.5% at frequencies up to 100Hz (measured according to ASTM E 467 or ISO 4965)
Demand Generation	
Set point	±105% of full scale
Internal waveforms	Sine, triangle, square, haversine, havertriangle, haversquare, ramp, dual ramp, trapezoidal and random
Internal waveform resolution	1 part in 10^9 (32 bits)
Internal waveform maximum frequency	1kHz
Internal waveform frequency accuracy	0.01% of setting
Random segment generation	End points or end points with time via high speed GPIB (HS488®)
Sample data playback via	High speed GPIB (HS488)
Sample data playback rates	Up to 5,000 samples per second per IAC
Sample data buffer size	48 kbytes per IAC
Sample data filters	6 pole digital; Butterworth, Chebyshev, Bessel, or user defined with a fully selectable corner frequency
Data Logging	
Sample rate	Fully selectable up to 5kHz
Maximum data logging rate	8 channels of 32 bit data at 5kHz per IAC
Buffer size	160 kbytes per IAC
Anti-alias filters	6 pole digital; Butterworth, Chebyshev, Bessel, or user defined with a fully selectable corner frequency
Peak Detectors	
Types	Min, max, mean and amplitude
Update rate	5kHz
Limit Detectors	
Types	Min and max
Detection time	1ms
Action	Programmable from indicate only, hold, reset, stop and unload
Event Detectors	
Types	Analog, digital, cycle segment and loop
Analog triggers	Maximum, minimum, maximum underpeak, minimum underpeak and break
Digital input triggers	Signal high, signal low, signal high-low transition and signal low-high transition
Action	Programmable from indicate only, hold, finish, stop, unload, transfer, set digital outputs and actuator off
Computer Interface	
Type	High speed GPIB (HS488) fully compatible with existing GPIB devices and software
Bandwidth	7.7 Mbytes per second
Buffer size	24 kbytes, multiple

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