AT&T Digital Life®

DLC-200C

Installation and Operations Manual

Product Number:
ATT-US-DLC200S-IOM-V1-201506

DLA Software Version v1.0.xx
DLC Firmware Version v1.02.yy

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Table of Contents

1 Introduction 1
2 Digital Life System Overview 2
2.1 System Architecture 2
2.2 Digital Life Controller (DLC-200C) 3
2.2.1.1 Digital Life Controller (Model DLC-200C) LED Behavior During a Firmware Upgrade 6
2.2.1.2 Digital Life Controller (Model DLC-200C) LED Behavior When a Security Certificate Expires 7
2.2.1.3 Digital Life Controller (Model DLC-200C) LED Power-On Test 7
2.2.1.4 Digital Life Controller (Model DLC-200C) Cabinet 7
2.3 Digital Life Premises Devices 10
2.3.1 Premises Devices 10
2.3.2 Optional Conversion Kit 12
2.3.3 Optional Z-Wave Devices (Supplementary use only. Not part of the UL Listed fire and security system.) 13
2.4 Digital Life System Installation and Configuration 13
2.5 Digital Life System Operation 14
2.6 Digital Life System Alarm Reporting 17
2.7 Event Notification Service (Supplementary use only. Not part of the fire and security system.) 18
2.8 Remote Video Monitoring (Supplementary use only. Not part of the fire and security system.) 18
2.9 Home Automation & Control (Supplementary use only. Not part of the fire and security system.) 18
2.10 Digital Life System Operation Under a Local Power Failure Condition 19
3 Digital Life Direct Overview 20
3.1 Access Customer's Digital Life Controller (DLC-200C) 20
3.2 Device Discovery Mode and Discovery Process 23
3.3 Test Mode (Performing Test /Maintenance) 27

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3.4 Administer DLC-200C Digital Life Controller Features....28
3.4.1 Alarm Manager Features....32
3.4.1.1.1 Security PIN....32
3.4.1.1.2 Entry Delay....32
3.4.1.1.3 Exit Delay....33
3.4.1.1.4 Abort Delay....33
3.4.1.1.5 Siren Timeout....33
3.4.1.1.6 Cross Zoning Delay....34
3.4.1.1.7 Swinger Shutdown....34
3.4.2 Alarm Manager Flags....35
3.4.2.1.1 Exit Time Restart Enable....35
3.4.2.1.2 Abort Sound On....35
3.4.2.1.3 Chirp on Entry/Exit Door/Open Close....35
3.4.2.1.4 Enable Fire Alarm Verification....36
3.4.2.1.5 Auto Stay on Unvacated Premises Enable....36
3.4.2.1.6 Cancel Sound On....37
3.4.2.1.7 Chirp on Non-Entry/Exit Open Close....37
3.4.2.1.8 Enable Swinger Shutdown....37
3.5 Troubleshooting Wireless Devices....37
4 Digital Life Controller (DLC-200C) Cabinet and Internal Components....41
5 System Installation....45
5.1 DLC-200C Installation Using HPAV....46
5.2 HPAV Installation Kits....46
5.2.1 IP522CG Features and Operation (HPAV to Ethernet Bridge)....47
5.2.2 IP532CG Features and Operation....48
5.2.2.1 DC Power Cable Sizing Procedures....50
5.3 HPAV Pairing Procedures for Installations with a DLC-200C....50
5.3.1 Pairing Two (2) IP522CG Units....51
5.3.2 Pairing IP522CG and IP532CG Units....52

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5.3.3 Pairing Additional IP532CG Units 53
5.4 DLC-200C Installation with a Direct Ethernet Connection to the Broadband Home Router 55
5.5 DLC-200C Installation with an AC-to-PoE Power Supply and HPAV to Ethernet Bridge 56
5.6 Summary of System Installation 57
5.7 Digital Life Controller Cabinet (DLC-200C) Installation 61
5.8 Installing the Digital Life Controller Cabinet (DLC-200C) 64
5.8.1 Disassemble the DLC-200C 64
5.8.2 Select the Mounting Location 64
5.8.3 Digital Life Controller (DLC-200C) Cabinet Installation on a Sheetrock Wall 65
5.8.4 DLC-200C Cabinet Installation on a Wall with Open Studs 66
5.8.5 Wiring the Digital Life Controller (DLC-200C) 67
5.8.6 Mount the DLc-200C Cabinet to the Wall Mounting Plate 68
5.8.7 Install the Battery 69
5.8.8 Observe System LEDs Function 71
5.8.9 Specifications—Digital Life Controller (DLC-200C) 72
5.8.10 Specifications—Digital Life Controller (DLC-200C) Battery 72
5.8.11 Specifications—Digital Life Controller (DLC-200C) Battery Circuit Ratings 73
5.8.12 Specifications—Digital Life Controller (DLC-200C) Ethernet Cable Properties 73
5.9 Microsemi PD-9001GR/AT/AC Power over Ethernet (PoE) Installation 74
5.9.1 Verifying Power to the Microsemi® PD-9001GR/AT/AC PoE 75
5.9.2 Select the Mounting Location 76
5.9.3 Mounting the Microsemi® PD-9001GR/AT/AC PoE to the Wall 76
5.9.4 Connect the PD-9001GR/AT/AC PoE to an AC Power Outlet 77
5.9.5 Connect PD-9001GR/AT/AC PoE to the DLC-200C 77
5.9.6 Troubleshooting the Microsemi® PD-9001GR/AT/AC PoE 77
5.9.7 Specifications (Environmental)— Microsemi® PD-9001GR/AT/AC PoE (PoE) 79
5.9.8 Specifications (Electrical)— Microsemi® PD-9001GR/AT/AC PoE (PoE) 79
5.9.9 Specifications (Ethernet Interface)— Microsemi® PD-9001GR/AT/AC PoE (PoE) 79

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5.10 PHIHONG POE31U-1AT Power over Ethernet (PoE) Installation....80
5.10.1 Verifying Power to the PHIHONG[XQP] POE31U-1AT PoE....81
5.10.2 Select the Mounting Location....82
5.10.3 Mounting the PHIHONG[XQP] POE31U-1AT PoE to the Wall....82
5.10.4 Connect the PHIHONG[XQP] POE31U-1AT PoE to an AC Power Outlet....83
5.10.5 Connect PHIHONG[XQP] POE31U-1AT PoE to the DLC-200CEU....83
5.10.6 Troubleshooting the PHIHONG[XQP] POE31U-1AT PoE....83
5.10.7 Specifications (Environmental)— PHIHONG[XQP] POE31U-1AT PoE (PoE)....85
5.10.8 Specifications (Electrical)— PHIHONG[XQP] POE31U-1AT PoE (PoE)....85
6 Device Installation, Discover, Registration and Operation....86
6.1 FCC Regulations2....86
6.1.1 RF Exposure Information....87
6.1.2 Important Information About Radio Devices....87
6.1.3 FCC Compliance Statement....88
6.2 915 MHz Products....89
6.2.1 Keypad (Model SR-KPD02) (915 MHz)....90
6.2.1.1 Keypad (Model SR-KPD02) Installation Kit....92
6.2.1.2 Installing the Keypad (Model SR-KPD02)....92
6.2.1.2.1 Wiring the Mounting Plate....93
6.2.1.2.2 Attaching the Mounting Plate to the Wall....95
6.2.1.2.3 Installing/Replacing the Keypad (Model SR-KPD02) Batteries....96
6.2.1.2.4 Charging the Batteries Before Discovering Keypad (Model SR-KPD02) (if applicable)....97
6.2.1.2.5 Discovering/Registering the Keypad (Model SR-KPD02)....97
6.2.1.2.6 Attaching the Keypad (Model SR-KPD02) to the Wall....98
6.2.1.3 Keypad (Model SR-KPD02) Display and Sounding of Device Trouble Conditions....99
6.2.1.4 Specifications—Keypad (Model SR-KPD02)....100
6.2.2 Keychain Remote (Model SW-ATT-FOB2)....101
6.2.2.1 Replacing the Keychain Remote (Model SW-ATT-FOB2) Batteries....103

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6.2.2.2 Discovering and Registering the Keychain Remote (Model SW-ATT-FOB2)..104
6.2.2.3 Specifications—Keychain Remote (Model SW-ATT-FOB2).....105
6.3 Smoke Sensor (Model 562NSTT-OEM-ATT01) (Supplementary use only. Not part of the UL Listed Fire and Security System.).....106
6.3.1.1 Smoke Sensor (Model 562NSTT-OEM-ATT01) LED Functions.....107
6.3.1.2 Selecting Location(s) for Installation for the Smoke Sensor (Model 562NSTT-OEM-ATT01).....107
6.3.1.2.1 Existing Construction.....107
6.3.1.2.2 New Construction.....109
6.3.1.3 Installing/Replacing the Smoke Sensor (Model 562NSTT-OEM-ATT01) Batteries.....109
6.3.1.4 Discovering and Registering the Smoke Sensor (Model 562NSTT-OEM-ATT01).....111
6.3.1.5 Installing/Mounting the Smoke Sensor (Model 562NSTT-OEM-ATT01).....112
6.3.1.6 Testing the Smoke Sensor (Model 562NSTT-OEM-ATT01).....113
6.3.1.7 Cleaning the Smoke Sensor (Model 562NSTT-OEM-ATT01).....113
6.3.1.8 Maintaining the Smoke Sensor (Model 562NSTT-OEM-ATT01).....115
6.3.1.9 Specifications—Smoke Sensor (Model 562NSTT-OEM-ATT01).....115
6.3.2 Indoor Siren (Model SW-ATT-SRN) (915MHz).....117
6.3.2.1 Installing/Replacing the Indoor Siren (Model SW-ATT-SRN) Batteries.....118
6.3.2.2 Installing the Indoor Siren (Model SW-ATT-SRN).....118
6.3.2.3 Discovering and Registering the Indoor Siren (Model SW-ATT-SRN).....120
6.3.2.4 Specifications—Indoor Siren (Model SW-ATT-SRN).....120
6.3.3 Signal Booster (915) (Model SW-ATT-RPTR9).....121
6.3.3.1 Installing/Replacing the Signal Booster (915) (Model SW-ATT-RPTR9) Batteries.....122
6.3.3.2 Installing the Signal Booster (915) (Model SW-ATT-RPTR9).....123
6.3.3.3 Discovering and Registering the Signal Booster (915) (Model SW-ATT-RPTR9)..124
6.3.3.4 Specifications—Signal Booster (915) (Model SW-ATT-RPTR9).....124
6.4 433 MHz Products.....125

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6.4.1 Smoke Sensor (Model SW-ATT-SMKT) 126
6.4.1.1 Smoke Sensor (Model SW-ATT-SMKT) LED Functions 127
6.4.1.2 Installing/Replacing the Smoke Sensor (Model SW-ATT-SMKT) Batteries 127
6.4.1.3 Discovering and Registering the Smoke Sensor (Model SW-ATT-SMKT) 128
6.4.1.4 Selecting Location(s) for Installation for the Smoke Sensor (Model SW-ATT-SMKT) 128
6.4.1.4.1 Existing Construction 128
6.4.1.4.2 New Construction 130
6.4.1.5 Installing the Smoke Sensor (Model SW-ATT-SMKT) 130
6.4.1.6 Testing the Smoke Sensor (Model SW-ATT-SMKT) 132
6.4.1.7 Maintaining the Smoke Sensor (Model SW-ATT-SMKT) 133
6.4.1.8 Specifications—Smoke Sensor (Model SW-ATT-SMKT) 133
6.4.2 Evacuation Plan 135
6.4.2.1 Avoid Fire Hazards 135
6.4.2.2 In Case of Fire 135
6.4.2.3 Be Prepared 136
6.4.3 Carbon Monoxide (CO) Sensor (Model SW-ATT-CO) 137
6.4.3.1 Installing/Replacing the CO Sensor (Model SW-ATT-CO) Batteries 138
6.4.4 Discovering and Registering the CO Sensor (Model SW-ATT-CO) 139
6.4.4.1 Selecting Location(s) for CO Sensor (Model SW-ATT-CO) Installation 139
6.4.4.2 Locations to Avoid When Installing the CO Sensor (Model SW-ATT-CO) 141
6.4.4.3 Mounting the CO Sensor (Model SW-ATT-CO) 142
6.4.4.4 Testing the CO Sensor (Model SW-ATT-CO) 144
6.4.4.4.1 Normal CO Alarm Test 144
6.4.4.4.2 CO Inspection and Functional Gas Test (Qualified DL Technicians Only) 145
6.4.4.5 Maintaining the CO Sensor (Model SW-ATT-CO) 146
6.4.4.6 Troubleshooting the CO Sensor (Model SW-ATT-CO) 146
6.4.4.7 Specifications—Carbon Monoxide Sensor (SW-ATT-CO) 147
6.4.4.8 Operational Characteristics of CO Sensor (Model SW-ATT-CO) 148

AT&T Proprietary Information. All rights reserved.

