ACP&D Limited

EUROSTEP 1, 3 & 4
with 0-10V analogue input
(ES1-A0/D3, ES3-A0/D3 & ES4-A0/D3)

FEATURES:

Stepping motor drive, power supply from 25 to 85 Vdc, current up to 3A (ES1), 7A (ES3) & 10A (ES4).
NPN/PNP opto- isolated inputs and outputs compatibles with TTL (0-5V) or 12-24V level.

POWER SUPPLY:

EUROSTEP		ELECTRICAL FEATURES		
		ES 1	ES 3	ES4
Vdc nom.	**[V]**	from 25 to 85		
Vdc max.	**[V]**	90		
Vdc min.	**[V]**	20		
I max.	**[A]**	3	7	10
I min.	**[A]**	0,1	1	1
working temperature [°C]		0-55		

DEFINITIONS

Vdc nom: Suggested nominal voltage value with un-stabilized source

Vdc max: Maximum dc working voltage of the drive. Above such value, maximum voltage protection occurs, and drive working is inhibited

Vdc min: Minimum dc working voltage of the drive. Below such value, minimum voltage protection occurs, and drive working is inhibited

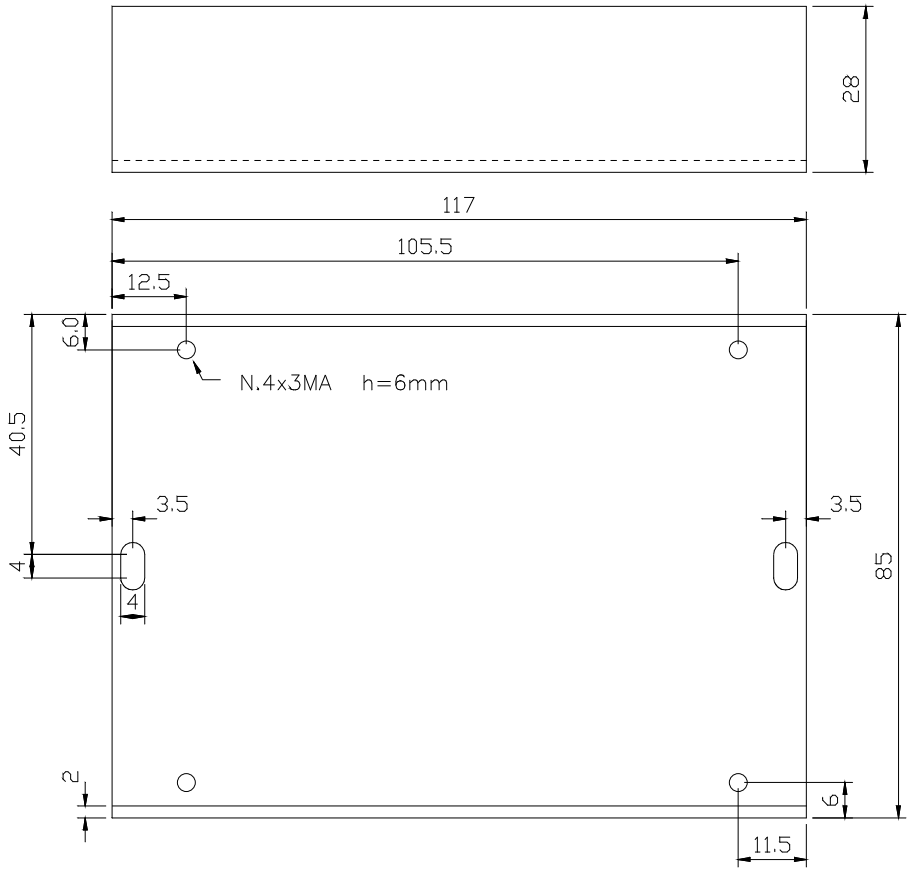
I max: Maximum phase current

I min: Minimum phase current

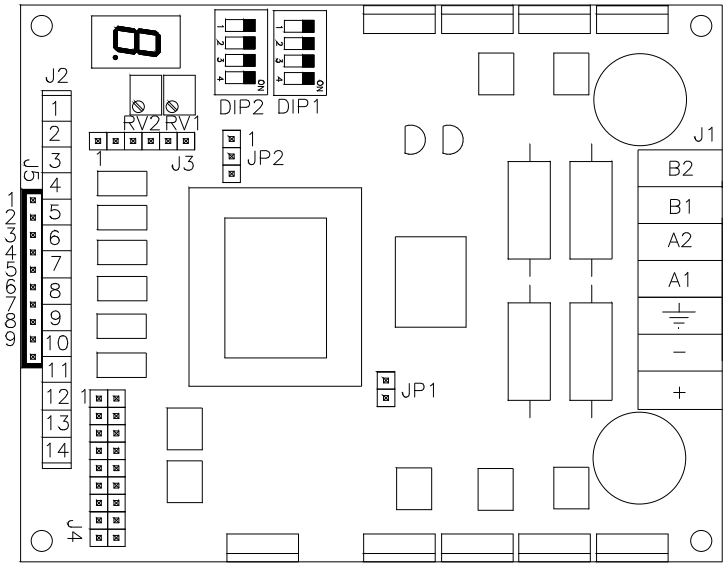
ORDER N°

ES1 A0/D3 → 3A, 25-85VDC, with analogue input 0-10V
ES3 A0/D3 → 7A, 25-85VDC, with analogue input 0-10V
ES4 A0/D3 → 10A, 25-85VDC, with analogue input 0-10V

DIMENSIONS:



LAYOUT:



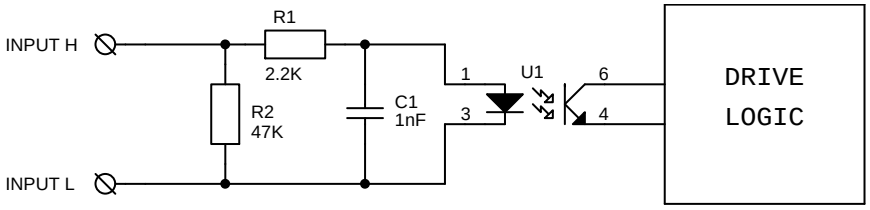
PROTECTION AND SIGNALS

