Technical Data
Digital Controllers

tiab LIMITED

Registered ISO 9001:2000
Cert. No. UK-019
UKAS QUALITY MANAGEMENT 127-A

1.1 ELECTRONIC SPECIFICATION

Power Supply	
Rack supply requires	24V, unregulated (18 to 36V)
Internal PSU provides	5V, for internal rack usage
	5V isolated for external use. 500mA and 1A options
	+/-15V for internal and external use, 500mA and 1A options
Real-Time Controller	
Digital Signal Processor (DSP)	TMS320C5500 and TMS320C5400
	Precise, deterministic control with powerful signal processing capabilities
DSP clock	Up to 300MHz
Type	16 bit, fixed point processor
Additional Processor	Separate FPGA to handle digital I/O
Digital Transport delay	0.575 milliseconds on all channels(ADC input to DAC output).
PC interface	
USB 2.0	Max. sustained data rate 14 Mbits/sec
	16 channels at 20KHz (16bit) requires 5.12Mbits/sec
Analogue Inputs	
ADCs	16 bit, simultaneously sampled, max. 25KHz
Noise	<+/- 6 counts
No. of inputs	8 (standard spec. for single and dual axis controllers)
	16 (standard spec. for four to eight axis)
	Further analogue inputs can be added as required
Dynamic range	±10V. Max 11V.
Input impedance	2 MΩ
Gain	Jumper selectable 1, 5 or 10 and fine adjustment
Filters	Selectable 100Hz, 200Hz, 500Hz, 1kHz, 2kHz, 3kHz or 5kHz
Analogue Outputs	
DAC's	16 bit, max. 25KHz
No. of outputs	Up to 16
Output	Jumper selectable ±10V, ±100mA, ±40mA, ±20mA, ±15mA, ±10mA or ±5mA
Filters	1kHz as standard on all channels, two pole
Discrete Inputs	
	Low and high level inputs
	Low level – 5V CMOS logic Schmitt triggered
	Input impedance 120Ω
	High level – relay coil, 18 to 31V, input current 8.3mA
Discrete Outputs	
	Watchdog protection on selected outputs
	All configurable as either DC logic level or relay contacts
	DC logic level – 0 and 5V, 5.7Ω output impedance, max. Current 350mA
	Relay contacts- SPST, voltage free or switch to common bus rail (configurable).
	Max. switch voltage 30V DC
	Max. current 5A (external source non-inductive load)
	Max. current 2A (external source inductive load)
PC requirements	
Operating System	Windows XP Professional, VISTA
RAM	2 GByte (min)
Hard disk	20 GByte (min)
Interface	USB2
Screen	19 inch or a 2 off, 17 inch
Recommended PC	Dell Precision 380
Signal Conditioning	
Instrumentation Amplifiers	All DC conditioned transducers
Carrier Amplifiers	LVDTs and AC conditioned transducers
Charge Amplifiers	Accelerometers
Strain Gauge & Trans Amplifiers	Load cell and low signal transducers
Thermocouple Amplifiers	Temperature
Freq. to Voltage Converters	Speed signals

MECHANICAL SPECIFICATION

Dimensions	
CAA Desktop enclosure	430 x 85 x 320 or 360 (mm) – HxWxD
	19" rack, 360 mm deep
Operating Conditions	
Operating temperature range	15 to 35ºC
Storage temperature range	5 to 55ºC
Rear Panel	
Connectors	Standard: Tuchel, EDAC and XLR
	Variations: Cannon, Amphenol
	Any customer requests within rear panel dimensions can be accommodated
Dimensions	420 x 78 mm

Series 4 rack mounted system.

2.1 BASE-LEVEL SOFTWARE

PID control	
	Automatic catch at start-up
	Bump-less transfer between modes
	Drives selectable from signal generators, replay file or ext. signal
	Fast on-line PID tuning with Velocity Feed forward
	Specimen Protect Mode for safe mounting of test samples
	Adaptive auto-tuning
Continuous Replay	
	With synchronised logging
	Common file formats supported; ASCII, RPCIII
	Can be run as logging alone at given duration
Trip Logging	
	Automatic pre and post-TRIP data logging
	Up to 25KHz
	Pop up display shows captured data and where TRIP occurred
Burst Replay	
	Periodic test with over and under peak limits
Oscilloscope	
	Four channel, easily selectable
	Comprehensive triggering (drag feature)
	Time base down to 4 milliseconds
	Easy to use fit-to-screen and auto scale
	Cursors to determine periods or frequencies
	Save scope data or display (to e-mail)
Monitors	
	Up to sixteen monitors
	View as numeric, gauge, slider or meter
	View max, min, average or RMS
	Filter options
	Stop watch timer
Limits	
	Readily configured up to twenty four real-time limits
	E-mail on TRIP or SHUT feature
	Records first limits hit
	Action on event option
	Max., min, and current value monitors
Signal Generation	
	Sine, 1-cosine, triangle, square or random
	Phase delay(+/-90 degs)
	Sweeps
	All real- time generated signals
	Up to four signal generators run in parallel
Transducer Calibration	
	Specify in transducer units, Five point calibration check
	Non linear correction, up to 64 point, only in non linear areas
	Shunt calibration options
Models	
	Up to six real time models
	With modelled stiffness, damping and actuator characteristics
Counters and timers	
	Apply to any system signal
	Display as count, frequency or velocity
	Hysteresis option for noisy signals
	Trigger level with ascending, descending or on both
Internet Connection	
	For monitor or control of test system
	Only requires a web browser on remote machine – no proprietary software
Database connectivity	
	For test files and transducer records