6.4.5 Surface Contact Sensor (Model SW-ATT-V2) 149
6.4.5.1 Installing/Replacing the Surface Contact Sensor (Model SW-ATT-V2) Battery 149
6.4.5.2 Discovering and Registering the Surface Contact Sensor (Model SW-ATT-V2) 150
6.4.5.3 Installing and Mounting the Surface Contact Sensor (Model SW-ATT-V2) 151
6.4.5.3.1 Transmitter—Door 151
6.4.5.3.2 Transmitter—Window 152
6.4.5.3.3 Mounting the Transmitter 152
6.4.5.3.4 Using Double-Sided Adhesive Tape 153
6.4.5.4 Specifications-V2 Sensor (SW-ATT-V2) 153
6.4.6 Recessed Contact Sensor (Model SW-ATT-RDW) 154
6.4.6.1 Installing/Replacing the Recessed Contact Sensor (Model SW-ATT-RDW) Battery 154
6.4.6.2 Discovering and Registering the Recessed Contact Sensor (Model SW-ATT-RDW) 156
6.4.6.3 Installing and Mounting the Recessed Contact Sensor (Model SW-ATT-RDW) 156
6.4.6.3.1 Door Installation 156
6.4.6.3.2 Window Installation 156
6.4.6.4 Installing the Recessed Contact Sensor (Model SW-ATT-RDW) Transmitter 157
6.4.6.5 Mounting the Recessed Contact Sensor (Model SW-ATT-RDW) Magnet Assembly 159
6.4.6.6 Specifications—Recessed Contact Sensor (Model SW-ATT-RDW) 159
6.4.7 Glass Break Sensor (Model SW-ATT-GB) 160
6.4.7.1 Installing/Replacing the Glass Break Sensor (Model SW-ATT-GB) Batteries 161
6.4.7.2 Discovering and Registering the Glass Break Sensor (Model SW-ATT-GB) 162
6.4.7.3 Mounting the Glass Break Sensor (Model SW-ATT-GB) 162
6.4.7.4 Installing the Glass Break Sensor (Model SW-ATT-GB) 164
6.4.7.5 Testing the Glass Break Sensor (Model SW-ATT-GB) 164
6.4.7.5.1 Functional Test - Glass Break Sensor (Model SW-ATT-GB) 164

AT&T Proprietary Information. All rights reserved.

6.4.7.5.2 Wireless Range (RF) Test - Glass Break Sensor (Model SW-ATT-GB).....164
6.4.7.6 Specifications—Glass Break Sensor (Model SW-ATT-GB).....165
6.4.8 Motion Sensor (PIR) (Model SW-ATT-PIR).....166
6.4.8.1 Installing/Replacing the PIR Sensor (Model SW-ATT-PIR) Battery.....166
6.4.8.2 Discovering and Registering the PIR Motion Sensor (Model SW-ATT-PIR).....167
6.4.8.3 Selecting a Mounting Location for the PIR (Model SW-ATT-PIR).....167
6.4.8.4 Assembling the PIR (Model SW-ATT-PIR).....168
6.4.8.5 Mounting the PIR (Model SW-ATT-PIR).....169
6.4.8.5.1 Sensor Coverage Pattern for PIR Sensor (Model SW-ATT-PIR).....169
6.4.8.5.2 Wall Mounting the PIR Sensor (Model SW-ATT-PIR).....170
6.4.8.5.3 Corner Mounting the PIR Sensor (Model SW-ATT-PIR).....171
6.4.8.6 Configuring the PIR Sensor (Model SW-ATT-PIR).....172
6.4.8.7 Case Tamper Detection of the PIR Sensor (Model SW-ATT-PIR).....172
6.4.8.8 Testing the PIR Sensor (Model SW-ATT-PIR).....172
6.4.8.9 Specifications—PIR Motion Sensor (SW-ATT-PIR).....173
6.4.9 Keychain Remote (Model SW-ATT-FOB).....174
6.4.9.1 Replacing the Keychain Remote (Model SW-ATT-FOB) Batteries.....175
6.4.9.2 Discovering and Registering the Keychain Remote (Model SW-ATT-FOB).....176
6.4.9.3 Specifications—Keychain Remote 1.0 (SW-ATT-FOB).....176
6.4.10 Conversion Kit (Model SW-ATT-TAKRF).....177
6.4.10.1 Mounting and Installation Guidelines for Conversion Kit (Model SW-ATT-TAKRF).....179
6.4.10.1.1 Connecting Wired Zones to Conversion Kit (Model SW-ATT-TAKRF).....180
6.4.10.1.2 Powering the 915 MHz Two-Way Keypad (Model SR-KPD02).....182
6.4.10.1.3 Connecting Power to Conversion Kit (Model SW-ATT-TAKRF).....183
6.4.10.1.4 Discovering and Registering the Conversion Kit (Model SW-ATT-TAKRF).....184
6.4.10.1.5 Conversion Kit (Model SW-ATT-TAKRF) Final Installation.....187
6.4.10.2 Specifications—Conversion Kit (Model SW-ATT-TAKRF).....188
6.4.11 Signal Booster (433) (Model SW-ATT-RPTR4).....190

AT&T Proprietary Information. All rights reserved.

6.4.11.1 Signal Booster (433) (Model SW-ATT-RPTR4) Status LED Indicators and LEARN Button Operation 191
6.4.11.2 Signal Booster (433) (Model SW-ATT-RPTR4) Function 192
6.4.11.3 Learning Transmitters 192
6.4.11.4 Determining the number of transmitters learned into memory 192
6.4.11.5 Erasing Transmitters from Memory 193
6.4.11.6 Installing/Replacing the Signal Booster (433) (Model SW-ATT-RPTR4) Batteries 193
6.4.11.7 Installing the Signal Booster (433) (Model SW-ATT-RPTR4) 195
6.4.11.8 Discovering and Registering the Signal Booster (433) (Model SW-ATT-RPTR4) 196
6.4.11.9 Specifications—Signal Booster (433) (Model SW-ATT-RPTR4) 196
6.4.11.9.1 General Specifications – RPTR4 196
6.4.11.9.2 Specifications – RPTR4RF Receiver 197
6.4.11.9.3 Specifications – RPTR4RF Transmitter 197
6.5 Indoor Camera (Model RC8221) (Supplementary use only. Not part of the fire and security system.) 198
6.5.1 Indoor Camera AC-to-DC Adapter with Integrated HPAV (IP532CG) (Supplementary use only. Not part of the fire and security system.) 198
6.5.2 Wi-Fi Indoor Camera (Model RC8221) Installation (Supplementary use only. Not part of the fire and security system.) 199
6.6 Z-Wave Devices (Supplementary use only. The Z-Wave protocol and devices are not part of the UL Listed Fire and Security System.) 200
6.6.1 Installing the Indoor Smart Plug (SKU 41826) 200
6.6.2 Discovering and Registering the Indoor Smart Plug (SKU 41826) 201
6.6.3 Specifications—Indoor Smart Plug (SKU 41826) 201
7 System Operation 202
7.1 Keypad (Model SR-KPD02) 202
7.1.1 Ready to Arm 203
7.1.2 Not Ready to Arm 203
7.1.3 Arming the System — Away 204

AT&T Proprietary Information. All rights reserved.

7.1.4 Arming the System - Stay....205
7.1.5 Arming the System - Instant....206
7.1.6 Arming the System - Bypass....206
7.1.7 Disarming the System - Entry Delay Mode....208
7.1.8 Disarming the System – Armed Instant....209
7.1.9 Alarm Sounding – Cancel Alarm....210
7.1.10 Fire Emergency....213
7.1.11 AUX (Auxiliary) Emergency....214
7.1.12 Police Emergency....215
7.2 Priority of Alarm Signaling....216
7.3 Keychain Remote (Model SW-ATT-FOB)....217
7.4 Keychain Remote (Model SW-ATT-FOB2)....218
7.5 Web Access via Digital Life Direct – Alarm Manager....219
7.5.1 Check System Status....219
7.5.2 Arming the System....220
7.5.3 Disarming the System....223
8 System Messages on the Keypad (Model SR-KPD02) Display....225
9 Local Power Failure and Low Battery Warnings....229
10 Auditory Annunciations....231
11 Testing the System....234
11.1 Digital Life System Testing Instructions....234
12 CP-01-2010 Supported Features to False Alarm Reduction....249

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List of Figures

Figure 1: AT&T Digital Life System Architecture 2
Figure 2: Digital Life Controller (DLC-200C) 3
Figure 3: Battery Compartment Door Captured Screw with Tamper Switch 8
Figure 4: Mounting Plate Captured Screw with Tamper Switch 9
Figure 5: Digital Life Premises Devices 10
Figure 6: Dual Frequency Wireless Transceiver Module – Proprietary 433/915MHz 11
Figure 7: Optional Conversion Kit—Wired Door/Window Sensors and Wireless Keypad Power 12
Figure 8: Z-Wave Wireless Transceiver Module—908MHz Two-Way 13
Figure 9: 915 MHz Two-Way Wireless Keypad (Model SR-KPD02) 15
Figure 10: 433 MHz One-Way Keychain Remote (Model SW-ATT-FOB) 16
Figure 11: 915 MHz Two-Way Keychain Remote (Model SW-ATT-FOB2) 17
Figure 12: DLD Login Screen 20
Figure 13: DLD—Enter Account Number 21
Figure 14: DLD—Account Information 21
Figure 15: DLD—Devices Screen 22
Figure 16: DLD—Digital Life Controller (DLC-200C) Specific Details Screen 23
Figure 17: DLD—Start Discovery – Initializing Please Wait 24
Figure 18: DLD—Start Discovery – Discovery In Progress 25
Figure 19: DLD—Devices Screen 26
Figure 20: DLD—Specific Device Screen 26
Figure 21: DLD— Alarm Manager Information 28
Figure 22: Enabling Signal Strength Monitoring 39
Figure 23: Signal Strength Monitoring Alert 39
Figure 24: Signal Strength Monitoring 40
Figure 25: Signal Strength Monitoring for a Repeated Signal 40
Figure 26: DLC-200C Base 41
Figure 27: DLC-200C Wall Mounting Plate 41
Figure 28: DLC-200C Cabinet Installation (Steps 1–5) 43
Figure 29: DLC-200C Cabinet Installation (Steps 6-11) 44
Figure 30: Typical DLC-200C Installation Using HPAV 46
Figure 31: IP522CG – Front, Side and Bottom Panels 47
Figure 32: IP532CG – Front, Side, and Bottom Panels 48
Figure 33: DLC-200 Installation with a Direct Ethernet Connection to the Broadband Home Router 55
Figure 34: DLC-200C Installation with AC-to-PoE Power Supply and HPAV to Ethernet Bridge 56

