

SD037 Mains Frequency Monitor



User instructions

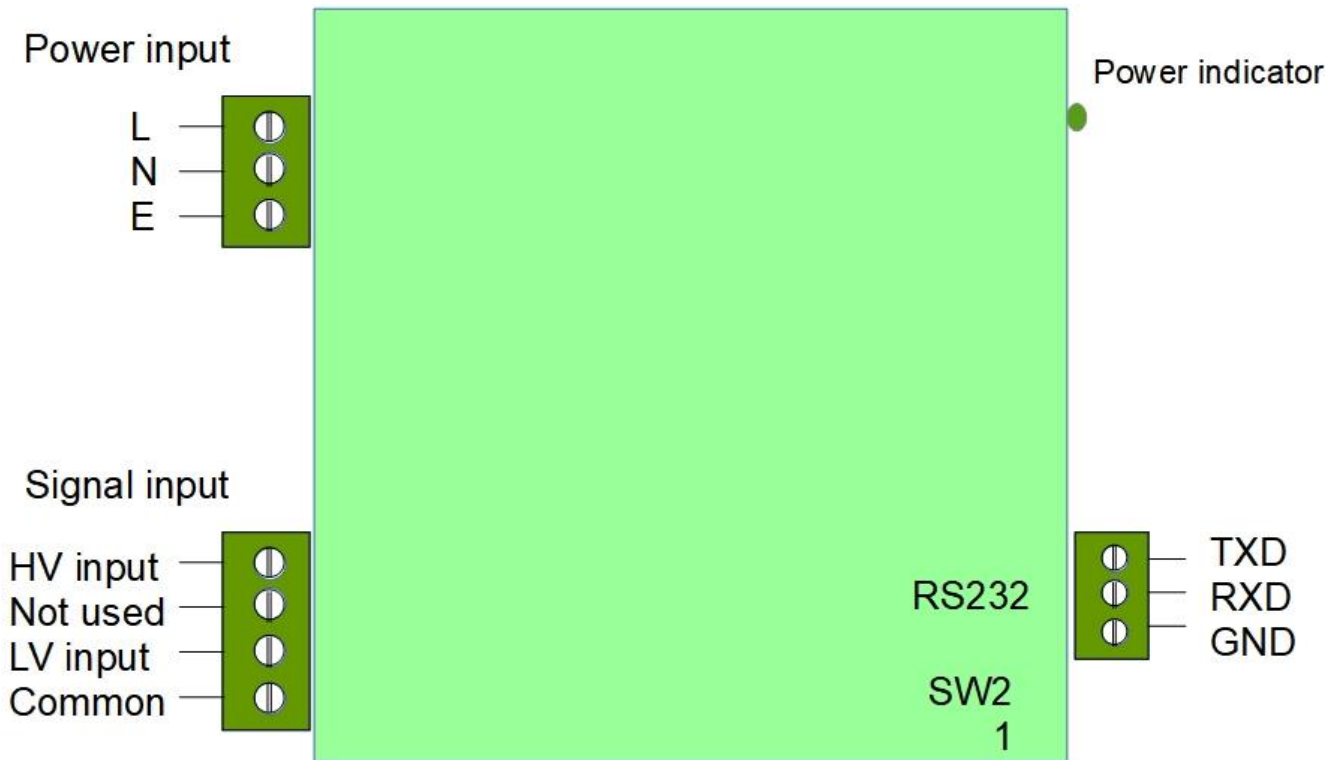
SD037/3-SA
RS232 ASCII

Description

The SD037 is designed to monitor the frequency of a mains voltage signal and report the value, on demand, via an RS232 serial interface. Simple ASCII protocol.

It features a 3 pole low pass Bessel filter with a -3dB frequency of 75Hz. This removes unwanted harmonics from the input signal. It is housed in a DIN rail mount case and powered from a universal input mains supply.

Connection details



Power

Power input is from an AC supply of between 85 and 264V, frequency 47 – 63Hz.

Connect live to L, Neutral to N and Earth to E terminals. A green LED on the right hand side indicates when the unit is powered.

Signal input

For mains frequency monitoring connect Live to HV input and Earth to common.

For low voltage test inputs connect between LV input and Common.

RS232 connections

TXD = signal output, connect to RXD of communicating instrument. Pin 2 of 9 way D-type on a standard PC connector.

RXD = signal input, connect to TXD of communicating instrument. Pin 3 of 9 way D-type.

GND = signal ground. Pin 6 of 9 way D-type.

Note: RS232 signals are isolated from the rest of the instrument.

Communications protocol

Communication is by RS232 serial interface. Format is 8 data bits, 1 stop bit, no parity.

Baud rate is determined by the setting of SW1, located next to the RS232 connector.


With SW1 off, (UP position), the baud rate is 115k2, with the switch on (DOWN) the baud rate is 19k2 (For compatibility with installations configured for Laurels units).

The commands available use standard ASCII characters, all starting with * (\$2A)

In the following table, <sp> indicates space (\$20), <cr> indicates carriage return (\$D) If a command is received that isn't recognised the response will be ?<cr>.

Command	Response
*ID?<cr>	Instruments identification. Eg <sp>SD037,v1.20,1234<cr> SD037 is the model, v1.20 is the firmware version, and 1234 is the serial number
*F?<cr>	Reports the current frequency. The number of cycles averaged depends on the position of SW2. Off measures a single cycle, On measures the average of 4 cycles. eg <sp>49.9708<cr>
*C16000000<cr>	Frequency calibration function. This allows the instrument to be calibrated. The internal reference oscillator is 16MHz. The actual frequency can be measured on TP1 using a calibrated frequency counter. Get a measurement to 8 digits then enter the value. The unit will echo back the received value. followed by Y/N. Transmit Y if the value is correct. eg assuming the measured value is 10000045Hz, transmit *C16000045, response is <sp>16000045<cr> Note: A shift of 200 counts results in a shift in reading of 1 mHz.
*C?<cr>	Read the current calibration value. eg transmit *C?<cr>, response is <sp>16000045<cr>

Specifications

Parameter	Min	Typ	Max
Power supply voltage	85Vrms		264Vrms
Power supply frequency	47Hz		63Hz
HV input signal	20Vrms		250Vrms
LV input signal	2Vrms		25Vrms
Frequency measurement range	10Hz		90Hz
Low pass filter cutoff (-3dB)		75Hz	
RS232 & RS485 isolation	2500Vrms for 1min as per UL1577		
Frequency stability	+/-30ppm over temperature range -20C to 70C		
Enclosure	DIN rail 22.5x82x90mm. Green flame retardant PA 66 UL 94-V0		
	The CE mark confirms the compliance with European Directives, notably the Low Voltage Directive and the EMC Directive		