

Frequency Transmitter v6 FRT150

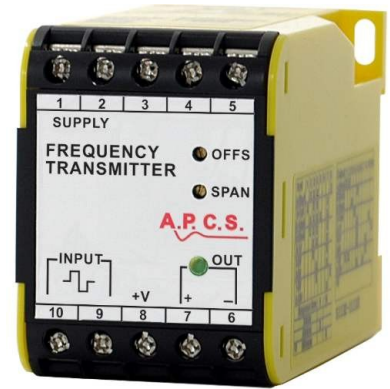
The FRT150 converts a frequency input signal up to 5kHz to a standard process signal with input to output isolation now standard on version 6. Input signals of various types or from a variety of sensors can be accommodated:

1. **Low level AC, sine wave** as produced by coil-type pick up (minimum 200mVpp.)
2. **Low level AC, any wave shape** having a consistent frequency pattern (200mVpp. up to 20Vpp.)
3. **DC pulse**, zero going (200mVpp. up to 50Vpp.)
4. **NAMUR proximity sensor or pulsing contact** - the sensor is directly connected to the FRT150 as the module provides the 8Vdc auxiliary supply.
5. **All types of 3-wire proximity sensors**, optical sensors or any devices with NPN/PNP open collector transistor output requiring 5 - 30Vdc auxiliary supply at 20mA maximum.

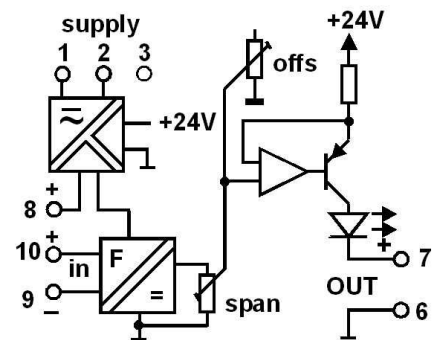
Output response is tailored to achieve a minimum of ripple with optimum response time. T_{90} response is 0.5 seconds for 50Hz FS and above, increasing to 4 seconds with a 5Hz full scale. Final calibration is trimmed using the front accessible 'offs' and 'span' 15-turn trim adjustments. Zero suppression is available up to 100% of range. Output signal is indicated by the front LED which gives a clear indication of module function. RF and power transient protection are standard as it is with all APCS modules. Various power supply choices are available ranging from 240Vac down to 8Vdc.

General Specifications

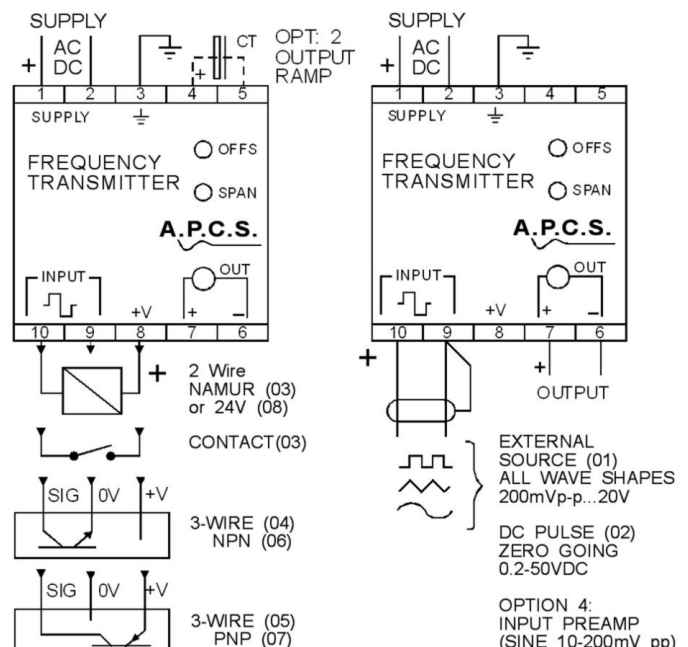
Size:	52 W x 70 H x 110 D (mm).
Mounting:	DIN-Rail, gear plate.
Termination:	Screw terminals on front.
Weight:	0.300 kg.
Housing material:	ABS.
Protection class:	IP40.
Electromagnetic compatibility:	Complies with AS/NZS 61000.6.4:2012
Calibration accuracy:	<0.5% of range for <10Hz f.s. <0.2% of range for >10Hz.
Combined linearity & drift error:	<0.2% of span.
Full scale input range:	5Hz up to 4.25kHz standard, >5kHz options.
Response time T_{90} for 0.5% f.s. ripple at 10% of signal:	50Hz and above: <0.5 secs. 5 up to 50Hz: $T_{90} = 20$ secs/Fmax.
Supply fluctuation effect:	< 0.5% of range for $\pm 10\%$ on supply.
Output loop drive:	20mA into 900 Ω , 50mA into 360 Ω .
Output load change effect:	less than 0.2% up to max load.
Front 'OFFS' adjust:	$\pm 20\%$ typical.
Front 'SPAN' adjust:	$\pm 20\%$ typical.
Temperature effect:	<0.02% per $^{\circ}\text{C}$.
Ambient operating range:	-10...+60 $^{\circ}\text{C}$.
Storage temperature range:	-20...+70 $^{\circ}\text{C}$.
Input/output isolation:	>2kVrms
Power requirements:	3W.



