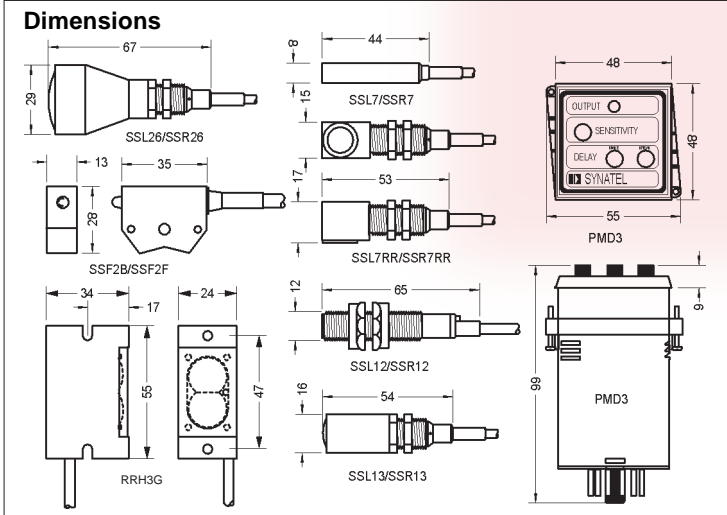


PHOTOELECTRIC SENSOR RANGE

Synatel produce a range of photoelectric sensors, in different styles and packages, to suit a wide variety of applications. The sensors are available as; throughbeam (object 'breaks' the sensing beam), reflex (object reflects light back to sensor) or polarised retro-reflex units (sensor works with a reflector and the object 'breaks' the beam).

MODULAR RANGE SERIES SSP1

An 11 pin, international relay base, plug-in control module (PMD3) for use with a range of heads to fulfil a variety of applications.



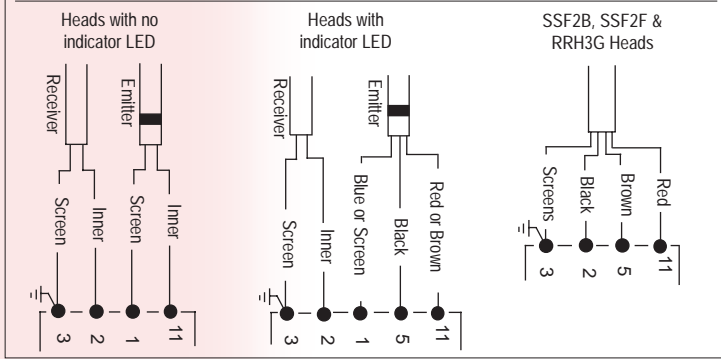
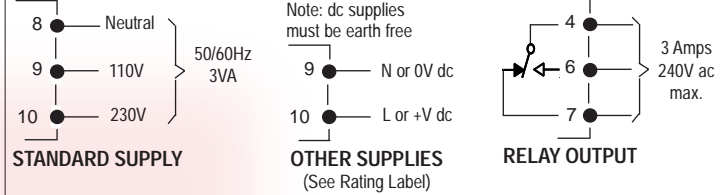
SPECIFICATION - MODULAR SENSOR HEADS

Type	Range (metres)	Weight	Material
Through Beam			
Emitter SSL7	1.25M	70g	Anodised Aluminium
Receiver SSR7	1.25M	70g	Anodised Aluminium
Emitter SSL7RR	1.25M	90g	Anodised Aluminium
Receiver SSR7RR	1.25M	90g	Anodised Aluminium
Emitter SSL12	1.0M	75g	Moulded Polycarbonate
Receiver SSR12	1.0M	75g	Moulded Polycarbonate
Emitter SSL13	5.0M	90g	Brass/Anodised Aluminium
Receiver SSR13H	5.0M	90g	Brass/Anodised Aluminium
Emitter SSL26	10M	100g	Brass/Nylon
Receiver SSR26	10M	100g	Brass/Nylon
Retro Reflex			
RRH3G	2.0M	110g	Moulded ABS
Reflex			
SSF2B Unfocussed	0.05M	95g	Moulded Polycarbonate
SSF2F Focussed	0.02M optimum	95g	Moulded Polycarbonate

SPECIFICATION - PMD3 MODULE

Supply (Standard Unit)	110/230V ac 50/60 Hz, 3VA
Output	S.P.C.O relay. 240V 3A non-inductive
Output Mode	Normally De-energised (output off with beam broken). For reverse operation, normally on with beam broken, add suffix 'X' after model number. (PMD3X)
Operating Temp.	-10° to +50°
Operating Speed	5 per second maximum
Operating Range	Dependant upon head used from chart above
Termination	11 pin plug in relay base
Sensitivity	0 to 100% adjustable
Time Delay	Standard, 1.5 to 15 sec. Other times to order
Indication	Output energised (On) LED
Enclosure	Moulded Noryl (modified PPO) & Acrylic
Protection	IP40
Weight	230g

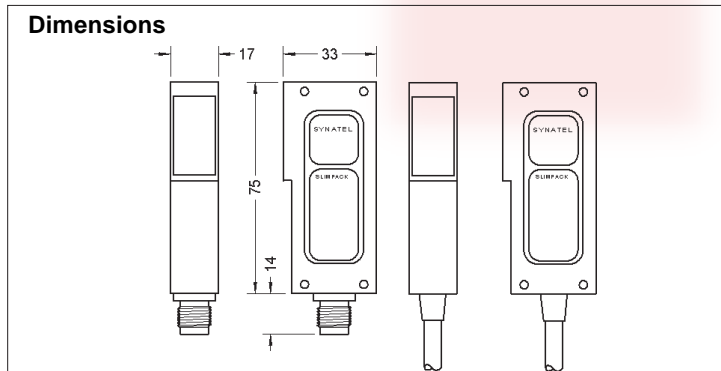
Connections



Accessories: 11 pin plug in relay base, reflectors.

SLIMPACK RANGE

A range of reflex, polarised retro-reflex and through beam heads in a compact format ideal for many different applications.



SPECIFICATION - GENERAL

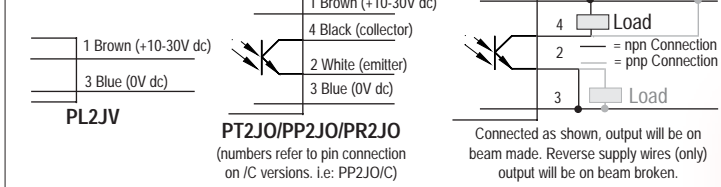
Supply	10-30V dc
Output	Fully protected, opto-isolated transistor. Rated@ 100mA 30V dc max.
Indication	Output state and variable intensity alignment
Termination	2M PVC sheathed cable or 4 pin connector
Sensitivity	0-100% on receiver, reflex and retro reflex

SELECTION CHART

Model	Type	Operating Range	Weight
PP2JO	Retro Reflex	5.0M	280g
PP2JO/C	Retro Reflex	5.0M	100g
PR2JO	Reflex	0.75M	280g
PR2JO/C	reflex	0.75M	100g
PT2JO	Receiver	> 6.0M	280g
PL2JV	Emitter	> 6.0M	280g
PT2JO/C	Receiver	> 6.0M	100g
PL2JV/C	Emitter	> 6.0M	100g

Models with 'C' after type number require a connector.

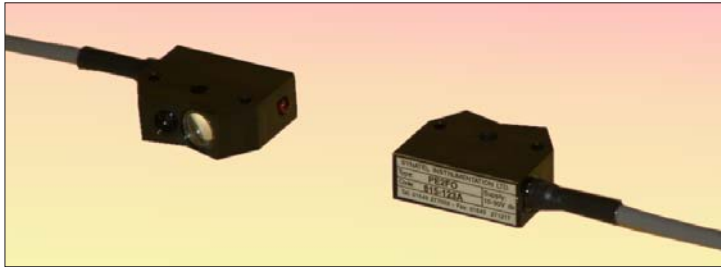
Connections



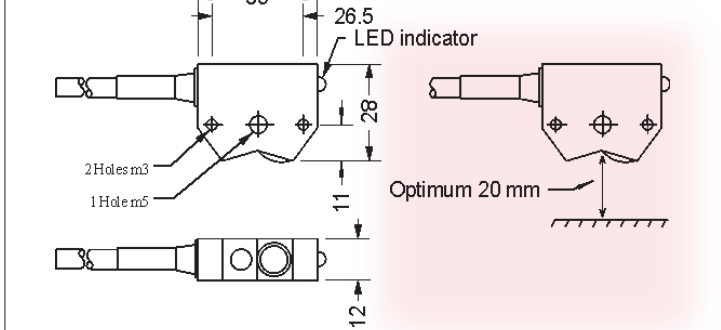
Accessories: Reflector, Connector with 2 metres cable (for use on connector 'C' versions only)

MINIFLEX REFLEX SENSOR

Short range adaptable reflex sensors in infra red and visible light formats. These units are ideal for packaging and labelling machines where the focussed, short range operation prevents false signalling from nearby objects.



Dimensions



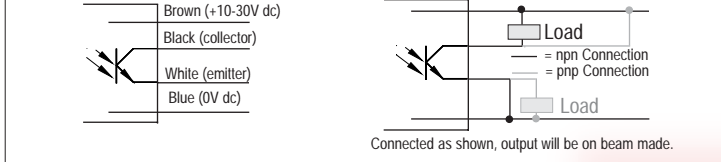
SPECIFICATION - GENERAL

Supply	10-30V dc
Output	Fully protected, opto-isolated transistor. Rated@ 100mA 30V dc max.
Operating Range	0-0.05M max, 0.02M optimum
Indication	Output On LED
Termination	2M PVC sheathed cable

SELECTION CHART

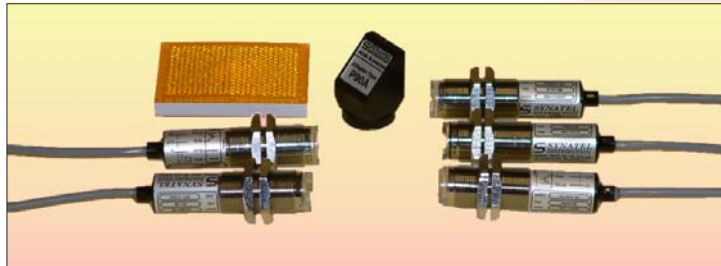
Model	Type	Weight
PE2FO	Visible red light suitable for most applications	100g
PI2FO	Infra-red sensor for dark, or black items	100g

Connections

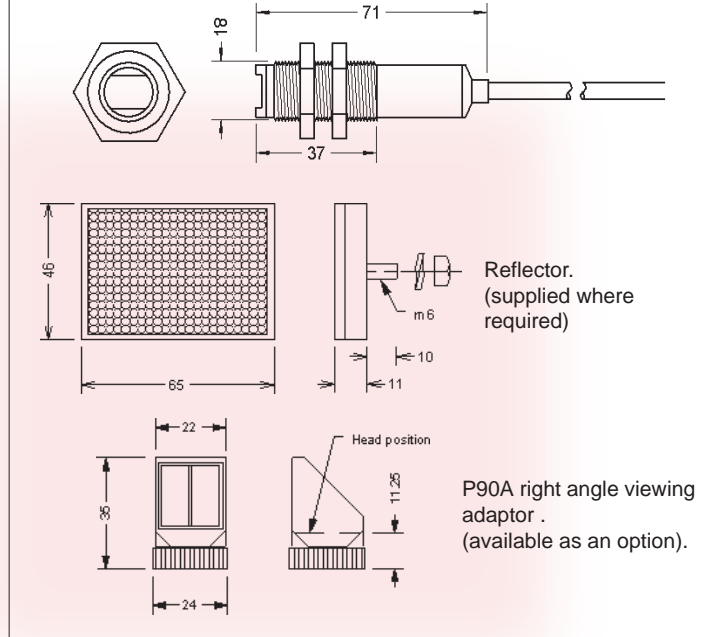


OPTIBEAM RANGE

A range of 18mm sensors in through beam, non-polarised retro-reflex, polarised retro-reflex and reflex formats. These units provide a very cost effective solution to a wide range of different applications throughout industry.



