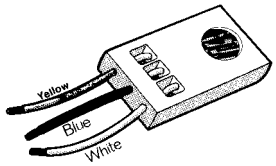
INSTALLING iD PLUS SYSTEMS

iD TECHNOLOGY

iD is NOT a detection system, but a means of simplifying wiring by individually addressing a number of detectors wired to the control in parallel.

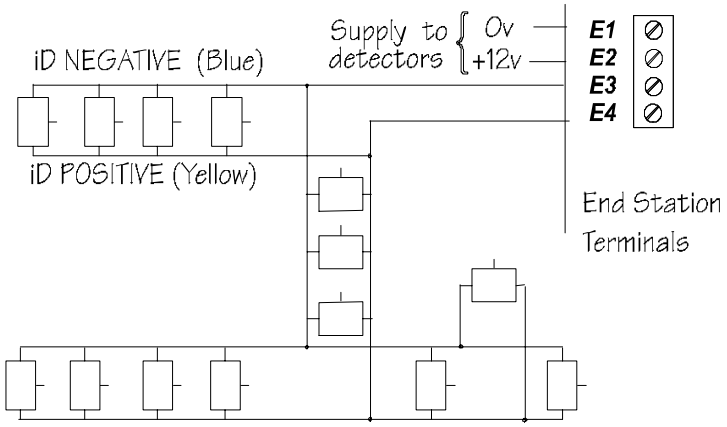
Castle Care-Tech Ltd is a permitted user of iD PLUS

A small interface, known as a 'biscuit' – actually a silicon microchip - is used to achieve this, and wires directly into the terminals of any detector.



Each device has its own identification number, from 01 to 30, which must **NOT** be duplicated on the system.

The devices wire in any order, and in any parallel configuration, requiring two cores only for communication, plus the supply for detectors.



(see also page 8)

The system polls the devices continuously for two signals:

a) A diagnostic signal showing that the device is correctly connected and functional – and that all tamper switches are correctly closed.

b) A signal to report the status of the detector which is being monitored.

CABLING SPECIFICATIONS, etc.

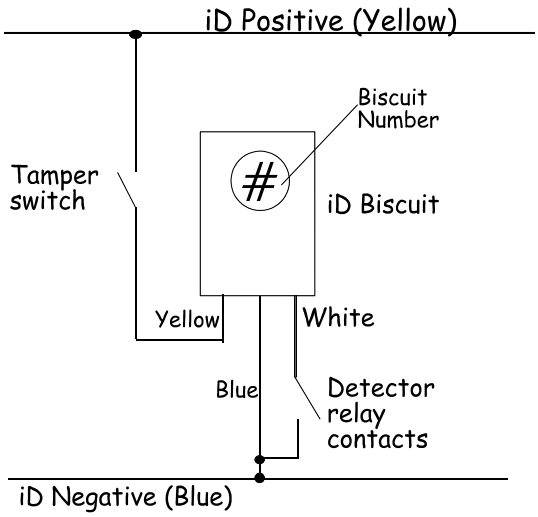
Factor	*Specification*
Cable type:	Screened cable. ***AVOID*** 'Pyro,' and other highly capacitive cable types.
Cores:	4 (including power). Doubling up supply cores will minimise voltage drop to detectors. iD cores may also be doubled up.
Format:	Any parallel format EXCEPT 'ring main' type loops
Cable length:	Max 400 metres for total cable run.
Cable routing:	Must NOT be run with any cables carrying AC or digital signals.
Cable Termination	Each spur should be terminated with a 0·01µF capacitor
Biscuit location:	Biscuits must be wired directly to the detector/contact terminals. If this is impossible, a 'DP' junction box should be used.

SCREENED cable is specified to minimise any problems from RFI, especially taking into account the lack of control over any wiring installed by others after the alarm system is commissioned.

