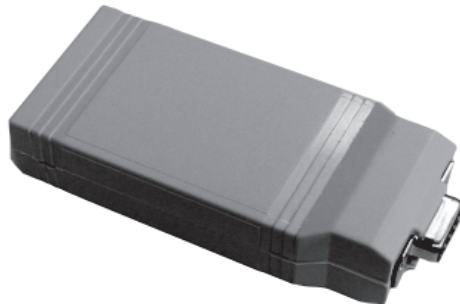




# IntelliTouch™ i-Link Protocol Interface Adapter



## User's Guide



Technical Support

**Sanford, North Carolina** (8 A.M. to 5 P.M. ET)

**Moorpark, California** (8 A.M. to 5 P.M. PT)

Phone: (800) 831-7133 - Fax: (800) 284-4151

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1620 Hawkins Ave., Sanford, NC 27330 • (919) 566-8000

10951 West Los Angeles Ave., Moorpark, CA 93021 • (800) 553-5000

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## Overview

This manual provides IntelliTouch® i-Link™ software control commands for IntelliTouch system equipment such as lights, pumps etc. For additional information about the IntelliTouch control system, refer to the IntelliTouch User's Guide (P/N 520102).

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# IntelliTouch i-Link Adapter Software Commands

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## Start-up Sequence

Each time the IntelliTouch i-Link adapter is powered up a start-up initialization sequence is sent to the Home Automation system via the RS-232 port and the current command characters display. These special command characters are also user definable and may differ from the default characters show below. The default command character set displays after a start-up sequence. To display these characters power down/up or reset the IntelliTouch i-Link adapter. For the RST (reset) command information, see page 4.

### IntelliTouch i-Link Adapter Default Command Characters Pentair Water Pool and Spa - IntelliTouch i-Link Protocol InterfaceAdapter v1.0

**CMDCHR = #**

**NRMCHR = !**

**ERRCHR = ?**

**SETCHR = =**

**INQCHR = ?**

#### Acquiring System Data

**!READY**

The IntelliTouch system implements an addressing method upon power up. For most systems the initialization is automatic. The IntelliTouch i-Link adapter will automatically lock on to the address within two minutes after power is applied.

**Note:** *If there is an IntelliTouch MobileTouch® wireless control panel installed, the MobileTouch Transceiver screw terminal connector needs to be removed from the Transceiver circuit board before the IntelliTouch i-Link adapter initialization sequence. Refer to Start-up with MobileTouch Control Panel, see page 25 for details.*

## Command / Response Characters

All examples given in this document assume default characters are being used.

'#' Prefixes all Commands

'!' Prefixes all successful command/query responses

'?' Prefixes all error messages/responses

'=' is used as the SET operator

'?' is used as the Query operator

### Command Forms

[Prefix][Label][Operator][Value]<cr>

Example: #SPA=1<cr> (Turn SPA ON)

Where the Prefix is “#” (factory default – may be changed with CMDCHR)

Where the Label or Command is “SPA”

Where the Operator is “=” i.e. set this circuit to value

Where the Value is “1” i.e. ON

The Prefix and the Operator must be the correct symbols. The Label must be exact spelling from the command list. Though it may be Upper or lower case, or any combination. The Value must be one of the valid options, and valid for that command.

'ON' values are “1”, “ON”, “Y” or “YES”, “T” or “TRUE”.

'OFF' values are “0”, “OFF”, “N” or “NO”, “F” or “FALSE”,

A single space may or may not be used between the Label and Operator, the Operator and Value, the Value and ,<cr>. No space(s) is allowed between the Prefix and the Label.

Examples:

[Prefix][Label][Operator][Value]<cr> (valid)

[Prefix][Label] [Operator] [Value] <cr> (valid)

[Prefix][Label][Operator] [Value] <cr> (valid)

[Prefix] [Label][Operator][Value]<cr> (invalid)

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#### Query Command Forms

[Prefix][Label][Operator]<cr>

Example: #SPA?<cr> (Query SPA State)

Where the Prefix is “#” (factory default – may be changed with CMDCHR)

Where the Label or Command is “SPA”

Where the Operator is “?” i.e. Query

The Prefix and the Operator must be the correct symbols. The Label must be exact spelling from the command list using upper or lower case, or any combination. A single space may or may not be used between the Label and Operator, and the Operator and <cr>.

No space(s) is allowed between the Prefix and the Label.

#### Error Messages/Responses Form

[Prefix][Error Number][Message]<cr> (RSPFMT = 0)

[Prefix][Error Number]<cr> (RSPFMT = 1)

Example: ?02 BAD COMMAND FORM

Where the Prefix is “?” (factory default – may be changed with ERRCHR)

Where the Error Number “02”

Where the Message is “BAD COMMAND FORM”

If RSPFMT is terse (RSPFMT = 1) only the Prefix and Error Number are returned

Error Messages:

“01 INVALID COMMAND”

“02 BAD COMMAND FORM”

“11 485 SET/GET VALUE TIME-OUT”

“22 AUX OFF: DIMMER CTL IGNORED”

“23 OPTION SWITCH NOT SET”

“88 INTERFACE BUSY”

“98 UNKNOWN ERROR CONDITION”

“99 UNKNOWN COMMAND VALUE”

## Adapter Commands / Command Format

Adapter commands are used to set required or preferred actions and responses for a given application. Such as the 'RSPFMT' command that is used to determine the type of response expected by the computer or home automation system.

**RST:** Reset Adapter

Command: #RST<cr>  
 Response: Pentair Water - i-Link Protocol Interface Adapter v1.0

CMDCHR = #  
 NRMCHR = !  
 ERRCHR = ?  
 SETCHR = =  
 INQCHR = ?  
 Acquiring System Data  
 !READY

**RSPFMT:** Set/Query Command Response Format

Query: #RSPFMT ?<cr>  
 Response: !00 RSPFMT = x<cr>

Where x is 1 or 0.

0 indicates a verbose response (as shown).

If the RSPFMT is set to terse the response would appear as !00 x<cr>

Command: #RSPFMT = x<cr>  
 Response: !00 RSPFMT = x<cr>

Where x is 1 or 0.

0 indicates a verbose response (as shown).

If the RSPFMT is set to terse the response would appear as !00 x<cr>

**COSMSGs:** Set/Query Change Of System Messages setting

Query: #COSMSGs ?<cr>  
 Response: !00 COSMSGs = x<cr>

Where x is 1 or 0.