Dimensions



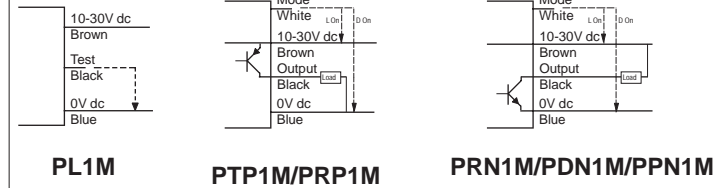
SPECIFICATION - GENERAL

Supply	10-30V dc
Output	Fully protected, opto-isolated transistor. Rated@ 100mA 30V dc max.
Indication	Output state
Termination	2M PVC sheathed cable
Sensitivity	0-100% on receiver, reflex and retro reflex

SELECTION CHART

Model	Type	Operating Range	Weight
PRN1M	Reflex npn	0.4M	100g
PRP1M	Reflex pnp	0.4M	100g
PDN1M	Retro-reflex npn	2.0M	100g
PPN1M (polarised)	Retro-reflex npn	1.0M	100g
PTP1M	Receiver pnp	> 8.0M	100g
PL1M	Emitter	> 8.0M	100g
P90A	Right angle viewing adaptor		20g

Connections

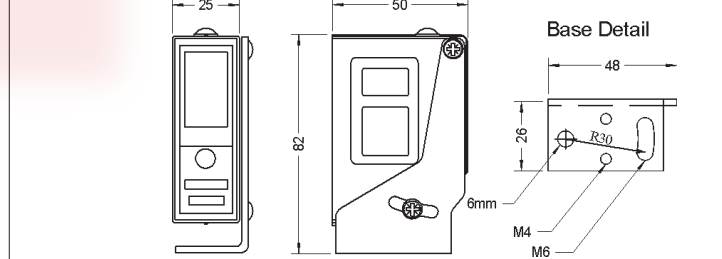


OPTIBEAM RANGE

An economic range of robust sensors for dc and ac applications supplied as complete units with universal fixing brackets and reflectors (if needed). Operating ranges are: retro-reflex 4m distance, through beam 8m distance.



Dimensions



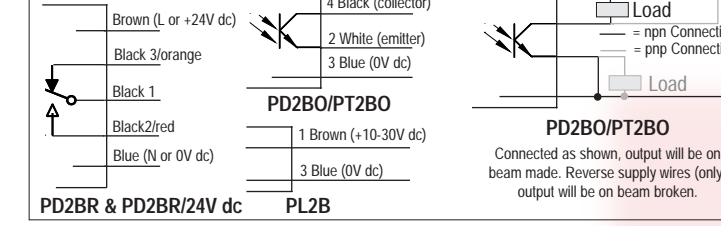
SPECIFICATION - GENERAL

Supply	10-30V dc
Output	'O' units: Fully protected, opto-isolated transistor. Rated@ 100mA 30V dc max. 'R' units: S.P.C.O relay. Rated @ 3A 240V non-inductive
Indication	Output state LED
Termination	2M PVC sheathed cable
Mounting	Bracket supplied

SELECTION CHART

Model	Type	Voltage Range	Weight
PD2BO	Retro-Reflex	10-30V dc	110g
PD2BR-24	Retro-reflex	24V dc	110g
PD2BR	Retro-reflex	90-260V ac	110g
PL2B	Through beam emitter	10-30V dc	110g
PT2BO	Through beam receiver	10-30V dc	110g

Connections

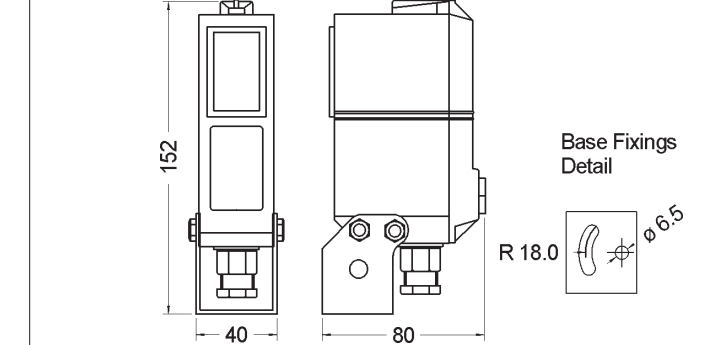


UNILIGHT RANGE

A robust and heavy duty range of sensors, all with universal voltage power supplies, sensitivity controls and time delays. Available in through beam, polarised retro-reflex and background suppressed reflex formats. Units are complete with a universal mounting bracket.



Dimensions



SPECIFICATION - GENERAL

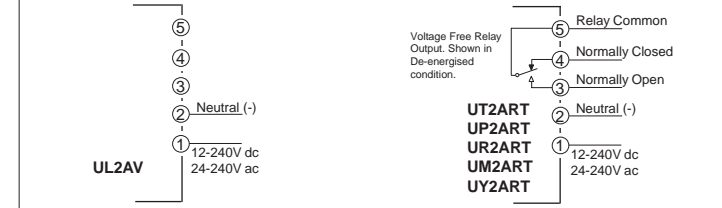
Supply	12-240V ac/dc
Output	S.P.C.O relay rated at 3A 240V ac max. non-inductive
Indication	Output state and variable intensity alignment
Sensitivity	0-100% on receiver, reflex and retro reflex
Time Delay	0-5 seconds on beam make and beam break

SELECTION CHART

Model	Type	Operating Range	Weight
UP2ART	Retro-reflex	5.0M	280g
UR2ART	Reflex	0.75M	280g
UM2ART	Clear glass/plastic sensor retro-reflex	1.0M	280g
UT2ART	Receiver	> 8.0M	280g
UL2AV	Emitter	> 8.0M	280g
UY2ART	Background suppressed reflex	1.0M	280g

Accessories: Reflectors

Connections

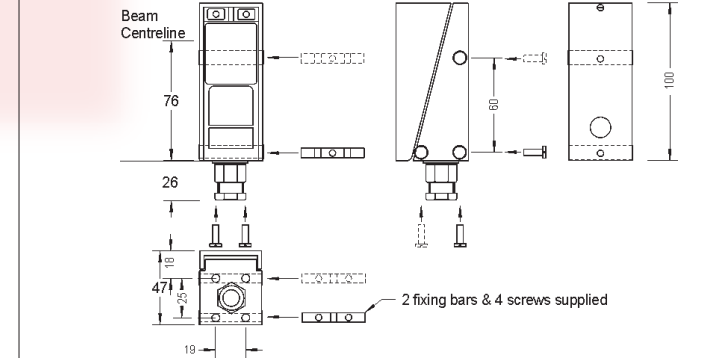


EF RANGE

A set of through beam sensors, working on 24V dc supply. Quick disconnect, a single screw holds the units together and the cabling is via a plug-in screw terminal block. Units are complete with mounting bars.



Dimensions



SPECIFICATION - GENERAL

Supply	24V dc
Output	Opto-isolated protected transistor. 30V dc 100mA max rating. npn or pnp configurable.
Indication	Output state and variable intensity alignment
Sensitivity	N/A
Time Delay	N/A

SELECTION CHART

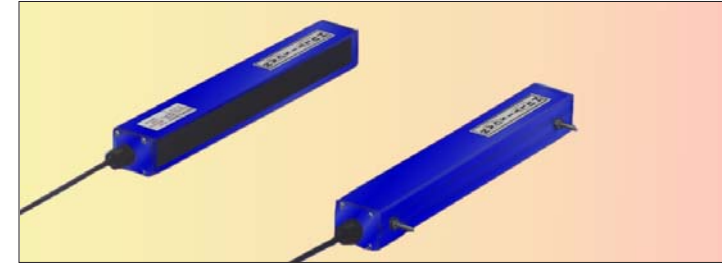
Model	Type	Operating Range	Weight
EFR1/OSS	Receiver	> 6.0M	200g
EFL1	Emitter	> 6.0M	200g

Connections

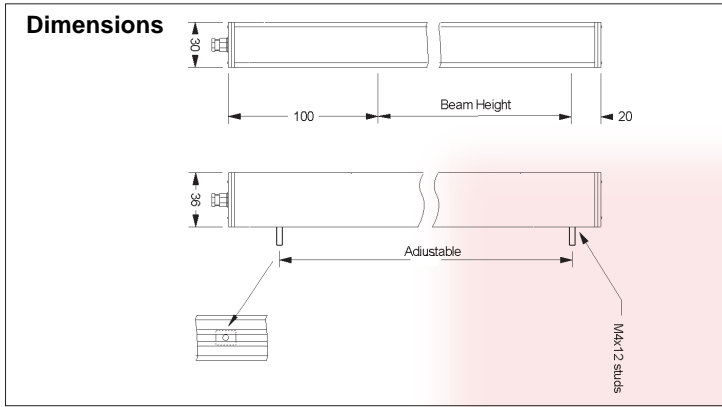


MULTIBEAM RANGE

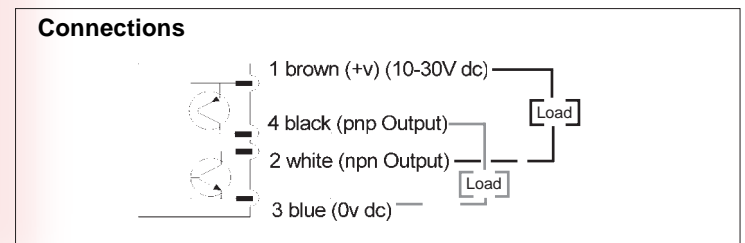
Versatile and adaptive through beam sensor arrays suitable for height or object detection anywhere within a specified light curtain. Output can be either analogue, digital or switched (transistor), or a combination to suit particular applications.



All dimensions shown in mm unless otherwise specified.



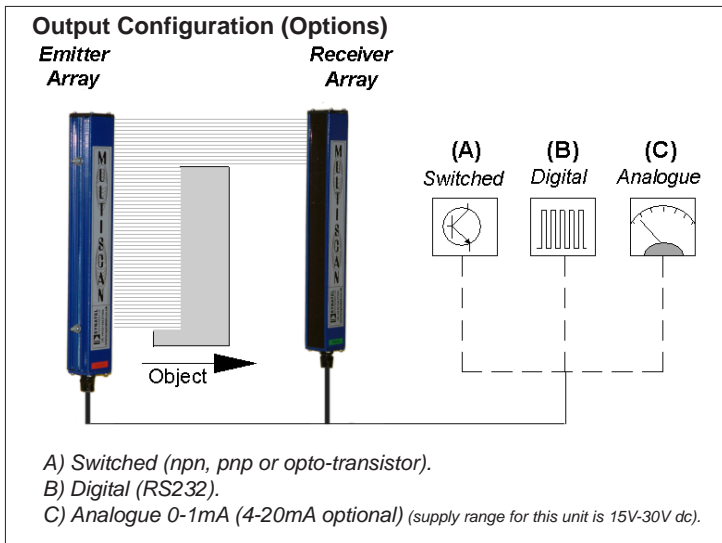
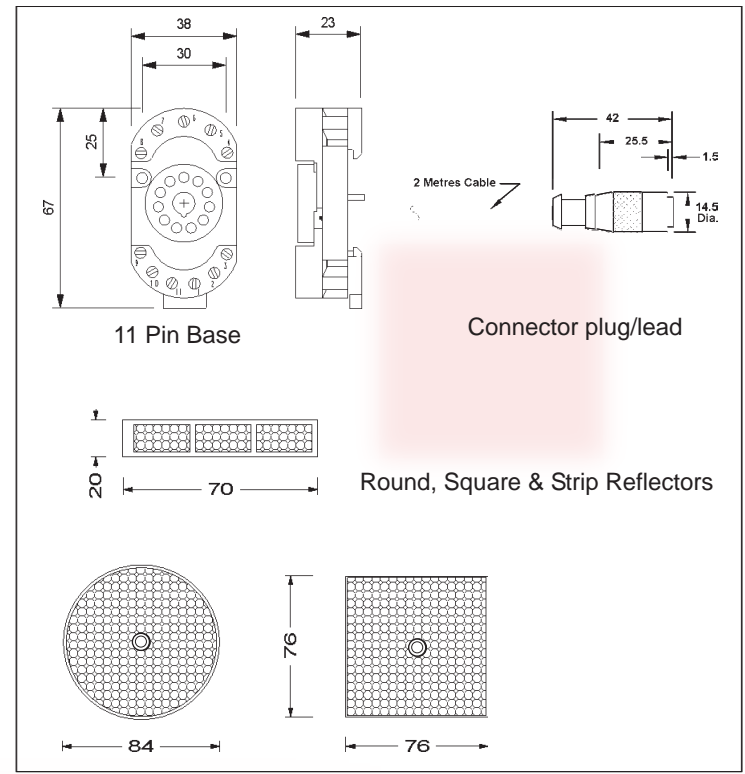
SPECIFICATION - GENERAL	
Supply	10-30V dc
Output	1 npn > Rated @ 30V dc 1 pnp > 100mA max.
Indication	Output state and Detect LED's
Sensitivity	Adjustable 0-100%
Weight	120g