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Figure 35: Digital Life Controller Cabinet (DLC-200C) with Identifiers 61
Figure 36: Cabinet Installation on a Sheetrock Wall 65
Figure 37: DLC-200C Cabinet Installation on an Open Wall 66
Figure 38: DLC-200C Mounting Plate Wire Runs 67
Figure 39: DLC-200C WAN Port Connection 67
Figure 40: Mounting DLC-200C on the Wall Mounting Plate 68
Figure 41: Battery Compartment—Front Panel 69
Figure 42: System LEDs Operational Indicators 71
Figure 43: Microsemi® PD-9001GR/AT/AC PoE Front Panel 74
Figure 44: Microsemi® PD-9001GR/AT/AC PoE Data Ports and Port Connectivity Indicator 75
Figure 45: PHIHONG[XQP] POE31U-1AT PoE Front Panel 80
Figure 46: PHIHONG[XQP] POE31U-1AT PoE Data Ports and Status Connectivity Indicator 81
Figure 47: Keypad (Model SR-KPD02) Features 91
Figure 48: Keychain Remote (Model SW-ATT-FOB2) 101
Figure 49: Smoke Sensor (562NSTT-OEM-ATT01) 106
Figure 50: Smoke Sensor Location for Existing Construction 108
Figure 51: Indoor Siren (Model SW-ATT-SRN) Front Panel 117
Figure 52: Signal Booster (915) (Model SW-ATT-RPTR9) Front Panel 121
Figure 53: Smoke Sensor (Model SW-ATT-SMKT) 126
Figure 54: Smoke Sensor Location for Existing Construction 129
Figure 55: Smoke Sensor (Model SW-ATT-SMKT) Battery Compartment 130
Figure 56: Smoke Sensor (Model SW-ATT-SMKT) Battery Installation 131
Figure 57: Smoke Sensor (Model SW-ATT-SMKT) to Base Alignment 132
Figure 58: CO Sensor (Model SW-ATT-CO) 137
Figure 59: Install Batteries in CO Sensor (Model SW-ATT-CO) 138
Figure 60: CO Sensor Recommended Locations for Single Level Residence 139
Figure 61: CO Sensor (Model SW-ATT-CO) Recommended Locations for Multi-Level Residence 140
Figure 62: Recommended CO Sensor Mounting Location 142
Figure 63: Vertical Mounting 142
Figure 64: Horizontal Mounting 143
Figure 65: CO Functional Gas Test 145
Figure 66: Surface Contact Sensor (Model SW-ATT-V2) 149
Figure 67: Install/Replace Battery—Surface Contact Sensor (Model SW-ATT-V2) 149
Figure 68: Mounting Surface Contact Sensor (Model SW-ATT-V2) 151
Figure 69: Recessed Contact Sensor (Model SW-ATT-RDW) 154
Figure 70: Installing Recessed Contact Sensor (Model SW-ATT-RDW) 155
Figure 71: Installing Recessed Contact Sensor (Model SW-ATT-RDW) 157
Figure 72: Glass Break Sensor (Model SW-ATT-GB) 160

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Figure 73: Installing/Replacing the Glass Break Sensor (Model SW-ATT-GB) Batteries.....161
Figure 74: Mounting Glass Break Sensor—Step 1.....163
Figure 75: Mounting Glass Break Sensor—Step 2.....163
Figure 76: PIR Motion Sensor (SW-ATT-PIR).....166
Figure 77: PIR Back Cover and Brackets.....168
Figure 78: PIR Detection Options.....169
Figure 79: PIR Sensor (Model SW-ATT-PIR) Wall Mount Screw Holes.....170
Figure 80: PIR Sensor (Model SW-ATT-PIR) Back Cover with Corner Mount Screw Holes.....171
Figure 81: Keychain Remote (Model SW-ATT-FOB).....174
Figure 82: Conversion Kit (Model SW-ATT-TAKRF) Connections.....177
Figure 83: Conversion Kit (Model SW-ATT-TAKRF).....178
Figure 84: Conversion Kit (Model SW-ATT-TAKRF) Wall Mounting Bracket.....179
Figure 85: Conversion Kit (Model SW-ATT-TAKRF) Mounted.....180
Figure 86: Conversion Kit (Model SW-ATT-TAKRF) - Hardwired Zone Connectors.....181
Figure 87: Conversion Kit (Model SW-ATT-TAKRF) - Powering 915 MHz Two-Way Keypad..182
Figure 88: Two Keypad (Model SR-KPD02) Installation.....183
Figure 89: Conversion Kit (Model SW-ATT-TAKRF) - DC Power Input.....184
Figure 90: Conversion Kit (Model SW-ATT-TAKRF) - 24-Hour Battery Backup.....185
Figure 91: Conversion Kit (Model SW-ATT-TAKRF) —AC-to-DC Adapter Plugged into AC Power Outlet.....186
Figure 92: Signal Booster (433) Front and Back Panels (SW-ATT-RPTR4).....190
Figure 93: Indoor Smart Plug (SKU 41826).....200
Figure 94: Keypad (Model SR-KPD02) Features and Functions.....202
Figure 95: Keypad (Model SR-KPD02)—Ready to Arm.....203
Figure 96: Keypad (Model SR-KPD02)—Not Ready to Arm.....203
Figure 97: Keypad (Model SR-KPD02)—Arming-Exit Now Mode.....204
Figure 98: Keypad (Model SR-KPD02)—Armed - Away Mode.....204
Figure 99: Keypad (Model SR-KPD02)—Arming – Stay.....205
Figure 100: Keypad (Model SR-KPD02)—Armed – Stay Mode.....205
Figure 101: Keypad (Model SR-KPD02)—Armed - Instant.....206
Figure 102: Keypad (Model SR-KPD02)—Open State Device(s).....207
Figure 103: Keypad (Model SR-KPD02)—System -BYPASS.....207
Figure 104: Keypad (Model SR-KPD02)—Entry Delay (Opened Devices).....208
Figure 105: Keypad (Model SR-KPD02)—Ready to Arm.....208
Figure 106: Keypad (Model SR-KPD02)—Armed - Instant.....209
Figure 107: Keypad (Model SR-KPD02)—Ready to Arm.....209
Figure 108: Keypad (Model SR-KPD02)—Alarm- Enter PIN (Intrusion).....210
Figure 109: Keypad (Model SR-KPD02)—Alarm- Enter PIN (Triggered Device(s)).....210

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Figure 110: Keypad (Model SR-KPD02)—Clear- Enter PIN (Before PIN Entry) 211
Figure 111: Keypad (Model SR-KPD02)—Clear- Enter PIN Alarm Cancelled (After PIN Entry) 212
Figure 112: Keypad (Model SR-KPD02)—Not Ready to Arm (No Alarm Sent) 212
Figure 113: Keypad (Model SR-KPD02)—FIRE (Press * -Confirm) 213
Figure 114: Keypad (Model SR-KPD02)—FIRE (Alarm- Enter PIN) 213
Figure 115: Keypad (Model SR-KPD02)—AUX (Press * -Confirm) 214
Figure 116: Keypad (Model SR-KPD02)—AUX (Alarm- Enter PIN) 214
Figure 117: Keypad (Model SR-KPD02)—POLICE (Press * –Confirm) 215
Figure 118: Keypad (Model SR-KPD02)—POLICE (Alarm- Enter PIN) 215
Figure 119: 433 MHz One-Way Keychain Remote (Model SW-ATT-FOB) (SW-ATT-FOB) 217
Figure 120: 915 MHz Two-Way Keychain Remote (Model SW-ATT-FOB2) 218
Figure 121: System Status 219

List of Tables

Table 1: UL to DLD CP-01-2010 Feature Mapping 29
Table 2: Device Trouble Conditions, Keypad (Model SR-KPD02) Display Messages and Silence Chirping 99
Table 3: Priority of Alarm Signaling 216
Table 4: System Messages on Keypad (Model SR-KPD02) LCD 225
Table 5: Local Power Failure and Low Battery Warnings on the Keypad (Model SR-KPD02) LCD 230
Table 6: Auditory Annunciations 231
Table 7: Digital Life System Testing Instructions 234
Table 8: CP-01-2010 Supported Features to False Alarm Reduction 249

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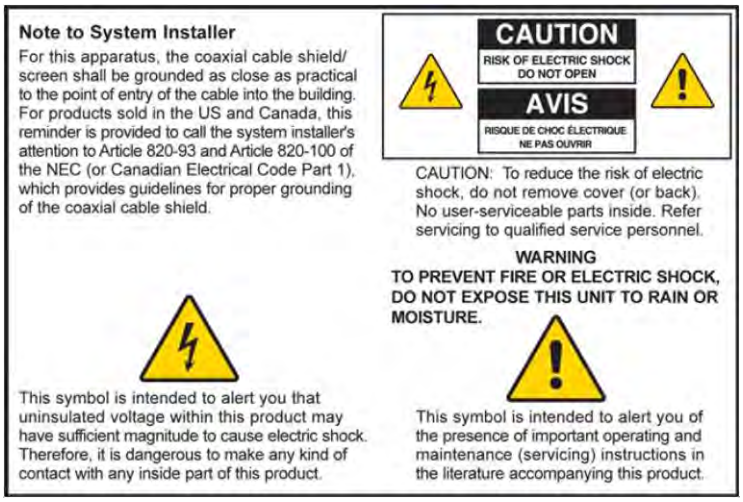
SAFETY REGULATIONS

Notice to Installers

The servicing instructions in this notice are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.



Notice à l'attention des installateurs de réseaux câblés

Les instructions relatives aux interventions d'entretien, fournies dans la présente notice, s'adressent exclusivement au personnel technique qualifié. Pour réduire les risques de chocs électriques, n'effectuer aucune intervention autre que celles décrites dans le mode d'emploi et les instructions relatives au fonctionnement, à moins que vous ne soyez qualifié pour ce faire.

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Mitteilung für CATV-Techniker

Die in dieser Mitteilung aufgeführten Wartungsanweisungen sind ausschließlich für qualifiziertes Fachpersonal bestimmt. Um die Gefahr eines elektrischen Schlags zu reduzieren, sollten Sie keine Wartungsarbeiten durchführen, die nicht ausdrücklich in der Bedienungsanleitung aufgeführt sind, außer Sie sind zur Durchführung solcher Arbeiten qualifiziert.

