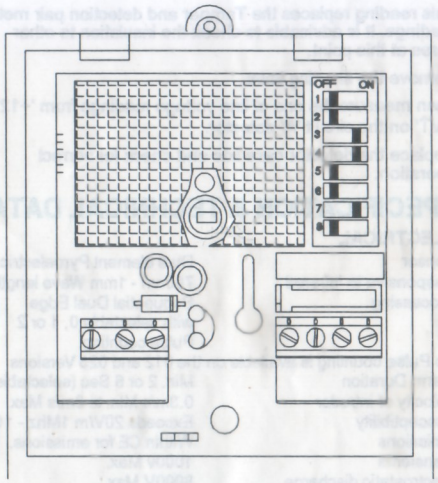


# STELLA

## USER INSTRUCTIONS FOR STELLA PIR INTRUDER SENSOR (WITH DUAL SEQUENTIAL EDGE AND SEQUENTIAL PULSE COUNTING) WITH A 5 YEAR GUARANTEE

**SUITABLE FOR ABACUS AND OTHER ALARM SYSTEMS**

CE For EMC

Manufactured by

DA SYSTEMS
Southall
Middlesex,
UB1 2BZ

Quality System Certificate No. 054 Assessed To BS5750: Part 2.

Y-6021-3

**Stella 12/25 United Kingdom version (Including special order variant without 'Pulse counting'- '0' on the model prefix denotes a no 'Pulse count' variant)**

**INSTALLATION INSTRUCTIONS**

**Last Revised DECEMBER 1994**

## OVERVIEW

The Stella is capable of being operated in standard mode i.e. the alarm/tamper is signalled via a relay and micro switch down four cores (plus two for power) or in 'LP' mode to give circuit 'A' and circuit 'B' indication down a single cable (plus two for power) for Abacus or Pulsar 10 control panels .

For the sake of clarity please read Pulsar 10 or Abacus whenever Abacus is mentioned.

## PREPARATION

Locate a suitable site for the Stella that will give the required coverage. Refer to "Fig 1 Coverage Patterns". Stella PIRs are most sensitive to movement across the field of view, crossing the sensitive sectors rather than travelling along them. Corner mounting normally gives the best coverage with the Stella as with other detectors.
For systems requiring NACOSS approval ensure that the detector location (including height) matches the alarm system specification, if not inform the appropriate system design authority ( possibly the chief engineer ?) for advice.
The following items affect the ability of any detector to operate successfully and should be avoided.

- Large objects that may effect the coverage patterns by masking the detectors field of view.
- Strong draughts directly on the lens or housing.
- Strong sources of heat and cold, e.g. open fires, air conditioners and refrigeration units.
- Pets and animals in the area of detection
- Vibration or instability of the mounting surface.
- Directing the PIR to face out through a window, towards possible vehicle head lamps or direct sunlight.
- Outdoors or anywhere affected by water, steam, chemicals (Insecticides that contain solvents), oil, dirt or extremes of temperature.
- Running the cables adjacent to mains cables, see NACOSS NACP 0 or NATM.2. Minimum separation of 65mm from mains wiring.

## MOUNTING

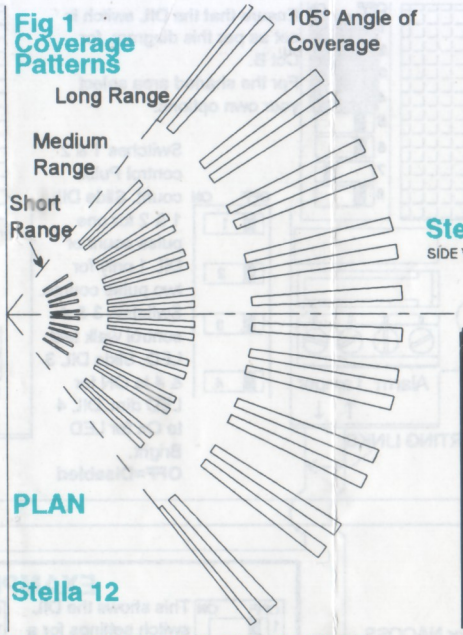
Once a suitable location for the Stella has been selected proceed as follows;