SPECIFICATION - GENERAL	
Supply	10-30V dc (15-30V dc analogue o/p units)
Output	Optional choice of: switched (nnp, pnp or opto-transistor, digital RS232, analogue 0-1mA or 4-20mA)
Indication	Output state LED
Operating Range	100mm upto 2M max.
Beam Pitch	3mm
No. of Beams	30 standard, may be increased in multiples of 30
Mounting	M4 x 12mm adjustable fixing studs (supplied)

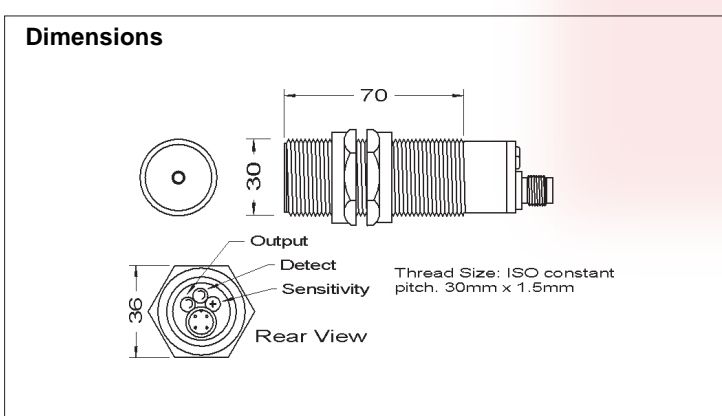
ACCESSORIES

A range of ancillary items for use with specified synatel units.



PB1TS2/C Sensor

This is a broad beam sensor and is typically used on bottling lines, and will work with either glass or plastic containers. The sensor will ignore small gaps between bottles etc.



photoelectric sensors



proximity sensors



speed monitors



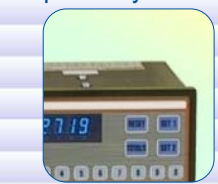
counters & tachometers



level control sensors



special systems



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in Action

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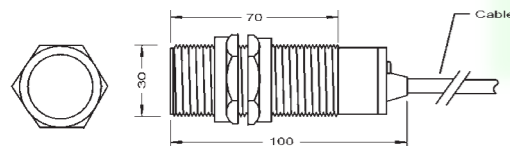
CAPACITIVE SENSORS

30mm diameter enclosures, multivoltage supply with relay output or 2 wire FET output versions.

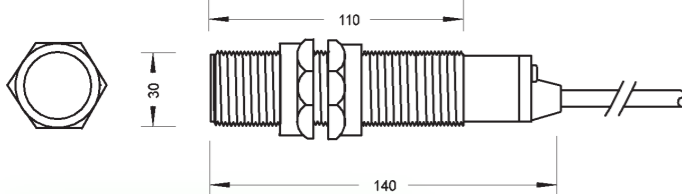


Dimensions

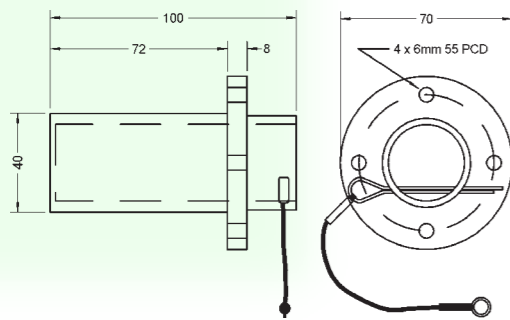
CD1TR(A) - CE1TR(A)
CD1TZ(A) - CE1TZ(A)



UC1TR

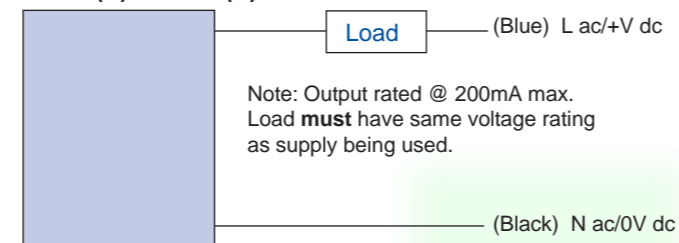


Optional extra available:
Mounting Pocket: (not for use with UC1TR)
Material: Polypropylene.
Weight: 70g.

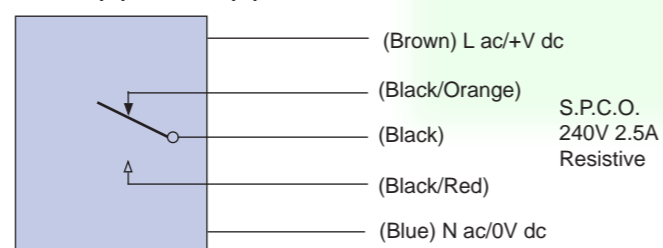


Connections

CD1TZ(A) - CE1TZ(A)



CD1TR(A) - CE1TR(A)



'D' variation sensors CD1T#(A) output **ON** when sensing.
'E' variation sensors CE1T#(A) output **OFF** when sensing.

2 wire units C#1TZ(A): supply voltage is 24-240V ac/dc.
5 wire units C#1TR(A): supply voltage is 12-24V ac/24-240V dc.

C#1T#(A) ATEX category: Ⓜ II 1D (Zone 20).

SPECIFICATION - GENERAL

	UC1TR
Supply	12-240V dc/24-240V ac.
Output	SPCO relay
Output Rating	2.5A 240V ac maximum. Non-inductive.
Output State	Programmable
Operating Range	25mm Typical.
Hysteresis	15% of Operating range.
Ambient Temp.	-15°C to +50°C.
IP Rating	IP65.
Number of cores	5
Weight	260g

SPECIFICATION - GENERAL

	CD1TR(A)	CE1TR(A)	CD1TZ(A)	CE1TZ(A)
Supply	12-240V dc/24-240V ac.		24-240V ac/dc	
Output	SPCO relay		2 wire FET	
Output Rating	2.5A 240V ac maximum. Non-inductive.		200mA maximum.	
Output State	Normally OFF	Normally ON	Normally OFF	Normally ON
Operating Range	25mm Typical.			
Hysteresis	15% of Operating range.			
Ambient Temp.	-15°C to +50°C.			
IP Rating	IP65.			
Number of cores	5		2	
Weight	325g		300g	

Note: To prevent damage to units, 2 wire sensors **MUST** be wired in series with a load/relay/contact and **NOT** directly across supply being used.

PROXIMITY SENSOR CATALOGUE

2

photoelectric sensors



proximity sensors



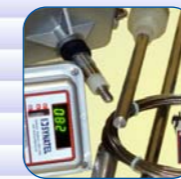
speed monitors



counters & tachometers



level control sensors



special systems



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PROXIMITY SENSOR RANGE

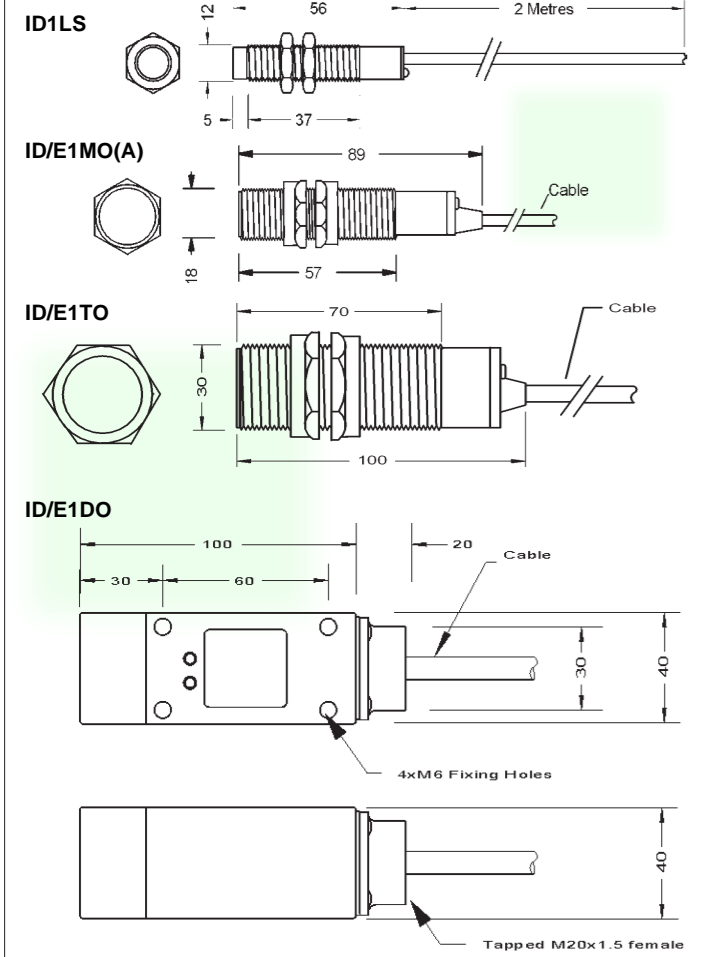
Synatel manufacture a range of proximity sensors, both inductive and capacitive, in a variety of enclosures ranging from a 12mm diameter dc type upto a 40mm DIN standard limit switch style; multivoltage with relay output. Units are available with ATEX and IEC Ex certification.

DC INDUCTIVE SENSORS

Consists of 12. 18, 30mm dia. plus DIN standard limit switch style. All units work from 10-30V dc supplies and provide transistor output for signalling/control purposes.



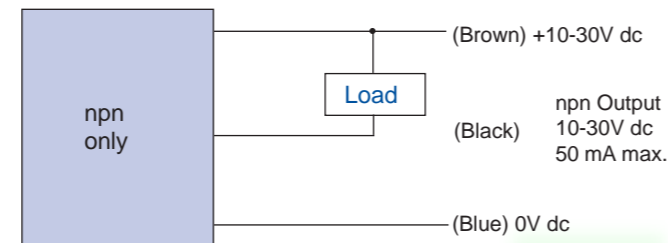
Dimensions



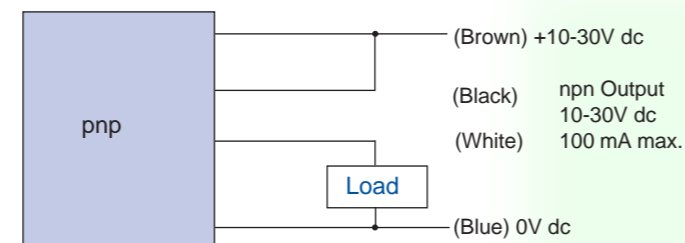
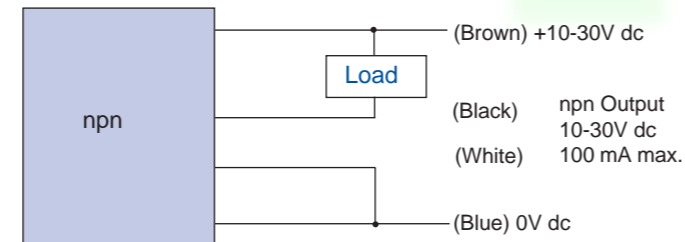
SPECIFICATION - GENERAL				
	ID1LS (12mm)	ID/E1MO(A) (18mm)	ID/E1TO(A) (30mm)	ID/E1DO (Limit Switch)
Supply	10-30V dc.			
Output	npn transistor.	Fully opto-isolated transistor, reverse and overvoltage protected. npn/pnp configureable.		
Output Rating	30V 50mA max.	30V 100ma Max.		
Output State	Normally OFF.	User selectable.		
Operating Range	4mm	8mm	12mm	
Hysteresis	15% of Operating range.			
Ambient Temp.	-15°C to +50°C.			
IP Rating	IP65.			
Number of cores	3	4 (2 cores connect together to give npn or pnp connection).		
Weight	75g	260g	300g	325g

Note: ID/E1MO(A) is also available with Gas Hazard approval -unit becomes ID/E1MO(AG). Suitable for gas group 2B. Supply **must** be fused (see manual supplied with unit). All other details are as stated above.