Aviso a los instaladores de sistemas CATV

Las instrucciones de reparación contenidas en el presente aviso son para uso exclusivo por parte de personal de mantenimiento cualificado. Con el fin de reducir el riesgo de descarga eléctrica, no realice ninguna otra operación de reparación distinta a las contenidas en las instrucciones de funcionamiento, a menos que posea la cualificación necesaria para hacerlo.

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Power Source Warning

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the

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product label. If you are uncertain of the type of power supply to your home or business, consult your service provider or your local power company.

The AC inlet on the unit must remain accessible and operable at all times.

Ground the Product

WARNING: Avoid electric shock and fire hazard! If this product connects to coaxial cable wiring, be sure the cable system is grounded (earthed). Grounding provides some protection against voltage surges and built-up static charges.

Verify the Power Source from the On/Off Power Light

When the on/off power light is not illuminated, the apparatus may still be connected to the power source. The light may go out when the apparatus is turned off, regardless of whether it is still plugged into an AC power source.

Eliminate AC Mains Overloads

WARNING: Avoid electric shock and fire hazard! Do not overload AC mains, outlets, extension cords, or integral convenience receptacles. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Provide Ventilation and Select a Location

- Remove all packaging material before applying power to the product.
- Do not place this apparatus on a bed, sofa, rug, or similar surface.
- Do not place this apparatus on an unstable surface.
- Do not install this apparatus in an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation.
- Do not place items such as lamps, books, vases with liquids, or other objects on top of this product.
- Do not block ventilation openings.

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Protect from Exposure to Moisture and Foreign Objects

WARNING: Avoid electric shock and fire hazard! Do not expose this product to dripping or splashing liquids, rain, or moisture. Objects filled with liquids, such as vases, should not be placed on this apparatus.

WARNING: Avoid electric shock and fire hazard! Unplug this product before cleaning. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.

WARNING: Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire.

Service Warnings

WARNING: Avoid electric shock! Do not open the cover of this product. Opening or removing the cover may expose you to dangerous voltages. If you open the cover, your warranty will be void. This product contains no user-serviceable parts.

Check Product Safety

Upon completion of any service or repairs to this product, the service technician must perform safety checks to determine that this product is in proper operating condition.

Protect the Product When Moving It

Always disconnect the power source when moving the apparatus or connecting or disconnecting cables.

Battery Replacement Warnings

WARNING: The battery(ies) used in each device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or dispose of in fire. Replace battery(ies) with specified manufacturer batteries only. Use of another battery(ies) may present a risk of fire or explosion."

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1 Introduction

The purpose of this document is to provide an overview of the AT&T Digital Life System (DLS) and instructions concerning the installation and operations of the Digital Life System (DLS) with a second generation DLC-200C unit.

The AT&T Digital Life System is a services delivery platform. The DLS includes a Network Platform and a Premises Platform in which the primary communication path between the platforms is provided via AT&T Cellular Data Service. The DLS also includes AT&T Digital Life Data Centers and AT&T Digital Life Central Monitoring Centers.

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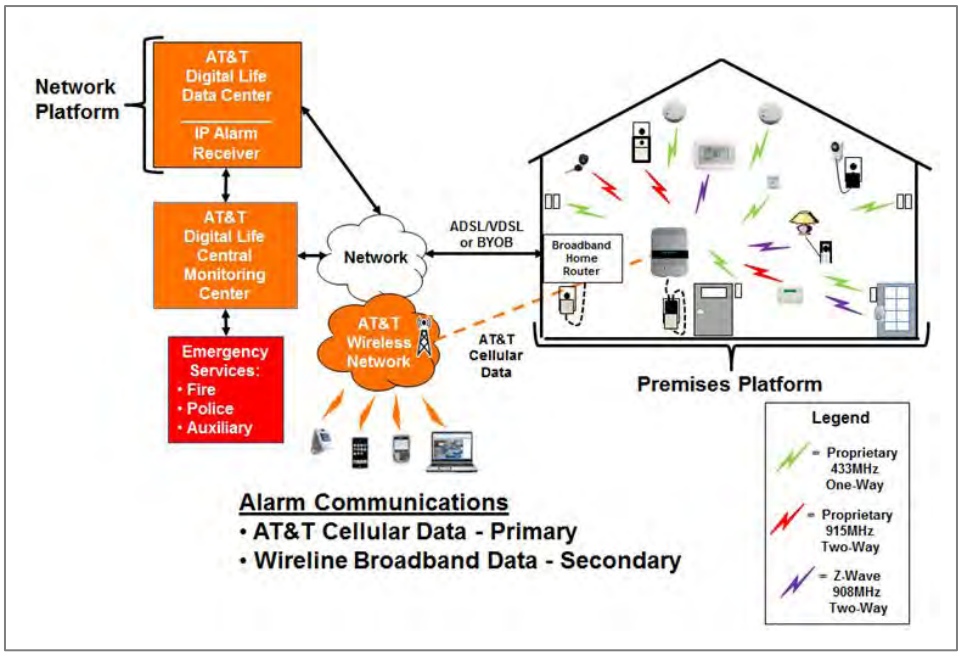
2 Digital Life System Overview

2.1 System Architecture

The AT&T Digital Life System (DLS) is an Internet Protocol (IP) based end-to-end services delivery platform that AT&T utilizes in providing services to customers. The DLS includes a Network Platform and a Premises Platform. AT&T Cellular Data Service provides the primary communication between the Network Platform and the Premises Platform. A secondary communication path between the Network Platform and the Premises Platform is established via a customer provided Bring-Your-Own-Broadband service, which can be based on an ADSL, VDSL, FiOS, cable modem or some other wireline broadband data service.

The DLS is utilized to offer consumer customers Professionally Monitored Home Security and Home Automation & Control services. Figure 1 is a representation of the AT&T DLS Architecture, including a second generation DLC-200C unit. Within the system architecture the Network Platform includes AT&T Digital Life Data Centers.

Figure 1: AT&T Digital Life System Architecture



NOTE: The Z-Wave protocol and devices are not part of the UL Listed Fire and Security System.

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The architecture also features AT&T Central Monitoring Centers, which are UL listed. There are AT&T high speed wireline data facilities that interconnect all of the data centers and the monitoring centers. IP Alarm Receivers are located in the AT&T Digital Life Data Centers. When an alarm is received by an IP Alarm Receiver, it is automatically sent to the AT&T Digital Life Central Monitoring Centers.

2.2 *Digital Life Controller (DLC-200C)*

The DLC-200C is a second generation Digital Life Controller (DLC). It is installed in the customer's home. The DLC-200C is wall mounted in a closet, utility room or basement similar to a traditional home security cabinet and adjacent to an AC power outlet. The cabinet base is made out of plastic and features a wall mounting plate and a cabinet, which slides onto the wall mounting plate. There is a battery backup compartment door located at the bottom of the cabinet. The Battery Backup Compartment houses the rechargeable battery, which is customer replaceable. The cabinet features five (5) System LEDs, as shown in Figure 2:

Figure 2: Digital Life Controller (DLC-200C)

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The System LEDs function as outlined below:

- ALL five (5) LEDs flash for one (1) second during the initial power up.
- AC POWER —**Flashing Green** Indicates powering up; **Green** indicates DLC-200C is operational; **OFF** indicates Local Power Failure.

  NOTE: The DLC-200C is operational when it starts communicating over AT&T Cellular Data Service and/or customer provided wireline broadband data service.
- BATTERY —**Flashing Green** indicates powering up; **Green** indicates the battery is installed; **Red** indicates the battery needs to be replaced; **OFF** indicates the battery is NOT installed.
- SYSTEM — (see table below)

LED	SYSTEM LED Behavior
OFF	Initial Power-ON state
Flashing Green	Indicates Powering Up
Green	indicates system is good
Red	• Initial state when Digital Life Application (DLA) is running • DLA has shutdown • indicates there is some other system problem
Flashing yellow then **flashing green**	indicates Radio Frequency (RF) Jamming

Type of RF Jamming	SYSTEM LED Behavior
One-Way 433 MHz Jamming at DLC-200C Cabinet	SYSTEM LIGHT blinks **yellow** once, blinks **green** once then repeats

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<table>
<tr><th>LED</th><th>SYSTEM LED Behavior</th></tr>
<tr><td></td><td>
<table>
<tr><td>Two-Way 915 MHz Jamming at DLC-200C Cabinet</td><td>SYSTEM LIGHT blinks yellow once, blinks green twice then repeats</td></tr>
<tr><td>One-Way 433 MHz Jamming at a Signal booster (SW-ATT-RPTR4)</td><td>SYSTEM LIGHT blinks yellow once, blinks green three (3) times then repeats</td></tr>
<tr><td>Two-Way 915 MHz Jamming at a Signal booster (SW-ATT-RPTR9)</td><td>SYSTEM LIGHT blinks yellow once, blinks green four (4) times then repeats</td></tr>
</table>
WARNING!
If the SYSTEM LIGHT is flashing YELLOW then flashes GREEN repeating and an auditory signal is coming from the DLC-200C cabinet, the DLC-200C cabinet is detecting Radio Frequency (RF) Jamming. Please call 1-855-288-2727 for Technical Support.
</td></tr>
<tr><td>Yellow</td><td>indicates the system is in Maintenance Mode.
NOTE: The DLC-200C is in Maintenance Mode when software is being installed.</td></tr>
</table>

- WIRELESS BROADBAND — **OFF** indicates no cellular connection; **GREEN** Indicates good cellular connection and DLA is communicating with Digital Life Network Platform; **Flashing GREEN** or **YELLOW** indicates a good cellular connection with IP address from the cell tower; **RED** indicates a weak cellular connection with IP address from the cell tower.
- WIRELINE BROADBAND —**OFF** indicates no broadband connection; **GREEN** Indicates broadband connection and DLA is communicating with Digital Life

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Network Platform; **Flashing GREEN** or **YELLOW** indicates broadband connection and an IP address from the customer's broadband home router.

NOTE: Under local power failure condition the BATTERY, SYSTEM and WIRELESS BROADBAND LEDs will flash simultaneously and WIRELINE BROADBAND data service will not be operating.

2.2.1.1 Digital Life Controller (Model DLC-200C) LED Behavior During a Firmware Upgrade

During a DLC-200CEU firmware (FW) upgrade the five (5) LEDs provide a visual indication of the status of the FW upgrade.

The LED behavior during the FW upgrade is as follows.

LED	Firmware Upgrade Status				
	0—20%	20—40%	40—60%	60—80%	80—99%
Power	Green Flash	Green Solid	Green Solid	Green Solid	Green Solid
Battery	Green Flash	Green Flash	Green Solid	Green Solid	Green Solid
System	Green Flash	Green Flash	Green Flash	Green Solid	Green Solid
Wireless Broadband	Green Flash	Green Flash	Green Flash	Green Flash	Green Solid
Wired Broadband	Green Flash	Green Flash	Green Flash	Green Flash	Green Flash

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2.2.1.2 Digital Life Controller (Model DLC-200C) LED Behavior When a Security Certificate Expires

When an expired security certificate condition occurs the Power LED and Battery LED will alternately flash RED every second until the security certificate is renewed.