0 indicates that no Change Of System messages will be sent.

1 indicates that messages will be sent whenever a circuit state or temperature changes.

Command: #COSMSGs = x<cr>  
 Response: !00 COSMSGs = x<cr> Where x is 1 or 0

**CMDCHR:** Set/Query Command Character Value

Query: #CMDCHR ?<cr>  
 Response: !00 CMDCHR = x<cr> Where x is the character used to prefix all Commands. By default this '#'

Command: #CMDCHR = x<cr>  
 Response: !00 CMDCHR = x<cr> Where x is the character you wish to make the CMDCHR. On Power up or Reset the current value is displayed.

**NRMCHR:** Set/Query Normal Response Character Value

Query: #NRMCHR ?<cr>  
 Response: !00 NRMCHR = x<cr> Where x is the character used to prefix all Valid (non error) responses from adapter. By default this '!'

Command: #NRMCHR = x<cr>  
 Response: !00 NRMCHR = x<cr> Where x is the character you wish to make the NRMCHR. On Power up or Reset the current value is displayed.

**ERRCHR:** Set/Query Error Character Value

Query: #ERRCHR ?<cr>  
 Response: !00 ERRCHR = x<cr> Where x is the character used to prefix all Invalid responses or error messages from adapter. By default this '?'

Command: #ERRCHR = x<cr>  
 Response: !00 ERRCHR = x<cr> Where x is the character you wish to make the ERRCHR. On Power up or Reset the current value is displayed.

**SETCHR:** Set/Query Set Character Value

Query: #SETCHR ?<cr>  
 Response: !00 SETCHR = x<cr> Where x is the character used as the operator in all Set commands. By default this '='

Command: #SETCHR = x<cr>  
 Response: !00 SETCHR = x<cr> Where x is the character you wish to make the SETCHR. On Power up or Reset the current value is displayed.

**INQCHR:** Set/Query Inquire Character Value

Query: #INQCHR ?<cr>  
 Response: !00 INQCHR = x<cr> Where x is the character used as the operator in all Query commands. By default this '?'

Command: #INQCHR = x<cr>  
 Response: !00 INQCHR = x<cr> Where x is the character you wish to make the INQCHR. On Power up or Reset the current value is displayed.



## System Commands / Command Format

System commands differ in various ways. Some may be used to set a state, toggle a state, or query a state. Others may be query only, or Set and Query but not Toggle.

**SPA:** Spa Control - Control/Query/Toggle Spa

Request State:  
 Query: #SPA ?<cr>  
 Response: !00 SPA = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:  
 Command: #SPA = x<cr>  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 SPA = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:  
 Toggle: #SPA <cr>  
 Response: !00 SPA = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

**PUMP:** Pool Control - Control/Query/Toggle Pump (pool)

Request State:  
 Query: #PUMP ?<cr>  
 Response: !00 PUMP = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:  
 Command: #PUMP = x<cr>  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 PUMP = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:  
 Command: Toggle: #PUMP <cr>  
 Response: !00 PUMP = x<cr> (RSPFMT = 0)  
 !00 x<cr> (RSPFMT = 1)  
 Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

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### **AUXxx:** Auxiliary Circuit Control

Control/Query/Toggle available Auxiliary, Feature, or Macro Circuits.

Request State:

Query: #AUXxx ?<cr>

Response: !00 AUXxx = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:

Command: #AUXxx = x<cr>

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 AUXxx = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:

Toggle: #AUXxx <cr>

Response: !00 AUXxx = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Where 'xx' is 1 through 8, and 11 through 50.

AUX1 through AUX8 control up to eight (8) auxiliary circuits in the main power center.

This is also where the Spa & Pump (pool) circuits reside.

AUX11 through AUX20 Control up to ten (10) auxiliary circuits in the second power center.

AUX21 through AUX30 Control up to ten (10) auxiliary circuits in the third power center.

AUX31 through AUX40 Control up to ten (10) auxiliary circuits in the third power center

AUX41 through AUX50 Control up to ten (10) feature or macro that exist in most systems.

**Note:** The adapter will not verify the existence of a given circuit. For example, if a command is given for AUX22, and no such circuit exists in the system, no indication is given. The state and status will appear normal. It is the installer/operators responsibility to insure circuits exist.

### **AUXxx:** Dimmer Circuit Control

#### **AUXxx+:**

#### **AUXxx-:**

Control/Query/Toggle available Dimmer.

Request State:

Query: #AUXxx ?<cr>

Response: !00 AUXxx = x xx%<cr> (RSPFMT = 0)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

If the Dimmer is ON, the xx% will follow indicating the level. 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100% are all valid.

!00 xxx<cr> (RSPFMT = 1)

Where xxx is 0, to indicates OFF, and is a value to indicate level

If ON. The Value is 128 + %. (i.e. 30% = 128 + 30 = 158)

Set State:

Command: #AUXxx = x<cr>

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 AUXxx = x xx%<cr> (RSPFMT = 0)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

If the Dimmer is ON, the xx% will follow indicating the level. 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100% are all valid.

!00 xxx<cr> (RSPFMT = 1)

Where xxx is 0, to indicates OFF, and is a value to indicate level

If ON. The Value is 128 + %. I.e. 30% = 128 + 30 = 158

Toggle State:

Toggle: #AUXxx <cr>

Response: !00 AUXxx = x xx%<cr> (RSPFMT = 0)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

If the Dimmer is ON, the xx% will follow indicating the level. 30%, 40%, 50%, 60%, 70%, 80%, 90% and 100% are all valid.

!00 xxx<cr> (RSPFMT = 1)

Where xxx is 0, to indicates OFF, and is a value to indicate level

If ON. The Value is 128 + %. (i.e. 30% = 128 + 30 = 158)

Inc/Dec Level:

Increment: #AUXxx+ <cr> (increase dimmer level if at 100%, go to 30%)

Decrement: #AUXxx- <cr> (decrease dimmer level if at 30%, go to 100%)

Response: !00 AUXxx = x xx%<cr> (RSPFMT = 0)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

If the Dimmer is ON, the xx% will follow indicating the level.

30%, 40%, 50%, 60%, 70%, 80%, 90% and 100% are all valid.

