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.

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

Dimensions

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

Connections

Detection and Control - In Action!
Synatel produce a range of photoelectric sensors, in different styles and packages, to suit a wide variety of applications. The sensors are available as; through beam (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).

**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.

**PHOTOELECTRIC SENSOR RANGE**

Synatel manufacture 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 reflex formats. Units are supplied complete with mounting bracket. (Polarised retro-reflex requires additional reflector).

**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.

**MINIFLEX REFLEX SENSOR**

Short range adaptable, visible light, reflex sensor. The unit is ideal for packaging and labelling machines where the focussed, short range operation prevents false signalling from nearby objects. DC supply, transistor output. Designed & manufactured by SYNATEL.

**SPECIFICATION - MODULAR SENSOR HEADS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range (metres)</th>
<th>Weight (g)</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Beam</td>
<td>Receiver</td>
<td>Emitter</td>
<td></td>
</tr>
<tr>
<td>Emitter SSL7</td>
<td>1.25</td>
<td>70</td>
<td>Anodised Aluminium</td>
</tr>
<tr>
<td>Receiver SSL7</td>
<td>1.25</td>
<td>70</td>
<td>Anodised Aluminium</td>
</tr>
<tr>
<td>Emitter SSL7 RR</td>
<td>1.25</td>
<td>90</td>
<td>Anodised Aluminium</td>
</tr>
<tr>
<td>Receiver SSL7 RR</td>
<td>1.25</td>
<td>90</td>
<td>Anodised Aluminium</td>
</tr>
<tr>
<td>Emitter SSL13</td>
<td>0.5</td>
<td>100</td>
<td>Brass/Anodised Aluminium</td>
</tr>
<tr>
<td>Receiver SSL13</td>
<td>0.5</td>
<td>100</td>
<td>Brass/Anodised Aluminium</td>
</tr>
<tr>
<td>Emitter SSL2B</td>
<td>10</td>
<td>100</td>
<td>Brass/Nylon</td>
</tr>
<tr>
<td>Receiver SSL2C</td>
<td>10</td>
<td>100</td>
<td>Brass/Nylon</td>
</tr>
<tr>
<td>Emitter SSL2F</td>
<td>10</td>
<td>100</td>
<td>Brass/Nylon</td>
</tr>
<tr>
<td>Receiver SSL2G</td>
<td>10</td>
<td>100</td>
<td>Brass/Nylon</td>
</tr>
</tbody>
</table>

**SPECIFICATION - PMD3 MODULE**

Supply: 110/230V ac 50/60 Hz, 3VA

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Power Supply</th>
<th>Operating Range</th>
<th>Operating Temp.</th>
<th>Operating Time</th>
<th>Sensitivity</th>
<th>Time Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRN1M</td>
<td>10-30V dc</td>
<td>100mA 30V dc max.</td>
<td>-10° to +50°</td>
<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
<tr>
<td>PRP1M</td>
<td>10-30V dc</td>
<td>100mA 30V dc max.</td>
<td>-10° to +50°</td>
<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
<tr>
<td>PON1M</td>
<td>10-30V dc</td>
<td>200mA 30V dc max.</td>
<td>-10° to +50°</td>
<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
<tr>
<td>PTP1M</td>
<td>10-30V dc</td>
<td>200mA 30V dc max.</td>
<td>-10° to +50°</td>
<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
<tr>
<td>PL1M</td>
<td>10-30V dc</td>
<td>100mA 30V dc max.</td>
<td>-10° to +50°</td>
<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
</tbody>
</table>

**SPECIFICATION - GENERAL**

Supply: 10-30V dc

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Power Supply</th>
<th>Operating Range</th>
<th>Operating Temp.</th>
<th>Operating Time</th>
<th>Sensitivity</th>
<th>Time Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRN1M</td>
<td>10-30V dc</td>
<td>100mA 30V dc max.</td>
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<td>10-30V dc</td>
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</tr>
<tr>
<td>PON1M</td>
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<td>200mA 30V dc max.</td>
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</tr>
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<td>PTP1M</td>
<td>10-30V dc</td>
<td>200mA 30V dc max.</td>
<td>-10° to +50°</td>
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<td>0 to 100% adjustable</td>
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</tr>
<tr>
<td>PL1M</td>
<td>10-30V dc</td>
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<td>5 per second max.</td>
<td>0 to 100% adjustable</td>
<td>1.5 to 15 sec.</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

