

Deltacom

Intercoms

DELTACOM SYSTEMS

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DELTACOM SYSTEMS

GENERAL INFORMATION

Deltacom provide a range of intercom systems to suit most domestic needs. This paper will explain the different systems, how to test individual boards, common faults and ways to track down these faults.

Deltacom intercoms (except the front door answering system) may be used with or without a master unit.

Music can be sourced from either a master unit or from a remote stereo system or both.

Stations may be numbered and called individually or in groups; from masters, mini masters and in some cases room units

Systems should be wired in a branch configuration to a central point (usually the master) with a maximum of four stations per branch.

The power supply should also be wired to this central point.

DELTACOM manufacture these systems:

Front door Answering system

200S system

DJ500 system

DJ1000 system

Video system

QUICK CHECKS

As we have found that bad installation practice and/or incorrect cabling cause the majority of malfunctioning intercom systems, we have put together a quick check list.

- Has the correct power supply been used?
- Has Cat5 cable been used?
- Is there 1m between all intercom and power lighting/cables?
- Have all terminations been double checked? - (See things to know on relevant system)
- Have the intercom and data terminal voltages been checked? - (See things to know on relevant system)
- Has the master (if installed) been reset?
- Has the installer swapped over two rooms to see if the fault moves?

FDA (Front Door Answering)

THE FRONT DOOR ANSWERING SYSTEM WILL:

Ring a chime at all stations including the front door when the doorbell is pushed.

Allow communication with the front door from stations inside.

Trigger a release for a lock or gate.

Things to know

The FDA system is controlled by a processor in the master unit therefore all systems need to have a master unit as their first unit.

There is a new FDA system being released soon.

The three main differences between new and old systems are:

The system will be available in medium and small sizes.

The rectifier board will now be incorporated into the master board and the AC plug pack may be wired directly into the master unit.

There will be a maximum of two internal stations only.

200S

THE 200S SYSTEM WILL:

Ring a chime at all stations including the front door when the doorbell is pushed.

Allow the owner to answer the front door and trigger a release for a lock or gate.

Communicate around the house but has individual calling from the master or mini-master only.

Listen to music around the house.

Monitor stations.

Things to know

Terminals 1 & 2 are **positive** and **negative** respectively.

Terminals 3 & 6 carry data and music. These terminals should have 5V or slightly more if a master is in the system from the **negative** terminal.

Terminals 4 & 5 both carry intercom. These terminals should have 7V from the **negative** terminal.

Terminals 1 & 2, 3 & 6, 4 & 5 must be wired as twisted pairs in their respective groups. This is very important to keep noise out of the system.

Function Test

Press **talk**, **cancel monitor** etc. If LED's light and cancel - the unit has power and the processor is operating.

Press **talk**. If other units in system have green LED's displayed this indicates that the data transmission from suspect unit is operating.

Press **talk** at another unit in system. If green LED displays on suspect unit this indicates that data reception at suspect unit is operating.

Check audio in and out from suspect unit by holding **talk**, blowing into microphone, releasing **talk** and listening.

Check music using a small radio and music interface board or master.

Press **privacy** to ensure that the yellow LED is illuminated and there is no intercom from suspect unit when called from another unit in system, until privacy is re-pressed.

Press **monitor**. Red and green LEDs will display and audio from suspect unit should be heard at all other units.

Check unlock if required.

Common Faults

1. No Data

Measure voltage on data terminals.

If they are incorrect remove the two data wires from the terminal block of the suspect station.

Measure the terminals again without the wires connected.

If the voltages are now correct the suspect station is not the problem.

The problem will be either another station or a damaged wire.

Repeat the procedure until a faulty station is found or you are left with a wire fault.

2. *No Music*

This is usually caused by a short between the twisted pair 3 & 6 and may also affect data.

Remove the data/music wires from the master.

If the music volume returns to normal the problem is further out on the branch.

Individual runs branching from the master may be separated and reintroduced to the master one at a time to find out which branch has the fault.

3. *Low Music*

This is usually caused by a broken wire in the twisted pair which supplies music and data.