!00 xxx<cr> (RSPFMT = 1)

Where xxx is 0, to indicates OFF, and is a value to indicate level

If ON. The Value is 128 + %. I.e. 30% = 128 + 30 = 158

**CLEANR:** Cleaner Control  
Control/Query/Toggle Cleaner.

Request State:

Query: #CLEANR ?<cr>

Response: !00 CLEANR = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:

Command: #CLEANR = x<cr>

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 CLEANR = x<cr>(RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:

Toggle: #CLEANR <cr>

Response: !00 CLEANR = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

**Note:** The CLEANR commands assume a circuit has been configured as a cleaner. If there are no circuits configured, the response will be an error message.

?23 OPTION SWITCH NOT SET

**SPILLWAY****WFALL:** Waterfall/Spillway Control

Control/Query/Toggle Pump (pool).

Request State:

Query: #WFALL ?&lt;cr&gt;

Response: !00 WFALL = x&lt;cr&gt; (RSPFMT = 0)

!00 x&lt;cr&gt; (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:

Command: #WFALL = x&lt;cr&gt;

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 WFALL = x&lt;cr&gt; (RSPFMT = 0)

!00 x&lt;cr&gt; (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:

Toggle: #WFALL &lt;cr&gt;

Response: !00 WFALL = x&lt;cr&gt; (RSPFMT = 0)

!00 x&lt;cr&gt; (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

**Note:** The WFALL commands assume a circuit has been configured as a Waterfall. If there are circuits configured, the response will be an error message.

?23 OPTION SWITCH NOT SET

**Note:** The keyword WFALL and SPILLWAY are interchangeable.

**POOLSP:** Temperature Set Point Control

**POOLSP2:** Control/Query Temperature Set Point.

**SPASP:** POOLSP is used for the example

Request State:

Query: #POOLSP ?<cr>

Response: !00 POOLSP = xx<cr> (RSPFMT = 0)  
!00 xx<cr> (RSPFMT = 1)

Where xx is the current temperature value (in ASCII) of the pools desired heating set point.

Set Value:

Command: #POOLSP = xx<cr>

Where xx is the desired temperature

Response: !00 POOLSP = xx<cr> (RSPFMT = 0)  
!00 xx<cr> (RSPFMT = 1)

Where xx is the current temperature value (in ASCII) of the Pools desired heating set point.

**Note:** *POOLSP2 is valid only on Models i9+3S and i5S. It is used to set the High Temperature. It is equivalent. To SPASP.*

**POOLSP+:** Inc/Dec temperature Set Point

**POOLSP-:** POOLSP+ is used for the example

**SPASP+:**

**SPASP-:**

Inc/Dec Value:

Command: #POOLSP+<cr>

Response: !00 POOLSP = xx<cr> (RSPFMT = 0)  
!00 xx<cr> (RSPFMT = 1)

Where xx is the current temperature value (in ASCII) of the Pools desired heating set point.

## Control Heat Source/Heat Method

**POOLHT:** Enable/Disable Pool Heater  
**POOLHT2:** Enable/Disable High Pool Heater  
**SPAHT:** Enable/Disable Spa Heater  
**SOLHT:** Enable/Disable Pool Solar  
**SPASOLHT:** Enable/Disable Spa Solar  
**SOLPREF:** Enable/Disable Pool Solar Preferred  
**SPASOLPREF:** Enable/Disable Spa Solar Preferred

**Note:** *POOLHT is used in this example.*

Request State:

Query: #POOLHT ?<cr>  
 Response: !00 POOLHT = x<cr> (RSPFMT = 0)  
           !00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Set State:

Command: #POOLHT = x<cr>

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 POOLHT = x<cr> (RSPFMT = 0)  
           !00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Toggle State:

Toggle: #POOLHT <cr>  
 Response: !00 POOLHT = x<cr> (RSPFMT = 0)  
           !00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

**Note:** *Turning POOLHT ON will enable the heater, and disable solar option.*

*Turning POOLHT OFF will disable all heat sources for pool.*

*Turning SOLHT ON will select the SOLAR ONLY option of the IntelliTouch.*

*Turning SOLPREF ON will select the SOLAR PREFERRED option of the IntelliTouch. The same rules apply for the Spa options*

## Control Heat Source/Heat Method (Continued)

### Additional COSMSGS Unsolicited messages:

The following describes unsolicited changes in the heating source information. For example, the user might change the heating source selection on the Pool from Heater to Solar using the IntelliTouch Indoor Control Panel. Messages will be sent to the Ilink using the formed response that would be received if the change had been initiated from the Ilink. There are slight differences. Since only one heat source selection can be active at any given time, if a change is made which sets the heating selection to OFF, the message will be formed as if the Ilink had instructed the Heater to go OFF even if the change was from for example Solar to No Heat.

The unsolicited messages (included in Ilink firmware version 1.021) are as follow:

#### Pool Heating:

!00 POOLHT = 0 Pool Heating Selection has changed to OFF (No Heat)  
 !00 POOLHT = 1 Pool Heating Selection has changed to ON (Heater)  
 !00 SOLHT = 1 Pool Heating Selection has changed to Solar Only  
 !00 SOLPREF = 1 Pool Heating Selection has changed to Solar Preferred

#### Spa Heating

!00 SPAHT = 0 Spa Heating Selection has changed to OFF (No Heat)  
 !00 SPAHT = 1 Spa Heating Selection has changed to ON (Heater)  
 !00 SPASOLHT = 1Spa Heating Selection has changed to Solar Only  
 !00 SPASOLPREF = 1SpaHeating Selection has changed to Solar Preferred

The Single Body Single Equipment Units (I9+3S & I5+3S aka I5S) use a slightly different labeling scheme to maintain minimum compatibility with an older interface.

