



SYNECTIC
ELECTRONICS

SY057

Encoder Splitter



User Manual

Description

SY057 provides a convenient way of splitting a master encoder signal across multiple drives or motion controllers. Its compact design and technical features makes it a perfect solution for sending material encoder solutions to more than one device.

The encoder input is switch selectable for operation with either standard RS485/RS422 with differential TTL or HTL signals, Differential voltage or single ended pulse.

SY057 unit as shipped

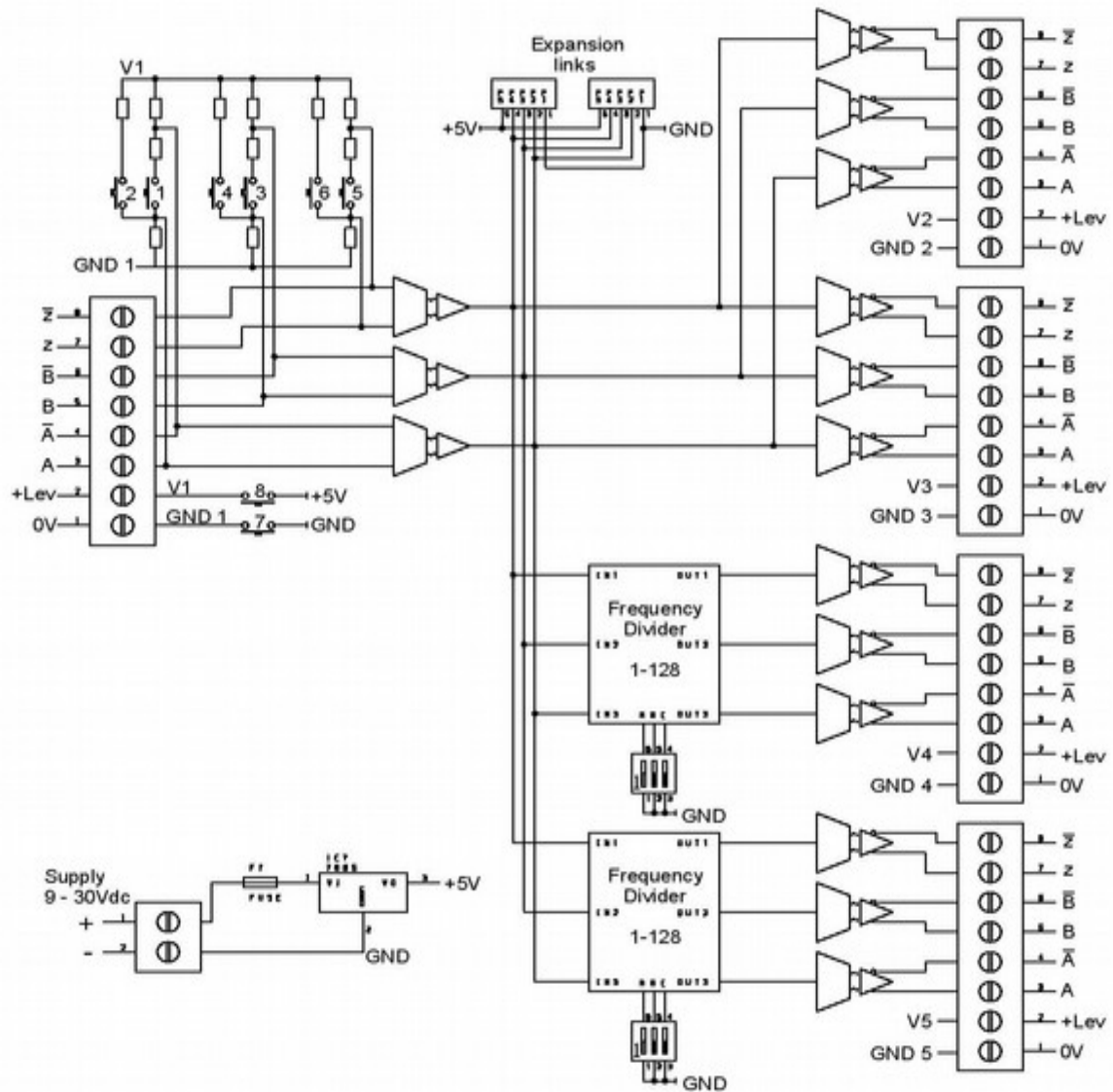


Special features

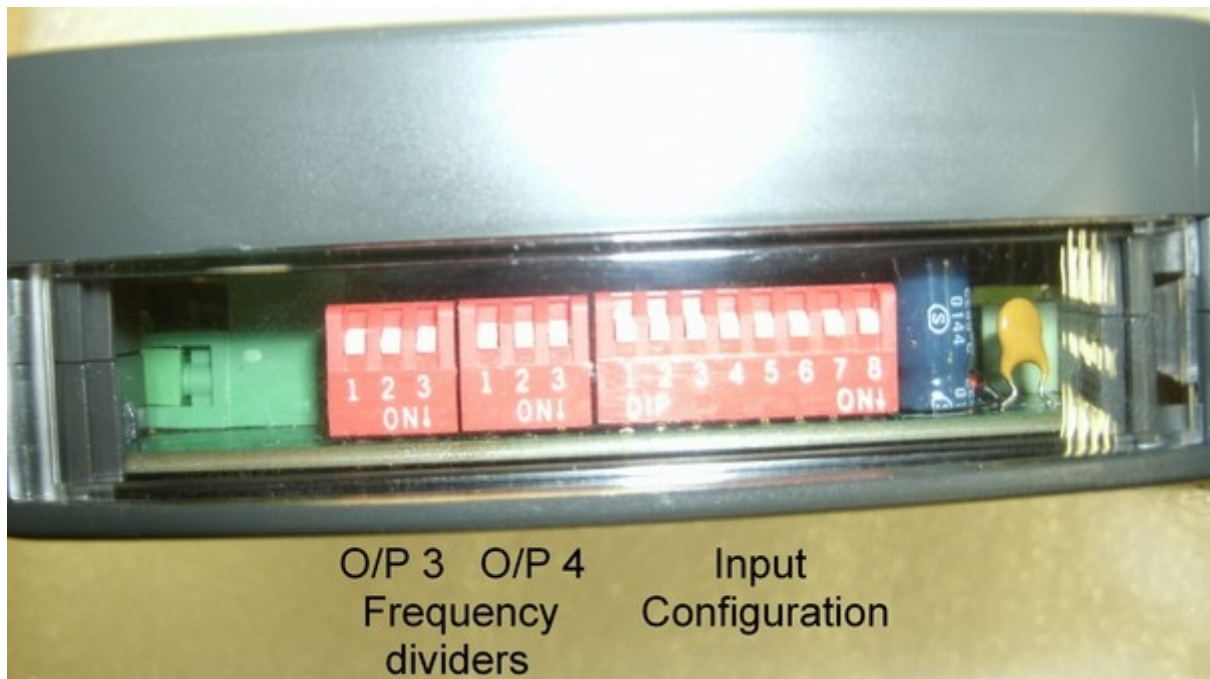
- SY057 Expands the output from one shaft encoder to 4,8,12 or 16 individually isolated encoder signals.
- SY057 doesn't require direct electrical connection between the input and any of the output encoder groups.
