



SYNECTIC
ELECTRONICS

SY020

Frequency to analogue converter



User manual

Introduction

The SY020 can be linked to any frequency generating device eg. flow meters, which gives TTL pulse, Reed switch or coil output, converting the frequency to an analogue signal. This can be 4-20mA loop current or a 0 – 5V or 0 – 10V output. The SY020 can be supplied pre set to a particular range alternatively the user can configure the unit themselves setting the jumper links to select the meter signal type and any one of 8 full scale ranges from 16-35Hz up to 2000-4400Hz. It can be supplied as PCB only or a Din rail mount version, the Din rail mount version is the most convenient for many applications. Alternatively it can be supplied housed in an IP65 sealed ABS case with moulded glands and mounting lugs for wall mounting.

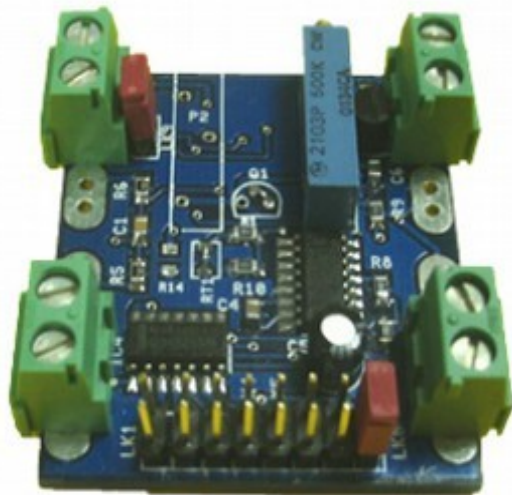


Fig 1: PCB only version

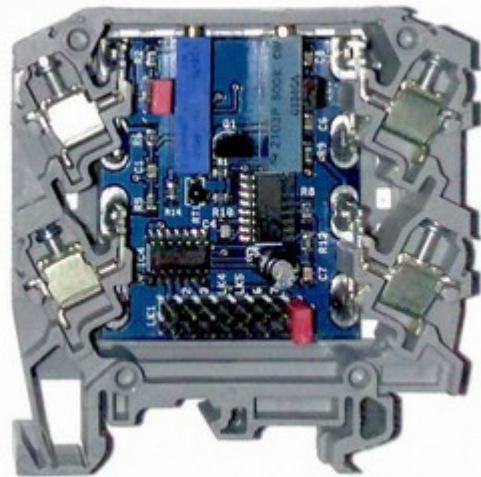


Fig 2: Din rail mount version

Special features

- The SY020 covers a wide frequency range of frequencies. They are all 4mA or 0V at zero and selectable from 16 – 4400Hz at full scale.
- The gain can be calibrated to any value within a given range (see electrical characteristics) by using fine adjustment via the trimmer.
- Any voltage between 10 (17V for 10V version) and 30 V can be supplied drawing a current between 4mA and 20mA dependent on the input frequency.

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 in case of calibration
- II. No contact with other electromagnetic components or close connections to minimise interference
- III. For protection of component whilst in use where necessary connect a fuse to protect equipment

Connection details

A	Reed switch/open collector
B	Coil +/Pulse
C	Coil -
D	TTL output
E	Supply + / 4-20mA Loop +
F	Supply - / 4-20mA Loop -
G*	Out +
H*	Out -

*Terminals G & H are only used for the voltage output version. The current version is a 2 wire 4-20mA loop.

When connecting an open collector connect the positive to terminal B and the negative to A. Reed switch's are not polarity sensitivity so you can connect it across terminal A & B. Also when the input is a reed switch a jumper is needed to go across LK9.

The trimmer marked zero adjusts the zero point and does not normally need adjusting. If necessary adjust to give the required output at zero input frequency. At a known flow rate adjust the trimmer marked SPAN to give the required output.

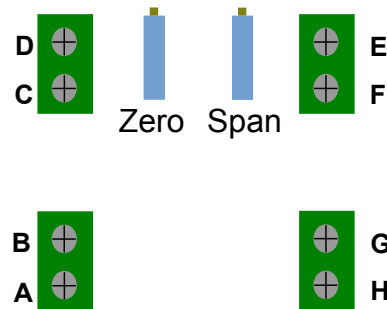
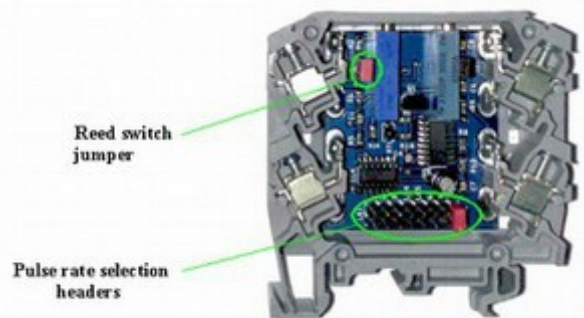


Fig 3: PCB only connections

Power supply connections

The power supply is applied to the E & F terminals, that is 10 – 30Vdc or 17V – 30Vdc for the 10V output version. The supply + is connected to the E terminal and the supply - is connected to the F terminal.

Calibration

First calculate the pulse rate required to give the full scale output then position the jumper on the appropriate link to set a range to cover this rate. The nominal scale ranges are:

	4mA (0V)	20mA (5V or 10V)
LK8 =	0	2000 - 4400 pulses per second
LK7 =	0	1000 - 2200
LK6 =	0	500 - 1100
LK5 =	0	250 - 550
LK4 =	0	125 - 280
LK3 =	0	65 - 140
LK2 =	0	32 - 70
LK1 =	0	16 - 35

Electrical Characteristics

Parameter	Minimum	Maximum
Supply voltage (Vdc)	10 (17 for 10V version)	30
Full Scale Frequency range (Hz)	16	4400
Operating temperature (°C)	0	50
EMC	Tested to BS EN 61000-4-21:2011	

Inquiries and trouble shooting

For any inquiries and problems with the SY020 or any other available products checkout our website or send an email using the appropriate link below.

Website: www.synectic.co.uk

Email: technical@synectic.co.uk