2.2.1.3 Digital Life Controller (Model DLC-200C) LED Power-On Test

When the Digital Controller is initially powered–ON a LED test will automatically be performed to verify that the LEDs are operating correctly. The LEDs will illuminate as follows:

Approximate Time	Power LED	Battery LED	System LED	Wireless Broadband LED	Wireline Broadband LED	Status
0	❍	❍	❍	❍	❍	All LEDs are Off
0 - 0.33s	●	●	●	●	●	LEDs Power-On Test
0.33 - 0.66s	●	●	●	●	●	LEDs Power-On Test
0.66 – 1s	●	●	●	●	●	LEDs Power-On Test

2.2.1.4 Digital Life Controller (Model DLC-200C) Cabinet

The DLC-200C cabinet is equipped with a number of standard modules, including:

- AT&T Cellular Data Modem (Located in the Wall Mounting Plate)
- Proprietary one-way 433 MHz Module

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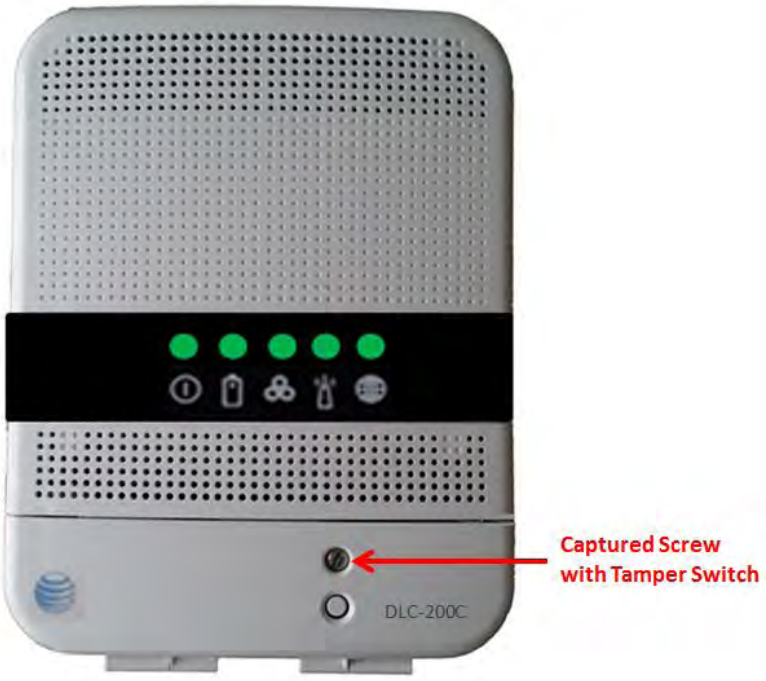
- Proprietary two-way 915 MHz Module
- 24-Hour Battery Backup
- Wi-Fi Module
- Z-Wave Module (908 MHz)

The cabinet is equipped with two (2) tamper switches, which are embedded in the captured screws. The first tamper switch is embedded in the screw that is used to open the Battery Backup Compartment, as shown in Figure 3.

Figure 3: Battery Compartment Door Captured Screw with Tamper Switch



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The second tamper switch is embedded in the screw inside the Battery Backup Compartment that is used to secure the DLC-200C base to the wall mounting plate, as shown in Figure 4.

Figure 4: Mounting Plate Captured Screw with Tamper Switch

After the system is armed the tamper switches, when triggered, will automatically send alarms to the AT&T Digital Life Central Monitoring Center. The tamper switches function as follows:

- The tamper switch is located on the front of the Battery Compartment Door is triggered when the screw is being loosened.
- The tamper switch is located inside the Battery Backup Compartment Door is triggered when the screw is being loosened.

  NOTE: All screws associated with the DLC-200C are captured screws and cannot be removed from the unit.

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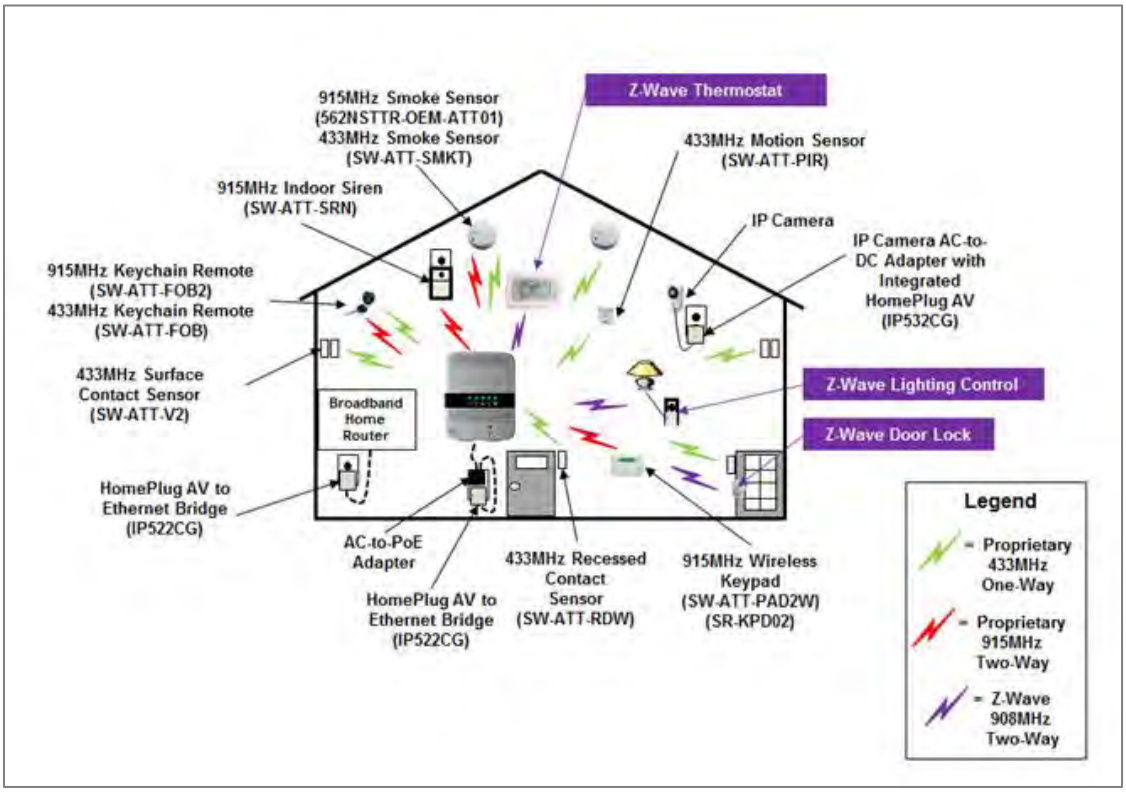
2.3 Digital Life Premises Devices

2.3.1 Premises Devices

Figure 5 depicts the Digital Life Premises Devices that communicate with the DLC-200C.

Figure 5: Digital Life Premises Devices



Within the Premises Platform a proprietary one-way 433 MHz radio technology is utilized with wireless intrusion sensors, smoke/CO detection devices and a keychain remote.

A proprietary two-way 915 MHz radio technology is utilized with wireless keypads, keychain remotes, smoke detection devices and indoor sirens, (See Figure 6). Signal boosters (433 MHz and 915 MHz) are available to extend the transmission range of the 433 MHz and/or 915 MHz devices, when needed.

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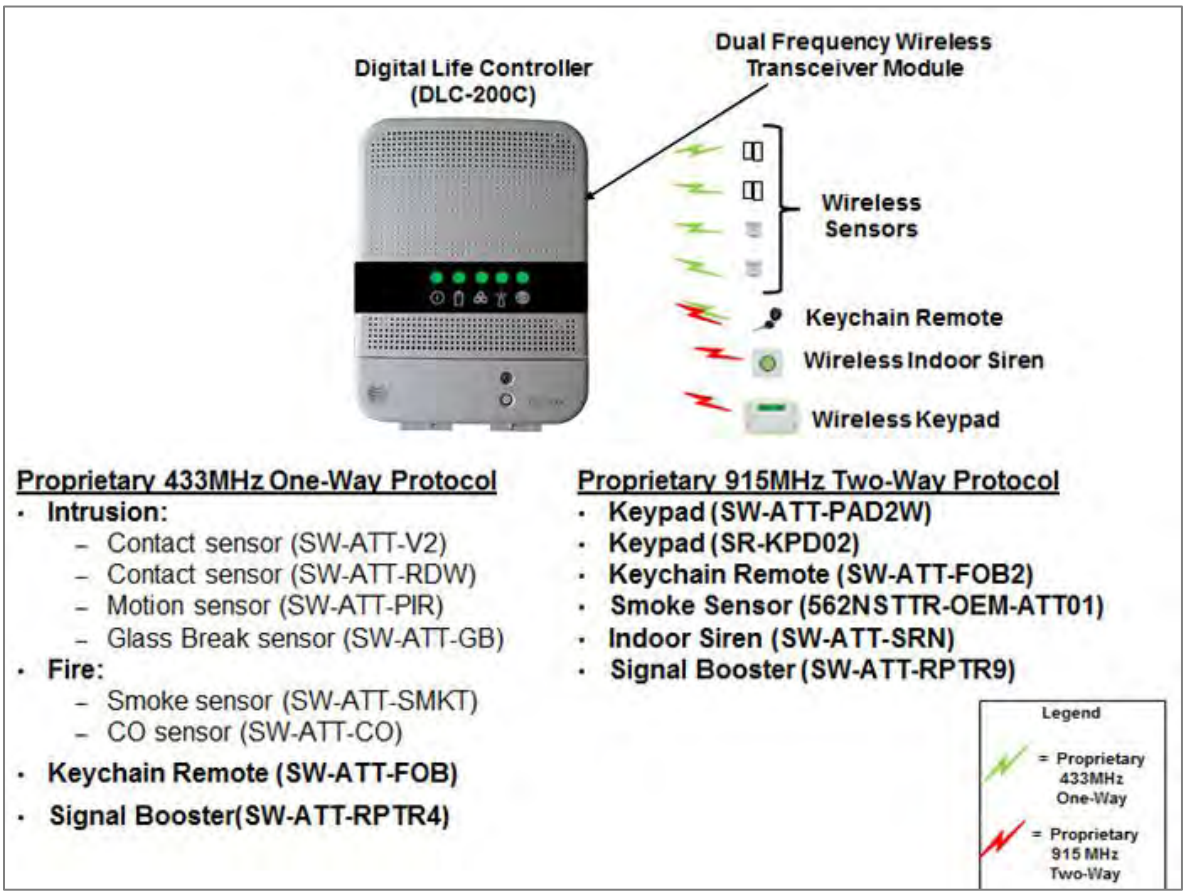
Figure 6: Dual Frequency Wireless Transceiver Module – Proprietary 433/915MHz



NOTE: The standard installation may include 433 MHz and 915 MHz devices.