Remove the wire from one of the data/music terminals.

If the music volume drops the wire is intact.

If the music volume stays the same the wire is damaged.

4. *Buzzing*

Buzzing and data noise is usually caused by a broken wire or commonly a wire snapped off at the terminal block.

If a music/data wire is broken there will be loud data noises when the music is switched on and a station is called then cancelled.

If the noise is heard when music is on then the problem will be on the twisted pair in terminals 3 & 6.

If the noise is heard when the intercom is being used then the problem will be on the twisted pair in terminals 4 & 5.

Using twisted pairs in the correct terminals ensures a relatively noise free system.

5. *No Intercom*

Similar to no music, this fault is usually caused by a short between the twisted pair in terminals 4 & 5 or the data not being transmitted around the system properly - See *No Data*.

6. *Low Intercom*

Similar to low music, this fault is usually caused by a broken wire in the twisted pair in terminals 4&5.

200S DOOR

The blue pot on the rear of the circuit board controls the volume for a D200S door. This will control both the chime volume and the intercom volume.

Function Test

If green LED is alight the board has power and the processor is running.

Press door bell. Chime should ring at door station and at internal stations. This proves that data leaving door board is operating.

From an internal station press **door**. When released audio from the door station should be heard. This proves that data is received by the door board and that audio out from door board is correct.

Press and hold down the **talk** button. Audio will then be heard at the door station when you talk. This proves audio into the door station is correct.

Pressing the **lock** button when the door station has been called will activate the lock release.

Common Faults

1. *No Data*

Chime rings outside but not inside or system can't communicate with door from inside.

Follow procedure to measure data voltages above.

Most other faults will be similar to those mentioned above.

ADDITIONAL FUNCTIONS

Press and hold for more than 2 seconds:

Music-Sleep function - Music will play for 1 hr.

Privacy-Alarm will operate at this station.

Unlock-Alarm will not operate at this station.

Dipswitch options

These options are incorporated into the 200s board along with dip switches to number all D200S room units.

Dipswitch 1 on Privacy will operate.

Dipswitch 2 on Unlock will operate.

Dipswitch 3 on Door chime will operate.

Numbering Units

Dip Switches 1-1, 1-2, 1-3 and 1-4 number the Units.

Dip switch 1-1 represents the value 1

Dip switch 1-2 represents the value 2

Dip switch 1-3 represents the value 4

Dip switch 1-4 represents the value 8

If all dip switches are **on** the unit is number one. This number can be changed by turning a dip switch off and adding its value to 1 (one).

For example, to number a unit 8 turn **off** dip switches 1-1, 1-2 and 1-3.

This will give a total value of 8. Dip switch 1-1 (value of 1) plus dip switch 1-2 (value of 2) plus dip switch 1-3 (value of 4) plus the original value of 1 gives a total of 8. The following table shows the number of the unit and the position of the relevant dip switch.

	Dip Switch 1-1	Dip Switch 1-2	Dip Switch 1-3	Dip Switch 1-4
No 1	ON	ON	ON	ON
No 2	OFF	ON	ON	ON
No 3	ON	OFF	ON	ON
No 4	OFF	OFF	ON	ON
No 5	ON	ON	OFF	ON
No 6	OFF	ON	OFF	ON
No 7	ON	OFF	OFF	ON
No 8	OFF	OFF	OFF	ON
No 9	ON	ON	ON	OFF
No 10	OFF	ON	ON	<i>OFF</i>
No 11	ON	OFF	ON	OFF
No 12	OFF	OFF	ON	OFF
No 13	ON	ON	OFF	OFF
No 14	OFF	ON	OFF	OFF
No 15	ON	OFF	OFF	OFF
No 16	OFF	OFF	OFF	OFF

DJ500

THE DJ500 SYSTEM WILL:

Ring a chime at all stations including the front door when the doorbell is pushed.

Allow the owner to answer the front door and trigger a release for a lock or gate.

Communicate around the house but has individual or group calling from the master or any room station.

May have up to 8 individually numbered locations.

Listen to music around the house.

Monitor stations.