#### Low Temperature Selection Heating:

!00 POOLHT = 0 Heating Selection has changed to OFF (No Heat)  
 !00 POOLHT = 1 Heating Selection has changed to ON (Heater)  
 !00 SOLHT = 1 Heating Selection has changed to Solar Only  
 !00 SOLPREF = 1Heating Selection has changed to Solar Preferred

#### High Temperature Selection Heating:

!00 POOLHT2 = 0 Heating Selection has changed to OFF (No Heat)  
 !00 POOLHT2 = 1 Heating Selection has changed to ON (Heater)  
 !00 SPASOLHT = 1Heating Selection has changed to Solar Only  
 !00 SPASOLPREF = 1Heating Selection has changed to Solar Preferred



### Special COMMAND Only commands for: IntelliBrite LED Lights and MagicStream Laminars

The following lighting commands support IntelliBrite LED lights and MagicStream laminars. For more information, also see COLORSYNC, COLORSET, and COLORSWIM commands (see page 15). The following commands for the IntelliBrite LED light and the MagicStream Laminar are as follows:

*Note: The following commands require i-Link version 1.021 or higher. The MagicStream laminar commands for Random, Sync, and Party require IntelliTouch outdoor control panel version 1.132 or higher.*

**COLORSWIM:** Colored Lights Control  
**COLORSET:**  
**COLORSYNC:**  
 Send Command:  
 Command: #COLORSET <cr>  
 Response: !00 COLORSET = 1<cr> (RSPFMT = 0)  
           !00 1<cr> (RSPFMT = 1)

*Note: The above color commands only operate lights configured in the special IntelliTouch "Lights" screen.*

### Sam, Sal, PG2000 Fiber Optic lights and IntelliBrite LED lights

The following commands support the Sam, Sal, PG2000 Fiber Optic Unit and IntelliBrite LED light.

These commands **do not support** the MagicStream laminar.

**COLORSWIM:** Start a Color Swim Sequence  
**COLORSET:** Set Lights to pre-selected Colors  
**COLORSYNC:** Synchronize All Color Lights

The following commands **only support** the IntelliBrite LED lights.

IB_PARTY	Set ALL IntelliBrite Units to PARTY mode
IB_ROMANCE	Set ALL IntelliBrite Units to ROMANCE mode
IB_CARIBBEAN	Set ALL IntelliBrite Units to CARIBBEAN mode
IB_AMERICAN	Set ALL IntelliBrite Units to AMERICAN mode
IB_SUNSET	Set ALL IntelliBrite Units to SUNSET mode
IB_ROYALTY	Set ALL IntelliBrite Units to ROYALTY mode
IB_BLUE	Set ALL IntelliBrite Units to BLUE
IB_GREEN	Set ALL IntelliBrite Units to GREEN
IB_RED	Set ALL IntelliBrite Units to RED
IB_WHITE	Set ALL IntelliBrite Units to WHITE
IB_MAGENTA	Set ALL IntelliBrite Units to MAGENTA
IB_HOLD	Command ALL IntelliBrite Units to Hold/Stop/Freeze
IB_RECALL	Command ALL IntelliBrite Units to Recall last setting

The following commands **only support** MagicStream laminars:

MS_THUMPER	Toggle ALL MagicStream Thumpers ON or OFF
MS_HOLD	Command ALL MagicStream Units to Hold/Stop/Freeze
MS_RESET	Reset ALL MagicStream units
MS_MODE	Toggle Mode on ALL MagicStream Units Random, Party, Sync
MS_SYNC	Set ALL MagicStream units to SYNC Mode
MS_RANDOM	Set ALL MagicStream units to RANDOM Mode
MS_PARTY	Set ALL MagicStream units to PARTY Mode

## Special COMMAND only commands for lights

### ALLLIGHTS: All Lights Control

Control All Lights.

Set State:

Command: #ALLLIGHTS = x<cr>

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

Response: !00 ALLLIGHTS = x<cr> (RSPFMT = 0)

!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

**Note:** *ALLLIGHTS* only operate the lights configured in the special 'Lights' screen of IntelliTouch Indoor Control Panel.

### COLORSWIM: Colored Lights Control

#### COLORSET:

#### COLORSYNC:

Send Command:

Command: #COLORSET <cr>

Response: !00 COLORSET = 1<cr> (RSPFMT = 0)

!00 1<cr> (RSPFMT = 1)

**Note:** *The Color Commands* only operate the lights configured in the special 'Lights' screen of IntelliTouch Indoor Control Panel.

**COLORSWIM:** Start a Color Swim Sequence

**COLORSET:** Set Lights to pre-selected Colors

**COLORSYNC:** Synchronize all Color Lights

## Special QUERY only commands

**POOLTMP:** Current Temperature

**SPATMP:** Query Current Temperature.

### AIRTMP:

Request State:

Query: #POOLTMP ?<cr>

Response: !00 POOLTMP = xx<cr> (RSPFMT = 0)

!00 xx<cr> (RSPFMT = 1)

Where xx is the current temperature value (in ASCII) of the Item.

**Note:** *POOLTMP* requires that the POOL (PUMP) is on and not in SPA Mode. To return a valid temperature *SPATMP* requires that the SPA is ON.

**Special QUERY only commands (continued)**

**OPMODE:** Current System Mode  
Query Current System Mode.

Request State:

Query: #OPMODE ?<cr>

Response: !00 = xxxxxxxx<cr> (RSPFMT = 0)  
!00 x<cr> (RSPFMT = 1)

Where xxxxxx is "SERVICE/TIMEOUT" or "AUTO" or in terse response  
'0' = Auto, '1' = Service/Timeout.

**UNITS:** Current Temperature Units  
Query Current Temperature Units.

Request State:

Query: #UNITS ?<cr>

Response: !00 = x<cr> (RSPFMT = 0)  
!00 x<cr> (RSPFMT = 1)  
Where x is 'F' or 'C'

**MODEL:** IntelliTouch Model/Type  
Query Model/Type.

Request State:

Query: #MODEL ?<cr>

Response: !00 = xxx<cr> (RSPFMT = 0)  
!00 xxx<cr> (RSPFMT = 1)

Where xxx is "i9+3" "i7+3" "i5" "i9+3S" "i5S" "i10+3D"

For more details about IntelliTouch model, refer to IntelliTouch User's Guide (P/N 520102)

**PUMPLO:**

**PUMPHI:** Pump Status (Two-Speed Pumps Only – Option must be set)  
Query Pump

Request State:

Query: #PUMPLO ?<cr>

Response: !00 PUMPLO = x<cr> (RSPFMT = 0)  
!00 x<cr> (RSPFMT = 1)

Where x is 1 or 0, and 1 indicates ON, 0 indicates OFF

PUMPLO will return True ("1") anytime the pump is running.

PUMPHI will return True ("1") only when the pump is in High Speed.

Example:

PUMPLO = 1, PUMPHI = 0 – Pump is on in low.