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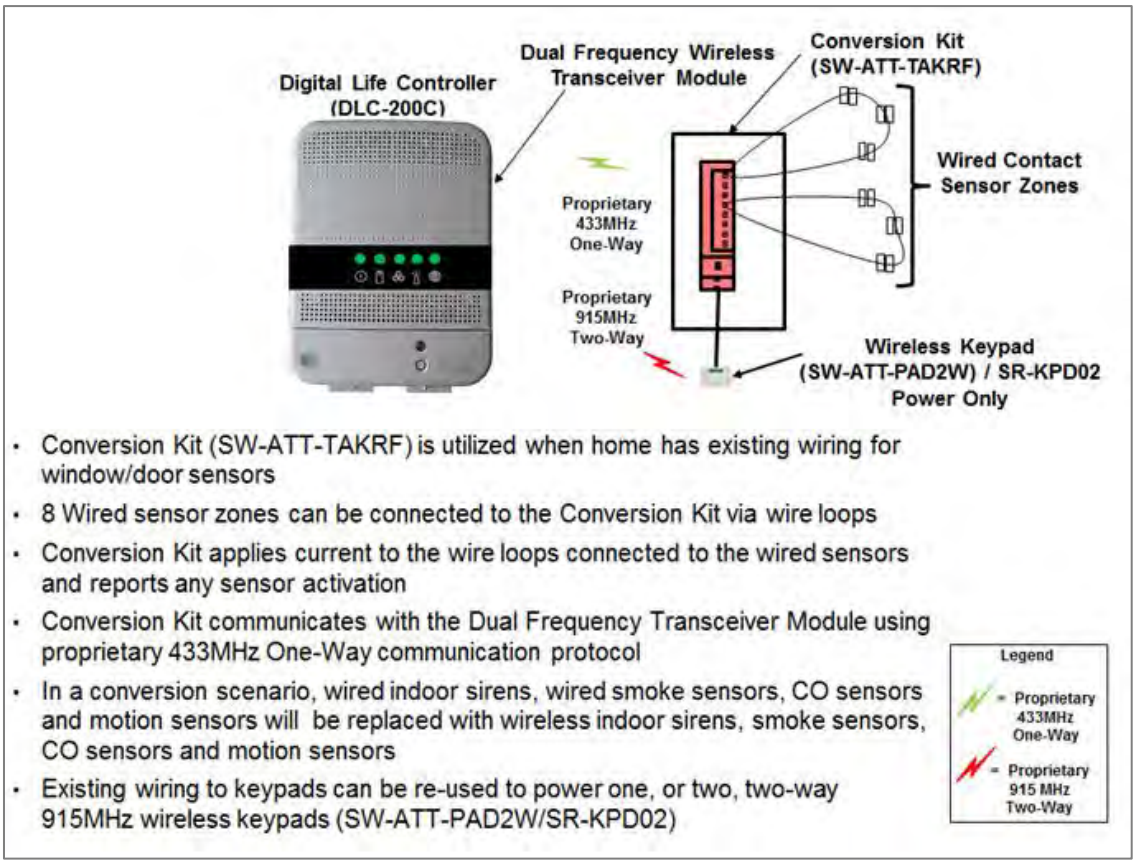
2.3.2 Optional Conversion Kit

When Digital Life installations are done in homes with existing wired security systems, then an optional Conversion Kit can be utilized to re-use the existing wired door/window sensors and re-use the existing wiring to keypads for powering (up to two) two-way 915MHz wireless keypads, as shown in Figure 7. (See *6.4.10.1.2 Powering the 915 MHz Two-Way* Keypad for detailed information.)

Figure 7: Optional Conversion Kit—Wired Door/Window Sensors and Wireless Keypad Power



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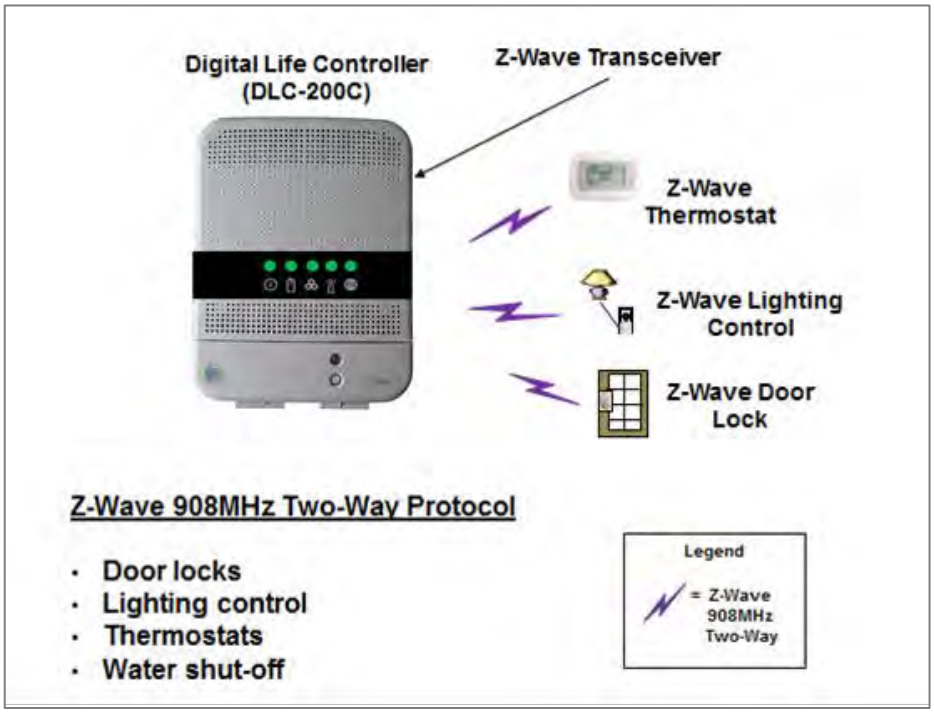
2.3.3 Optional Z-Wave Devices (Supplementary use only. Not part of the UL Listed fire and security system.)

Within Digital Life, Z-Wave 908MHz two-way technology can be utilized to support optional home automation and control devices and associated services. (See Figure 8)

Figure 8: Z-Wave Wireless Transceiver Module—908MHz Two-Way



2.4 Digital Life System Installation and Configuration

Unlike traditional security systems wherein a keypad is utilized to perform system installation and configuration, the DLS installation and configuration is completed using a Web tool, such as Digital Life Direct (DLD), on a PC or tablet device, such as an iPad. The Web tool enables an installation technician to place the DLC-200C into the "Discovery" mode. While the DLC-200C is in the "Discovery" mode, the technician places devices in the "Discoverable" mode. The devices are discovered and registered with the DLC-200C (see *Section* 3*: Digital Life Direct Overview* for more details). After devices have been discovered, the technician utilizes the Web tool to selectively place intrusion sensors into the "Armed-Stay" and "Armed-Away" categories and establish Exit Delay and Entry Delay times. The technician also uses the Web tool to label the devices.

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2.5 Digital Life System Operation

The DLS can be operated by utilizing a 433 MHz One-Way Four Button Keychain Remote (Model SW-ATT-FOB), a 915 MHz Two-Way Four Button Keychain Remote (SW-ATT-FOB2), or a 915 MHz Two-Way Keypad (Model SR-KPD02).

Within the home the 915 MHz Two-Way Keypad (Model SR-KPD02) provides access to system operation, including the following functions:

- Arm-Stay
- Arm-Away
- Arm-Instant
- Bypass
- Disarm
- Fire Emergency
- Auxiliary Emergency
- Police Emergency

The customer must enter his/her four (4) digit Security PIN into the keypad in order to disarm the system. The customer can create his/her four (4) digit Security PIN using a Web tool (www.att.com/dlpin). The Digital Life Keypad (Model SR-KPD02) is depicted in Figure 9.

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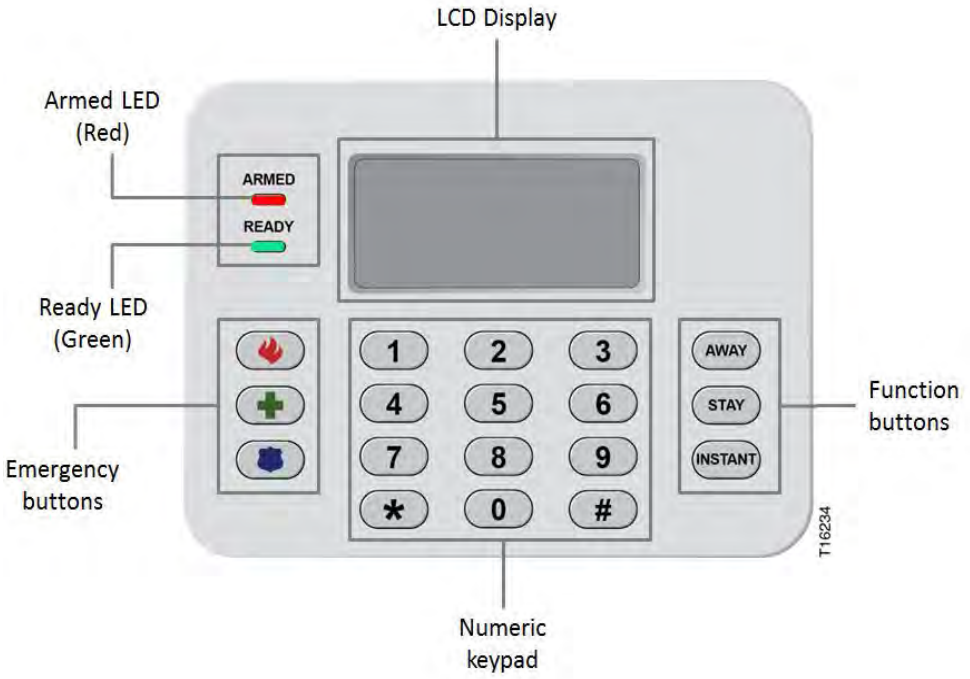
Figure 9: 915 MHz Two-Way Wireless Keypad (Model SR-KPD02)



The following messages can appear in the display of the 915 MHz Keypads (see, *Section* 8*: System Messages on the Keypad (Model SR-KPD02) Display*) for a complete listing of all of the messages):

- Arming–Exit Now
- Armed – STAY
- Armed – AWAY
- Armed – INSTANT
- Press * -BYPASS
- Alarm- Enter PIN
- Alarm Canceled
- Clear - Enter PIN
- Press * -Confirm
- Fire Emergency
- Aux Emergency
- Police Emergency

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- Fire Alarm Sent
- CO Alarm Sent
- Intrusion Alarm

Within the home a 433 MHz One-Way Four (4) Button Keychain Remote (Model SW-ATT-FOB) and/or 915 MHz Keychain Remote (Model SW-ATT-FOB2) can also be used to operate the system, which includes the following functions:

- Arm-STAY
- Arm-AWAY
- Arm-INSTANT *(Keychain Remote (Model SW-ATT-FOB2 only)*
- Disarm

Figure 10: 433 MHz One-Way Keychain Remote (Model SW-ATT-FOB)

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Figure 11: 915 MHz Two-Way Keychain Remote (Model SW-ATT-FOB2)

2.6 *Digital Life System Alarm Reporting*

Within the Digital Life System the DLC-200C is equipped with an Alarm Manager application which receives alarm messages from 433MHz one-way intrusion devices and fire devices and 915 MHz two-way intrusion and fire devices. The Alarm Manager application sends alarm messages over the AT&T Cellular Data Network to an IP Alarm Receiver located in an AT&T Digital Life Data Center. The alarms are then automatically passed to the AT&T Digital Life Central Monitoring Center for handling.

The following are the primary alarm messages that can be communicated from the Alarm Manager application executing on the DLC-200C in a customer's home to the AT&T Digital Life Central Monitoring Center via the IP Alarm Receiver:

- Fire - with device identification
- Intrusion - with device identification
- Fire Emergency - from fixed function button on keypad
- Auxiliary (AUX) Emergency - from fixed function button on keypad
- Police Emergency - from fixed function button on keypad
- Low battery - with device identification
- Tamper – alarms from the DLC-200C and other devices

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2.7 *Event Notification Service (Supplementary use only. Not part of the fire and security system.)*

Optionally within their Digital Life Service, customers can be automatically notified when specified events occur in their home. There are a wide range of possible events that could trigger a notification, including:

- Water detected
- High temperature
- Low temperature
- Door opened
- Motion detected

NOTE: Customers have the option of being notified via text messaging or email.