Things to know

1. Terminals 1 & 2 – **positive** and **negative** respectively.
2. Terminals 3 & 4 – **negative** and **data** respectively. The **data** terminal should have approx 7V from the **negative** terminal.
3. Terminals 5 & 6 – Both carry intercom. These terminals should have approx 7V from the **negative** terminal when intercom is in use.
4. Terminals 7 & 8 – Both carry music. These terminals should have approx 6V from the **negative** terminal.
5. Terminals 1 & 2, 3 & 4, 5 & 6, 7 & 8 must be wired as twisted pairs in their respective groups. This is very important to keep noise out of the system.
6. The slide control on a DJ500 station controls both audio/music volume and chime volume.

Function Test.

Press **talk**, **cancel** etc. If red and green LEDS light and cancel, the unit has power and the processor is operating.

Press **talk**. If other units in system have red and green LEDS alight, this indicates that the data transmission from suspect unit is operating.

Press **talk** at another unit in system - If red and green LEDS are alight on suspect unit this indicates that data reception is operating.

Check audio in and out from suspect unit by holding **talk**, tapping the microphone, releasing **talk** and listening.

Check all numbered buttons. Green and red LEDS should light in all cases except when the number of the suspect station is called. In this case the processor will emit a no-go beep to indicate that it cannot call itself.

Check music using a small radio and music interface board or master.

Press **privacy**. Ensure that the yellow LED is illuminated and there is no intercom from suspect unit when called from another unit in system until privacy is pressed again.

Check monitor by pressing and holding the number of another unit in the system for 2 seconds. When the button is released a beep should be heard indicating that the suspect unit is locked onto the called station which should be heard at the suspect station until **cancel** is pressed.

Check unlock if required.

Options – See attached **DJ500/1000** options sheet.

Common Faults

Most of the faults found in the **DJ500/1000** system will be similar to the D200S system and tracked down in the same way.

Similar faults would be:

1. No Music

This is usually caused by a short between the twisted pair 7 & 8.

Remove the music wires from the master.

If the music volume returns to normal the problem is further out on the branch.

Individual runs branching from the master may be separated and reintroduced to the master one at a time to find out which branch has the fault.

2. ***Low Music***

This is usually caused by a broken wire in the twisted pair which supplies music terminals 7& 8.

Remove the wire from one of the music terminals.

If the music volume drops the wire is intact.

If the music volume stays the same the wire is damaged.

3. ***Buzzing***

Buzzing noise is usually caused by a broken wire or commonly a wire snapped off at the terminal block.

If the noise is heard when music is on then the problem will be on the twisted pair supplying music on terminals 7 & 8.

If the noise is heard when the intercom is being used then the problem will be on the twisted pair in terminals 5 & 6.

Using twisted pairs in the correct terminals ensures a relatively noise free system.

4. ***No Intercom***

Similar to no music, this fault is usually caused by a short between the twisted pair in terminals 5 & 6 or the data not being transmitted around the system correctly - See ***No Data***.

5. ***Low Intercom***

Similar to low music this fault is usually caused by a broken wire in the twisted pair in terminals 5 & 6.

6 *No Data*

Data in the DJ500/1000 system is different to the 200S and is sent down one wire only. The DJ500/1000 data is self checking. If there is a fault the unit will give a 'no go' beep when a button that would normally transmit data is pushed (such as talk).

Remove the data wire from the suspect station.

If the 'no go' beep is still heard the problem is within that station.

If the 'no go' beep is no longer heard the problem is with the data line or another station.

DJ500/1000 DOOR

The volume control for a DJ500/1000 door is through the top hole in the fascia.

Function Test

Function test as you would a 200S door.

Common Faults

1. *No Data*

No chime only, the 'no go' beep, or no communication to door from inside.

Follow procedure to check data above.

2. Most other faults will be similar to those mentioned above.

DJ1000

THE DJ1000 SYSTEM WILL:

Ring a chime at all stations including the front door when the doorbell is pushed.

Allow the owner to answer the front door and trigger a release for a lock or gate.

Communicate around the house but has individual or group calling from the master or any room station.