BASE LEVEL SOFTWARE™

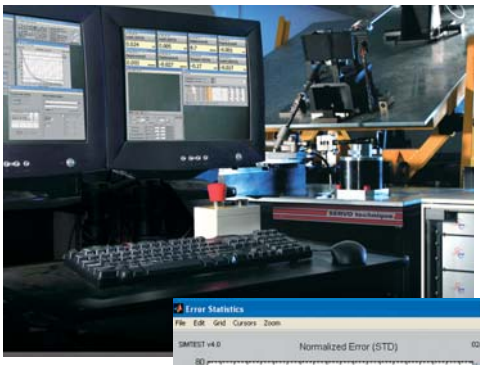
Configuration	
	Easy to use system configuration editor
	Saves as ASCII text file
	Configures user LED and Buttons
	Built in logic for pump, low and high pressure control
Data Viewer	
	Shows data from any logging function
	ASCII or RPC3 file formats
	Select channels to view

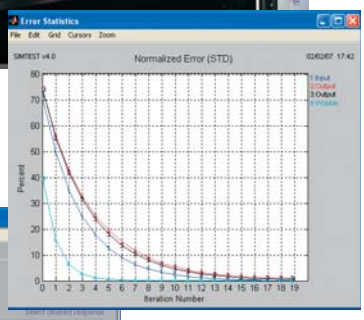
MIMIC™

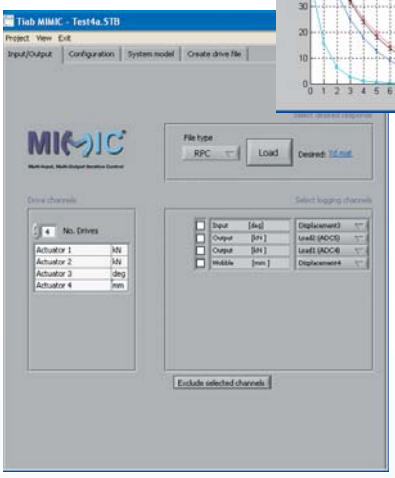
Multi-Input, Multi-Output Iterative Control

2.2 MODULES

Test Sequencer	
	Reduces complex test sequences to a single button press
Test Record	
	Test sheet and Report publishing
	Record selective rig events to diary
	Option for user
Trend analysis	
	Statistical analysis of replay and logged data files
MIMIC™	
	Drive file generation for in field data reproduction
	Up to sixteen inputs and sixteen outputs
	Easy to configure and use interface
Network Software	
	Monitor and access test information and data files over the network using only a standard browser.

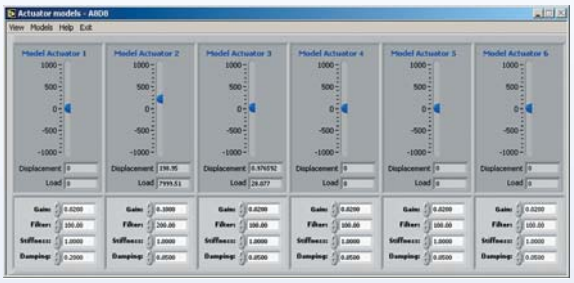


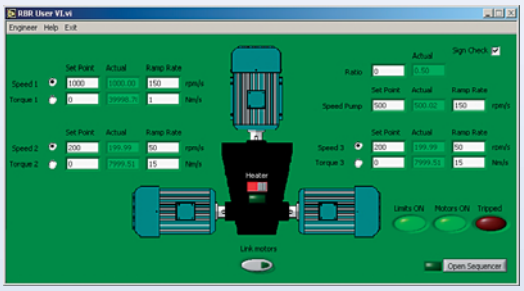




2.3 BESPOKE APPLICATIONS

Gearbox dyno
Seat Belt Anchorage
Seat Back and Head Rest
Servovalve test
Head Impact
High Speed Damper test
Wind-Tunnel Model and Belt
Human Rated vibration
Fatigue and Durability testing
MAST Tables





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