PUMPLO = 1, PUMPHI = 1 – Pump is on in high.

PUMPLO = 0, PUMPHI = 0 – Pump is off in.

## Testing IntelliTouch iLink via Hyper Terminal in Windows XP

The basic function of an iLink can be tested/checked out using a computer and a program such as "Hyper Terminal," which is included in all Windows XP systems.

To test the iLink:

1. Plug the iLink into the computer RS-232 Serial port. Normally this will be "COM 1." Connect the other side of the iLink cable to the IntelliTouch system.
2. To access the Hyper Terminal screen, from the Windows XP desktop, click the **Start > All Programs > Accessories > Communications > Hyper Terminal.**
3. The Hyper Terminal new connection screen will pop up. Enter any name in the connection description box. Click **OK**. The "Connect To " box will pop up.
4. In the lower selection box labeled "Connect Using" select COM1. Click **OK** and the port settings box will pop up. **Bits Per Second 9600, Data Bit 8, Parity None, Stop Bits 1, Flow Control None.**
5. Click **OK**.
6. In the Hyper Terminal window, click "File" and select and click "Properties."
7. Click the "Settings" tab.
8. Click "ASCII Setup."
9. Click to place a check mark in "Send Line Ends with Line Feeds Echo Typed Characters Locally Append Line Feeds to Incoming Line Ends."
10. Click **OK**. Click OK again.
11. Now in the Hyper Terminal window type **#RST<enter>**

It will take approx 10 seconds for the iLink to complete a reset process. The screen will then display some start up text similar to:

```
Pentair Water - i-Link Protocol Interface Adapter v1.023
CMDCHR = #
NRMCHR = !
ERRCHR = ?
SETCHR = =
INQCHR = ?
Acquiring System Data
```

After 15 to 20 seconds while the device collects system information.

The system will display "IREADY" some other information may display if the COSMSGs is set to true.

You may now simply type in commands, and see the responses.

**#AUX1 = 1<enter>** will switch on Auxiliary #1 and create a response similar to  
!00 AUX1 = 1

**#AUX1 = 0<enter>** will switch off Auxiliary #1 and create a response similar to  
!00 AUX1 = 0

All of the commands and queries listed in the iLink manual may be operated on the computer via Hyper Terminal. This allows testing of the various commands and assists in troubleshooting.

If the "?01 INVALID COMMAND" message is received, the command has been entered incorrectly.

# IntelliTouch i-Link Protocol Interface Adapter Installation

---

## Installation

This section provides installation information for the IntelliTouch® i-Link™ Protocol Interface Adapter. For additional information about the IntelliTouch control system, refer to the IntelliTouch User's Guide (P/N 520102).

The following items are included in the IntelliTouch i-Link Protocol Interface Adapter kit.

- IntelliTouch i-Link Protocol Interface adapter (with screw terminal connector installed)
- IntelliTouch i-Link Protocol Interface Adapter User's Guide (this manual)

## Required Tools

- Small flat-blade screwdriver (for opening the IntelliTouch i-Link adapter case)
- Wire Stripping Tool (for stripping cable wires)

## Summary Information

For connection options, refer to the IntelliTouch i-Link Adapter Connection Diagram, page 19. The recommended connection steps for the IntelliTouch i-Link adapter are:

- 1 Switch power off to the IntelliTouch Load/Power Center:** Before connecting cables to the IntelliTouch i-Link adapter, switch off the power source to the Load/Power Center.
- 2 Connecting to the Home Automation Interface (page 20):** Connect the Home Automation interface RS-232 cable to the IntelliTouch i-Link Protocol Interface adapter.
- 3 Connecting to the Indoor Control Panel (page 23):** Connect a cable from IntelliTouch i-Link Protocol Interface adapter to the Indoor Control Panel.
- 4 Connecting to the Personality Board (page 24):** Connect a cable from IntelliTouch i-Link Protocol Interface adapter to the Personality board (Power/Load Center).
- 5 Start-up Sequence (page 1):** Power-up and initialize the IntelliTouch i-Link adapter.

## Overview

The IntelliTouch i-Link Protocol Interface adapter allows homeowner's using Home Automation systems such as Crestron®, AMX®, Vantage®, Lutron® and others to control IntelliTouch pool and spa functions via their Home Automation control interface, including switching pumps on, activating valves, switching heaters or auxiliary relays on, and adjusting thermostat settings.

## Connection

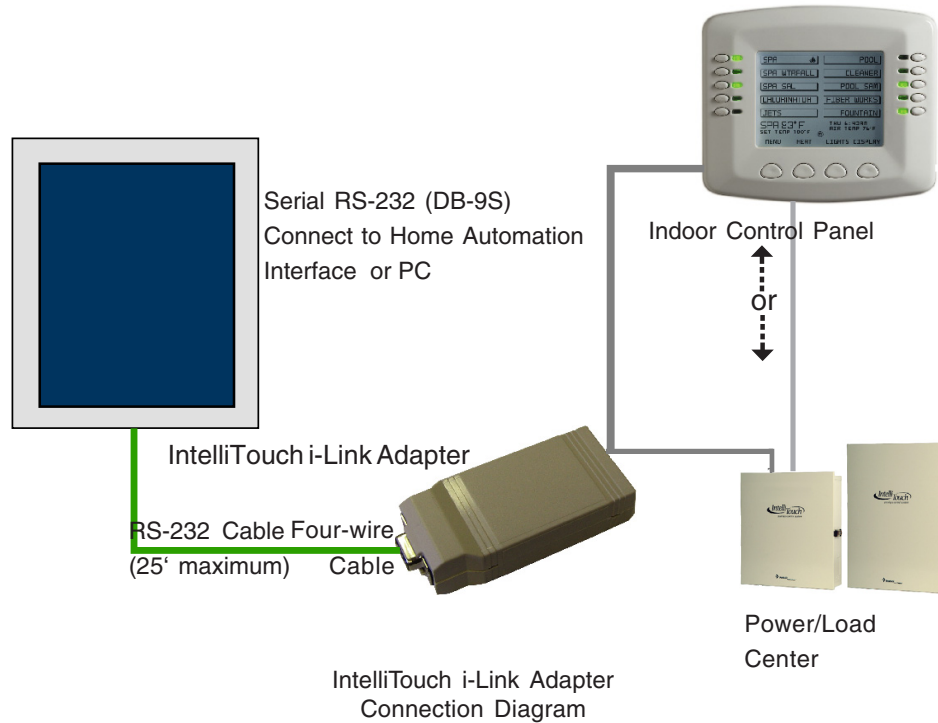
The IntelliTouch i-Link adapter (DB-9S) connects to a third party home automation computer via RS-232 port and to a RS-485 communication port on the IntelliTouch Personality Board

(Load Center or Power Center) via a Serial cable (four-wire). This connection provides power to the IntelliTouch i-Link adapter. For wiring and connection details, see the Connection Diagram below.

