

Version: 1.0

Title – Hydrins – negative data issue

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(Issue 2)

Hydrins - How to troubleshoot erroneous negative data

Negative data on the graph can be caused by 'logger overflow' where the pulse rate into the logger is higher than the logger can accommodate. At this point it causes the logger to reverse into a negative flow situation.

For an LX logger the maximum frequency at a 15 minute sample rate is 36 Hz which equates to around 1080 Litres per second at 30Litres per pulse. $(36 \times 30 = 1080)$

The pulse output figure can easily be changed on the Hydrins using the Pulse factor box in the Hydrins software – you can type in your required figure.

Consider what the peak flow value is likely to be in the pipe in litres per second - then work out the scale factor to not have more than the max pulses/second of the logger.

In the example below for a 1000mm pipe the Maximum flow in the pipe is likely to be 5137 m3/hr this equals 1427 litres/sec

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nformation Instrument type Serial number Sensor number Software version	Hydrins II		Units Velocity unit Volume unit Time unit Totaliser unit	Millimetre Metre cube Hour Litre	Serial output 4-20 mA output Display Point velocity Mean velocity Flow Flow
Usable probe length mm		Sampling Number of samples	2	Noise of point velocity Noise of mean velocity	
Internal diameter Probe position	1000 Center	mm	Cycle time Sampling time	30 × se	c Doise of flow
Measurement direction	Bi-direction	al 💌	Battery life	3 years	Frequency output Battery usage
Minimum flow rate	0.000	m3/hr	Calculation Flow direction	Normal	Units
Pulse factor	28.543	litre	Normal flow contact Smoothing type	Open Averaged	Calibration Gain 1.000
Maximum permissible flow :5137.7 m3/hr Above, the probe may be seriously damaged			Number of points Mains frequency	5 50 Hz 💌	Offset 0.0 mm/sec Flow zero cut off 5 mm/sec

Max input for an LX is 36Hz,

1427/36 = 39.6 so 40 litre/pulse (rounded up to a whole number and to allow a bit extra headroom) is the maximum the logger can accommodate.



In reality you should probably set the Hydrins at 45litres per pulse, as the logger is going to average it out over 15mins anyway - see below .

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Information Instrument type Serial number	Hydrins II	Velocity unit Volume unit	Millimetre	Serial output 4-20 mA c	utput Display
Software version Usable probe length]	Totaliser unit	Litre	Flow Noise of point veloci	У
Installation Internal diameter Probe position Measurement direction	1000 mm Center 💌	Number of samples Cycle time Sampling time	2 A 30 A v sec 1.0 A v sec	Noise of mean veloc Noise of flow Totaliser Frequency output	ty
Insertion / profile factors Minimum flow rate Maximum flow rate	1.012 / 0.865 0.000 m3/hr 5.137.683 m3/hr	Calculation Row direction	Normal	 Battery usage Units 	
Pulse factor	45.00 litre	Normai flow contact Smoothing type Number of points Mains frequency	Averaged 5 50 Hz	Calibration Gain Offset Flow zero cut off	1.000 0.0 mm/sec

You will also need to set to set the logger flow channel at 45 litres per pulse

User Defined Transducer 👻 Remove			
45.000000			
0.000000			
All Data Values			
	45.000000 0.000000 All Data Values		

Document History:

Edition	Date of Issue	Modification	Notes
1st	06/08/12	Release	
2nd	15/09/15	Format update	