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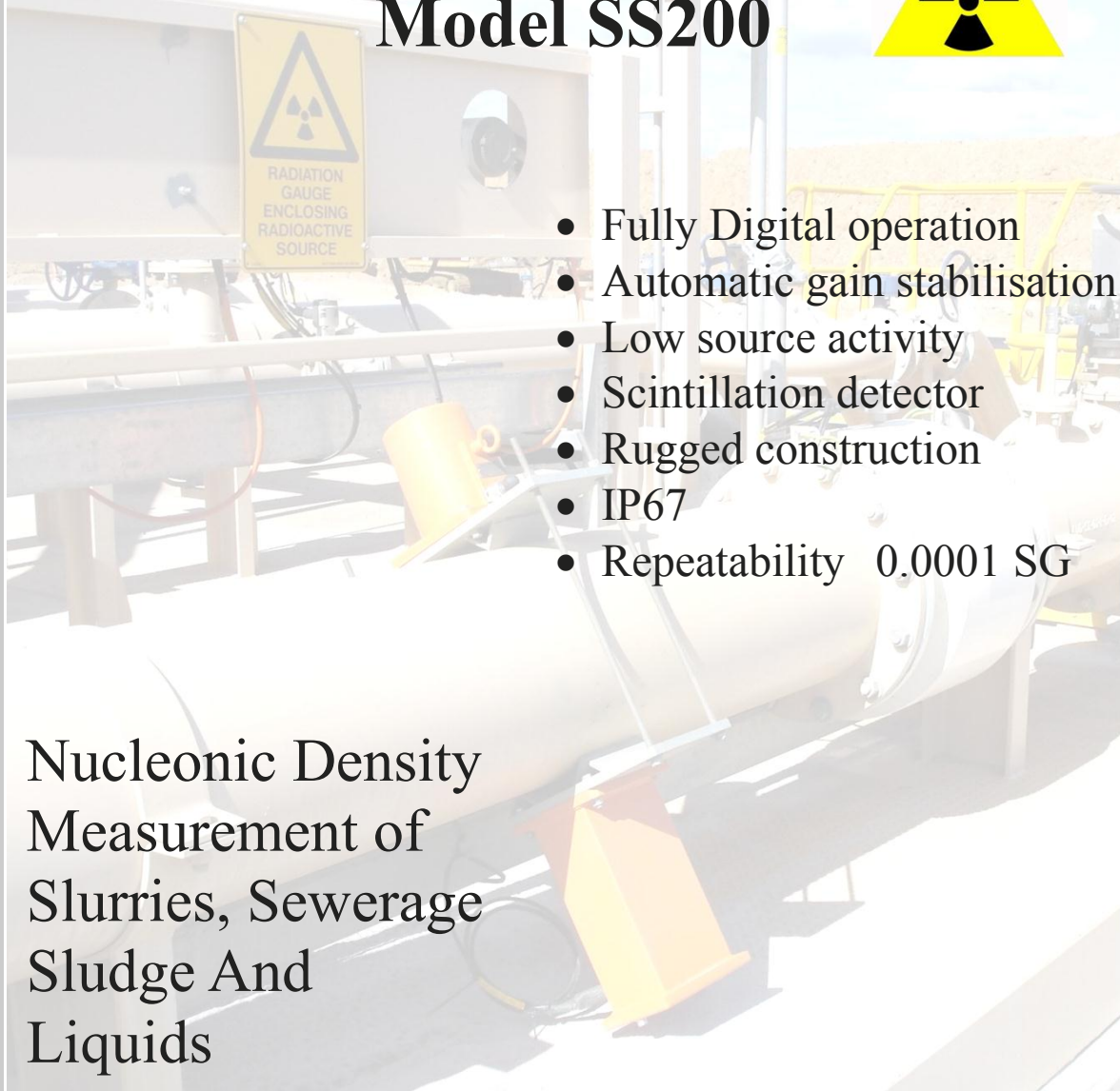
P.O Box 79 Mt Hawthorn W.A 6016

3/63 Walters Drive

Osborne Park, Western Australia

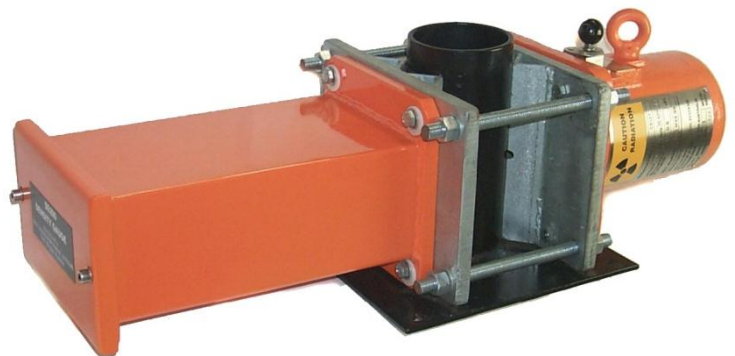
# DIGITAL DENSITY GAUGE

## Model SS200



- Fully Digital operation
- Automatic gain stabilisation
- Low source activity
- Scintillation detector
- Rugged construction
- IP67
- Repeatability 0.0001 SG