The IntelliTouch i-Link adapter operates at 9.6 kbps (9600 kilobits per second) using 8 data bits, 1 start bit, 1 stop bit, and no parity.

## IntelliTouch i-Link Adapter Location

The IntelliTouch i-Link adapter is for indoor use only and should be located within 25 feet of the home automation system.



## Connecting to the Home Automation Interface

The IntelliTouch i-Link Protocol Interface adapter is identified as a RS-232 Data Communications Equipment (DCE) device. The IntelliTouch i-Link adapter DB-9S connector can use straight-through wiring to connect to a DTE (Data Terminal Equipment) device such as a Home Automation interface or PC/Laptop DB-9S Serial port connector. Other DTE devices may require non straight-through wiring. For connection details, see page 19.

## IntelliTouch i-Link RS-232 (DB-9S) Signal Description

The IntelliTouch i-Link adapter RS-232 (DB-9S) connector pin-outs and signal names:

Note: (\*) Pins 1, 4, and 6 connected. Pins 7 and 8 connected.

DB-9S Pin Number*	Signal Name (DCE)	Signal Direction
1	DCD (Data Carrier Detect)	Input
2	RXD (Receive Data)	Output
3	TXD (Transmit Data)	Input
4	DTR (Data Terminal Ready)	Input
5	SGND (Ground)	Input/Output
6	DSR (Data Set Ready)	Input
7	RTS (Request to Send)	Output
8	CTS (Clear to Send)	Output
9	RI (Ring Indicator)	Input

## Connect to the IntelliTouch i-Link Adapter

The IntelliTouch i-Link adapter can be connected to either the IntelliTouch Indoor Control Panel or directly to the IntelliTouch Load or Power Center at the equipment pad. The four-wire cable can also be connected at any point along the communication cable that connects the Indoor Control Panel to the Personality board. Before connecting the cable to the i-Link adapter, first determine the length of cable required for the connection. For connection details, see Connection Diagram, page 19.

To connect the four conductor cable to the IntelliTouch i-Link adapter (see Figure 1):

1. Run a four conductor cable (22 AWG UL approved) from either the Indoor Control Panel or the Power/Load Center location to the IntelliTouch i-Link adapter.
2. Using a small flat-blade screw driver, insert the blade into one of the side notches and pry apart the case (not completely). Remove the screwdriver blade from the notch and insert the blade into the other notch and pry apart to separate the two halves of the adapter case.
3. Remove the screw terminal connector from the circuit board. **Please observe Electrostatic Sensitive Device (ESD) handling precautions when removing the connector.**
4. Strip back the four cable conductors  $\frac{1}{4}$  inch. Insert the four wires into the screw terminals. Secure the wires with the four screws. Make sure to match the color coding of the wires with the pin colors indicated on the circuit board: RED = +15, YEL = +DT, GRN = -DT, and BLK = Ground. Refer to the wiring table below.
5. Insert the screw terminal connector onto the pins on the circuit board. Note that the connector is keyed for the correct orientation.
6. Snap the two halves of the adapter case together. Make sure the wire exits out of the wire exit hole.
7. Proceed with either of the following cable connections:
  - **Connecting to the Indoor Control Panel**, page 22.
  - **Connecting to the Personality board**, page 24.



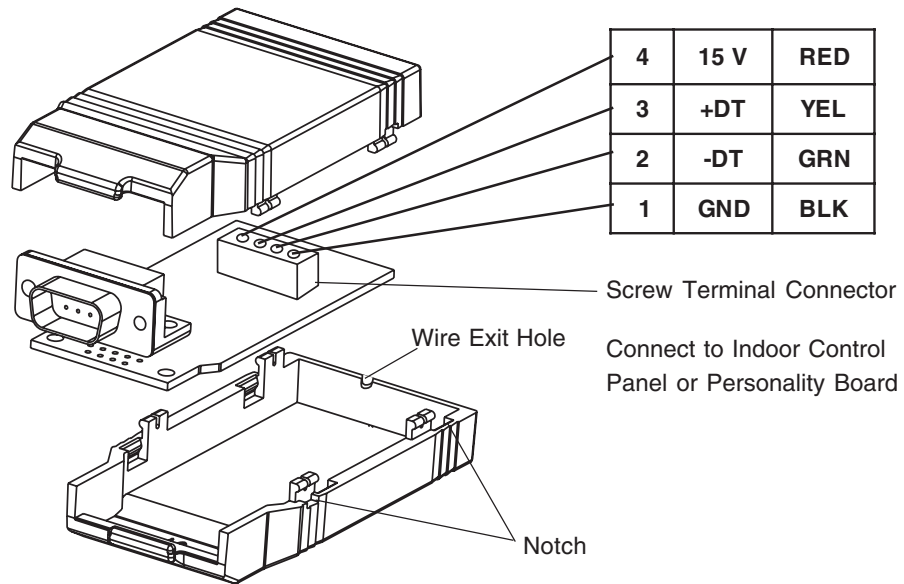
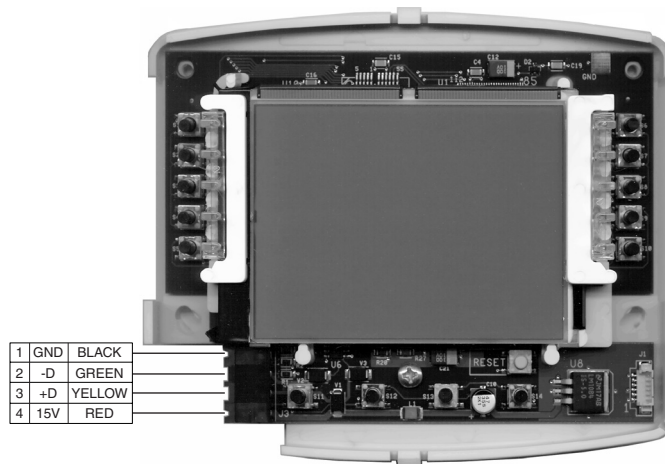


Figure 1

## Connecting to the Indoor Control Panel

To connect the i-Link communication cable to the Indoor Control Panel:

1. Switch the main power OFF to the Load/Power Center.
2. Route the four conductor cable from the IntelliTouch i-Link adapter to the location of the Indoor Control Panel.
3. **Remove the control panel front cover:** From the front of the control panel, insert the tip of a small flat-blade screwdriver into the notch on the top edge of the control panel cover and gently pry the cover off from the control panel base.
4. Remove the two control panel base retaining screws.
5. Carefully lift the control panel base up from the wall-mounted sheave and remove the base from the wall.
6. Turn the base over and disconnect the four screw terminal plug from the circuit board.



