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 Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

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Controllers

Servo power amplifier with support for absolute BiSS readheads, enhanced machine I/O and up to four axes of position feedback for dual Y scale machines.



The SPA3-2 is a 3-axis dc servo power amplifier with enhanced machine I/O, support for absolute BiSS readheads and category 2 E-STOP.

Combining high-power capability and a compact enclosure, the SPA3-2 can be used across a wide range of CMM machines without the requirement for changing motors and is compatible with the UCC controller range and the MCULite-2, MCU5-2 and MCU W-2 joysticks.

An outstanding advantage of the SPA3-2 is its ample machine I/O: six inputs and seven outputs as well as six I/O ports which are configurable to be either inputs or outputs. Additionally, it offers the following benefits:

- Adjustable power supply voltage to readheads and motor encoders
- Support for absolute BiSS readheads
- Support for up to four axes of position feedback for dual Y scale machines

SPA3-2 is a drop-in replacement for the SPA3.

Technical specification

■ Standard specification

- Not available

* Output voltage should approximately match input voltage

	SPA2-2 (3-axis) *	SPA3-2
UCC controller compatibility	UCC BI	UCC T3-2, UCC T3 PLUS, UCC S3, UCC T5 or UCC S5
Servo amplifier channels	3	3
Additional servo amplifier	1	Second amplifier required

channels		
Total output power	600 W	960 W max. (PSU dependent)
Maximum continuous power per channel	300 W (1)	800 W (PSU dependent)
Peak power per channel (dependent on application)	600 W	960 W (PSU dependent)
Amplifier output (motor) voltage	Brushless motors 12 V to 60 V	12 V to 80 V variable **
Amplifier current	0 A to 10 A programmable	0 A to 10 A programmable
Emergency stop compatibility	Category '2' E-STOP (PL-b)	Category '2' E-STOP (PL-b)
Tuning method	Digital	Digital
DC brushless motor compatibility	■	
DC brushed motor compatibility		■
Encoder velocity feedback	■	■
Tacho motor velocity feedback	■	■
Tacholeless velocity feedback	■	■
Encoder velocity feedback	■	■
AC power supply	Integral	External
Power supply - input	85 V to 132 V ac, 170 V to 264 V ac, 47 Hz to 63 Hz, 650 W	PSU dependent
Environment - storage	-10 °C to +70 °C (+14 °F to +158 °F)	-10 °C to +70 °C (+14 °F to +158 °F)
Environment - operation	+10 °C to +50 °C (+50 °F to +122 °F) local to UCC	+5 °C to +50 °C (+41 °F to +122 °F) local to UCC
Dimensions:		
Width	435 mm (19 in enclosure)	440 mm (19 in enclosure)
Height	3U (127 mm)	1U (44 mm)
Depth	330 mm	180 mm
Weight	9.48 kg (20 lb 14 oz) (maximum - 7-axis system)	2.84 kg (6 lb 4 oz)

Universal 3-axis touch-trigger manual head solution.



Powerful 3-axis CMM controller featuring built-in standard touch-trigger and TP200 interface.

- Designed for the 3-axis manual head CMM market
- Suited to large and small CMMs using touch-trigger probes
- Integral TP200 interface

UCC comparison

■ Standard specification

- Not available

Function / specification	UCC T3-2	UCC T3 PLUS	UCC S3	UCC T5	UCC S5
TP200 / SCR200 interface	■	■	■	-	-
SP600 interface	-	-	■	-	-
SP25M interface	-	-	■	-	-
SP80 interface	-	-	-	-	-
PH10 interface	-	■	■	-	-
PH20 interface	-	-	-	■	-
REVO interface	-	-	-	-	-
REVO-2 interface	-	-	-	-	■
Number of CMM axes controlled	3	3	3	3	3
Configurable additional axis (rotary table, dual scale, dual drive)	Second SPA3-2 required	Second SPA3-2 required	Second SPA3-2 required	Second SPA3-2 required	Second SPA3-2 required
SPA (servo power amp) compatibility	SPA3-2	SPA3-2	SPA3-2	SPA3-2	SPA3-2
Analogue SPA output ± 10 V	-	-	-	-	-
Temperature sensor inputs	-	16	16	16	16
Compatible with existing daughtercards	-	-	-	-	-
Maximum real time scanning data rate	-	-	SP25M: 2000 points/s	-	REVO-2: 4000 points/s
Integral ac power supply	-	-	-	-	-
External dc power supply	■	■	■	■	■
Uncommitted CMM I/O	2 inputs + 1 output	2 inputs + 1 output	2 inputs + 1 output	2 inputs + 1 output	2 inputs + 1 output
Function / specification	UCC T3-2	UCC T3 PLUS	UCC S3	UCC T5	UCC S5

Dimensions

	UCC T3-2	UCC T3 PLUS	UCC S3	UCC T5	UCC S5
Width	440 mm (19 in enclosure)	440 mm (19 in enclosure)	440 mm (19 in enclosure)	440 mm (19 in enclosure)	440 mm (19 in enclosure)
Height	44 mm (1U)	44 mm (1U)	44 mm (1U)	44 mm (1U)	44 mm (1U)
Depth	180 mm	180 mm	180 mm	180 mm	180 mm
Weight	2.1 kg (4 lb 10 oz)	2.6 kg (5 lb 12 oz)	2.6 kg (5 lb 12 oz)	2.1 kg (4 lb 10 oz)	2.1 kg (4 lb 10 oz)

The following details are common to all UCC controllers:

- Configured for direct CNC controlled (DCC) CMMs
- Processor type: 1.6 GHz Intel Atom
- Suitable hand control unit: MCULite-2*, MCU5-2, MCU W-2
- Digital SPA control output
- Communications link with PC: Ethernet
- PC operating system compatibility: XP pro, Windows 7, Windows 8
- Servo loop time: 0.5 ms
- Touch-trigger probing (TTP) function
- Renishaw UCCserver (I++ DME)
- Common UCC software integration
- Digital scale input: RS422 - Renishaw

- Analogue scale input: By external interface
- Power available for I/O: 24 V at 1 A
- I/O specification:

- User configurable
- Active HIGH or LOW
- Voltage range 5 V to 24 V
- Outer and inner limit switch compliant
- Soft limit compliant
- CMM volumetric error map function
- Renishaw UCCassist compatible

* Not suitable for REVO / REVO-2

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