Nucleonic Density  
Measurement of  
Slurries, Sewerage  
Sludge And  
Liquids



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# SS200 DIGITAL DENSITY GAUGE

## FEATURES

### Narrow beam geometry

A collimated narrow beam of gamma combined with a collimated NaI scintillation crystal ensures errors due to Compton Scattering through the pipe and slurry do not arrive indirectly at the scintillation crystal.

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### Decay compensation

Decay compensation is built into the gauge to allow for the decay of the radioactive source. Each day the time elapsed between the last calibration and the present date is used to calculate a correction factor.

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### Deadtime Correction

In order to achieve accuracy, the count rate period selected must be as high as possible for the accumulation of counts. The electronics used in the density gauge has a finite response time when analysing each pulse as it arrives. When the pulses arrive close together some are not analysed due to earlier pulses still being analysed. The time during which the electronics is unable to analyse pulses is called the deadtime. The software adds the missing counts caused by the deadtime back into the system. For this a well-known statistical correction formula is used which requires the deadtime to be extremely tightly controlled. The SIStec Model SS200 maintains the deadtime precisely over the temperature range of the instrument, to a precision of  $\pm 10$  nanoseconds.

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### Gain Stabilisation

The SS200 employs a sophisticated control technique which monitors the count rate and compares it to a statistical model of the radiation and automatically adjusts the gain of the detector system accordingly, in effect an automatic gain control