Indoor Control Panel (rear view)

7. Strip back the four cable conductors  $\frac{1}{4}$  in. Insert the four wires into the each of the screw terminals with the existing wires. Secure the wires with the four screws. Make sure to match the color-coding of the wires: Red = +15 VDC, Yellow = +DT, Green = -DT, and GND = Black. Wiring details are shown above.
8. Insert the screw terminal connector onto the pins on the circuit board. Note that the connector is keyed for the correct orientation.
9. Place the control panel base onto the wall-mounted sheave and secure in place with the two retaining screws.
10. Carefully snap-on the control panel front cover to the base plate.
11. Switch on the power source to the Power/Load Center.

## Connecting to the Personality Board

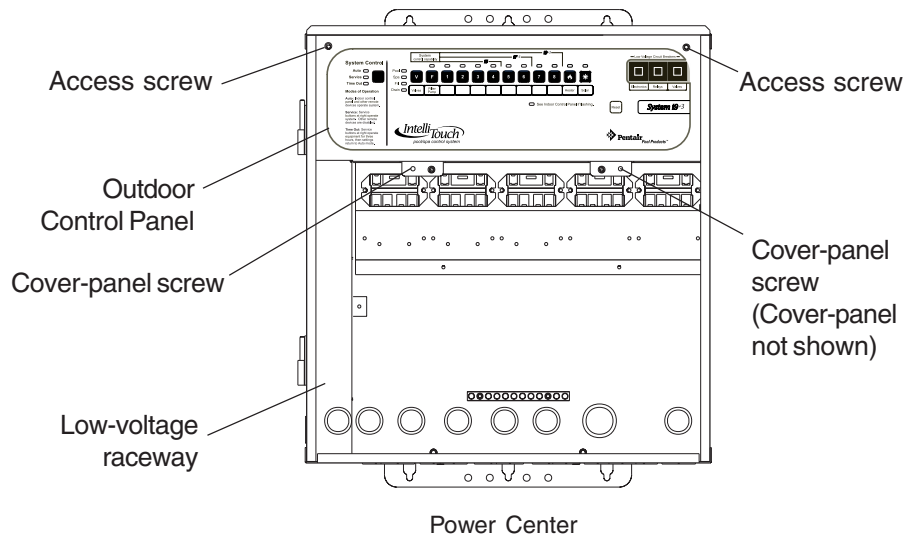
Read the following WARNING information before removing the Power/Load Center enclosure high voltage cover-panel.

**⚠ WARNING** - It is required that the main power into the home be switched OFF at the main circuit breaker box whenever the high voltage cover-panel is removed. The main power must also be switched OFF to access the Power/Load Center enclosure low voltage raceway.

The following steps describe how to connect the four conductor cable to the Personality board that connects directly to the IntelliTouch i-Link adapter.

To connect the cable to the Personality board:

1. Switch the main power OFF to the Load/Power Center.
2. Unlatch the front door spring latch(es), and open the front door of the Power/Load Center.
3. Remove the screws securing the high voltage cover-panel. Remove the cover-panel from the enclosure.
4. Loosen the two upper access screws from the Outdoor Control Panel.
5. Lower the Outdoor Control Panel down to access the Personality board.
6. Route the four conductor cable (22 AWG) cable up through the low voltage raceway to the Personality board.



## Start-up with MobileTouch Wireless Control Panel

Use the following procedure if the IntelliTouch system includes a MobileTouch wireless control panel. Before the i-Link adapter initializes the start-up procedure, the MobileTouch® transceiver module cable needs to be disconnected. After the initialization process has been completed the transceiver can be reconnected.

To disconnect the MobileTouch transceiver screw terminal connector:

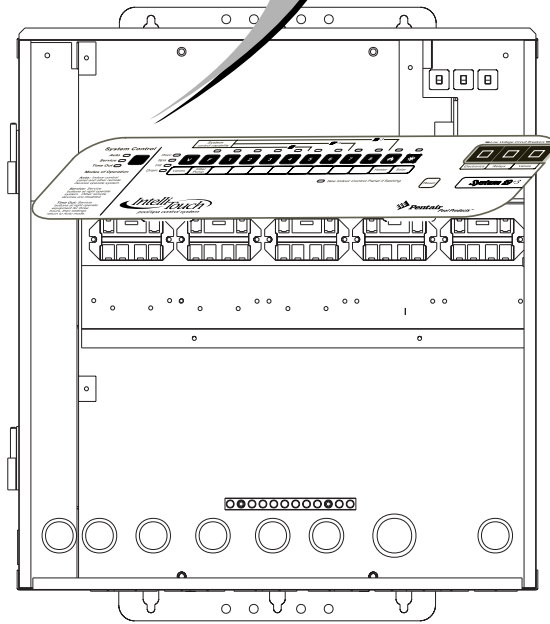
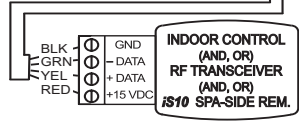
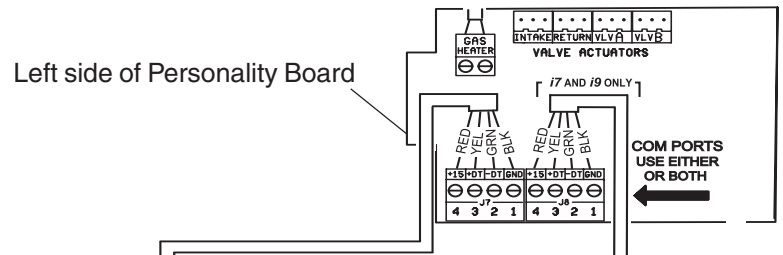
1. Switch the main power off to the IntelliTouch Load/Power Center.
2. Remove the two retaining screws from the transceiver case. Slide the case up to remove.
3. Remove the transceiver screw terminal connector from the transceiver circuit board.
4. Switch the main power on to the Load/Power Center.
5. The i-Link adapter will power up and initialize the start-up procedure and assign an “address” to the installed equipment. This process may take up to two minutes. To initialize the adapter, you can also use the **RST** (reset) command (refer to page 4 for more information).
6. Switch the main power off to the Load/Power Center.
7. Reconnect the transceiver screw terminal connector onto the transceiver board.
8. Slide the case on to the transceiver back plate. Secure the transceiver case with the two retaining screws.
9. Switch the main power on to the Load/Power Center. The i-Link adapter start-up procedure is complete.
7. Strip back the cable conductors ¼ in. Insert the four wires into the screw terminals on either **COM PORTS (J7 and J8)** plugs located on the left side of the Personality board. Secure the wires with the four screws. Make sure to match the color-coding of the wires: Red = +15 V, Yellow = +DT, Green = -DT, and GND = Black. Wiring details are shown below.