- Every encoder group of signals can operate on a separate power supply
- SY057 reduces the noise in the output signal due to the absence of long cable runs.
- Plug in Screw terminal wiring
- Piano style DIL configuration switches

The following figure shows a block diagram explaining the principle of operation and the potential conditions between the circuits

SY057 Block Diagram



Location of Frequency divider & Input configuration switches

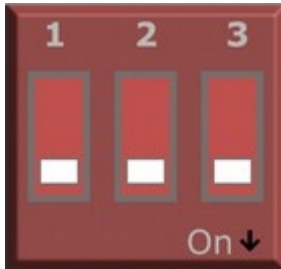


Encoder output connectors

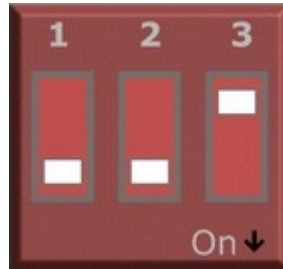


Divider's Switch Settings

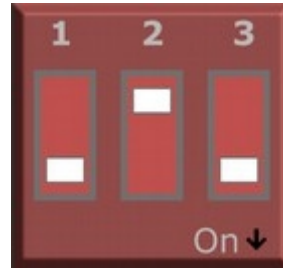
The Divider functionality is available on channels 3 and 4. The following diagrams show how to set the divider's functionality switches.