Block Diagram



For input / output combinations refer to type number overleaf.



TYPE NO. DESIGNATION

Power Supply:

- 1 = 90-280Vac 50/60Hz (65-280Vdc). *) 6 = 8 - 60Vdc.
- *) 3 = 16-48Vac 50/60Hz (10-60Vdc) *) 9 = Other specify.

Input:

- 01 = Low level sine or sawtooth (200mVpp - 20Vpp).
- 02 = 24Vdc pulse external source (0.2 - 50Vdc).
- 03 = NAMUR proximity sensor or contact (8V).
- 04 = 3-wire NPN proximity sensor 15V auxiliary.
- 05 = 3-wire PNP proximity sensor 15V auxiliary.
- 06 = 3-wire NPN proximity sensor 24V auxiliary.
- 07 = 3-wire PNP proximity sensor 24V auxiliary.
- 08 = 2-wire 24V DC/AC proximity sensor.
- *) 09 = Other specify.

For all inputs
Specify calibration p/sec (Hz)
Standard input is up to 4.25kHz,
see options for higher.

Output:

- 4 = Link selectable specify range from table below (4 – 20mA is default setting).
- *) 5 = 0 - 50mA (360Ω max).
- *) 6 = 10 - 50mA (360Ω max).
- *) 9 = Other specify.

Action:

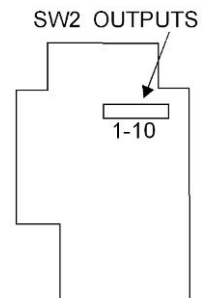
- 1 = Direct. *) 2 = Reverse.

Options:

- 0 = None, < 4.25kHz.
- *) 2 = Output ramp.
- *) 4 = Pre-amplifier for input pulse <200mVpp.
- *) 5 = Inputs >4.25kHz <10kHz.
- *) 9 = Other specify.
- *) A = Input divider for >10kHz.
- *) B = SPL0329 Quadrature pulse inputs on terminals 9 and 10 to detect direction. Output;
Forward = 0...+10V
Reverse = 0...-10V

Output Range selection

- 1) Disconnect power to unit.
- 2) Remove terminal covers.
- 3) Unclip housing lid and withdraw unit from housing.
- 4) Set the coding plugs as required.
- 5) Reassemble unit and connect power.
- 6) Adjust SPAN and OFFS pots to re-calibrate.
- 7) Change the label information to the new input/output values.



Output Selection – SW2

Factory default is 4-20mA

Output	1	2	3	4	5	6	7	8	9	10
4-20mA	X	X								
0-20mA					X					
0-10mA			X							
0-1mA				X						
0-1V					X				X	
0-2V					X					X
0-5V					X			X		
1-5V	X	X						X		
0-10V					X		X			

*) = Price Extra.

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