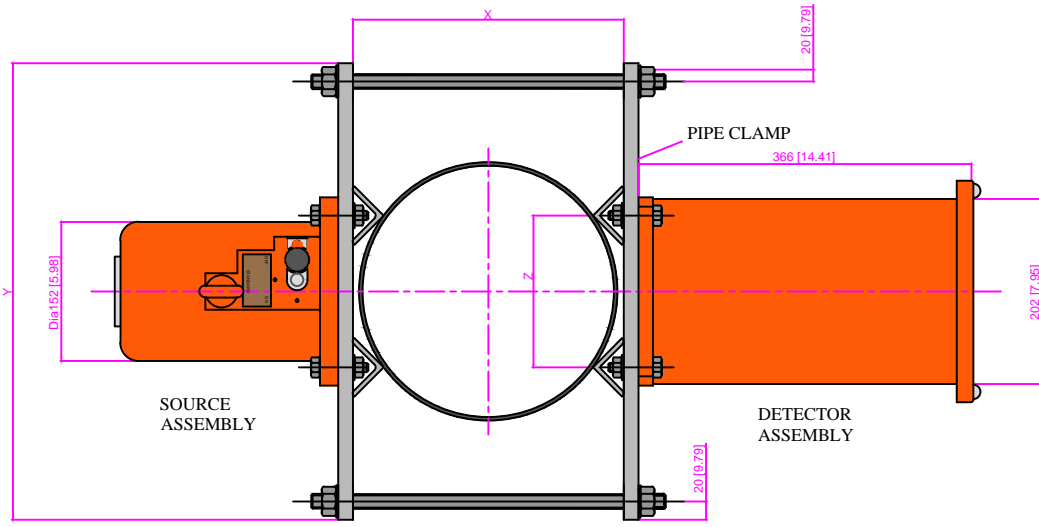
## SPECIFICATIONS

### PRINCIPLE COMPONENTS

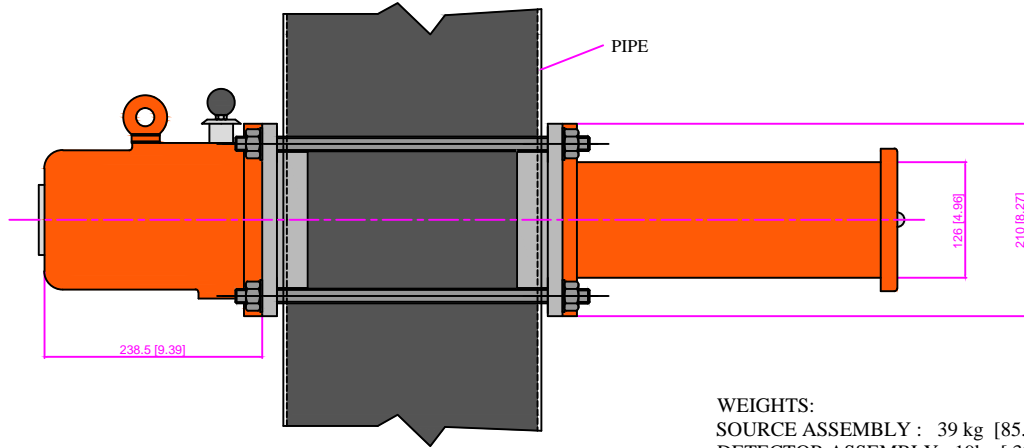
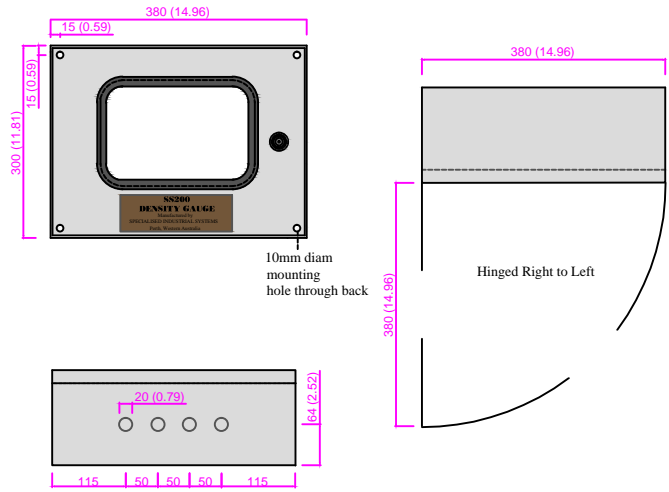
Source Holder	IP65 Lead filled sealed ductile steel or 316 Stainless Steel Shielding meets or exceeds internationally accepted safety standards Rotary shutter with standardising absorber incorporated
Radioisotope	Double encapsulated Cs 137 or Co 60
Detector Housing	IP67 Rugged steel enclosure or 316 Stainless Steel Connects to Control Unit with instrumentation cable
Scintillation Detector	Sodium Iodide with integral photo-multiplier
Control Unit	IP66 316 Stainless Steel housing Switch mode power supply 88-264Vac or 24Vdc 30 Watts No loss of data with power off Decay clock continues with power off Data transmitted by RS422 link May be up to 1000 metres from detector module Isolated 4-20 mA current output loops (1.5KV) Comms options: Modbus RTU, Profibus DP, Device Net, HART Protocol, Foundation Fieldbus

### OPERATION

Temperature Drift	$\pm 0.000006$ SG units per degree Celsius
Repeatability	$\pm 0.0001$ SG units typical $\pm 0.0002$ SG units maximum
Operating Temperature	0 to 60 °C
Vibration	2g at 100 Hz
Humidity	5 – 95 % RH, non-condensing
Inputs	4 – 20 mA from volume flow gauge
Outputs	Two 4 – 20 mA current loops for SG, per cent solids, mass flow. Mass flow integrator with potential free contacts, one pulse per tonne
Mass (Kg)	Source Holder – 39 Kg Detector Unit – 19 Kg Control Unit – 9 Kg



316 S/STEEL CONTROL CABINET



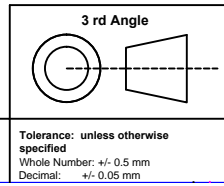
WEIGHTS:  
 SOURCE ASSEMBLY : 39 kg [85.9 lb ]  
 DETECTOR ASSEMBLY: 19kg [ 39.6 lb ]  
 SS200 CONTROL CABINET: 9 kg [ 19.8 lb ]

Note: Use SIStec enclosure 316 st./steel, seal to IP66

MOUNTING DIMENSIONS			
PIPE DIAMETER	X	Y	Z
50 TO 230	67 TO 285	290	70
[1.97] TO [9.05]	[2.64] TO [11.22]	[11.42]	[2.75]
230 TO 425	234 TO 465	510	165
[9.06] TO [16.73]	[9.21] TO [18.31]	[20.08]	[6.50]
425 TO 625	437 TO 657	710	225
[16.73] TO [24.61]	[17.20] TO [25.87]	[27.95]	[8.86]
625 TO 825	633 TO 853	910	275
[24.61] TO [32.48]	[24.61] TO [32.48]	[35.83]	[10.83]

NOTE: DIMENSIONS IN BRACKETS ARE INCHES.

DO NOT SCALE THIS DRAWING. WORK TO DIMENSIONS SHOWN.  
 ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED



**SIStec**  
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 Osborne Park, Western Australia 6017

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
Drawn by	Checked by	Approved by - date	Job NO	Date	Scale	
	M-Marsh	LE_28/11/04	XXX	25/10/04	NTS	
<b>GENERAL_ARRANGEMENT</b>						
9560-00-0002				REV	Sheet	
				9	1/1	