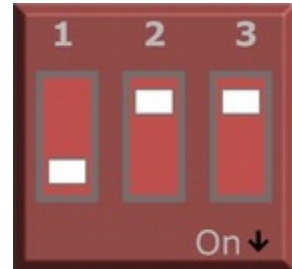
Divider = 1



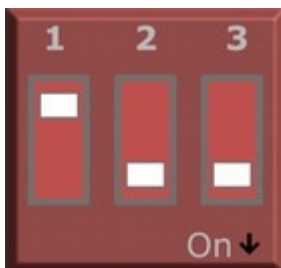
Divider = 2



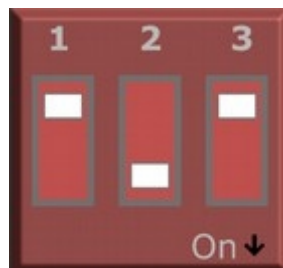
Divider = 4



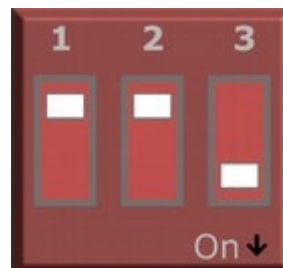
Divider = 8



Divider = 16



Divider = 32



Divider = 64

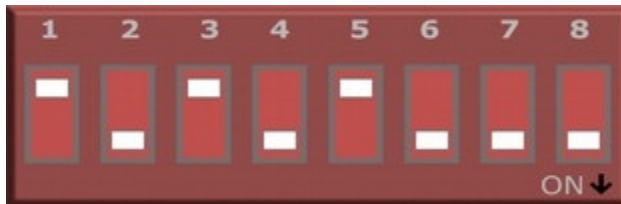


Divider = 128

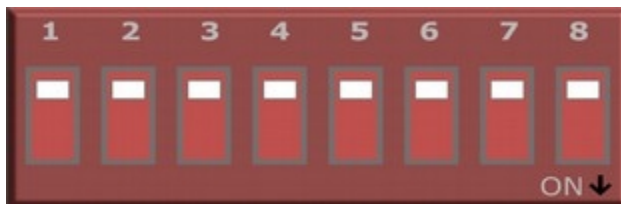
SW1	SW2	SW3	Division
ON	ON	ON	1
ON	ON	OFF	2
ON	OFF	ON	4
ON	OFF	OFF	8
OFF	ON	ON	16
OFF	ON	OFF	32
OFF	OFF	ON	64
OFF	OFF	OFF	128

Input Configuration switches

The following diagrams show how to set the input signal's type.



Single ended pulse input with SY057 5V encoder excitation.



Differential input with external 5 V encoder excitation.



RS485/RS422 input with external 5V encoder excitation.

N.B: On is ↓

Input Signal Type	A		B		Z	
	SW1	SW2	SW3	SW4	SW5	SW6
Input						
Switches						
Single ended pulse	Off	On	Off	On	Off	On
Differential Output	Off	Off	Off	Off	Off	Off
RS485 / RS422	On	Off	On	Off	On	Off

Encoder Excitation	SW7	SW8
Input Switches		
External 5V Supply	Off	Off
SY057 5V Supply	On	On

Technical Specifications

<u>Feature</u>	<u>Specification</u>
Power Supply	9 – 30 Vdc
Number of Impulse Inputs	1 in for each 4 out OR 1 in for multiples of 4 out
Galvanic Isolation	Yes
Input types Differential	Yes
Max frequency; TTL, HTL	800 KHz
Input type single ended signals with TTL levels	Yes
Divide feature	On Channels 3 and 4; Divide by: 1, 2, 4, 8, 16, 32, 64 or 128
Set up selection	DIL switches on top under hinged lid
Expandable	In banks of 4
Case din rail modular	PC / ABS 120 x 101 x 35mm
Connection type	Plug in terminals
Propagation delay	400 Nano-second
LED Status indication	Power on

Cascading several units

The number of outputs from the SY057 can be increased in blocks of 4, up to 32, by adding 4 channel expansion modules to the master unit. The expansion modules can be identified as having no power in or input encoder connections. They link to the master unit via 5way expansion links provided with each expansion module. They link to the master unit via 5way expansion links provided with each expansion module.