**Note:** Multiple wires may be inserted into a single screw terminal.



**CAUTION** Do NOT short GND or +15VDC connections (Red or Black) to data lines (Green or Yellow). The Personality board may be permanently damaged. Do NOT reverse GND or +15V or system will not operate.

8. Install the cover-panel and secure with the two retaining screws.
9. Close the hinged Outdoor Control Panel and secure with the two access screws.
10. Close the front door of the Power/Load Center. Fasten the spring latch(es).
11. Switch on the power source to the Power/Load Center.



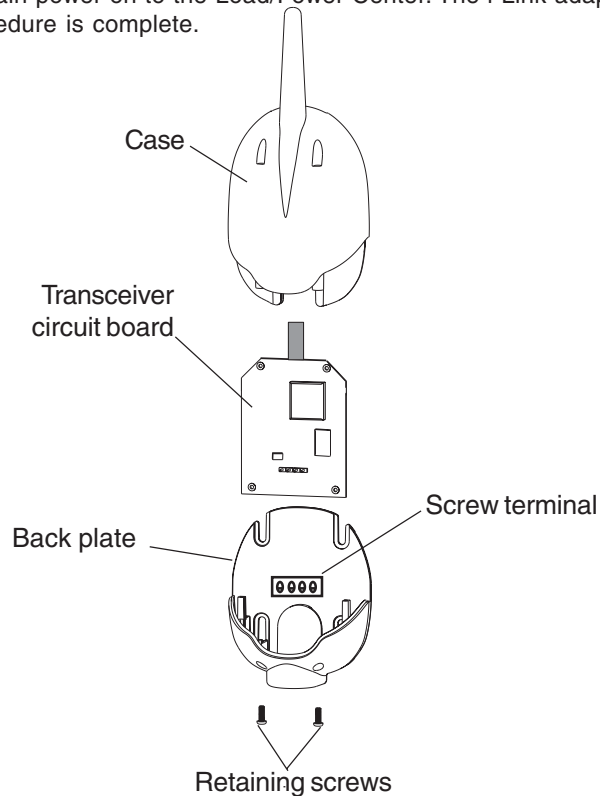
Power Center

## Start-up with MobileTouch Wireless Control Panel

Use the following procedure if the IntelliTouch system includes a MobileTouch wireless control panel. Before the i-Link adapter initializes the start-up procedure, the MobileTouch® transceiver module cable needs be disconnected. After the initialization process has been completed the transceiver can be reconnected.

To disconnect the MobileTouch transceiver screw terminal connector:

1. Switch the main power off to the IntelliTouch Load/Power Center.
2. Remove the two retaining screws from the transceiver case. Slide the case up to remove.
3. Remove the transceiver screw terminal connector from the transceiver circuit board.
4. Switch the main power on to the Load/Power Center.
5. The i-Link adapter will power up and initialize the start-up procedure and assign an “address” to the installed equipment. This process may take up to two minutes. To initialize the adapter, you can also use the **RST** (reset) command (refer to page 4 for more information).
6. Switch the main power off to the Load/Power Center.
7. Reconnect the transceiver screw terminal connector onto the transceiver board.
8. Slide the case on to the transceiver back plate. Secure the transceiver case with the two retaining screws.
9. Switch the main power on to the Load/Power Center. The i-Link adapter start-up procedure is complete.



## Glossary of Terms

**Feature Circuits:** Programmable circuits that may control relays and/or valve actuators. For details, see the IntelliTouch Systems User's Guide (P/N 520102)

**High Voltage Compartment:** Large lower right compartment of Load Center for all high voltage wiring including circuit breakers, relays, and GFCI.

**Indoor Control Panel:** A 14 button remote controller with LCD (liquid crystal display) wired to the Personality board in the Power/Load Center. The indoor control panel can be wall mounted inside a house to control IntelliTouch control system.

**IntelliBrite® LED Light:** Underwater pool or spa LED (light-emitting diode) color light.

**Load Center:** Metal enclosure with power relays, transformer, and circuit breakers. The Load Center is Installed prior to Personality Kit installation. Used for distributing power for controlling IntelliTouch Systems. Also known as the "sub-panel."

**Low Voltage Compartment:** Top compartment of Load Center for all low voltage wiring.

**Low Voltage Raceway:** Vertical space in the left side of Power/Load Center for low voltage cabling.

**MagicStream® Laminar:** Water effect designed to provide a clear, turbulence-free stream of water that can be lit with a fiber optic cable, or an LED light engine.

**Outdoor Control Panel:** Control panel with flexible hinge installed in upper portion of Power/Load Center to control IntelliTouch systems.

**Personality Board:** The circuit board mounted on top of the Outdoor Control Panel motherboard. The Personality board defines the system capabilities.

**Power Center:** Same as Load Center with the exception of the circuit breaker base.

**Screw Terminal:** Removable connector that may attach to circuit board with multiple sockets (anywhere from 2 to 12) to receive wires from controllers and sensors; wires held by screw terminals;



P/N 520450 - Rev B