ID1LS



ID/E1MO(A) - ID/E1TO - UD1DO



With 4 wire units **connected as shown** above, **output** will be **ON** when unit is **sensing**. For **output OFF** when **sensing**, **reverse supply wires** (only).

ID/E1MO(A) ATEX category: Ⓜ II 1D (Zone 20).
ID/E1MO(AG) ATEX category: Ⓜ II 2G 1D EEx m IIB (Zone 0/20).

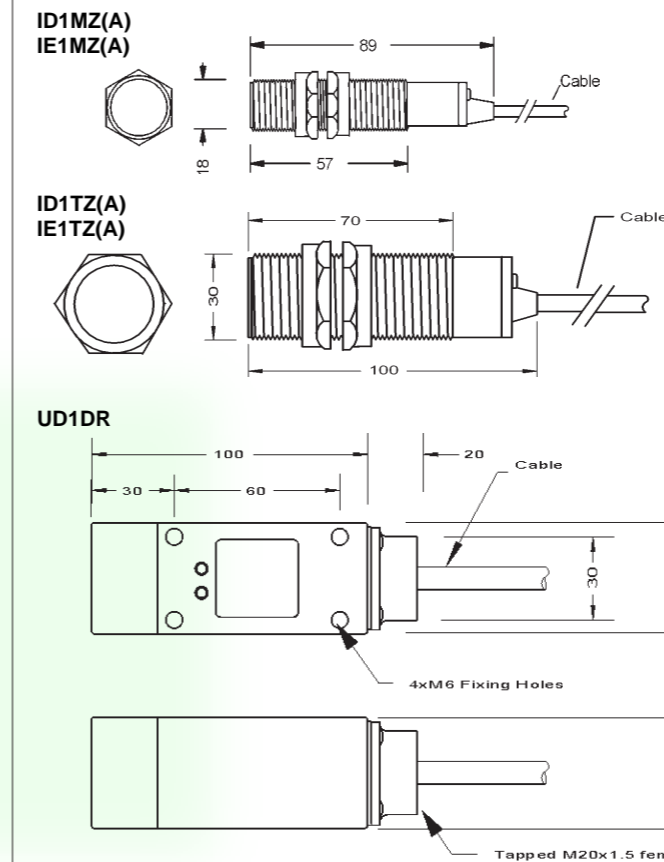
Sensor attachment accessory available (Whirligig).
Targets are fully protected, no further guarding required.
See Speed Monitoring Catalogue (Section 3), for details.

MULTI-VOLTAGE INDUCTIVE SENSORS

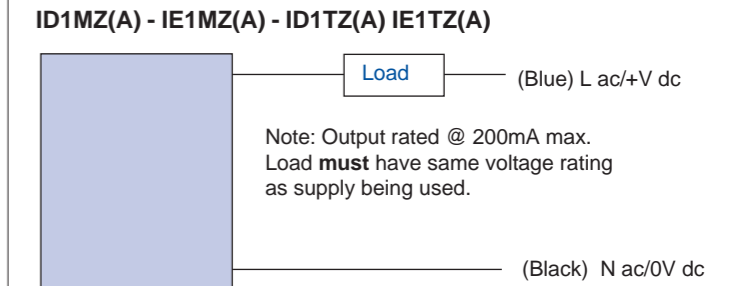
Consists of 18 and 30mm, 2 wire versions (24-240V ac/dc), plus DIN standard limit switch package (12-240V dc/24-240V ac) with relay output.



Dimensions

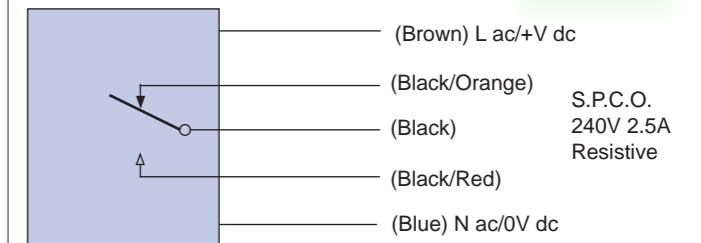


Connections



'D' variation sensors ID1#Z(A) output **ON** when **sensing**.
'E' variation sensors IE1#Z(A) output **OFF** when **sensing**.

UD1DR



2 wire units: supply voltage is 24-240V ac/dc.
5 wire units: supply voltage is 12-24V ac/24-240V dc.

I#1MZ(A) ATEX category: Ⓜ II 1D (Zone 20).
I#1MZ(AG) ATEX category: Ⓜ II 2G 1D EEx m IIB (Zone 0/20).

Sensor attachment accessory available (Whirligig).
Targets are fully protected, no further guarding required.
See Speed Monitoring Catalogue (Section 3), for details.

SPECIFICATION - GENERAL

	ID1MZ(A)-IE1MZ(A) (18mm)	ID1TZ(A)-IE1TZ(A) (30mm)	UD1DR Limit switch
Supply	24-240V ac/dc.		12-240V dc/24-240V dc.
Output	2 wire FET.		SPCO relay.
Output Rating	200mA maximum.		2.5A 240V ac maximum Non-inductive.
Output State	'D' normally OFF, 'E' normally ON.		Normally OFF.
Operating Range	8mm	12mm	
Hysteresis	15% of Operating range.		
Ambient Temp.	-15°C to +50°C.		
IP Rating	IP65.		
Number of cores	2		5
Weight	260g	300g	325g

Note: To prevent damage to units, 2 wire sensors **MUST** be wired in series with a load/relay/contact and **NOT** directly across supply being used.

Note: ID1MZ(A) & IE1MZ(A) are also available with Gas Hazard approval -units becomes I#1MZ(AG). Suitable for gas group 2B. Supply **must** be fused (see manual supplied with unit). All other details are as stated above.

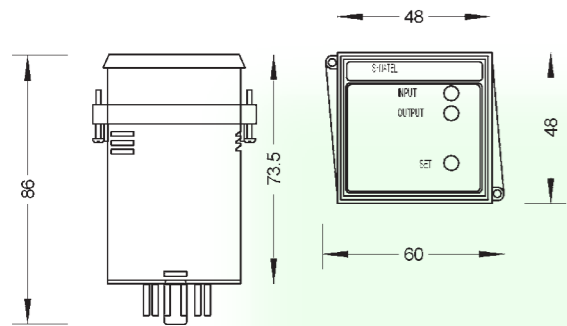
All dimensions shown in mm unless otherwise specified.

MODUSLIP UNDERSPEED RMR48/T

An underspeed module in a 48mm DIN standard enclosure, can also be used for overspeed detection. Single pushbutton calibration for set running speed and start up delay.



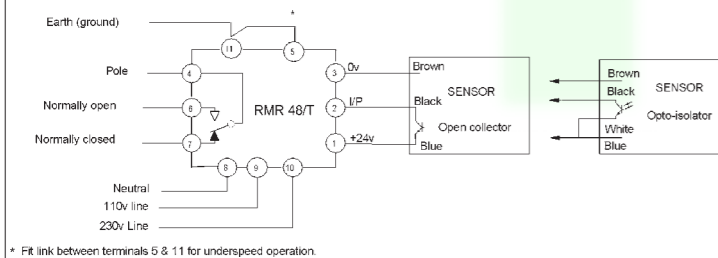
Dimensions



SPECIFICATION - GENERAL

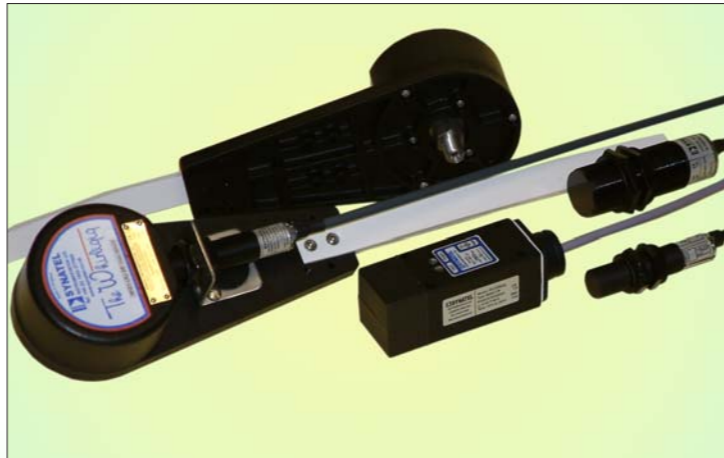
Supply	110/230V ac 50/60Hz.
Operating Temp	-10°C to +50°C.
Operating Speed	1-10,000 PPM.
I.P. Rating	IP40.
Operating Distance	Dependant upon sensor used.
Output	S.P.C.O Relay. 5A 240V ac maximum.
Output State	Output energised @ set running speed, de-energises if rotation falls 20% or more below set speed.
Calibration	Start-up delay and set running speed user programmable via pushbutton.
Start-Up Delay	Programmable start-up delay. Output energises for time period irrespective of incoming pulse signal, allows machinery to achieve running speed. Max. 30 seconds.
Indication	LED indication of input pulses and output energised.
Input Device	npn transistor or contact input. Any Synatel dc inductive proximity sensor is suitable.
Weight	210g.

Connections



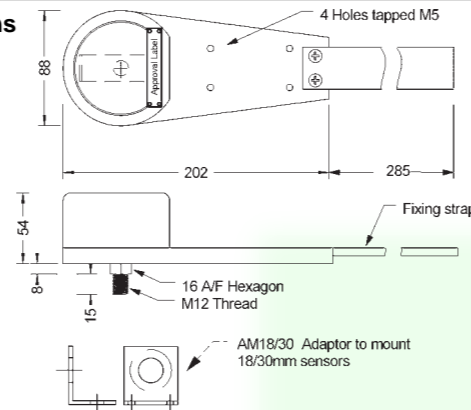
WHIRLIGIG SPEED MONITORING ATTACHMENT

A low cost, fully contained speed monitoring attachment, allowing easy fitting of all Synatel 18/30mm and DIN standard limit switch style proximity sensors/ speed monitors. Simple M12 fixing. Targets are fully enclosed and require no further guarding. ATEX approved.



Whirligig ATEX category: II 1GD c (Zone 0/20).

Dimensions



SPECIFICATION - GENERAL

Fixing	M12 x 1.75mm pitch stainless steel stud.
Mechanical Fitting	Reinforced flexible strap. Attach to static part of installation.
Bearing	Single deep groove stainless steel ball race. Sealed for life.
Body Material	Moulded Co-polymer.
Other Parts	Stainless Steel.
Maximum Speed	500 RPM.
Targets	2 pulses per revolution, (PPR) as standard. 1, 4 or 8 pulses available as an option.
Weight	410g.

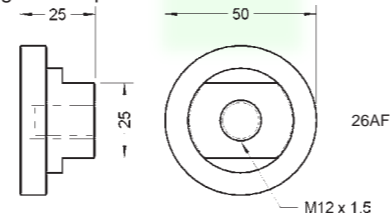
Also Available

Ideal for use in existing installations where it may not be possible to drill shaft end, or for temporary speed monitoring applications.

Weight: 280g.

MAGCON

Rare earth magnetic WG1 fixing. No drilling required. Simply screw the WG1 unit onto the magcon and place on end of shaft.



SYNATEL
INSTRUMENTATION LTD.



Detection & Control
in Action

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e-mail: sales@synatel.co.uk

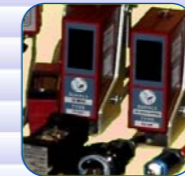


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SPEED MONITORING CATALOGUE

3

photoelectric sensors



proximity sensors



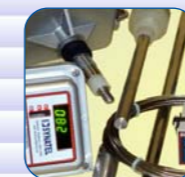
speed monitors



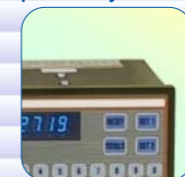
counters & tachometers



level control sensors



special systems



SPEED MONITORING RANGE

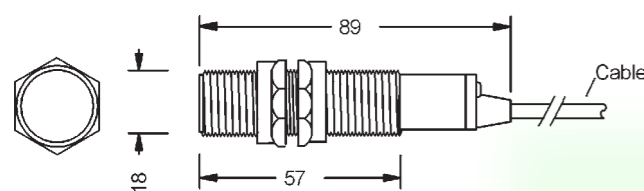
A range of stopped motion, over or underspeed monitors, designed and manufactured in the UK by Synatel, available as self contained units or in modular form with separate proximity sensors. ATEX/IEC Ex units available for hazard areas.