2.8 *Remote Video Monitoring (Supplementary use only. Not part of the fire and security system.)*

As an option, Digital Life customers are able to purchase Indoor Cameras and/or Outdoor Cameras for use with their Digital Life Service.

Indoor Cameras and/or Outdoor Cameras can be installed in the home network utilizing HomePlug AV or Wi-Fi technologies.

2.9 *Home Automation & Control (Supplementary use only. Not part of the fire and security system.)*

As an option, Digital Life customers can purchase home automation and control devices equipped with Z-Wave technology for use in their homes in conjunction with their Digital Life Service. Some of the products include:

- Door locks
- Lighting control
- Thermostats
- Water shut-off valves

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2.10 Digital Life System Operation Under a Local Power Failure Condition

The Digital Life System is equipped with a twenty-four (24) hour battery backup capability and will continue to operate under local power failure conditions for twenty-four (24) hours and four (4) minutes. When operating under a power failure condition the following sub-systems within the DLC-200C cabinet are powered off:

- Wi-Fi Transceiver Module
- Z-Wave Transceiver Module

When operating under a local power failure condition, the AC POWER LED and WIRELINE BROADBAND LED on the DLC-200C cabinet will be OFF. In addition, the BATTERY, SYSTEM and WIRELESS BROADBAND LEDs will flash simultaneously. Wireline broadband data service will not be operating.

NOTE: The DLC-200C waits one (1) minute before transitioning to Battery Mode in case the power loss is temporary. It also waits one (1) minute when AC power is restored to ensure that the power restore is not temporary.

When operating under a local power failure condition, all of the proprietary 433 MHz one-way sensor/sensor devices will continue to operate as designed and are not impacted by a local power failure condition. Under normal operating conditions the proprietary Signal Booster (433) (Model SW-ATT-RPTR4) and Conversion Kit (Model SW-ATT-TAKRF) receive power from AC-to-DC power conversion, but they are equipped with twenty-four (24) hour battery backup and will continue to operate for twenty-four (24) hours under a local power failure condition. They are equipped with customer replaceable batteries.

Under normal operating conditions the proprietary 915 MHz Two-Way devices, including the Keypad (Model SR-KPD02), Smoke Sensor (562NSTT-OEM-ATT01), Indoor Siren (Model SW-ATT-SRN) and Signal Booster Model (SW-ATT-RPTR9), receive power from AC-to-DC power conversion, but they are equipped with twenty-four (24) hour battery backup and will continue to operate for twenty-four (24) hours under a local power failure condition. All five devices are equipped with customer replaceable batteries.

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3 Digital Life Direct Overview

Digital Life Direct (DLD) is a Web tool that can be used by a Digital Life Technician (DLT) to install and configure the Digital Life System (DLS) in a customer's home. It enables the DLT to remotely activate subscriptions, access account information, program system features and discover and label devices. Installation programming of the DLC-200C can be performed locally by the DLT using DLD. In addition the tool enables the DLT to monitor and test the operation of the system. The DLT can access the DLD Web tool using a laptop or wireless tablet device, such as an iPad.

Before the DLT arrives at the customer's home to do the DLS installation, an account will already have been established in the Digital Life Network Platform for the customer. During the installation process the DLT will utilize DLD to register the customer's Digital Life Controller (DLC-200C) with the Digital Life Network Platform.

3.1 Access Customer's Digital Life Controller (DLC-200C)

The DLT accesses a specific internet Website (URL) to access the DLD Web Tool. When the DLT accesses the Web tool, they are prompted to enter a Username and Password. Here is an example of the login process in Figure 12.

Figure 12: DLD Login Screen

After completing the login process, the DLT will see the Account Search screen. The DLT will enter the customer's Username, Account ID or Billing Account Number (BAN) to access the customer's account. (See Figure 13.)

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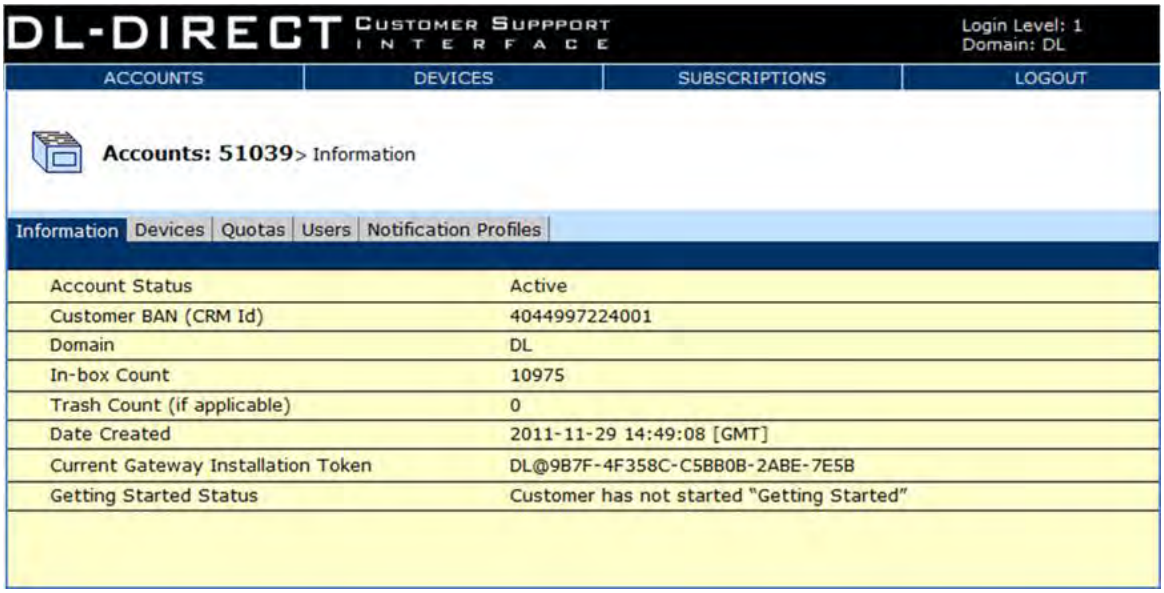
Figure 13: DLD—Enter Account Number

The DLT will then see the customer's account displayed on the Information tab. (See Figure 14.)

Figure 14: DLD—Account Information



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After the device has been installed and powered up, DLC-200C will automatically register with the Digital Life Network Platform. When the DLT selects the Devices tab, the DLT will see the list of Devices that are registered, including the DLC-200C (Gateway). (See Figure 15.)

Figure 15: DLD—Devices Screen

NOTE: The DLT can delete a device by selecting the device and clicking the **Delete** link.

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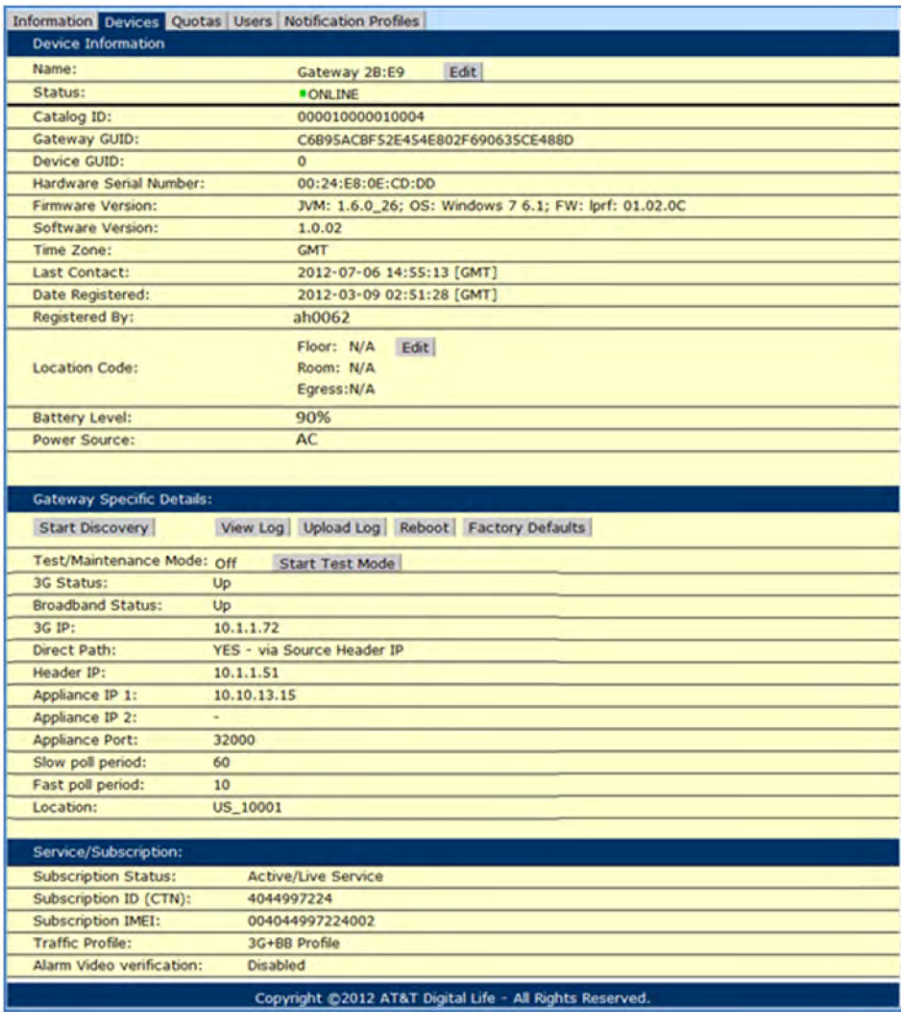
3.2 *Device Discovery Mode and Discovery Process*

In order to place the DLC-200C into the Discovery mode, so that devices can be discovered and registered, the DLT will select the DLC-200C (Gateway) and the screen depicted in Figure 16 will display.

Figure 16: DLD—Digital Life Controller (DLC-200C) Specific Details Screen



IMPORTANT! The discovery method is basically the same for all of the devices that the DLT will install and register with the customer's DLC-200C (Gateway). While the DLC-200C is in the Discovery mode, the DLT will install each device and make it discoverable, and then the device will automatically be discovered and registered with the DLC-200C.

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The DLT will select **Start Discovery,** in order to place the DLC-200C in the Discovery mode and start discovering devices. The DLT will see the screens depicted in Figure 17 and Figure 18.