Test Load 0-100% on receiver, reflex and retro reflex

All dimensions shown in mm unless otherwise specified.
**30mm CAPACITIVE PROXIMITY SENSOR**

An innovative range of 30mm capacitive (PremierCap) proximity sensors, designed & manufactured by **SYNATEL** available as 5 wire Relay output, 4 wire 10-30V dc transistor output or 2 wire FET output, multivoltage units. Non flush. ATEX EN60079 & IECEx IEC 60079 gas & dust hazard area use approvals. Ideal for level detection in small hoppers, etc. (Dust Zone 20 / Gas Zone 0)

**CONNECTIONS - ALL UNITS**

<table>
<thead>
<tr>
<th>2 wire Connections</th>
<th>3 wire Connections</th>
<th>4 wire Connections</th>
<th>5 wire Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Diagram of 2 wire Connections" /></td>
<td><img src="image2" alt="Diagram of 3 wire Connections" /></td>
<td><img src="image3" alt="Diagram of 4 wire Connections" /></td>
<td><img src="image4" alt="Diagram of 5 wire Connections" /></td>
</tr>
</tbody>
</table>

**SPECIFICATION - PREMIERCAP SENSORS**

<table>
<thead>
<tr>
<th>CX1TRA1</th>
<th>CX1TOA1</th>
<th>CX1TZA1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>15-240V dc/24-240V ac</td>
<td>10-30V dc/24-240V ac</td>
</tr>
<tr>
<td>Programming</td>
<td>100mA capable, 500mA max. per sensor MUST be used.</td>
<td>100mA capable, 500mA max. per sensor MUST be used.</td>
</tr>
<tr>
<td>Output Rating</td>
<td>60V 3A max.</td>
<td>30V dc 100mA max.</td>
</tr>
<tr>
<td>Operating Range</td>
<td>0-50mm typically (set by a maximum of 12 steps)</td>
<td>0-50mm typically (set by a maximum of 12 steps)</td>
</tr>
<tr>
<td>Ambient Temp.</td>
<td>0°C to +50°C</td>
<td>0°C to +50°C</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP66</td>
<td>IP66</td>
</tr>
<tr>
<td>Connections</td>
<td>5 wire</td>
<td>4 wire</td>
</tr>
<tr>
<td>Weight</td>
<td>260g</td>
<td>285g</td>
</tr>
<tr>
<td>Options</td>
<td>BAS3 - protective pocket. Ideal where material is abrasive, insulates sensor from actual material being detected.</td>
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</tr>
</tbody>
</table>

**Dimensions**

![Diagram of Dimensions](image5)

**Connections - All Units**

**NOTE:**
- 1 fuse per unit MUST be used.
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**Hazard Approved Sensors**

1. Photoelectric Sensors
2. Proximity Sensors
3. Speed Monitors
4. Counters & Tachometers
5. Level Control Sensors
6. Special Systems
7. Hazard Approved Sensors

**Contact Information**

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Web: [www.synatel.co.uk](http://www.synatel.co.uk)
e-mail: sales@synatel.co.uk
**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 up to a 40mm DIN standard limit switch style; multivoltage with relay output. Units are available with ATEX and IEC Ex certification.

### 12mm INDUCTIVE PROXIMITY SENSOR

A 12mm dc inductive proximity sensor supplied by SYNATEL, ideal for general use, such as target detection on rotating/reciprocating machinery. Non-approved.

#### 18mm INDUCTIVE PROXIMITY SENSOR

SYNATEL design & manufacture a range of 18mm inductive proximity sensors, available as 4 wire DC or 2 wire FET multivoltage units. Non-flush. Ideal for target detection on rotating/reciprocating machinery. ATEX EN60079 & IECEx IEC 60079 gas & dust hazard area use approvals (Dust zone 20 / Gas zone 0).

#### 30mm INDUCTIVE PROXIMITY SENSOR

A range of 30mm inductive proximity sensors, designed & manufactured by SYNATEL available as 4 wire DC or 2 wire FET units. Non-flush. ATEX EN60079 & IECEx IEC 60079 gas & dust hazard area use approvals (Dust zone 20 / Gas zone 0).

