



Newall Measurement Systems

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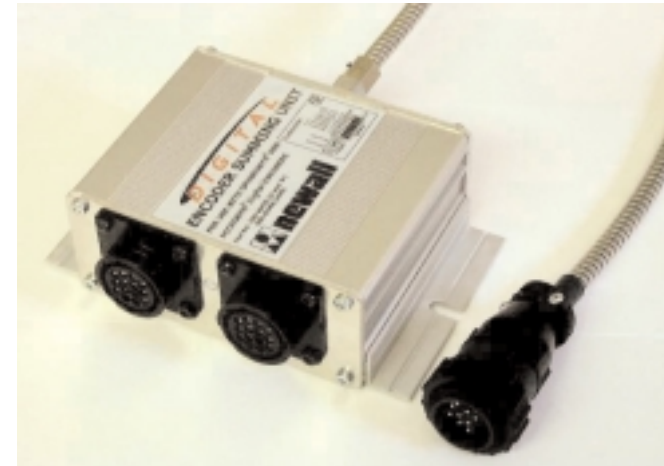
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DIGITAL SUMMING UNIT



Digital Summing Unit
600-80450 & 600-80460
for use with Spherosyn™ and Microsyn™
Digital Encoders

Code: 023-80400-UK Issue Date: February 2002

INSTALLATION/USER MANUAL

DIGITAL SUMMING UNIT

1.0 Introduction

The Newall *Digital* Summing Unit allows for two axes of differential quadrature with index to be mathematically combined to provide a single differential quadrature output signal with selectable index options.

The unit allows for the direction of each axis to be specified allowing the output signal to provide either axis addition ($E_1 + E_2$) or subtraction ($E_1 - E_2$ or $E_2 - E_1$).

2.0 Electrical Requirements

Two supply options are provided. For controllers/displays capable of driving 400mA at 5V per axis, the unit does not need an external power supply and should be configured for internal supply. Where the level of supply can not be guaranteed, provision for an external supply has been made.

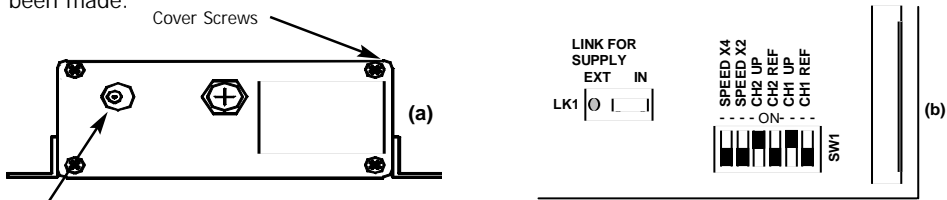


Figure 1. Accessing Power selector jumpers

In order to configure the supply settings remove the four screws securing the front cover plate, Figure 1 (a). Adjust the jumper (LK1) according the Figure 1 (b). The factory default setting is Internal



Figure 2. Power supply jumper settings

Supply from Controller:	5V +/-5%
External Supply:	15V (1.0A)
Encoder Inputs:	9-way 'D' type connector (Newall specification) OR AMP (SouthWestern Industries specification)
Output to Controller:	Digital differential quadrature signals (RS422 TTL Levels)
Cable to Controller:	Armoured 9-way 'D' or AMP connector (1m)
Typical current consumption: (no encoder)	50mA (VCC = 5.0V)
Typical current consumption: (with Spherosyn™/ Microsyn™ Digital)	400mA
Maximum input quadrature rates:	2 MHz.
Maximum output quadrature rates:	4 MHz.
IP Sealing:	IP20

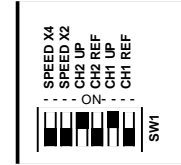


Certificate No FM36096

3.0 Connection

The unit can be configured for:

- Encoder input rates
- Index marker output options
- Input encoder measuring direction



Note: Factory default settings are as shown.

SPEED x4	SPEED x2	MAX INPUT
OFF	OFF	250kHz
OFF	ON	500kHz
ON	OFF	1MHz
ON	ON	2MHz

Input Speed Selection

CH2 REF	CH1 REF	REF OUTPUT
OFF	OFF	NONE
OFF	ON	E_1
ON	OFF	E_2
ON	ON	$E_1 + E_2$

Reference Selection

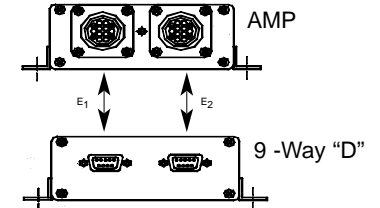
CH2 UP	CH1 UP	DIR
ON	ON	ENCODER
ON	OFF	Reverse E_1
OFF	ON	Reverse E_2
OFF	OFF	Reverse $E_1 + E_2$

Encoder direction Selection

Note: Due to the axes summation process it can not be guaranteed that the output index markerpulse is synchronised to the resultant output A High, B High state.

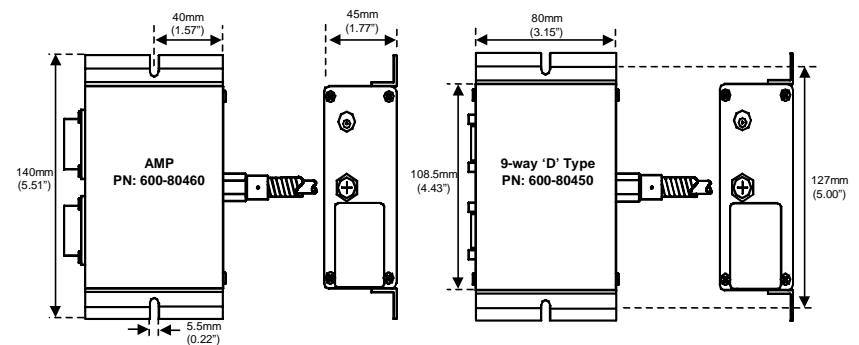
Output connections are via a 9-way 'D' type or AMP style connectors depending on model.

Output Lead Connections		
Function	9-way 'D'	AMP
5V	7	2
Gnd	6	13
A+	2	3
A-	3	1
B+	4	14
B-	5	12
RM+	8	7
RM-	9	6



4.0 Installation

Ensure the unit is located clear of any coolants or sources of contamination. The unit should be firmly mounted using the mounting points and screws provided.



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