

SY027 Meter Pulse Splitter



User Manual

Introduction

The SY027 is designed to convert pulses from meters or other turbine devices and transmit the same pulse via two relay outputs to enable two separate instruments to measure the rate simultaneously. It can be used with electricity, gas, or water meters



Fig 1: SY027 as shipped

Size

72.5mm x 18mm x 62mm



Fig 2: SY027PSO (or PSR)-AC-B

Size

162 x 82 x 54mm

Description

Both types are powered by a DC supply of between 7 and 30V. Inputs can be TTL pulse or reed switch. The PSO version will de-bounce reed switch signals as well as accept pulse inputs at frequencies up to 1kHz

Installation

Before installation check that the unit is secure and not damaged and that the environment specifications for the product are as indicated in the manual.

For the installation take into consideration the following:

- I. Ensure easy access to the component
- II. Ensure the component is stable upon installation with minimum vibration
- III. No contact with other electromagnetic components or close connections to minimise
- IV. Where there is need to protect the circuit as part of a big system then connect a fuse

SY027 Pulse Splitter application note

Connecting the input in parallel with an existing system

Figure 1 shows the input circuit of the SY027 pulse splitter. The input transistor is turned on by a voltage applied to terminal B. The user manual shows how this can be achieved from a range of input types.

In most applications the sensor input connects to the SY027 and the 2 volt-free outputs connect to monitoring systems.

In some cases it may be necessary to connect the SY027 in parallel with another system, usually a PLC or similar.

Figure 2 shows a typical PLC input circuit. This relies on current being switched through the opto-coupler diode to turn on the transistor. Usual methods of achieving this are by a sourcing signal, where a voltage is switched onto the + input, or by a sinking signal, where the + input is connected to a positive voltage and the input common is switched to 0V.

For a sourcing signal, SY027 terminal B can be connected to the PLC + input and terminal A connects to COM.

For a sinking signal the connection is a little less straight forward. A modified version of the SY027 is available to make this easier, shown in figure 3.

The PLC + input is connected to supply positive, COM to SY027 terminal B and C, and terminal A to supply negative (0V)

With the input sensor linking the COM, B and C terminals to 0V the PLC input transistor is turned on and the SY027 transistor is turned off. When the link is released, the SY027 transistor is turned on by current flowing from supply positive through the diode and resistor. Though a small leakage current may flow through the PLC input (<<0.5mA) it should not be enough to come close to turning it on.

Typical PLC input specs are:

	<u>On</u>	<u>Off</u>
Mitsubishi	>4.5mA	< 1.5mA
Siemens	>1.5mA	<1mA

This modified input version will also work with sourcing signal connections. To order quote ver HR. The splitters are also available as AC powered in an IP65 sealed wall mount case. Connection details are standard with the addition of a 3 pin plug in connector. AC voltages in the range 110-240V are acceptable.

Order codes for these are **SY027PSO-AC-B** for fast opto-isolated version and **SY027PSR-AC-B** for the relay output version.

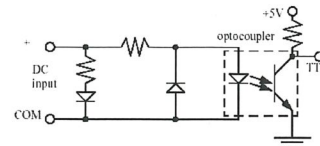
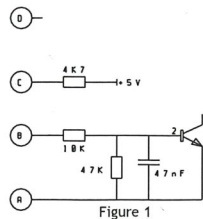


Figure 2

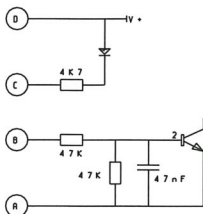


Figure 3

Specifications

Parameter	Min	Typ	Max
Power supply			
DC Version	7V	24V	30V
Mains AC Version	110V		250V
Switching Voltage			
PSR			200VDC
PSO			350VDC
Switching Current			
PSR			500mA
PSO			100mA
Relay on Resistance			
PSR		0Ω	0.2Ω
PSO		35Ω	50Ω
Switch Power			10W
Operating Frequency			
PSR	0Hz		55Hz
PSO	0Hz		1KHz (Fast version = 5KHz)
Operating temperature	-20°C		+85°C
Connections	Rising clamp terminals with 3.5 x 2.5mm apertures		
EMC	Tested to BS EN 61000-4-21:2011		
Case Din Rail Mount	H(on rail) = 72mm, W = 18mm, D = 62mm. Moulded in grey flame resistant polyamide. For use with rails to EN50035 (DIN46277-1) asymmetric or EN50022 (DIN46277-3) symmetric		
Case AC-IP65	Grey ABS D = 54mm, W = 162mm, H = 82mm. Hinged lid. Wall mount holes integral and outside sealed area. Glands M12 nylon fitted as standard, 4 on request		

*Rev. 15th July 2015

NOTES:

For PSO version, current switching is reduced for temperatures above 25C at a rate of 1mA per degC (ie at 85C maximum switching current drops to 40mA)

Inquiries and trouble shooting

For any inquiries or problems with the SY027 or other available products checkout our website or send email using the appropriate link below.

Website: www.synectic.co.uk
Email: technical@synectic.co.uk

Connections

Note:
Pulse & open collector signals are referenced to terminal A (supply -)

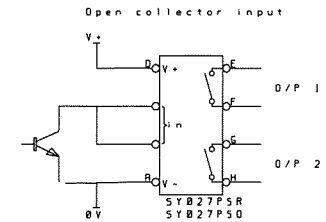
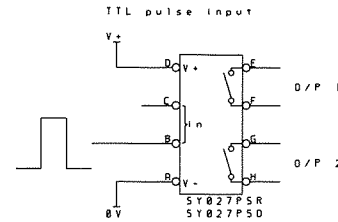
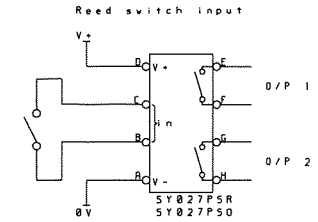


Fig 3: Typical board connections SYO27

Power supply connections

The power supply should connect to the terminal D (power supply between 7 -30V AC or DC) and 0V is connected to terminal A. **NOTE: The mains powered versions accepts 110-240V AC via a plug in connector marked LEN this can looped to power other units.**

Other connection details are as illustrated below

Terminal	Connection
B (signal, green)	Pulse Input
C (LED, brown)	Feed
E	Relay 1 contact
F	Relay 1 contact
G	Relay 2 contact
H	Relay 2 contact

For reed switch input, Connect the reed switch between terminals B and C
For pulse input, connect between terminals B and A

NOTE: The reed relay should not be used to directly switch mains voltages.