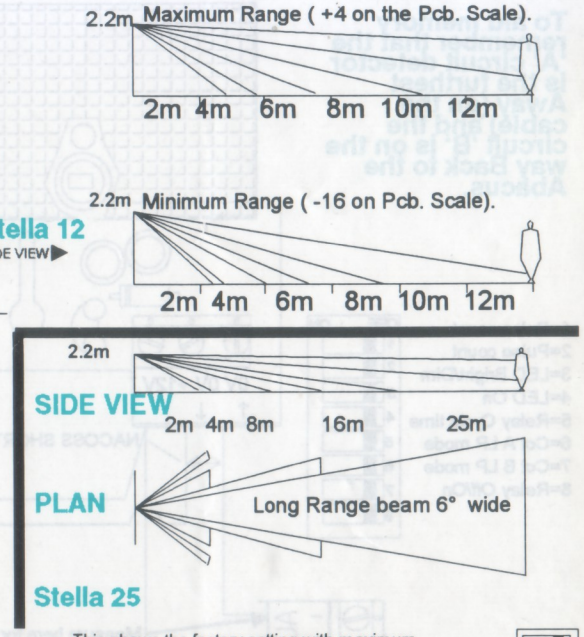
1: Remove the two small locking screws, top and bottom.
2: Open the detector by gently prising the lid at the base of the Stella away from the back half.

## WARNING

DO NOT TOUCH THE SENSOR DEVICE.

3: Loosen the centre pcb retaining screw and slide the pcb over the 'key' hole and store safely until ready to connect.
4: Remove the plastic covering the cable entries at the bottom of the cable guide in the rear half of the case and feed through the alarm cable.
5: On the rear half of the case make two small holes. If corner mounting make them on the the SAME SIDE (to prevent case twist) or opposite corners if flat mounting.
6: Secure (do not over tighten so as to deform the case) the back half of the case using two counter sunk 1" No. 8 screws into a suitable fixing.
7: Refit Pcb, set range +4 for maximum to -16 for minimum range and secure locking screw.
8: Connect the cores as required (LP or standard mode) and set the DIL switches, see following sections.
9: Seal cable entries to prevent insect ingress.
10: Replace cover and test the detectors function and range, see 'Check Sensor Operation'.
11:Secure the lid with the two small locking screws provided.




## DETECTION MODE SELECTION

The Stellas signal 'Dual Edge' detection process incorporates 'Dual Sequential Edge' processing.
This requires the sensor to detect an intruder crossing a complete sensitive sector (positive and negative zones) within a preset time before activation. This ensures superior false alarm immunity.
In hostile environments it may be necessary to reduce the sensitivity of the Stella by using Digital Pulse counting, this increases the false alarm immunity.

## DIGITAL PULSE COUNTING (DPC)

Not available on the Stella 012 or 025.

This shows the factory settings with no DPC selected. This will give maximum sensitivity, please leave in this position for LPC mode.

This is the setting for one pulse count.

This is the setting for 2 or maximum pulse count.

This is an invalid position, however if the switches are in this position no pulse count mode is selected.

## WALK TEST LED SWITCHES

From a security point of view, it is highly desirable that the walk test LED's are disabled during the day when the system is unset so that would be intruders are unable to check the detection pattern of the detector prior to a 'break in'.
To walk test in brightly lit environments the LED needs to be intense however in domestic sleeping areas it is desirable to have a dimmer LED indication.

This shows the factory setting with maximum brightness selected for the walk test LED.

This is the setting for no LED walk test indication. This is required for installations were there is a risk that the intruder may plot the detection pattern

This is the setting for dim illumination of the walk test LED. Ideal for sleeping areas.

This is an invalid setting, however it will operate with the walk test LED disabled.