ROTASTOP STOPPED MOTION SU1MZ(A)

An 18mm dia unit, fully self contained, incorporating a proximity sensor and associated stopped motion circuitry. The unit detects a stud on a shaft and the output maintains it's 'on' state whilst the target is moving. Ideal for chain & gear driven shafts. For belt driven applications see PU1TZ(A)/PU1TR(A).



Dimensions



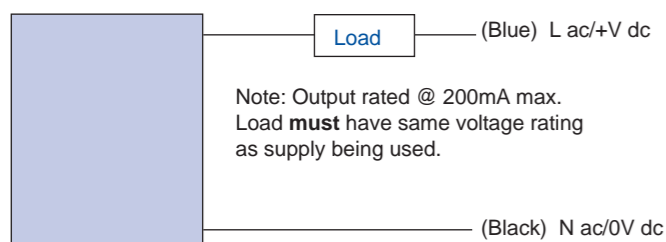
SPECIFICATION - GENERAL

Supply	24-240V ac/dc.
Operating Temp	-15°C to +50°C.
Operating Speed	15-3600 PPM.
I.P. Rating	IP65.
Operating Distance	8mm max (ferrous target - 18mm dia. min.)
Output	Two wire FET. Maximum. current 200mA. Vdrop= 8V maximum.
Output State	Output ON (energised) while shaft running and at least one pulse received within every 4 second.
Time Delay	4 seconds. Output de-energises after this time period if no input is detected. Alternative delays available.
Start-Up Delay	On application of supply. Output energises for 4 seconds to allow machinery to achieve normal running speed.
Indication	LED indication of input pulses and output energised.
Weight	260g.

Note: **SU1MZ(A)** is also available with Gas Hazard approval - unit becomes **ID/E1MO(AG)**. Suitable for gas group 2B. Supply **must** be fused (see manual supplied with unit). All other details are as stated above.

Connections

2 wire SU1MZ(A) & PU1TZ(A) units

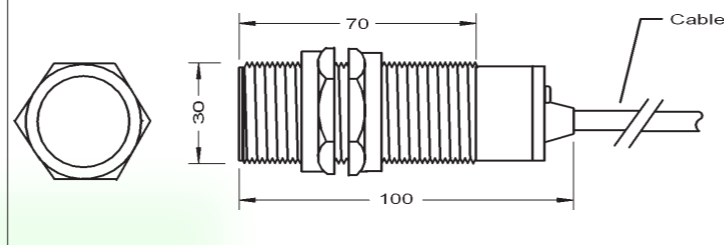


ROTASLIP UNDERSPEED PU1TZ(A)/PU1TR(A)

A 2 wire, FET output - PU1TZ(A) or a 5 wire, relay output - PU1TR(A) underspeed sensor. The unit detects a stud or bolt on a shaft and indicates a fault condition if input speed falls by 20% or more below set running speed.



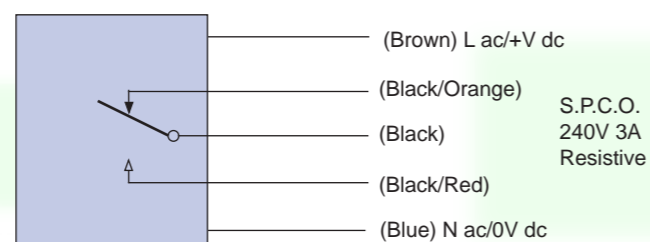
Dimensions



SPECIFICATION - GENERAL

Supply-PU1TZ(A)	24-240V ac/dc.
Supply-PU1TR(A)	12-240V dc/24-240V ac
Operating Temp	-15°C to +50°C.
Operating Speed	10-3600 PPM.
I.P. Rating	IP65.
Operating Distance	12mm max (ferrous target - 25mm dia. min.)
Output-PU1TZ(A)	Two wire FET. Maximum current 200mA. Vdrop = 8V maximum.
Output-PU1TR(A)	S.P.C.O relay. 3A 240V ac max. Non-inductive.
Output State	Output energised @ set running speed, de-energises if rotation falls 20% or more below set speed.
Calibration	Start-up delay and set running speed user programmable using a magnet (supplied) applied to a target area on body of sensor. Automatically calibrates to 20% under normal running speed.
Start-Up Delay	Programmable start-up delay. Output energises for time period irrespective of incoming pulse signal, allows machine to achieve running speed. Max. 30 seconds.
Indication	LED indication of input pulses and output energised.
Weight	300g.

5 wire PU1TR(A) units



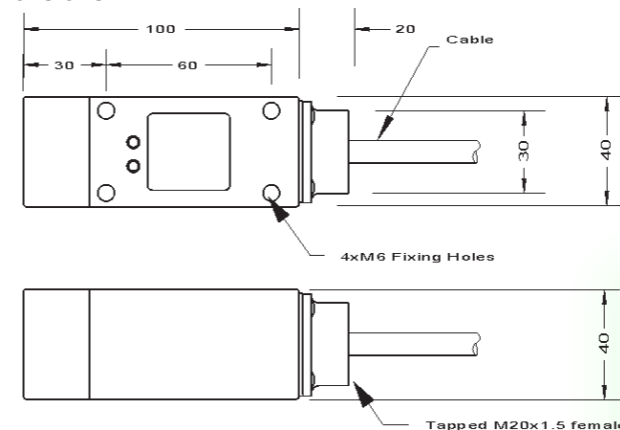
All dimensions shown in mm unless otherwise specified.

ROTAMATIC UNDERSPEED PU1DR(A)

A DIN standard limit switch packaged underspeed monitor with relay output. Output given if input speed falls by 20% or more below set running speed.



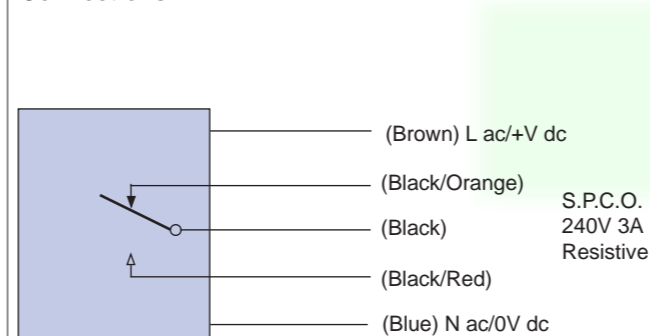
Dimensions



SPECIFICATION - GENERAL

Supply	12-24V dc/24-240V ac.
Operating Temp	-15°C to +50°C.
Operating Speed	10-3600 PPM.
I.P. Rating	IP65.
Operating Distance	12mm max (ferrous target - 25mm dia. min.)
Output	S.P.C.O Relay. 3A 240V ac maximum.
Output State	Output energised @ set running speed, de-energises if rotation falls 20% or more below nominal speed.
Calibration	Start-up delay and set running speed user programmable using a magnet (supplied) applied to a target area on body of sensor. Automatically calibrates to 20% under normal running speed.
Start-Up Delay	Programmable start-up delay. Output energises for time period irrespective of incoming pulse signal, allows machine to achieve running speed. Max. 30 seconds.
Indication	LED indication of input pulses and output energised.
Weight	500g.

Connections

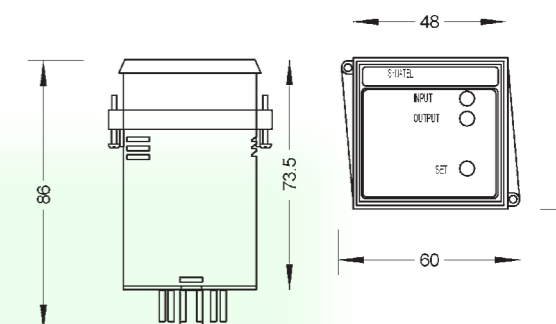


MODUSTOP STOPPED MOTION LSM48

Non contact, solid state unit. 48mm din standard enclosure, adjustable input signal time delay with relay output. Ideal for gear & chain driven applications. See RMR48/T for belt driven applications.



Dimensions

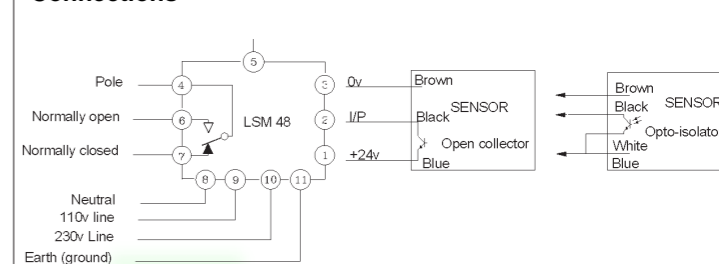


SPECIFICATION - GENERAL

Supply	110/230V ac 50/60Hz.
Operating Temp	-15°C to +50°C.
Operating Speed	1-10,000 PPM.
I.P. Rating	IP40.
Operating Distance	Dependant upon sensor used.
Output	S.P.C.O Relay. 5A 240V ac maximum.
Output State	Output energised providing at least on input pulse is received within time period set on top plate of module. Output de-energises if no pulse received within time period.
Calibration	Adjustable potentiometer sets input delay.
Start-Up Delay	Output energises for set time period and ignores incoming pulse signal, allowing machinery to reach running speed.
Indication	LED indication of input pulses and output energised.
Input Device	npn transistor or contact input. Any Synatel dc inductive proximity sensor is suitable.
Weight	210g.

Note: Standard input time delay is **1.5-15 seconds**. Other time periods available to order are: **0.3-3 seconds, 3-30 seconds or 6-60 seconds**.

Connections

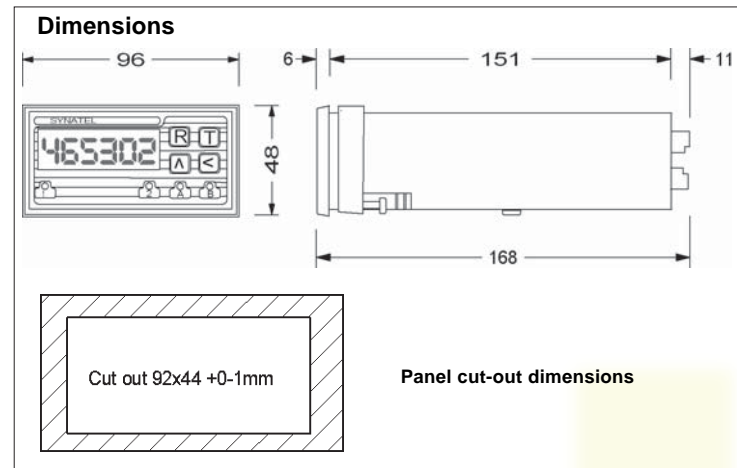


COUNTER AND TACHOMETER DISPLAYS

Synatel manufacture and supply a range of digital display units suitable for applications including: counting, batching, totalising or speed indication purposes. Units either have a panel cut-out of 96 x 48mm or 144 x 72mm (DIN standard).

CUL1/CUL1R COUNTER/TACHOMETER

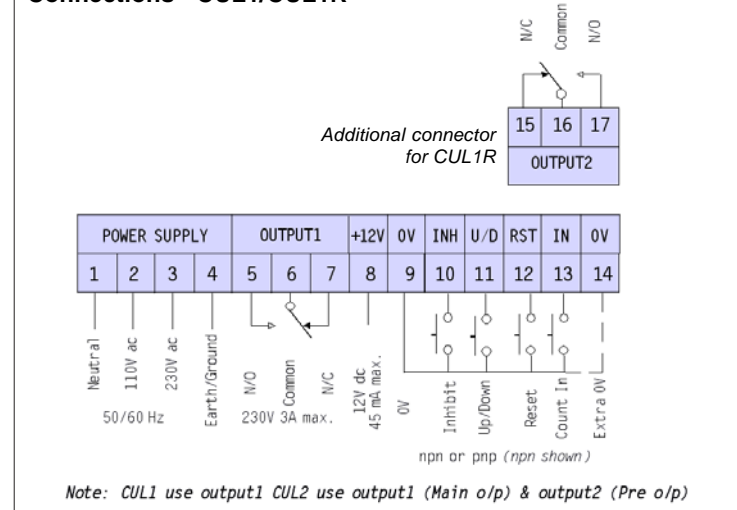
Multi function unit with relay outputs can be user programmed as a counter, tachometer or dwell timer. High brightness vacuum fluorescent display. NPN, PNP or contact input, speeds up to 10KHz.