### 40mm DIN LIMITSWITCH STYLE PROXIMITY SENSOR

SYNATEL moulded DIN limit switch style housing (40x40mm) proximity sensors. Non-approved. Ideal for general use, such as replacing existing limit switches or target detection on rotating/reciprocating machinery.

### WHIRLIGIG SENSOR ATTACHMENT

A low cost, fully contained speed monitoring attachment, allowing easy fitting of SYNATEL inductive proximity sensors/speed monitors. Simple M12 fixing (Magnetic mounting available as an option). Targets are fully enclosed and require no further guarding. Comes complete with fixing strap & 18/30mm mounting bracket to enable use with any sensor. EN 80079 (Dust zone 20 / Gas zone 0).

---

See back page for connection details.
SPEEDMASTER SSM1 CALIBRATOR/CHECKER

The SpeedMaster is a test instrument designed to check the function/calibration of all types of SYNATEL speed monitors. It can also be used to calibrate sensors to any desired speed. Speed/Switch Point Calibration Checker (Ideal for Calibration/Auditing).

WGDHEAVYDUTYWHIRLIGIG

All stainless steel construction, fully contained speed monitoring attachment, ideal for mine or quarry use. Allows easy fitting of all SYNATEL 12/18/30mm diameter inductive proximity sensors/speed monitors. Simple M16 fixing. Targets are fully enclosed.

WGHD HEAVY DUTY WHIRLIGIG

All stainless steel construction, fully contained speed monitoring attachment, ideal for mine or quarry use. Allows easy fitting of all SYNATEL 12/18/30mm diameter inductive proximity sensors/speed monitors. Simple M16 fixing. Targets are fully enclosed.

Dimensions

4 Holes tapped M5

16 ASF hexagon
M12 Thread

WGHD HEAVY DUTY WHIRLIGIG

All stainless steel construction, fully contained speed monitoring attachment, ideal for mine or quarry use. Allows easy fitting of all SYNATEL 12/18/30mm diameter inductive proximity sensors/speed monitors. Simple M16 fixing. Targets are fully enclosed.

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Dimensions

4 Holes tapped M5

16 ASF hexagon
M12 Thread
18mm ROTASTOP STOPPED MOTION MONITOR

An 18mm diameter unit, incorporating a proximity sensor & stopped motion circuit. An ‘on’ state is maintained whilst a pulse is sensed. ATEX EN60079/IECEx IEC 60079. (Dust Zone 21/Gas Zone 1).

SPECIFICATION

Supply: 24-240V ac/dc.
Connection/Output: 2 wire - P.E.T. 100mA max.
Output State: Normally off (D). On when target sensed.
Output Temp./cut-out: At least one pulse within 4 seconds.
Operating Range: 8mm Max.
Hysteresis: 15% of operating range.
Operating Speed (Max.): 100Hz.
No. of Cores: 2 wire
Ambient Temperature: -15°C to +50°C.
IP Rating: IP66.
Material: Plated Brass/PVC.
Dimensions: See next page for connection details.

MODUSLIP UNDERSPEED MONITOR

A modular stopped motion monitor, designed by SYNATEL to work with a separate proximity sensor. Output goes open circuit after time period if incoming pulses stop.

SPECIFICATION - LSM48

Supply: 110/220V ac 50/60 Hz (24V dc optional)
Output: SPCO Relay rated @ 5A 240Vac max.
Non-inductive.
Output State: Output energised (ON) providing at least one input pulse is received within time period set on top plate. Output de-energises if no pulses received.
Operating Range: Dependent upon sensor used.
Time Delay: Standard input delay = 1.5-15 seconds. Other delays of: 0.3-sec, 3-30 sec, 60-80 sec.
Input: rpm or contact. (Any Synatel dc/proxy sensor).
Indication: LED indication of input pulse & output ON.
Connection: 11 pin international plug-in relay base
weight: 210g.

30mm ROTASLIP UNDERSPEED MONITOR

The Rotaslip monitors from SYNATEL are designed to detect a stud or bolt on a shaft and indicates a fault condition (open circuit) if the input speed reduces by 20% or more below set running speed. ATEX & IECEx EN60079 gas & dust hazard area use approvals (2 wire: Dust zone 20 / Gas zone 0) (5 wire: Dust zone 21 / Gas zone 0).