!	**Castle Care-Tech Ltd cannot be held responsible for problems arising from failure to follow these specifications.**

CONNECTIONS:

It is essential that the connections are correctly made, or serious malfunction ***of the entire iD network*** could result The standard wiring convention is YELLOW for the **iD** Line +, and BLUE for the **iD** Line –, which thus match the colour coding of the biscuit itself. The third, WHITE, connection to the biscuit is used for the switch contact, as follows:



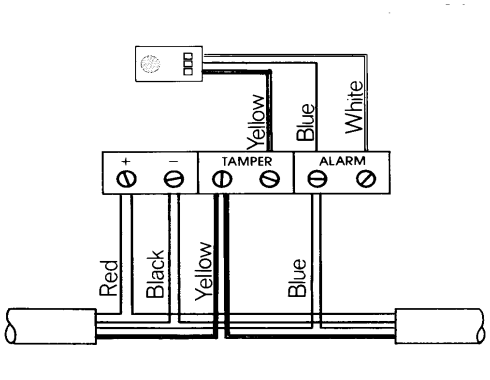
YELLOW: iD + Term E4
BLUE: iD- Term E3

Tamper switch:
In series with YELLOW

Switch contact:
Between WHITE and BLUE

Detector power (12v)
Terms E1, 2

The connections of the biscuit in a typical PIR are as follows:



This shows the incoming cable from the End Station at one side, and the ongoing connection to the next detector at the other. It is possible to spur off at this point to a further detector, or group of detectors.

The biscuit must be wired directly to the terminals of the detector to which it refers. If there is insufficient space, use a iD 'DP' junction box - see page 4. Failure to do this can introduce RFI problems affecting the entire system.

On completion of making connections, the biscuit should be neatly laid against the terminal block or cable form, ensuring that it does not cause a short circuit, or obstruct the operation of the detector or tamper switch.

NORMALLY OPEN DETECTORS should be connected in the same way – select the 'Normally Open' attribute when programming the zone.

WINDOW FOIL and similar detectors require the **iD** 'DP' junction box, which interfaces an optically isolated circuit to the **iD** biscuit.

NOTE: A transient generated by an iD biscuit whilst being addressed will occasionally cause another biscuit to perform a counter reset. This can result in the biscuit affected signalling again, at an incorrect address, generating a 'twin device' alarm.

To eliminate this possibility a small value capacitor (0.01 µF recommended) should be wired across the iD line at the end of each iD spur.
This is especially true of short (less than 30 metre) runs.

A supply of suitable capacitors (marking code "103") is supplied with the End Station / ZEM.

iD JUNCTION BOX TYPES:

'T' Basic junction box for extending cables, spurring, etc.

'IL' Provides double pole circuit to interface to detector when biscuit will not fit in housing.
If used, must be located <u>immediately</u> adjacent to the detector – use of 'DP' type is generally preferable.
Note: The 'IL' type is now obsolete.

'DP' Provides double pole circuit to interface to window foil, or other detectors that cannot be located close to the biscuit, for multiple contacts connected to the same biscuit, etc.
NOTE: The original 'DP' Junction box was designed for 24 Hour tamper, and similar circuits only, and does ***NOT*** separately identify a tamper circuit. This can be distinguished by having a socket for a 'plug-in' biscuit – the new type, with correctly identified tamper circuit, has terminals for a 'wired' biscuit.

NOTES:
Zones wired to Keypads or Tag Readers on a Euro-MERiDIAN system must ALWAYS be wired in 'End of Line' mode, even when 'iD mode' is selected for the system.
When a Zone Expander is used in iD mode, it is essential that it be plugged onto an Intelligent Power Supply, unless used within 10 metres of the End Station.

iD Commissioning Readings

On completion of the installation, it is essential that the commissioning readings described below are made, both to satisfy the documentation requirements of BS.4737, etc. and to ensure the integrity of the system.

1. Complete the wiring, but do not secure the detector housings.
2. Remove the **iD** + and – connections from terminals E3 & 4 at the End Station, and twist them together.
3. Measure, and record, the following readings, at each detector:
   a: The resistance between the **iD** Blue and Yellow connections – max 16 ohms, see note on page 6.
   b: The supply voltage at the detector (if applicable).
4. Secure the detector housing, ensuring that the tamper switch is correctly closed.
5. Move to the next detector, and repeat the above.
6. Separate the **iD** + & - wires at the End Station, and measure and record the resistance between them. See table on page 6.
   Investigate any significant variation.
7. Check the resistance reading between the **iD** + & - wires and mains earth. This should show open circuit – any reading could indicate an earth leakage, which may cause problems later.
8. Check the voltage reading between the **iD** + & - wires and the 0v and +12v terminals (E1,2). This should show open circuit; any voltage present will indicate a leakage, which may cause problems later.
9. Replace the **iD** wiring in the End Station terminals.
10. Test **iD** line response in diagnostic menu, and Walk Test system.