SPECIFICATION - GENERAL

Supply	110/230V ac or 10-30V dc as specified.
Consumption	3VA.
Sensor Supply	12V dc smoothed, unswitched 45mA max.
Input	NPN, PNP or volt free contact.
Input Speed	10KHZ Max.
Output-CUL1	SPCO relay rated @ 5A ac non-inductive.
Output-CUL1R	2 x SPCO relay rated @ 5A ac non-inductive.
Programming	Via front panel pushbutton membrane.
Memory Retention	10 year memory of programme settings
Protection	IP41.
Connection	Plug-in screw terminals on rear of unit.
Weight	400g.

Connections - CUL1/CUL1R

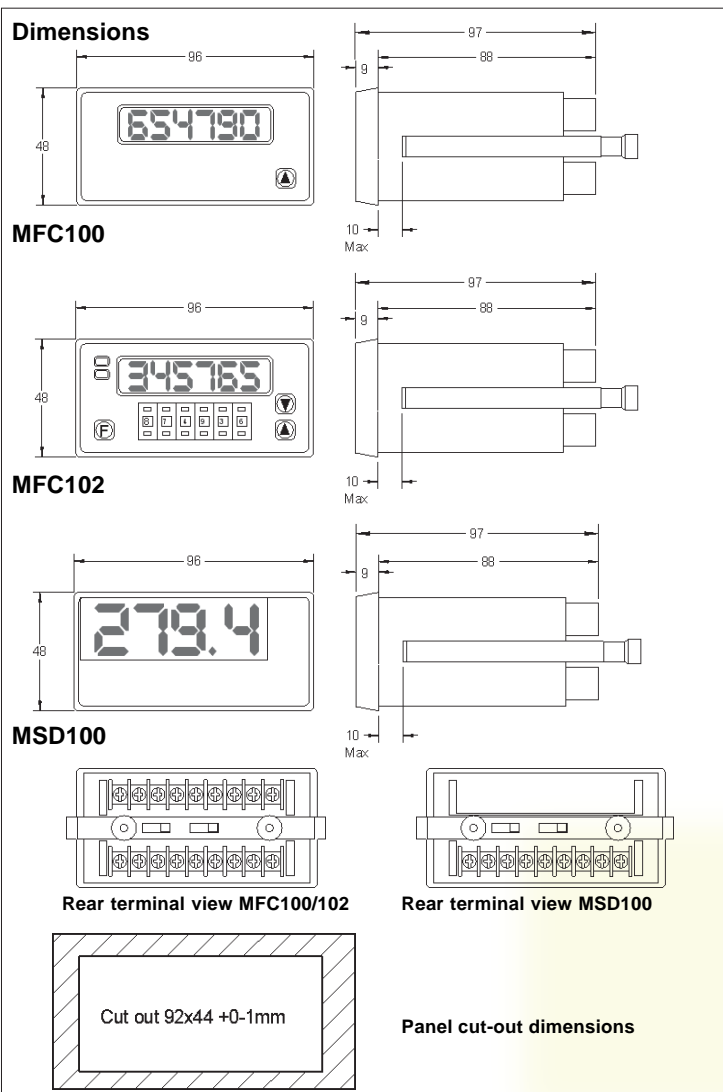
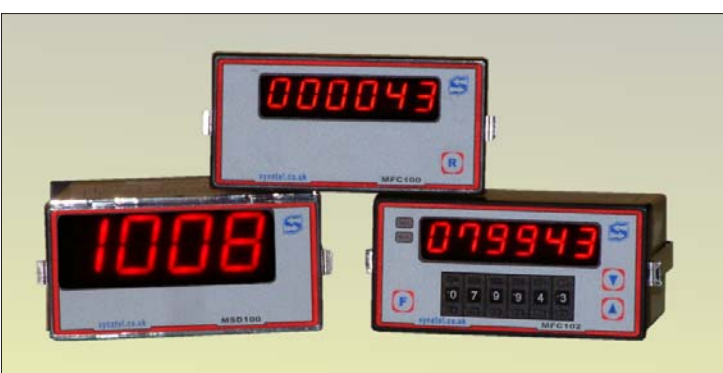


Variations available are:

CUL1 - Single relay output, programmable as a counter, speed indicator or dwell/bake time indicator, 5 digits, programmable divide/multiply function. Auto or manual reset.
CUL1R - Twin relay output, Programmable counter, tachometer or dwell/bake time indicator. suitable for batching, slowdown and stop control etc. 5 digits.

MFC100/102 - MSD100 COUNTER/TACHOMETER

The 'Multicount' series are a highly cost effective range of digital displays which can be user programmed for counting, batching, speed display or dwell/bake time indication.



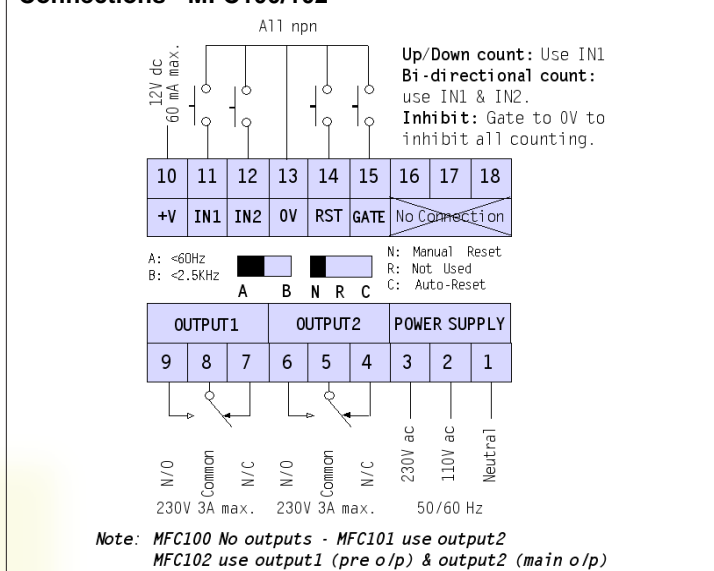
SPECIFICATION - GENERAL

Supply	110/230V ac.
Consumption	3VA.
Sensor Supply	12V dc smoothed, 60mA max.
Input	NPN or volt free contact.
Input Speed	2.5KHZ Max.
Output-MFC100	None.
Output-MFC102	2 x SPCO relay rated @ 5A ac non-inductive.
Output-MSD100	SPCO relay rated @ 5A ac non-inductive. Can be used for underspeed control applications etc.
Programming	Via front panel pushbuttons, slide switches and rotary switch.
Memory Retention	10 year memory of programme settings
Protection	IP41.
Connection	Screw terminals on rear of unit.
Weight	400g.

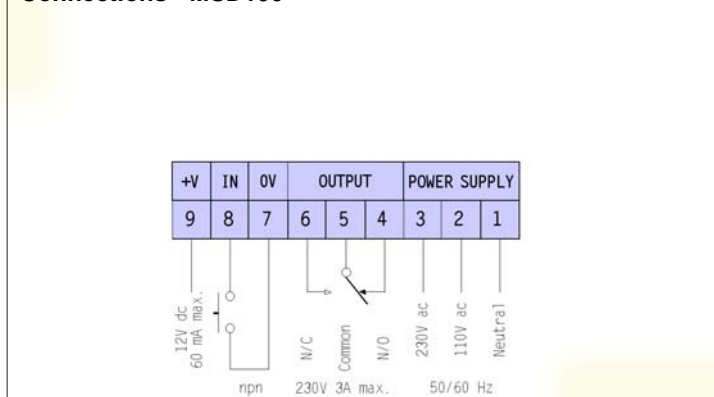
Variations available are:

MFC100 - Totalising counter, 6 digits, programmable divide/multiply function. Auto or manual reset.
MFC102 - Twin relay output, suitable for batching, slowdown and stop control etc. 6 digits. Programmable.
MSD100 - Tachometer or dwell time/bake time indication. 4 digits. Auto-adjusting floating decimal point. Relay output which can be used for underspeed signalling.

Connections - MFC100/102

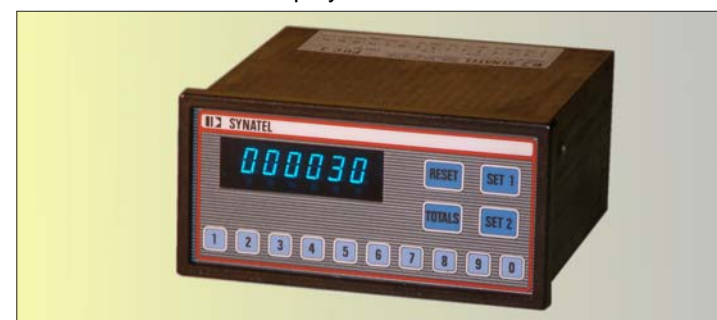


Connections - MSD100

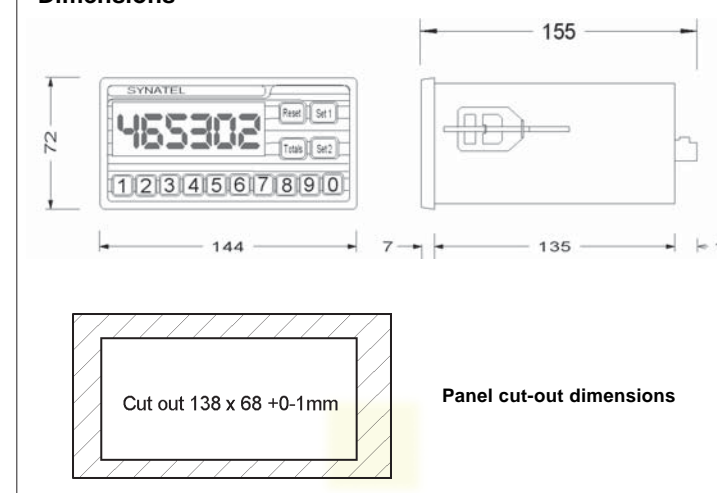


SLIC - SPECIAL FUNCTION

Non-standard, special function counter/tachometer unit with special input and/or output configuration. Digital or analogue input capability. Relay, opto-isolated transistor or analogue outputs with RS232 communication facility. High brightness vacuum fluorescent display.



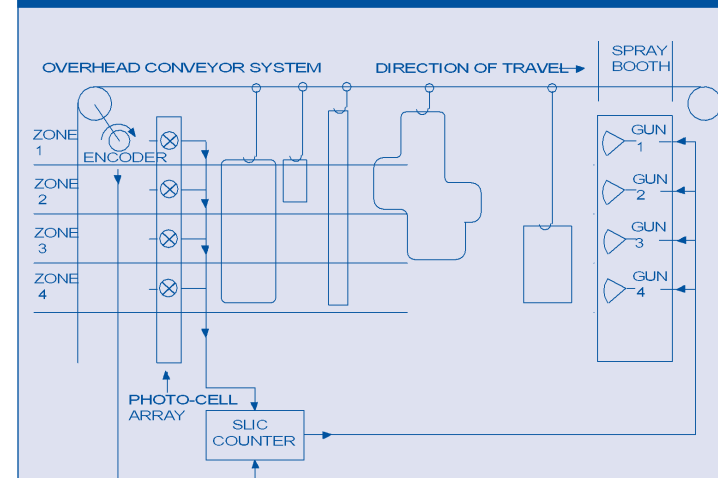
Dimensions



SPECIFICATION - GENERAL

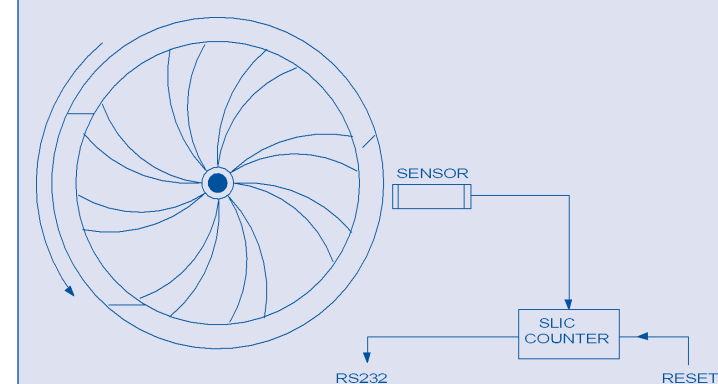
Units can contain a selection of the following specifications:	
Supply	110/230V ac plus a selection of dc supplies.
dc Supply Out	24V output available when mains powered. Reverse and over-volt protected.
Inputs	6 circuits, referenced to 24V dc supply. 2 optionally connected as a quadrature decoder. Fast/Slow response selectable (common control). pnp/npn selectable (common control). ESD protected.
Outputs	4 x Normally open relay contacts, 5A 240V ac non-inductive maximum.
Keyboard	Membrane, 14 keys, 0-9, Reset, Totals, Set1 & Set 2.
General	Power fail detection with battery back-up, sufficient for at least 1 month.
Protection	IP41.
Connection	Screw terminals on rear of unit.
Weight	530g.