SPECIFICATION - ROTAMATIC PU1DRA

Supply: 12-240V dc/24-240V ac
Output State: Normally off (D), stays on (E) providing correct input pulses received. If pulses fall 20% or more below set running speed, sensor goes off (D).
Start-up Delay: 30 sec. max. Allows machinery to reach normal running speed before sensor monitors pulses.
Operating Range: 12mm Max.
Hysteresis: 15% of operating range.
Up Speed: 10-3600 PPM (Pulses per Minute).
No. of Cores: 5 wire
Ambient Temp.: -15°C to +50°C.
IP Rating: IP66.
Weight: 500g.
Material: Moulded Nylon.
Dimensions: See next page for connection details.

DIMENSIONS - MODUSTOP and MODUSLIP MODULES

2 wire Connections: 2 wire Connections: 5 wire Connections: 5 wire Connections

WHIRLIGIG SENSOR ATTACHMENT

A low cost speed monitoring attachment, allowing easy fitting of SYNATEL inductive proximity sensors/speed monitors. Simple fixing. Targets are fully enclosed. Complete with fixing strap & 18/30mm mounting bracket. EN 80079 (Dust zone21 / Gas zone0)
MULTICOUNT - COUNTERS & TACHOMETERS

The Multicount counters and tachometer are a highly cost effective range of digital displays which can be user programmed for counting, batching, speed display or dwell/bake time indication. 48 x 96mm DIN enclosure. Auto, manual reset. Counter with thumbwheel settings, speed indicator has floating decimal point facility.

**SPECIFICATION - MULTICOUNT**
- **Supply**: 110/230V ac
- **Consumption**: 3VA
- **Sensor Supply**: 12V dc smoothed, 80mA maximum.
- **Input**: 100mV or volt free contact
- **Output**:
  - MFC100: None
  - MFC102: 2 x SPDT rated @ 5A ac non-ind.
  - MSD100: 1 x SPDT rated @ 5A ac non-ind.
  (can be used for overspeed applications)
- **Memory Retention**: 10 year memory of programme settings.
- **Connection**: Screw terminal on rear of unit.
- **Protection**: IP41
- **Weight**: 400g

**Connections**
- **MFC100/MFC102**
  - Up/Down count: Use IN1
  - Bi-directional count: use IN1 & IN2
  - Inhibit: Gate to 0V to inhibit all counting.

**Dimensions**

**MULTIDWELL - BAKE / TIME INDICATOR**

The Multidwell is a cost effective digital display unit. User programmable to display speed/time units. Ideal as Bake/oven time display. The unit incorporates a red LED display in a DIN 96x48mm enclosure. Unit can display time in either Min/Sec analogue or Min/Sec Digital (Decimal) ie: 1min 15 sec or 1.25 min.

**SPECIFICATION - MULTIDWELL BTD100**
- **Supply**: 110/230V ac
- **Consumption**: 3VA
- **Sensor Supply**: 12V dc smoothed, 60mA maximum.
- **Input**: 100mV or volt free contact
- **Output**: None
- **Memory Retention**: 10 year memory of programme settings.
- **Connection**: Screw terminal on rear of unit.
- **Protection**: IP41
- **Weight**: 400g

**Connections**
- **BTD100**

**Dimensions**

**Panel Cut-out**
- Cut out 92x44 +0.1mm

**Note**: MFC100 No outputs - MFC101 use output2
MFC102 use output1 (pre o/p) & output2 (main o/p)

**MFC100/MFC102**

- **+V**: 10 V
- **OUT1**: 5 V
- **OUT2**: 4 V
- **POWER SUPPLY**: 230V 3A max., 230V 3A max., 50/60 Hz

- **+V**: 10 V
- **OUT**: 5 V
- **POWER SUPPLY**: 230V 3A max., 230V 3A max., 50/60 Hz
LEVEL CONTROL SENSOR CATALOGUE

LEVEL CONTROL SENSORS

1. Proximity Sensors
2. Counters & Tachometers
3. Photoelectric Sensors
4. Special Systems
5. Speed Monitors
6. Hazard Approved Sensors