The drive is provided with protection against over-temperature, over-voltage, under-voltage, short-circuits between outputs and also between outputs and the positive power pole. If one of the mentioned conditions occurs, the drive disables the power bridge and shows an error condition on the display. To reset alarm condition use the DISABLE input.

‘o’ - Power supply over-voltage (Vdc max).
‘u’ - Power supply under-voltage (Vdc min).
‘t’ - Over-temperature event occurred.
‘c’ - Over-current protection event occurred.
‘d’ - Drive disabled (input ENABLE/DISABLE active).

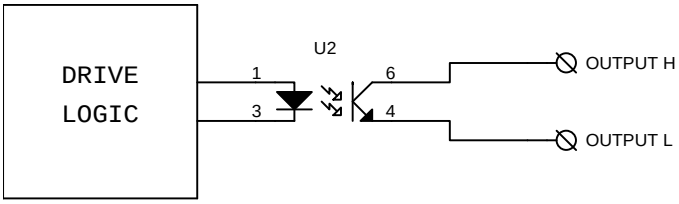
If the drive is ready, display shows the letter ‘r’ (ready).

INPUTS:



SIGNAL	FUNCTION
START/STOP CW J2-7(L), J2-8(H)	OFF-ON transition : Start motor cw ON-OFF transition : Stop motor
START/STOP CCW J2-5(L), J2-6(H)	OFF-ON transition : Start motor ccw ON-OFF transition : Stop motor
ANALOG-IN J2-1(L), J2-2(H)	0-10V analog input to set speed fron 20Hz to 10KHz
ENABLE/ DISABLE J2-3(L), J2-4(H)	When this signal is used, the drive is inhibited by cutting off the current flowing through the motor and reset alarm condition. You can use this input as ENABLE or DISABLE, select function with JP2: JP2 Inserted in 1-2 pins → DISABLE: When input is active motor current =0. JP2 Inserted in 2-3 pins → ENABLE: When input is not active motot current=0.

