

# DATA SHEET

# HYDROBLAST™

## Control Unit



## 1 TECHNICAL SPECIFICATIONS

### 1.1 General

<b>Required Power (Steady State)</b>	"1978mA @ 10V (19.78W) 852mA @ 24V (8.52W)"
<b>Typical Power Backlight 100%</b>	800mA @ 24VDC
<b>Power Backlight 50%</b>	385mA (9.6W)
<b>Power Backlight Off</b>	290mA (7W)
<b>Inrush Current</b>	25A for < 1ms @ 24VDC DC
<b>Primary Pwr. Range</b>	18–30VDC
<b>Clock Accuracy</b>	+/- 20 ppm max. at 25°C (+/- 1 Minutes per Month)
<b>Real Time Clock</b>	With Battery (5-10 Yrs life, Replaceable)
<b>Relative Humidity</b>	"5 to 95% Non-condensing"
<b>Operating Temp.</b>	-10°C to +60°C
<b>Storage Temp.</b>	-30°C to +70°C
<b>Weight</b>	7.63 lbs/3.46 kg (without I/O)
<b>Certifications</b>	UL Listed, CE Certified

### 1.2 Display

<b>Display Type</b>	15" XGA TFT (500 cd/m <sup>2</sup> typical)
<b>Resolution</b>	1024x768
<b>Color</b>	24-bit (16,777,216)
<b>Built-In Storage</b>	4 GB
<b>User-Program. Screens</b>	1023 max pages; 1023 objects per page
<b>Backlight</b>	LED – 50,000 hour life
<b>Brightness Control</b>	0-100% via System Register
<b>Touchscreen</b>	Resistive w/laminated cover, 1,000,000+ touch life

### 1.3 Connectivity

<b>3x Serial Ports</b>	RS-232 full handshaking or RS-485 half duplex on first Modular Jack (MJ1) RS-232 or RS-485 on second Modular Jack (MJ2) RS-232 or RS-485 on third Modular Jack (MJ3) (Software Controlled RS-485 Termination/Biasing)
<b>USB mini-B</b>	USB 2.0 (480 Mbps) Programming & Data Access
<b>3x USB A</b>	USB 2.0 (480 Mbps) for USB FLASH Drives (2TB)
<b>2x CAN</b>	125 kbps – 1 Mbps, Remote I/O, Peer-to-Peer Comms, SafeLink (Isolated Ports)
<b>2 x Ethernet</b>	1 Gigabit (Auto-MDX), Mod-bus TCP, HTTP, FTP, SMTP, SafeLink, Ethernet IP
<b>Remote I/O</b>	Numerous I/O options
<b>Removable Memory</b>	MicroSD, SDHC, SDXC IN
<b>FAT32 format, support for 128GB max. Application Updates, Datalogging, more</b>	Resistive w/laminated cover, 1,000,000+ touch life
<b>Audio</b>	Beeper, Mic In, Line Out

#### Wiring Details:

Solid/Stranded Wire: 12-24 awg (2.5-0.2 mm<sup>2</sup>).  
Strip Length: 0.28" (7 mm).  
Torque Rating: 4.5 – 7 in-lbs (0.50 – 0.78 N-m).

### 1.4 Control & Logic

<b>Control Lang. Support</b>	Advanced Ladder Logic
<b>Logic Program Size</b>	1 MB
<b>Logic Scan Rate</b>	.006ms/kB
<b>Online Programming Changes</b>	Supported in Advanced Ladder
<b>Digital Inputs</b>	2048 Max
<b>Digital Outputs</b>	2048 Max
<b>Analog Inputs</b>	512 Max
<b>Analog Outputs</b>	512 Max
<b>Gen. Purpose Registers</b>	49,999 (words) Retentive 16,384 (bits) Retentive 16,384 (bits) Non-retentive

### 1.5 High-Speed Inputs

<b>Number of Counters</b>	4 with -3 & -6
<b>Maximum Frequency</b>	1MHz Max
<b>Accumulator Size</b>	32-bits each
<b>Modes Supported</b>	Totalizer, quadrature, pulse measurement, frequency measurement, set-point controlled outputs

### 1.6 High-Speed Outputs

<b>Modes Supported</b>	Stepper, PWM
<b>Output Frequency</b>	500kHz

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### 1 TECHNICAL SPECIFICATIONS (Continued)

1.7 Digital DC Inputs		
Inputs per Module	12 Including 4 Configurable HSC Inputs	
Commons per Module	1	
Input Voltage Range	12VDC / 24VDC	
Absolute Max. Voltage	35VDC Max.	
Input Impedance	10kΩ	
Input Current:	Positive Logic:	Negative Logic:
Upper Threshold	0.8mA	-1.6mA
Lower Threshold	0.3mA	-2.1mA
Max. Upper Threshold	8VDC	
Min. Lower Threshold	3VDC	
OFF to ON Response	1ms	
ON to OFF Response	1ms	
High Speed Counter Max Freq*	1MHz Max	

1.8 Digital DC Outputs	
Outputs per Module	12 Including 2 Configurable PWM Outputs
Commons per Module	1
Output Type	Sourcing / 10kΩ Pull- Down
Absolute Max. Voltage	28VDC Max.
Output Protection	Short Circuit
Max. Output Current/Point	0.5A
Max. Total Current	4A Continuous
Max. Output Supply Voltage	30VDC
Min. Output Supply Voltage	10VDC
Max. Voltage Drop at Rated Current	0.25VDC
Max. Inrush Current	650mA per Channel
Min. Load	None
OFF to ON Response	1ms
ON to OFF Response	1ms
Output Characteristics	Current Sourcing (Pos. Logic)
PWM Out	≈5kHz
Rise Time	50 - 115μs
Fall Time	8 - 20μs

1.9 Analog Inputs	
Number of Channels	2
Input Ranges	0 - 10VDC 0 - 20mA 4 - 20mA
Safe Input Range	-0.5V to +12V
Input Impedance (Clamped @ -0.5 VDC to 12 VDC)	Current Mode: 100Ω Voltage Mode: 500kΩ
Nominal Resolution	12 Bits
%AI full scale	0V, 20mA, 100mV: 32,000 counts full scale
Max. Over-Current	35mA
Conversion Speed	Once per program logic scan
Max. Error @25°C (Excluding zero) Adjusting filtering may improve error.	4-20mA 1.00% 0-20mA 1.00% 0-10VDC 0.50%
Filtering	160 Hz hash (noise) filter 1-128 scan digital running average filter

#### FCC COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation

## 2 CONTROLLER OVERVIEW

### 2.1 - Port Connectors



1. Virtual Function Keys Slide in from the Right Upon Touching Top Right Corner of Screen
2. Optional Built-In I/O
3. High Capacity micro SD Slot
4. USB Mini-B Port
5. Dual CAN Port
6. USB A Ports (3)
7. Mic Input/ Audio Output
8. Dual Ethernet LAN Port
9. Mini Display Port Video Output (Future)
10. Wide-Range DC Power
11. Dual CAN Port
12. RS232/RS485
13. Serial Ports (3)