Dimensions - DRL1

SPECIFICATION
Supply: 110/230 ac 50/60 Hz.
Load: 1.5VA ac
Ambient Temperature: -10°C to +50°C
Output: 1 set of volt free change-over relay contacts, rated @ 2.5A 240V ac non-inductive.
Output Mode: High or Low level, selected via a switch.
Calibration: 0 x inline DIP switches.
Compensation: Power shield compensator for material build up around probe rod & vessel wall. Prevents false signalling. Ideal for sticky or viscous materials.
Indication: LED's for Power, Timer & Output.
Mounting/Fixing: 1" BSP Male
Protection: IP65
Enclosure: Flame retardant, glass filled nylon.
Weight: Digimatic DRL1, 2Kg
Ancillary Parts: 1" bsp probe mounting flange: 98mm dia. - polypropylene. Consists of 4 x 9mm mounting holes on 127 PCD, 1" BSP fitting for probe unit.

Dimensions - RLL48 System

SPECIFICATION
Supply: 110/230 ac 50/60 Hz.
Load: 1.5VA ac
Ambient Temperature: -10°C to +50°C
Output: 2 sets of volt free change-over relay contacts, rated @ 2.5A 240V ac non-inductive.
Output Mode: High or Low level specified when ordered.
Calibration: Analogue rotary over 500 ohms to 30K.
Indication: LED's for Output.
Mounting/Fixing: 11 pin relay base for HLM modules. (44mm square DIN mounting).
Protection: IP40 for module, typically IP65 for probe.
Weight: RLM48/T, RLM48L/T - 220g, MRP2 probe - 300g

RLL48 MODULAR RESISTANCE LEVEL SYSTEM
Especially suited for use with conductive materials such as rain/tap water etc. Easy calibration. 44mm DIN standard enclosure suitable for panel mounting. 11 pin plug in base connection. LED output indication. 110/230V ac supplies. SPCO relay output. Designed & manufactured by SYNATEL. High level or low level options available. Various single or twin level probes available.

Note: Probe rods are as detailed under Digimatic DML4A!

Connections - DRL1

Connections - RLL48 System

Detection & Control - in Action!

Inchwell Road, Norton Canes, Cannock, Staffordshire. WS11 9TB UK
Tel: +44 (0) 1543 277003
Fax: +44 (0) 1543 271217
Web: www.synatel.co.uk
e-mail: sales@synatel.co.uk

SYNATEL INSTRUMENTATION LTD.

Part of
DIGIMATIC DML4AI Self Contained Capacitance Probe


Specifications:
- Supply: 110/230 ac 50/60 Hz.
- Load: 1.5VA ac.
- Ambient Temperature: -10°C to +50°C.
- Sensitivity: 0.5 picofarad.
- Output: 1 set of volt free change-over relay contacts, rated @ 2.5A 240V ac non-inductive.
- Output Mode: High or Low level, selected via a switch.
- Time Delay: Adjustable via single pushbutton.
- Calibration: Automatic or manual calibration using independent pushbuttons for covered & un-covered conditions.
- Indication: LED display for calibration purposes & timer settings. LED's for Power, Probe covered & Calibrating mode.
- Mounting/Fitting: 1” BSP Male. Mounting flange available as an option.
- Protection: IP65.
- Connections: Via screw terminal block.
- Enclosure: Stainless, PTFE.
- Compensation: Power shield for material build up on probe to vessel (earth/ground). Prevents false signalling.
- Weight: DML4AI: 2Kg.
- Probe Rods: 100mm x 22mm dia. rod: 250g.
- Options: Standard unit - DML4AI - 822-029.
- Probe mounting flange - DML4AIF.
- Ancillary Parts: 1” bsp probe mounting flange: Probe mounting flange 89mm dia. - polypropylene. Consists of 4 x 9mm mounting holes on 127 PCD, 1” BSP fitting for probe unit.
- Approvals: ATEX EN 60079, IECEx IEC60079 (Dust Zone 20).

DIGIMATIC DMR2 Remote Capacitance Probe

A fixed point, capacitance level control system consisting of 3 parts: Control unit DRC205, Transverter DCT2A plus probe head/probe rod to suit application. LED display shows calibration & run mode readings. Power shield compensator, prevents false signalling due to material build-up on probe rod. Adjustable timer to prevent false signalling from ‘splashing’ materials.