Application Examples



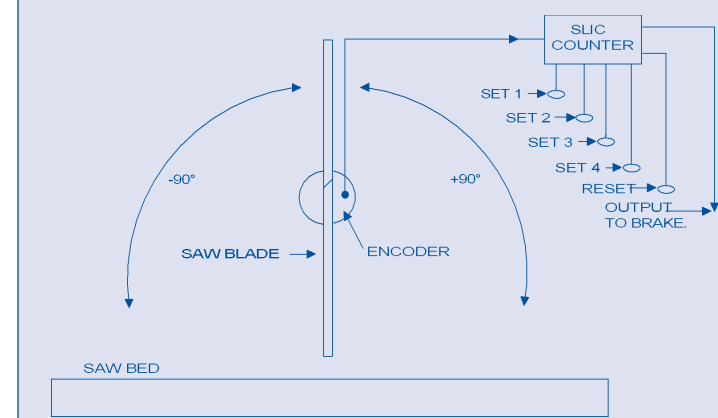
Spray Control System

The object is to spray each item using guns 1-4 as appropriate, wasting as little paint as possible. Items are detected by photo-cells which must be mounted outside the spray booth and the SLIC records the number of encoder pulses for which the item is detected. This information transfers into a shift register which tracks the item from the photo-cell to the spray guns to spray the object. Facilities are incorporated to over or underspray the object if necessary.



Gyro Test Unit

The Turbine is run up to a specific speed of 1400 RPM and then allowed to free wheel. The unit displays speed and when the speed falls to 11000 RPM it switches to displaying lapsed time. When the speed falls to 800RPM the time is displayed until the next test sequence. An RS232 output is provided for analysis by computer.



Saw Angle Controller

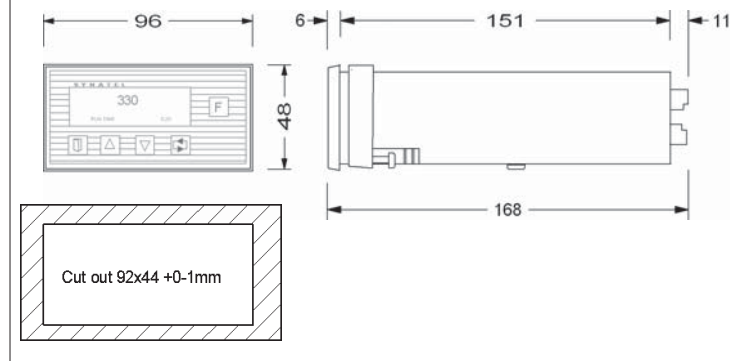
The SLIC displays the angular position of the saw and provides an output to apply a brake at one of four preset settings. The presets are set on the SLIC which displays to an accuracy of 0.1. An adjustable dead band can be incorporated. The reset resets the display to 90.0 which then reads + and - zero to 90.0 dependent upon the direction of rotation. The display is scaleable to suit any encoder.

CTU1/CTU2 WITH GRAPHICS PANEL

Special function counter/tachometer unit with alpha-numeric graphic panel (back lit), ideal for displaying measured units or alert/warnings if signals go outside set parameters. Programming socket incorporated on rear of unit.



Dimensions



SPECIFICATION - GENERAL

Units can contain a selection of the following specifications:

Supply	110/230V ac 10-30V dc.
dc Supply Out	24V output available when mains powered. Reverse and over-volt protected.
Inputs	3 circuits, referenced to 24V dc supply. Fast/Slow response selectable (common control). pnp/npn selectable (common control). ESD protected. 10KHz true quadrature. Bi-directional counting.
Outputs	SPCO relay contacts, 5A 240V ac non-inductive maximum. Optically isolated 100mA @ 350V ac/dc (1500V isolation). Additional auxilliary board can be fitted for extra relay outputs, 4-20mA loop etc.
Display	Backlit LCD, 122 x 32 pixel, large and small character set.
Keyboard	Touch sensitive, 5 keys with bleeper.
Communication	RS232 input/output
General	Power fail detection with battery back-up, sufficient for at least 1 month.
Protection	IP41.
Connection	Screw terminals on rear of unit.
Weight	420g.

Connections will depend upon final function of unit.

photoelectric sensors



proximity sensors



speed monitors



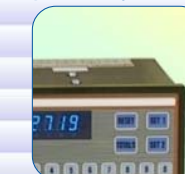
counters & tachometers



level control sensors



special systems



SYNATEL
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Detection & Control
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LEVEL CONTROL RANGE

Synatel manufactures a range of level control equipment, both R.F capacitive and resistive, for use in most liquid and solid level sensing applications. Units are available with ATEX and CSA certification.

DIGIMATIC SELF CONTAINED CAPACITANCE DML4(A)

Fixed point capacitive level control suitable for detecting liquids, powders and granular solids. Automatic high/low level calibration with full manual override. LED display shows calibration and run mode readings. ATEX approved for explosive dust hazard area use.

Power shield compensator; prevents false signalling due to material build-up, sticking to probe. Reliable detection of most solids and liquids.

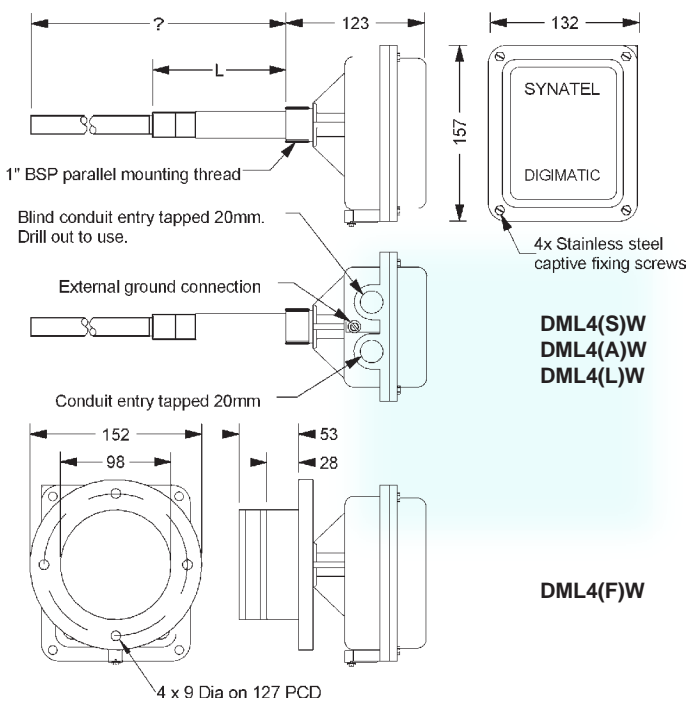
A range of unit types are available, including long & short powershield, flush probe mounting, *clear viewing lid - displays are visible through windows to avoid cover removal.



DML4(A)W ATEX category: ⓂII 1D (Zone 20).

Dimensions - Digimatic

L = 60mm for DML4(S)
L = 121mm for DML4(A) standard
L = Customer specified for DML4(L)

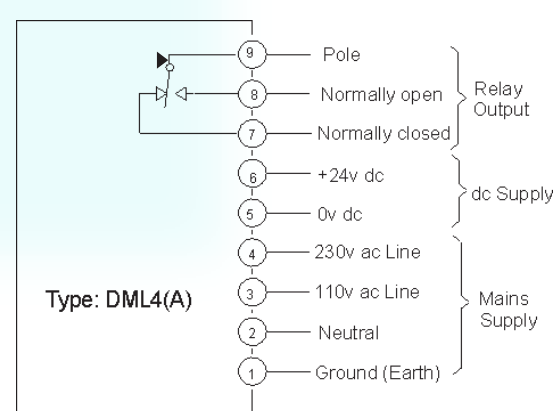


DML4(F)W

SPECIFICATION - GENERAL

Supply	110/230V ac, 24V dc
Load	1.5A max ac, 50mA dc.
Ambient Temp	-10°C to +50°C.
Output	SPCO Relay rated @ 2.5A 240V ac Non Ind.
Output Mode	Switch selectable for output normally ON (high level) or normally OFF (low level).
Calibration	Membrane pushbutton with LED Display. Automatic calibration with full manual override.
Indicators	Digital display for calibration and run mode + power, timer and O/P LED's.
Mounting	1" BSP parallel.
Protection	IP65.
Compensator	Power shield compensates for material build up between probe and vessel wall. Prevents false signalling. Ideal for sticky or viscous materials.
Weight	DML4(AW) - 2Kg plus probe rod, 200mm rod: 0.25Kg. 300mm rod: 0.25Kg. 1 metre rod: 1.50Kg. 2 metre rod: 3.00Kg. 10 metre wire rope: 1.75Kg.

Connections



The DIGIMATIC is supplied with a fuse fitted in the AC fuseholder, fit into the DC position for 24V dc operation.

The fuse rating for this unit is 100mA anti-surge, IEC.

No other rating may be used.

Stabilised 24V DC supply, +6.5% to -10%

Probe head ordering codes:

Standard unit: **DML4(A)W**.

Unit with short powershield: **DML4(S)W**.

Unit with extended powershield to customer specified length: **DML4(L)W**.

plus powershield length. i.e: DML4(L) 400 for unit with 400mm powershield.

(Probe rods for above units - see 'probe rods section').

Flush mounting unit: **DML4(F)W**

Option:

Remove **W**, unit will be fitted with a solid lid. i.e: **DML4(A)**.

*Special Conditions of Use (Certificate includes X).

Digimatics with a clear viewing lid - DML4(A)W - Where units are exposed to direct sunlight a cover **MUST** be fitted to shield from UV exposure. Applies to any version of Digimatic when fitted with clear lid

All dimensions shown in mm unless otherwise specified.

DIGIMATIC REMOTE CAPACITANCE DMR2A

A 3 part, remote level sensor consisting of: a) Control unit **DRC205A**, b) Transverter **DCT2AA** signal conditioning interface, c) probe head/probe (type depends upon application/temperature).

Automatic high/low level calibration with full manual override. LED display shows calibration and run mode readings. Control module can be mounted up to 100 metres from probe head (ideal for installing into control panel). Probes available for up to 250°C use.

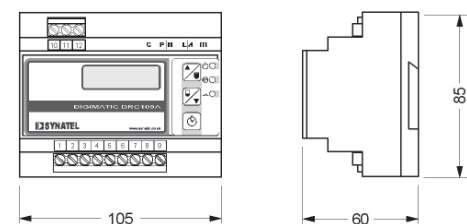
The DMR2A is ideal for all level sensing applications where temperature or vibration are a problem, or space is restricted. The control unit (DRC205A) may be up to 100 metres from the probe head allowing calibration without need to climb the silo.

All standard Digimatic features are retained including power shield compensator for preventing false signalling due to material build up.