Engage a second communication line if the first line is busy.

May have up to 16 individually numbered locations.

Listen to music around the house.

Monitor stations.

Things to know

- Terminals 1 & 2 – **positive** and **negative** respectively.
- Terminals 3 & 4 – **negative** and **data** respectively. The **data** terminal should have approx 7V from the **negative** terminal.
- Terminals 5 & 6 – Both carry intercom. These terminals should have approx. 7V from the **negative** terminal when intercom is in use.
- Terminals 7 & 8 – Both carry music. These terminals should have approx 6V from the **negative** terminal.
- Terminals 9 & 10 both carry the second intercom line and both should have approx 7V from the **negative** terminal when this line is in use.
- Terminals 3 & 4, 5 & 6, 7 & 8, 9 & 10 must be wired as twisted pairs in their respective groups. This is very important to keep noise out of the system.
- Dipswitch 2-8 should be in the **off** position at each station in a **DJ1000** to system to enable the second intercom line.
- The slide control on a **DJ1000** station controls the audio/music volume. Individual station music balance may be obtained by adjusting the music pot through the lower hole in the face.

- Chime volume on an individual station may be set by adjusting the chime pot through the center hole in the facia.
- The **DJ1000** comes with the automute system for monitoring. This allows a station monitoring to switch off until the volume at the monitored station reaches a preset level. This is adjusted through the top hole in the facia.

Function Test

The **DJ1000** system is similar to the **DJ500** system and can be tested in the same manner.

Options – See attached **DJ500/1000** options sheet.

Common Faults

Faults in the **DJ1000** system will also be similar to the **DJ500** system.

As a general rule at an in-house situation, if a station is in doubt, taking another station that is known to work and placing it in the suspect stations' position will prove that:

If the station works, the suspect station is at fault.

If the station does not work the problem is elsewhere either wiring or another station.

MASTERS

The radio section of a master is the same in a **DJ500/1000** and a **D200S** except for a few minor board variations.

The **DJ500/1000** master is the same unit for both the **DJ500** system and the **DJ1000** system (option link 2-8 'on' for DJ500 and 'off' for DJ1000).

This master is controlled by a **DJ1000** room board and therefore can be treated as such when fault finding or adjusting things such as chime volume or auto mute.

The **D200S** master is not compatible with the DJ master.

A **D200S** mini master is also available. This unit would take the place of a standard master when the radio and clock functions are not required but individual calling is appropriate.

The mini master comes in a package the same size as a medium room station and has a button configuration similar to a **DJ1000** so that up to 16 separate locations may be called. This is the same as a standard **D200S** master.

Chime volume at the **D200S** master is adjusted with the blue pot in the center of the lower board at the rear of the master.

Both types of masters are wired into their appropriate systems the same as a standard room or door station would be.

Both types of masters have a hold up supply in the case of power failure. This will allow the display processor to continue running for a short period of time if power fails. The display will not be visible but the memory and clock will continue to run.

Because this processor is not reset it may sometimes lock up when glitches etc. occur on the supply rail or when the board is handled. The back up will then keep the processor in the locked state until it is reset. To reset the processor leave the power off the unit for 4 hrs.

SJ/GND INPUT

This is the input to bring music into the system from a remote source.

AERIALS

The masters have 3 terminals for aerial input. There are 2 FM inputs. Either one can be used as a single input or both if a di-pole type aerial is used. The center core of the co-axial cable is joined to one of these inputs.

The AM terminal is joined to the braid of the co-axial cable.

MONITORS

Monitors come in three types and can be used in conjunction with **D200S DJ500/1000** systems or as a stand alone monitor with a **D200S** door and camera.

A monitor that takes the place of a **D200S** room station.

This unit should be wired into the **D200S** system in the way a standard station would be. The monitor will have an additional 4 terminals on the left end of the station. This is the 12V supply to the camera and the video input from the camera, **not the input for the power supply.**

The second type of monitor can be added above a **D200S** master.

A third type of monitor can be added above a **DJ500/1000** master or a **DJ500/1000** room station. The second and third types of monitors have no buttons or speaker but when the door is called from the station below or the door bell is rung the monitor will turn on.