Specifications:
- Supply: 110-230 ac 50/60 Hz. 24V dc stabilised.
- Load: 15VA ac.
- Ambient Temperature: -10°C to +50°C for DRC205.
- Sensitivity: 0.5 picofarad.
- Output: 1 set of volt free change-over relay contacts, rated @ 2.5A 240V ac non-inductive.
- Output Mode: High or Low level, selected via a switch.
- Time Delay: Adjustable via single pushbutton.
- Calibration: Automatic or manual calibration using independent pushbuttons for covered & un-covered conditions.
- Indication: LED display for calibration purposes & timer settings. LED’s for Power, Probe covered & Calibrating mode.
- Mounting/Fitting: 1” BSP Male (RPP1/RPK1), Din rail mounting for DRC205.
- Protection: DRC205 - IP64, all others - IP65.
- Connections: 400mm max. screened, hi-temp cable already supplied between probe head & DCT2A. Upto 100m between DCT2A and DRC205 in multicore cable.
- Compensations: Power shield for material build up on probe to vessel (earth/ground). Prevents false signalling.
- Weight: DRC205: 215g.
- Probe mounting flange 98mm dia. - PEEK & PTFE.
- RP1: Polypropylene with PTFE & stainless steel parts.
- RP1: PEEK with PTFE & stainless steel parts.
- Connections: All dimensions shown on unlabelled dimensions provided.
- Ancillary Parts: 4“ bsp probe mounting flange: Probe mounting flange 98mm dia. - polypropylene. Consists of 4 x 9mm mounting holes on 127 PCD, 1” BSP fitting for probe unit.
- Approvals: ATEX EN 60079, IECEx IEC60079 (Dust Zone 20).
The STEP-A-MATIC SML1, designed & manufactured by SYNATEL, is a patented, rotary paddle level control suitable for powders & granular solids. High/low level output switch. LED output state indication. 24V dc, 90-260V ac supply connections in same unit. Volt free, change over relay output. Adjustable timer to prevent false signalling from ‘splashing’ materials.

The STEP-A-MATIC uses a patented, unique stepper motor drive instead of the traditional synchronous motor. This utilises a direct drive eliminating the need for gearboxes & clutches, and makes the drive virtually indestructible, it also allows the motor to rotate in both direction, to avoid compaction of light materials. The paddle also ‘shakes at the end of it’s rotation cycle to discard clinging material.

Variable torque setting allows one paddle to suit virtually all applications, and paddles can be extended up to 2m in length. Torque & Rotation are monitored for fail-to-safe operation.

**SPECIFICATION**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>24V dc, 90-260V ac 50/60Hz.</td>
</tr>
<tr>
<td>Supply Tolerance</td>
<td>-6% to +2%</td>
</tr>
<tr>
<td>Supply Cable Size</td>
<td>Min: 1 sq mm, max: 4 sq mm.</td>
</tr>
<tr>
<td>Fusing/Cct Breaker</td>
<td>(Max Rating.) 5A.</td>
</tr>
<tr>
<td>Load</td>
<td>6VA max. ac, 50mA max. dc.</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-20°C to +50°C.</td>
</tr>
<tr>
<td>Output</td>
<td>1 set of volt free change-over relay</td>
</tr>
<tr>
<td></td>
<td>contacts, rated @ 2.5A 60V ac non-inductive,</td>
</tr>
<tr>
<td>Output Mode</td>
<td>High or Low level, selected via a switch.</td>
</tr>
<tr>
<td>Time Delay</td>
<td>Adjustable via potentiometer.</td>
</tr>
<tr>
<td>Calibration</td>
<td>Electronic torque control potentiometer.</td>
</tr>
<tr>
<td>Indicators</td>
<td>LED shows power ON.</td>
</tr>
<tr>
<td>Mounting/Fixing</td>
<td>1” BSP Male.</td>
</tr>
<tr>
<td>Protection</td>
<td>IP65</td>
</tr>
<tr>
<td>Connections</td>
<td>Via screw terminal block(s).</td>
</tr>
<tr>
<td>Weight</td>
<td>Step-a-Matic SML1: 2Kg</td>
</tr>
<tr>
<td></td>
<td>Twin blade paddle: 200g</td>
</tr>
<tr>
<td></td>
<td>2 mtr Extension: 325g Approvals.</td>
</tr>
</tbody>
</table>