OUTPUTS:



SIGNAL	FUNCTION
IN-POSITION or STEP-OUT J2-9(L), J2-10(H)	**IN-POSITION (DIP1-4 OFF)** → Motor stop : Output disable Motor run : Output enable **STEP-OUT (DIP1-4 ON)** → Every pulse front is an executed step **(max current 5 mA)**
DRIVE-READY J2-11(L), J2-12(H)	DRIVER-READY Drive in protection : output OFF Drive ready : output ON **(maximum current 5 mA)**

MOTOR CURRENT REGULATION:

For setting current proceed as follows:
- Set DIP2-4 to ON (current regulation mode).
- Turn RV1 trimmer until display shows the required current (CW to increase).
- Set DIP2-4 to OFF (Run mode).

Table for setting current values and relating values shown on the display of drive:

ES 1	**1** = 0.1 A	**2** = 0.3 A	**3** = 0.5 A	**4** = 0.7 A	**5** = 0.9 A	**6** = 1.1 A	**7** = 1.3 A	**8** = 1.5 A	**9** =1.7A	**0** =1.9A
	1. = 0.2 A	**2.** = 0.4 A	**3.** = 0.6 A	**4.** = 0.8 A	**5.** = 1.0 A	**6.** = 1.2 A	**7.** = 1.4 A	**8.** = 1.6 A	**9.** =1.8A	**0.** =2.0A
	A = 2.1 A	**b** = 2.3 A	**c** = 2.5 A	**d** = 2.7 A	**e** = 2.9 A					
	A. = 2.2 A	**b.** = 2.4 A	**c.** = 2.6 A	**d.** = 2.8 A	**e.** = 3.0 A					
ES 3	**1** = 1 A	**2** = 2 A	**3** = 3 A	**4** = 4 A	**5** = 5 A	**6** = 6 A	**7** = 7 A			
	1. = 1.5 A	**2.** = 2.5 A	**3.** = 3.5 A	**4.** = 4.5 A	**5.** = 5.5 A	**6.** = 6.5 A				
ES 3	**1** = 1 A	**2** = 2 A	**3** = 3 A	**4** = 4 A	**5** = 5 A	**6** = 6 A	**7** = 7 A	8 = 8 A	**9** = 9 A	**0** = 10 A
	1. = 1.5 A	**2.** = 2.5 A	**3.** = 3.5 A	**4.** = 4.5 A	**5.** = 5.5 A	**6.** = 6.5 A	**7.** = 7.5A	**8.** = 8.5A	**9.** = 9.5A	

AUTOMATIC CURRENT REDUCTION WHEN MOTOR IS STOPPED:

When the motor is stopped. the current is automatically reduced to 25% with DIP1-1 ON or 50% with DIP1-1 OFF.

SPEED SETTING:

To set speed use 0-10V analogue input. To set maximum speed value adjust RV2 trimmer (adjustable between 20Hz to 10KHz).

STEP RESOLUTION SETTINGS:

Resolution setting through DIP-SWITCHES:

DIP1-2	DIP1-3	PASSI/GIRO
OFF	OFF	200 step/rev (full step)
ON	OFF	400 step/rev (1 / 2 of step)
OFF	**ON**	800 step/rev (1 / 4 of step)
ON	**ON**	1600 step/rev (1 / 8 of step)