## STANDARD WIRING MODE

To connect the Stella in standard mode of any control panel proceed as follows;

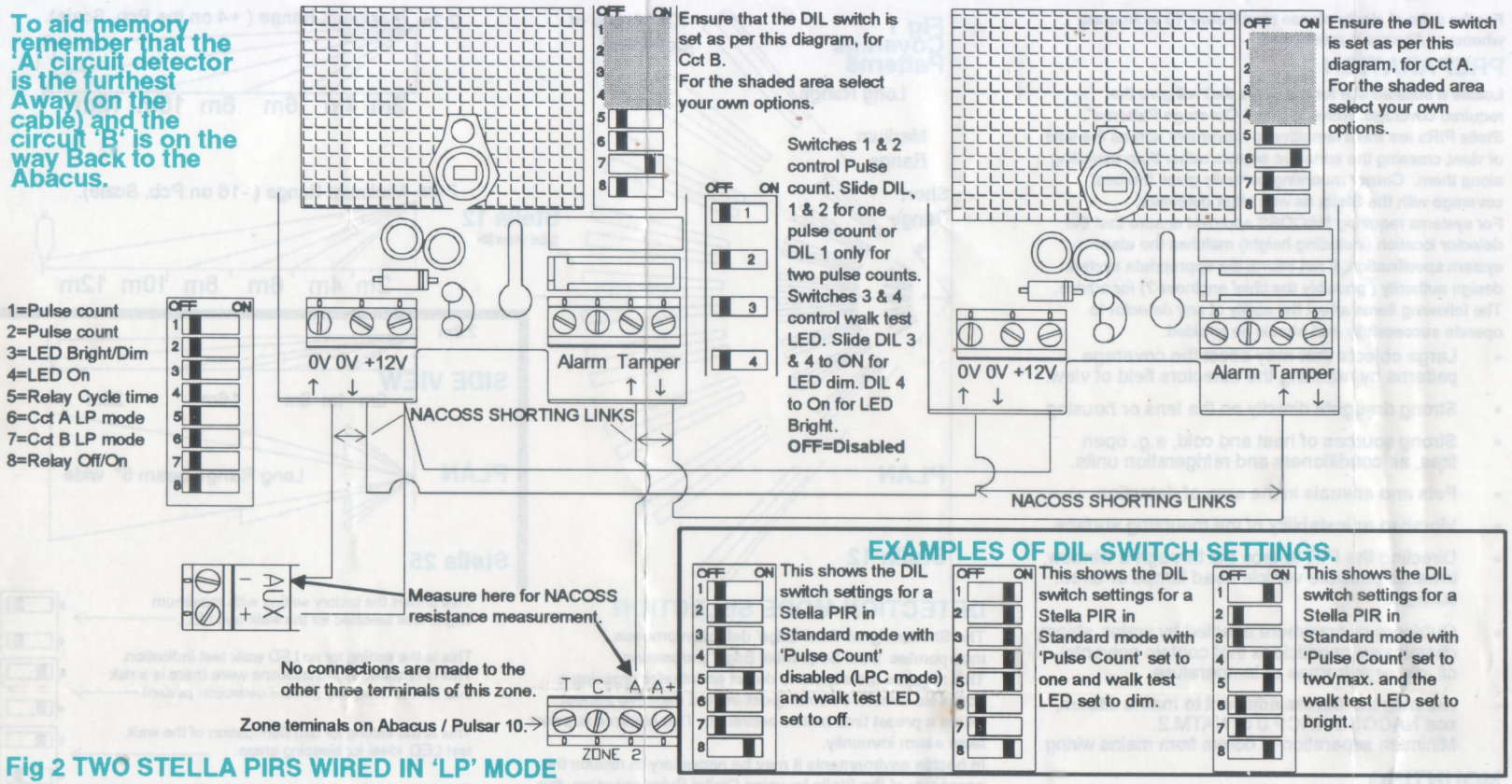
**0V↑** connect to - Auxillary output supply on the control panel.
**+12V** connect to + Auxillary output supply on the control panel.
**Alarm** connect to the N/C alarm zone on the control panel.
**Tamper** connect to the tamper zone on the control panel.
**0V↓** no connection is made to this terminal.

This is the factory default, however you must always check the settings.
Set the DIL switches 5,6,7 and 8 as per this diagram.