**Dimensions**

- Wire rope max 3M (optional)
- 1” BSP parallel
- 4x Stainless steel captive fixing
- External ground connection
- Conduit entry topped 50mm
30mm CAPACITIVE PROXIMITY SENSOR

An innovative range of 30mm capacitive (PremierCap) proximity sensors, designed & manufactured by SYNATEL available as 5 wire Relay output or 2 wire FET output, multivoltage units. Non flush. ATEX EN60079 & IECEx IEC 60079 gas & dust hazard area use approvals. Ideal for level detection in small hoppers, etc. (Dust Zone 20 / Gas Zone 0)

SPECIFICATION - PREMIERCAP SENSORS

<table>
<thead>
<tr>
<th>Specification</th>
<th>CX1TRAI</th>
<th>CX1TZAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>15-240V dc/24-240V ac</td>
<td>24-240V ac/dc</td>
</tr>
<tr>
<td>Fusing</td>
<td>1500A capable, 500mA max. 1 per sensor MUST be used.</td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>Performed using a combination of 2 magnets (supplied in housing) Some programming functions require both magnets, other functions only require 1 magnet.</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>SPCO relay</td>
<td>2 wire FET</td>
</tr>
<tr>
<td>Output State</td>
<td>User selectable with 'CalMag' programmer supplied.</td>
<td></td>
</tr>
<tr>
<td>Output Rating</td>
<td>60V 3A max.</td>
<td>100mA max.</td>
</tr>
<tr>
<td>Operating Range</td>
<td>0-50mm typically (set by a maximum of 12 steps)</td>
<td></td>
</tr>
<tr>
<td>Ambient Temp.</td>
<td>-15°C to +50°C</td>
<td></td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP66</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>Molded Nylon</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>5 wire</td>
<td>2 wire</td>
</tr>
<tr>
<td>Weight</td>
<td>260g</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>BAS3 - protective pocket. Ideal where material is abrasive, insulates sensor from actual material being detected.</td>
<td></td>
</tr>
</tbody>
</table>

Optional Extra - BAS 3 Protective Mounting Pocket. Ideal for use in direct flow of grains etc.

CONTACT

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Web: www.synatel.co.uk
e-mail: sales@synatel.co.uk
SPECIAL SYSTEMS CATALOGUE

- photoelectric sensors
- proximity sensors
- speed monitors
- counters & tachometers
- level control sensors
- special systems
- Hazard Approved Sensors
Synatel have their own in-house design & manufacturing capabilities including: Expert CAD/CAM design & draughting staff, component sourcing & purchasing expertise, manual & automatic PCB assembly & flow soldering. Plus we have a dedicated team of test engineers using manual, semi-automatic & automatic test rigs to ensure high quality, reliable products every-time. **SYNATEL - Detection & Control in Action!**

### CUSTOM DESIGN/MANUFACTURE
- From concept through to finished product.
- Existing circuit boards manufactured, populated & tested.
- Product modification/design.
- Redesign/manufacture of existing circuit.
- International approvals applied, where required.

### WIRELESS COMMUNICATION
- Full Wireless Communication.
- Bluetooth Communication.
- Network Capability. WLAN.
- Telecoms. Text or e-mail notifications.

### APPROVALS
- ATEX - UK/European markets.
- IECEx - International markets inc. Australia & Singapore
- CSA - Canadian/North American markets.
- InMetro - Brazilian market.
- CE - Low voltage, RF directives etc. (contact us for details).

(Some approvals are available as standard, others available at certification cost).

If you have specialist sensor needs, contact Synatel - our expert Sales & Design staff are happy to talk through your requirements & provide quotations against your specifications. Quantities, Approvals (if required) & time scales are all taken into consideration - giving you all the information that you require to enable you to make an informed decision. Call +44 (0) 1543 277003, or e-mail sales@synatel.co.uk for more information. 

See our website: www.synatel.co.uk
DIGIMATIC DML4AI ATEX & IECEx APPROVED CAPACITANCE LEVEL PROBE SENSOR

A fixed point RF, capacitance level control suitable for use in non-conductive liquid & free flowing granular solids. Approved for use in explosive dust hazard areas, such as flour mills, silo's, saw mills, paper mills. Multivoltage supplies, relay output, powershield technology - compensates for material build up/sticking to probe rod (prevents false signaling).