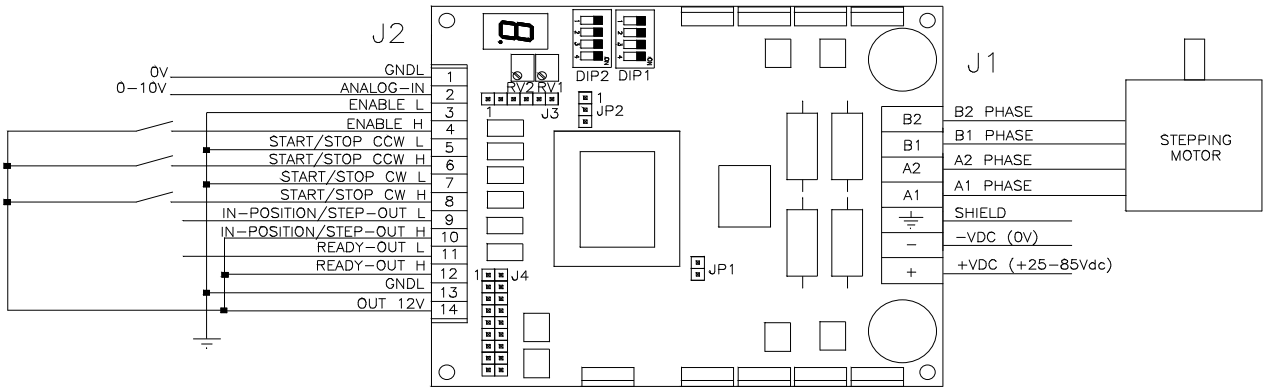
ACCELERATION/DECELERATION RAMP:

The setting of acceleration/deceleration ramp is done by DIP-SWITCHES.
The following values refer to an acceleration from 1Hz to 10KHz.

DIP2-1	DIP2-2	DIP2-3	RAMPA [ms]
OFF	OFF	OFF	0 (ramp off)
OFF	OFF	**ON**	10
OFF	**ON**	OFF	30
OFF	**ON**	**ON**	80
ON	OFF	OFF	150
ON	OFF	**ON**	300
ON	**ON**	OFF	500
ON	**ON**	**ON**	1000

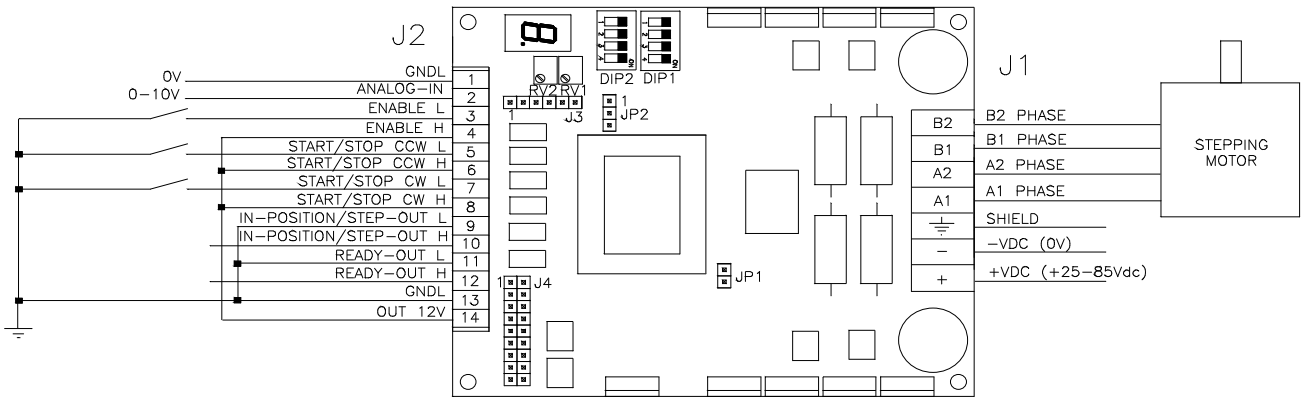
WIRING DIAGRAM

PNP INPUTS AND OUTPUTS:



In this diagram the internal +12Vdc output is used however an external power supply from 5 to 24 Vdc can be used instead.

NPN INPUTS AND OUTPUTS:



In this diagram the internal +12Vdc output is used however an external power supply from 5 to 24 Vdc can be used instead.

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