## WARNING

Failure to set the switches as shown may result in unpredictable and/or unreliable operation, control panel damage and early failure of the detector.
Now follow the instructions under 'Check Sensor Operation'. Alternatively if the control panel is an Abacus or Pulsar 10 it may be wired in 'LP' mode to reduce current drain and cable cores, please see the section on 'LP MODE' for wiring and DIL switch settings.

**To aid memory remember that the 'A' circuit detector is the furthest Away (on the cable) and the circuit 'B' is on the way Back to the Abacus.**




## EXAMPLES OF DIL SWITCH SETTINGS.




This shows the DIL switch settings for a Stella PIR in Standard mode with 'Pulse Count' disabled (LPC mode) and walk test LED set to off.

This shows the DIL switch settings for a Stella PIR in Standard mode with 'Pulse Count' set to one and walk test LED set to dim.

This shows the DIL switch settings for a Stella PIR in Standard mode with 'Pulse Count' set to two/max. and the walk test LED set to bright.

**Fig 2 TWO STELLA PIRS WIRED IN 'LP' MODE**

## LP MODE

When placed in 'LP' mode only 3 cores are required to operate. A 0V and +12V supply from the Abacus and a wire from the Stella in 'LP' mode terminal marked 'Tamper↑' to the 'A' terminal of a zone, on any of the Abacus control panels. The Tamper, Cct A and Cct B alarm signals are sent to the Abacus via a single core of cable to the 'A' terminal of the zone. Two Stella-LP detectors can be connected in series to any 'A' terminal of an Abacus zone and be separately identified as **Cct A & Cct B**, but sharing a common **TAMPer** circuit.

As the 0v supply is fed into the first detector, then onto the 2nd, this means that the first of each pair of detectors must have a separate 0v cable. On a six core cable this would leave 3 cores spare, of which each can be connected to two Stellas.

Therefore up to eight separately indicating Stella detectors in LP mode can be connected to the control panel via a 6 core cable to the 'B' detector, with the 'Cct A' detectors 'Star Wired' off the 'Cct B'.

Note

The 'old' Abacus 8,12 and 64 will not allow the Cct A and Cct B to be programmed individually.

On the Abacus (12, 15, 64 or 72) with a Trouble (**TRBL**) detect ability the feature must be turned off when using a Stella in 'LP' mode.

The following points only apply to zones to which Stella detectors in 'LP' mode are connected :-

a) If two detectors are on a zone, BOTH MUST be 'LP' type detectors (Comet-LP etc., and not Comet-L's).

b) No connection is made to the 'T','A+' or 'C' terminals.

c) The End of Line resistor must **NOT** be used.

d) Zone Splitters and such devices must not be used, as the Stella has integral 'Zone Splitter' technology.

e) On Abacus 12 or 64 a Stella in 'LP' mode **CANNOT** be used on an FX or EXFX circuit as 'Trouble' detect is always active, to detect Exit Terminate.

## WIRING A SINGLE STELLA PER ZONE.

a) Connect the Abacus 0V supply to the Stella '0V↑'.

b) Connect the Abacus 'A' zone terminal to the Stella 'Tamper ↑' terminal.

c) Connect the Abacus +12v supply to the '+12V' terminal to the Stella terminal.

d) Set the DIL switch as per the Cct A Stella (top right).

e) No connection is made to the 'T','A+', or the 'C' terminals on that zone of the Abacus / REM when in LP mode.

## WIRING TWO STELLAS PER ZONE.

BOTH detectors MUST be Stellas or Comet-LPs.

Connect the units as shown in Fig 2 above.

## CHECK SENSOR OPERATION

1: Apply power and wait for 2-3 minutes for the PIR to stabilise.

2: Ensure the voltage at the detector is a 13.8V nominal. If the voltages drops below 10V the low voltage alarm will come into operation.

3: Clear the area where the detector is located, wait 10-20 seconds and approach the detector from the direction you would realistically expect an intruder to move from, i.e. from a doorway or a window. If correctly set up, the detector will activate and the LED will light for 2 seconds (if enabled). Walk test the detector to check operation and coverage pattern to ensure correct signalling back to the control equipment. Repeat tests weekly to ensure correct operation.