- ATEX/IECEx approved (explosive dust hazard area) - conforms to EN60079 directive(s).
- Programmable sensitivity for product being detected.
- Programmable output timer - prevents false signalling from material 'splashing' on probe rod.
- Powershield - prevents false signalling from material sticking/clinging to probe rod & side wall of container.
- LED display - used for calibrating sensitivity & timer settings, also shows material actual level sensing values in run mode.
- Multi Voltage Supplies: 24V dc or 110/240V ac.
- Relay output. Volt free change over contacts.
- 1"BSP male mounting thread.
- LED indication of Power On, Calibrating & Output state.
- Membrane keypad for programming sensitivity & timer settings.

Options available:
- Short power shield - 70mm long
- Flush mounting - 98mm dia, 53mm deep, with 4 x 9mm holes on 127 PCD flange mounting.

CONNECTIONS/FUNCTIONS

Switch Functions:
SW1 = High/Low  SW2 = Cal/Park  SW3 = Auto/Man

<Diagram of switch functions>

DIMENSIONS - standard unit

<Diagram of dimensions>

CONNECTIONS:
- 4x Stainless steel captive fixing screws
- 1"BSP parallel mounting thread
- Blind conduit entry tapped 20mm
- Drill out to use.
- External ground connection
- Conduit entry tapped 20mm

? = Probe Rod Lengths: 100mm x 24mm dia.
  30 cm x 16mm dia.
  1 metre x 16mm dia.
  2 metre x 16mm dia.
  10 metre wire rope & weight.

Note: 1 metre, 2 metre & 10 metre wire rope probes can be cut to length, on site using a hacksaw.

ATEX Certificate Details - DML4AI:
Certificate No: TRAC11ATEX11268X
Exd IIC T1
Ex e IIC T1

IECEx Certificate Details - DML4AI:
Certificate No: TRC 12.0016X
Ex ta[a] IIC T100°C-20°C = Tamb = +50°C IP65

Hazard Approved Sensors

Conform to relevant parts of BS EN 60079 Standards
**18mm & 30mm ATEX & IECEx SENSORS**

A range of sensors including: Inductive & Capacitive proximity switches, stopped motion and underspeed monitors all ATEX & IECEx approved to EN60079 directive. Certified for Dust or Gas hazard area use as shown. Units are fully encapsulated to help minimize effects from vibration & prevent moisture ingress.

- **Inductive proximity sensor**
  - 18mm Diameter housing (1)
  - 10-30V dc 4 wire npn/pnp connection (3) & (4), or 24-240V ac/dc 2 wire FET output connection (5)
  - 8mm operating range, 50mA output 2 wire, 100mA 4 wire, 100Hz operating speed.

- **Inductive stopped motion sensor**
  - 18mm Diameter housing (1)
  - 24-240V ac/dc 2 wire FET output connection (5)
  - 8mm operating range, 50mA output, 15-3600 ppm operating speed. (4 seconds between pulses min.).

- **Inductive Underspeed Sensor**
  - 30mm Diameter Housing (2)
  - 24-240V ac/dc 2 wire FET output connection (5) or 15-240V dc/24-240V ac 5 wire relay output connection (7)
  - 8mm operating range, 10-3600 ppm operating speed. (20% trip below normal running speed). 2 wire - 100mA output. 5 wire - 3A non-ind. output.

- **Capacitive Proximity Sensor**
  - 30mm Diameter Housing (2)
  - 24-240V ac/dc 2 wire FET output connection (5) or 15-240V dc/24-240V ac 5 wire relay output connection (7)
  - Typically 25mm operating range (adjustable). 2 wire - 100mA output. 5 wire - 3A non-ind. output.

**DIMENSIONS**

18mm Diameter Sensors

**CONNECTIONS (options)**

4 wire dc connections

**2 wire dc connections**

4 wire universal connections

5 wire relay connections

**IMPORTANT NOTE!**

Note: Supply Connections: Output normally OFF - use D connections, Output normally ON - use (E) connections.

Note: Check supply voltage required is not only 10-30V dc before using these connections.

Note: additional output fusing may be required to suit application, local regulations, certification requirements.