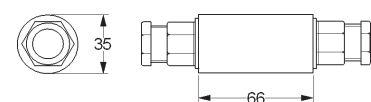


Dimensions

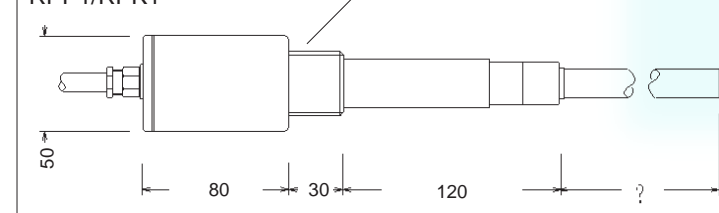
DRC205A



DCT2AA



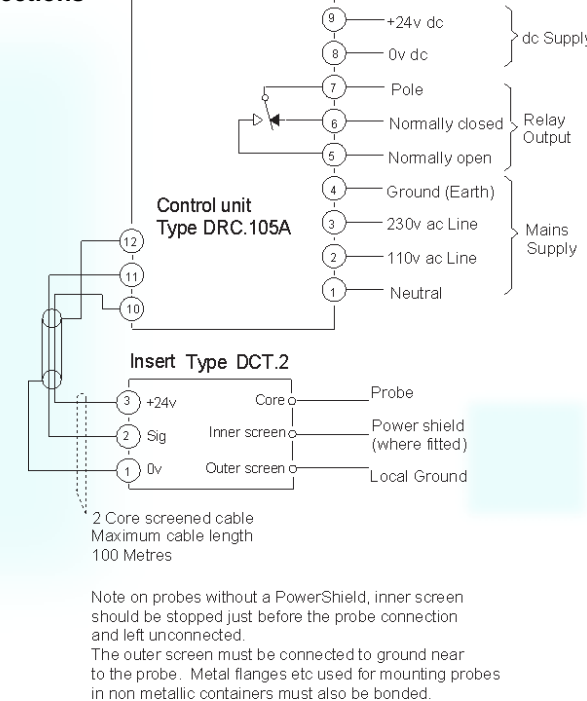
RPP1/RPK1



SPECIFICATION - GENERAL

Supply	DRC205A : 110/230V ac, 24V dc
Load	1.5A max ac, 50mA dc.
Ambient Temp	-10°C to +50°C. for DRC105A, probe head depends upon type used (upto 250°C).
Probe Heads	RPP1 : Polypropylene suitable upto 125°C. RPK1 : PEEK suitable upto 250°C.
Output	SPCO Relay rated @ 2.5A 240V ac Non Ind.
Output Mode	Switch selectable for output normally ON (high level) or normally OFF (low level).
Calibration	Membrane pushbutton with LED Display.
Indicators	Digital display for calibration and run mode + power, timer and O/P LED's.
Mounting	1" BSP.
Protection	IP40 for DRC205A , IP65 all other parts.
Compensator	Power shield compensates for material build up between probe and vessel wall. Prevents false signalling.
Weight	DRC205A - 275gms. DCT2AA - 120gms. RPK1/RPP1 - 410gms. Plus probe rods as detailed below.

Connections



Probe head ordering codes:

Standard unit: **RPP1** (250°C), PEEK unit: **RPK1** (350°C), plus control unit **DRC205A**, plus transverter unit **DCT2AA**, plus probe rod as required - see 'probe rods section'.

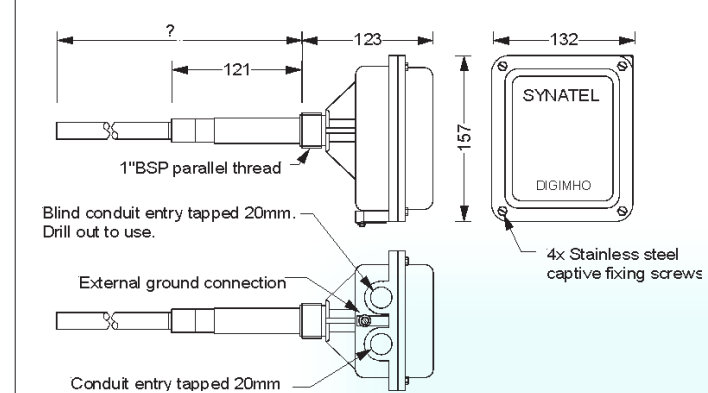
DIGIMHO SELF CONTAINED RESISTANCE DRL1

Especially suited for use with highly conductive, sticky materials such as carbon black, treacle, molasses etc.

Measuring range covers 500 ohms to 20K ohms. Power shield to automatically compensate for build up of conductive material around probe, preventing false operation.



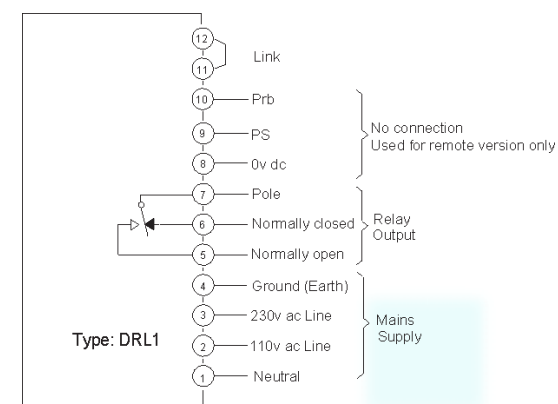
Dimensions - Digimho



SPECIFICATION - GENERAL

Supply	110/230V ac.
Load	1.5A max ac.
Ambient Temp	-10°C to +50°C.
Output	SPCO Relay rated @ 2.5A 240V ac Non Inductive.
Output Mode	Switch selectable for output normally ON (high level) or normally OFF (low level).
Calibration	6 x in-line DIP switches.
Indicators	Power, timer and O/P LED's.
Mounting	1" BSP.
Protection	IP65.
Compensator	Power shield compensates for material build up between probe and vessel wall. Prevents false signalling.
Weight	DRL1 - 2Kg. 200mm rod: 0.25Kg. 300mm rod: 0.25Kg. 1 metre rod: 1.50Kg. 2 metre rod: 3.00Kg. 10 metre wire rope: 1.75Kg.

Connections



Probe head ordering code:

Standard unit: **DRL1**, plus probe rod as required - see 'probe rods section'.

PROBE RODS

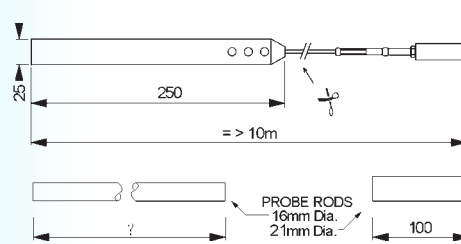
Solid probe rods are manufactured from 303 S31 stainless steel, 10metre wire rope is 316 stainless, weight & other fittings are 303 stainless steel.

Probe rods for use with Digimatic DML4(A) & DMR2 plus Digimho DRL1:

Code	Description
822-006	100mm x 21mm dia. stainless steel. (200mm o/all)
822-005	200mm x 16mm dia. stainless steel. (300mm o/all)
822-003	1 metre x 16mm dia. stainless steel.
822-004	2 metre x 16mm dia. stainless steel.
823-004	10 metre stainless steel wire rope and weight.



Dimensions - Probe Rods

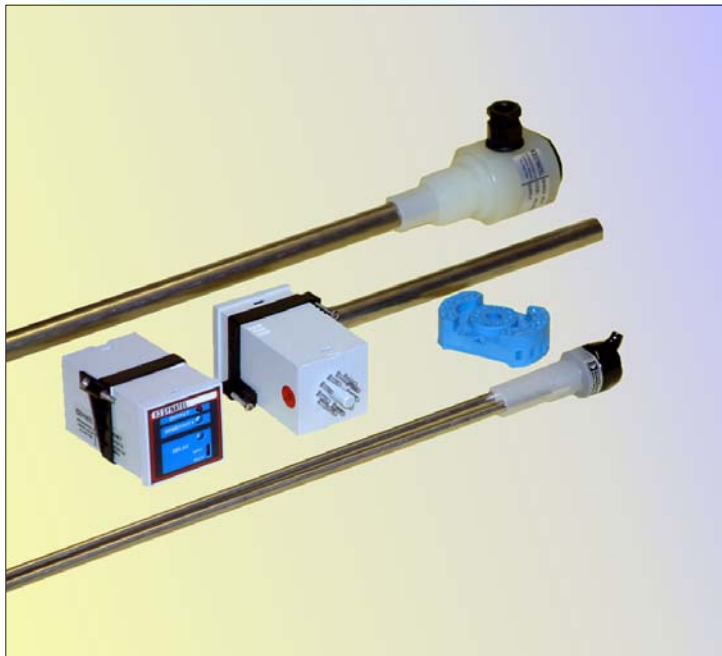


MODULAR RESISTIVE LEVEL SYSTEM RLL48

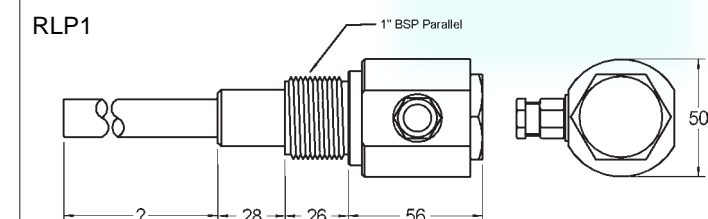
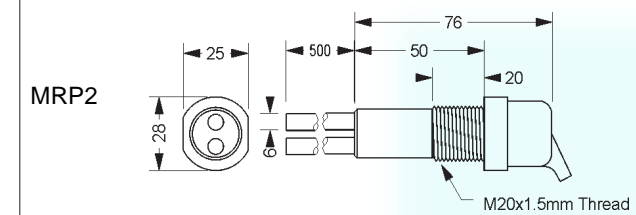
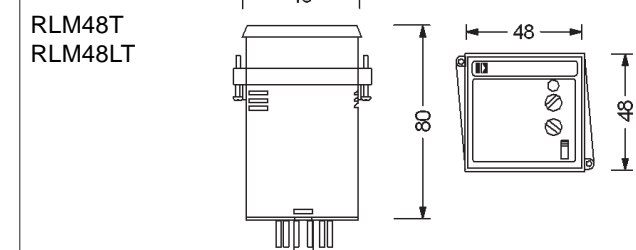
Consists of control module and separate probe units. Two probes can be used with one module to provide sequenced filling/emptying. Choice of 'high' level control (RLM48T) or 'low' level control (RLM48LT).

Adjustable time delay prevents spurious operation from liquid splashing.

Version also available for use with carbon black (RLM4 - refer to sales desk for more details).



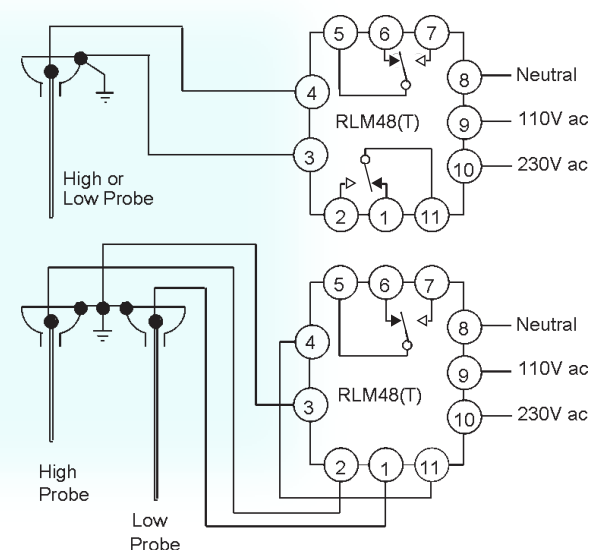
Dimensions



SPECIFICATION - GENERAL

Supply	110/230V ac,.
Load	1.5A max ac.
Ambient Temp	-15°C to +45°C for control module.
Output	SPCO Relay rated @ 2.5A 240V ac Non Ind.
Output Mode	RLM48T normally ON. RLM48LT normally OFF.
Calibration	Analogue rotary over range of 500 ohms to 30K ohms.
Indicators	Output LED.
Mounting	11 pin relay base roe RLM modules.
Protection	IP40 for RLM modules, probes typically IP65.
Weight	RLM48T/RLM48LT - 220gms. RLP1 - 600gms + probe rod. MRP2 - 300gms.

Connections



To order specify probes from the following list plus appropriate control module.

Code	Description
823-008	MRP2, 20mm mounting. 2 x 500mm probes.
823-009	RLP1, 1" bsp mounting. Choice of probe lengths. See 'probe rods section' for details.

Module ordering codes:

High level control module: **RLM48T**.

Low level control module: **RLM48LT**.

11 pin international plug-in relay base required for modules.

photoelectric sensors



proximity sensors



speed monitors



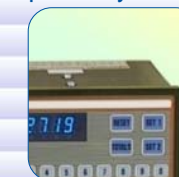
counters & tachometers



level control sensors



special systems



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