## NACOSS INSPECTION AND TEST

As required under NACOSS 'Code of Practice, NACP 11 issue 1, December 1990', Section 5.2 and NACP 11 attachment 3, you are required to perform resistance and voltage checks for each detector.

To conform with these requirements when using a Stella detector in 'LP' mode please perform the following;

1) Short out '0V↑' to '0V↓' in the Stella configured to circuit 'B'.

2) Short out 'Tamper↑' to 'Tamper↓' in the circuit 'B' Stella.

3) Short out '0V↑' to 'Tamper↑' in the Stella configured to circuit 'A'. and replace both case lids.

5) Measure the loop resistance using a calibrated resistance meter from the '0v↑' connection to the 'A' zone connection at the panel and record.

This reading replaces the Tamper and detection pair meter readings. It is advisable to check the insulation to other cores at this point.

6) Remove the shorting links.

7) Then measure the end of line voltage readings from '+12' to '0V↑' on the circuit 'A' detector.

8) Replace the detector case lids and check for correct operation.

## SPECIFICATION & TECHNICAL DATA

**ELECTRICAL**

| | |
|---|---|
| Sensor | Dual element Pyroelectric. |
| Responsive to Infrared | 700nm - 1mm Wave length |
| Processing | Sequential Dual Edge with selectable 0, 1 or 2 Pulse counting. |
| No Pulse counting is available on the 012 and 025 Versions | |
| Alarm Duration | Min. 2 or 6 Sec (selectable). |
| Velocity of intruder | 0.3m/s Min. to 3m/s Max. |
| Susceptibility | Exceeds 20V/m 1Mhz - 1Ghz. |
| Emissions | Within CE for emissions. |
| Transients | 1000v Max. |
| Electrostatic discharge | 8000V Max. |
| Immunity to white light | 2000 Lux |
| Maximum Ripple | 2V @ 13.8V (Peak to Peak) |
| Operating Voltage | 10.5 - 16Vdc (13.8V nominal) |
| Current Consumption | 10mA,15mA if indicating. |
| Low battery detect | 10.0 Vdc. |
| Walk test indication | Relay O/C or Cct A. LED Selectable Off/Dim/Bright |

**'Standard' mode**

| | |
|---|---|
| Alarm output | Relay normally closed via a 10Ω, 0.125 W resistor Max. 100V, 110mA, 10VA |
| Tamper output | Micro switch 24Vdc, 50mA normally closed. |

**'LP' mode**

Measurements from 0v to the **A** zone terminal.

| | |
|---|---|
| Tamper Alarm | Above 9.0 Volts Approx. |
| Cct A Alarm | Above 5.5 Volts Approx. |
| Cct B Alarm | Below 2.0 Volts Approx. |
| Quiescent | Normally 3.7 Volts. |
| Maximum current | 9 mA @ 13.6 Vdc. |
| **Compatibility** | |
| Standard mode | Most quality controls |
| 'LP' mode | All Abacus & Pulsar 10 |

**ENVIRONMENTAL**

| | |
|---|---|
| Maximum and minimum temperatures | |
| Operating | -10 °C to +50 °C |
| Storage | -20 °C to +80 °C |
| Physical protection | IP41 as per BS5490 |
| Mounting | Ceiling bracket,flat surface or corner mounting. |
| Mounting Height | 1.8 to 2.5m from the floor |
| Nominal Range | Stella (0)12=12m Stella (0)25=25m |
| Adjustment | 6-14m Stella 12 6-25m Stella 25 |

**PHYSICAL/MECHANICAL**

| | |
|---|---|
| Case material/colour | White/ABS polished finish |
| Wall thickness | 3mm nominal |
| Dimensions (HxWxD) | 86 x 70 x 47mm |
| Weight | 160g (inc. Packing) |

**Product specification and design may change in light of technical developments and customer demand without notice.**

**DA Systems Ltd. accepts no responsibility for any loss or damage howsoever caused except to the extent the same may not be lawfully excluded.**