Monitors should be mounted as close to eye level as possible because LCD screens lose their clarity when viewed from an angle.

CAMERAS

Cameras may be either black and white or colour.

Cameras can be mounted inside a Deltacom door station or mounted as a remote unit.

Good lighting should be taken into consideration for night viewing.

MUSIC INTERFACE KITS

A **Music Interface kit** is used to wire music into a system. The system may or may not have a master.

If there is a master, all that is needed is a wall plate and lead. The plate should be wired back to the SJ/GND terminals at the master. When the radio is switched off, the SJ input will be live to any signal plugged into the input. Use the music buttons to turn music on and off.

If there is no master, a music interface board, wall plate and lead are needed. The interface board should be mounted behind the plate to keep induced noise to a minimum. The SJ input will be live to any signal plugged into the input. Use music buttons to turn music on and off.

The GND must be continuous between the intercom and the music source for music to play.

It is usual to take the music source from a headphone socket or other small signal source so the system is not overdriven and distortion created.

Volume around the whole system may be controlled from the music source.

CONNECTIONS OF THE MUSIC INTERFACE

The Music Interface Board should be located behind the Music Input Plate.

The cable that **MUST** be used is Austel approved internal telephone cable. There must be at least

two pairs in this cable.

D200S CONNECTIONS

Use one pair for POS and NEG and the second pair for the two MUS terminals.

The POS is connected to Terminal 1 of any Room unit.

The NEG is connected to Terminal 2.

One MUS is connected to Terminal 3.

One MUS is connected to Terminal 6.

DJ500/1000 CONNECTIONS

Use one pair for POS and NEG and the second pair for the two MUS terminals.

The POS is connected to Terminal 1 of any Room unit.

The NEG is connected to Terminal 2 or 3.

One MUS is connected to Terminal 7.

One MUS is connected to Terminal 8.

The GND is connected to the Black wire from the Music Input Plate and either

L or R is connected to the Red wire from the Music Input Plate.

A lead may be purchased to suit your Music Source (usually from the headphone socket).

Consult your Deltacom agent for further details regarding this lead.

DJ500/1000 OPTION SHEET

Master cancel

Press and hold **cancel** button for more than 2 seconds.

This will cancel all intercom calls around the entire system.

Full privacy

Press and hold **privacy** button for more than 2 seconds.

This means the selected unit cannot be called or listened to.

Sleep function

Press and hold **music** for more than 2 seconds.

Music will play for approx 60 minutes.

UNIT OPTIONS

Option switch

2-1 & 2-2 Both these option switches control the lock output time.

2-1 on 2-2 on Lock output set for 5 seconds.

2-1 off 2-2 on Lock output set for 15 seconds.

2-1 on 2-2 off Lock output set for 60 seconds.

2-1 off 2-2 off Lock output set to toggle on and off with each push.

Please note that the current consumption of a particular latch should be taken into account particularly when setting these options for longer periods than the factory default of 5 seconds.

2-3 on Unlock will operate.

2-4 on Privacy will operate.

2-5 on Not used.

2-6 on Auto cancel will operate.

2-7 on Not used.

2-8 on This option will give single conversation for DJ500 systems and also if a monitor is attached to this station set the no. 8 button to switch this monitor on.

2-8 off This option will give dual conversation for DJ1000 systems and also if a monitor is attached to this station set the no. 16 button to switch this monitor on.

1-1 through 1-4. This set of 4 switches is used to program a units identifying number.

See **Numbering Units** sheet attached.

1-5 on The door bell chime will sound.

1-6 on The attention beep will sound if a unit is paged.

1-7 on The attention beep will sound if full privacy is selected.

1-8 on Unit will receive an alarm signal from the master unit.

AUX FUNCTIONS

These functions apply only to the DJ1000 system.

Aux-music Turns off music at all units.

Aux-privacy Disables the alarm function at that unit.

Aux-cancel Enables the alarm function at that unit.

Aux-talk Monitors that unit to all other units (except the door unit).