NOTES:

These measurements are made with all biscuits connected to the line, and with power applied.

This procedure has been agreed with NSI as an accepted method of meeting these requirements.

EXPECTED READINGS:

STEP 3: Wiring resistance

This will depend upon cable distance, typically 8 ohms per core per 100 metres. This should NOT exceed 16 ohms! Higher readings should be investigated to prevent problems from developing.

STEP 6: iD network resistance:

No of biscuits	*Nominal resistance*	*No of biscuits*	*Nominal resistance*	*No of biscuits*	*Nominal resistance*
1	1250K	11	114K	21	59.5K
2	625K	12	104K	22	56.8K
3	417K	13	96K	23	54.3K
4	313K	14	89K	24	52.1K
5	250K	15	83K	25	50.0K
6	208K	16	78K	26	48.1K
7	179K	17	73.5K	27	46.3K
8	156K	18	69.4K	28	44.6K
9	139K	19	65.8K	29	43.1K
10	125K	20	62.5K	30	41.7K

Note:

These readings are a guide to the effectiveness of the wiring, and that all biscuits are correctly connected. This is NOT a diagnostic test for the biscuits themselves. A range of tolerance, roughly equivalent to the next figure above and below, should be expected. Anything less than 30K ohms should be investigated for short circuit.

STEP 7 Earth Resistance:

Reading should be OPEN CIRCUIT – any measurable resistance will indicate a leakage path to earth, which should be investigated, as it will almost certainly cause problems later, even if it appears to function correctly now!

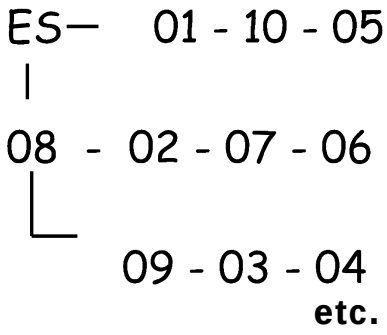
Step 8 Voltage leakage:

Reading should be NIL – any voltage measured will indicate a short or resistive connection to the supply, which must be cleared or the system will be unable to function correctly.

SUMMARY

Reliable operation of an **iD** system can only be guaranteed if specifications are followed, and care taken in the installation.

HINT:
It will be found beneficial for subsequent maintenance and faultfinding purposes, to have a simple record of the cable layout and biscuit order available at the control, eg:



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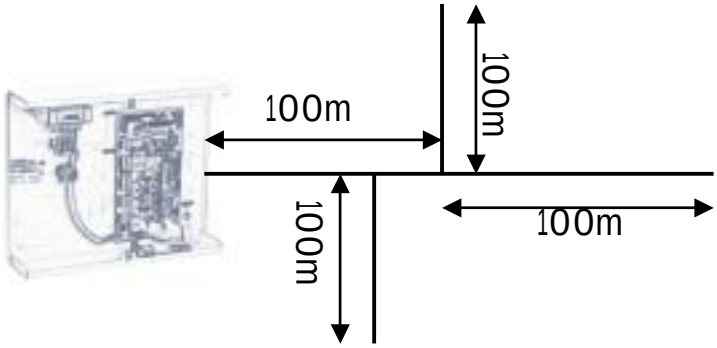
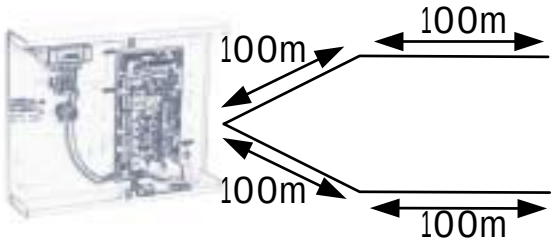
Reminders for successful installation of an iD system:

1. Ensure that all biscuits are correctly connected (p.2)
2. Ensure that all biscuits are wired directly to the detector terminals (p.2)
3. Ensure that safe wiring distances are not exceeded (p.3)
4. Ensure that all cabling specifications are carefully followed (p.3)
5. Ensure that the resistance measurements are correctly checked and recorded (p.5)

Sample iD Plus Topologies





Note: Total iD Plus cable length must not exceed 400 metres.

Castle Care-Tech Ltd
North Street, Winkfield, Windsor, Berkshire, SL4 4SY