Figure 17: DLD—Start Discovery – Initializing Please Wait

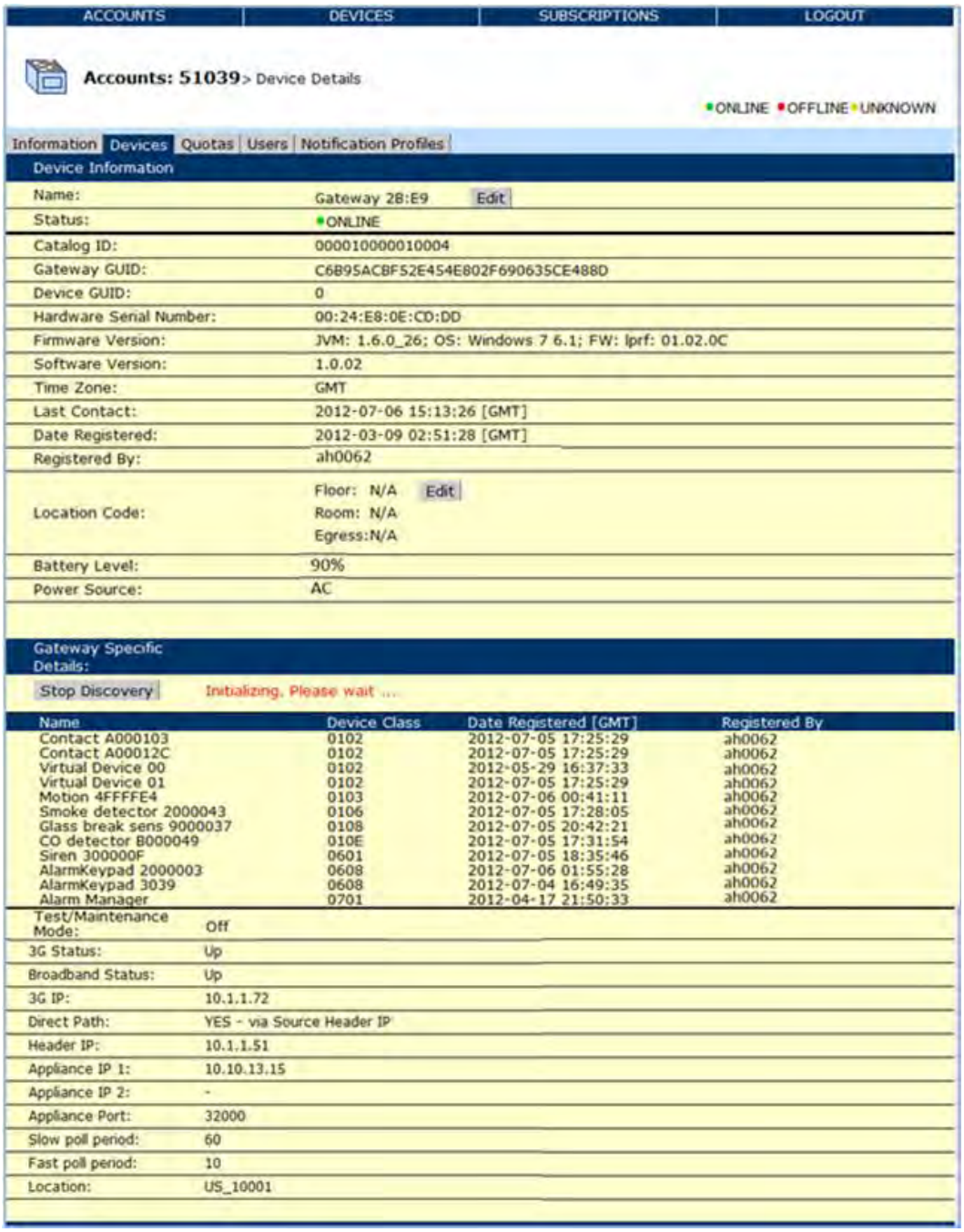

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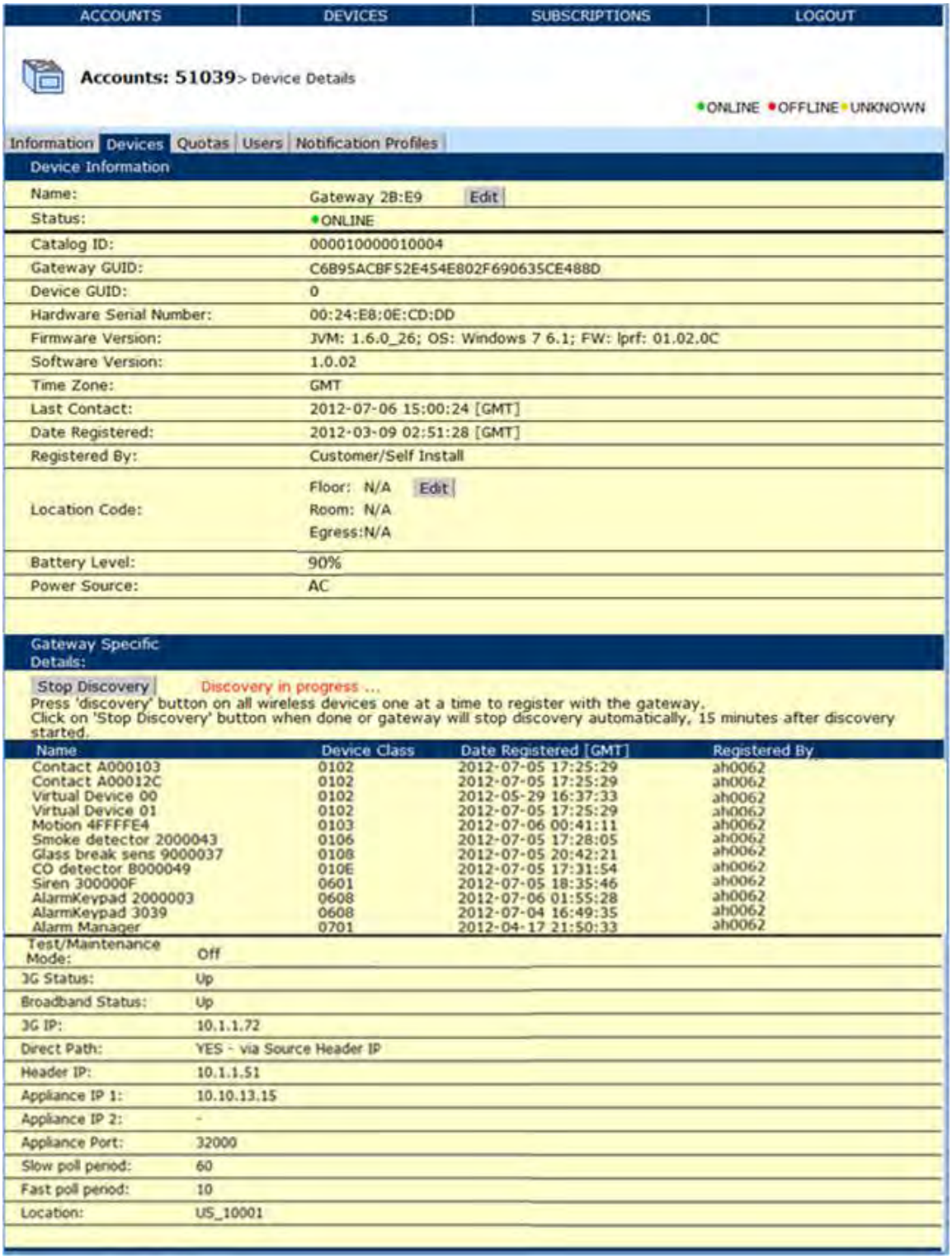
Figure 18: DLD—Start Discovery – Discovery In Progress



ACCOUNTS | DEVICES | SUBSCRIPTIONS | LOGOUT

Accounts: 51039 > Device Details

●ONLINE ●OFFLINE ●UNKNOWN

Information | Devices | Quotas | Users | Notification Profiles

Device Information

Name:	Gateway 2B:E9 Edit
Status:	●ONLINE
Catalog ID:	000010000010004
Gateway GUID:	C6B95ACBFS2E454E802F690635CE488D
Device GUID:	0
Hardware Serial Number:	00:24:E8:0E:CD:DD
Firmware Version:	JVM: 1.6.0_26; OS: Windows 7 6.1; FW: prf: 01.02.0C
Software Version:	1.0.02
Time Zone:	GMT
Last Contact:	2012-07-06 15:00:24 [GMT]
Date Registered:	2012-03-09 02:51:28 [GMT]
Registered By:	Customer/Self Install
Location Code:	Floor: N/A Edit Room: N/A Egress:N/A
Battery Level:	90%
Power Source:	AC

Gateway Specific Details:

Stop Discovery Discovery in progress ...

Press 'discovery' button on all wireless devices one at a time to register with the gateway.
Click on 'Stop Discovery' button when done or gateway will stop discovery automatically, 15 minutes after discovery started.

Name	Device Class	Date Registered [GMT]	Registered By
Contact A000103	0102	2012-07-05 17:25:29	ah0062
Contact A00012C	0102	2012-07-05 17:25:29	ah0062
Virtual Device 00	0102	2012-05-29 16:37:33	ah0062
Virtual Device 01	0102	2012-07-05 17:25:29	ah0062
Motion 4FFFFE4	0103	2012-07-06 00:41:11	ah0062
Smoke detector 2000043	0106	2012-07-05 17:28:05	ah0062
Glass break sens 9000037	0108	2012-07-05 20:42:21	ah0062
CO detector B000049	010E	2012-07-05 17:31:54	ah0062
Siren 300000F	0601	2012-07-05 18:35:46	ah0062
AlarmKeypad 2000003	0608	2012-07-06 01:55:28	ah0062
AlarmKeypad 3039	0608	2012-07-04 16:49:35	ah0062
Alarm Manager	0701	2012-04-17 21:50:33	ah0062

Test/Maintenance Mode:	Off
3G Status:	Up
Broadband Status:	Up
3G IP:	10.1.1.72
Direct Path:	YES - via Source Header IP
Header IP:	10.1.1.51
Appliance IP 1:	10.10.13.15
Appliance IP 2:	-
Appliance Port:	32000
Slow poll period:	60
Fast poll period:	10
Location:	US_10001

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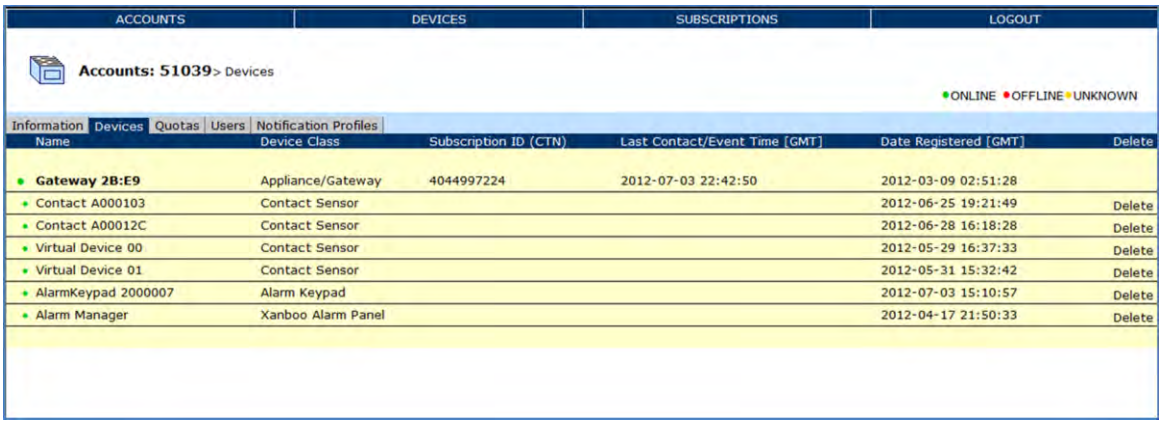
When the DLC-200C is in the Discovery mode, the DLT can then proceed with installing and discovering devices. As devices are discovered and registered, they will appear on the screen. The DLT can take the DLC-200C out of the Discovery mode by selecting Stop Discovery or the DLC will automatically exit the Discovery mode after fifteen (15) minutes.

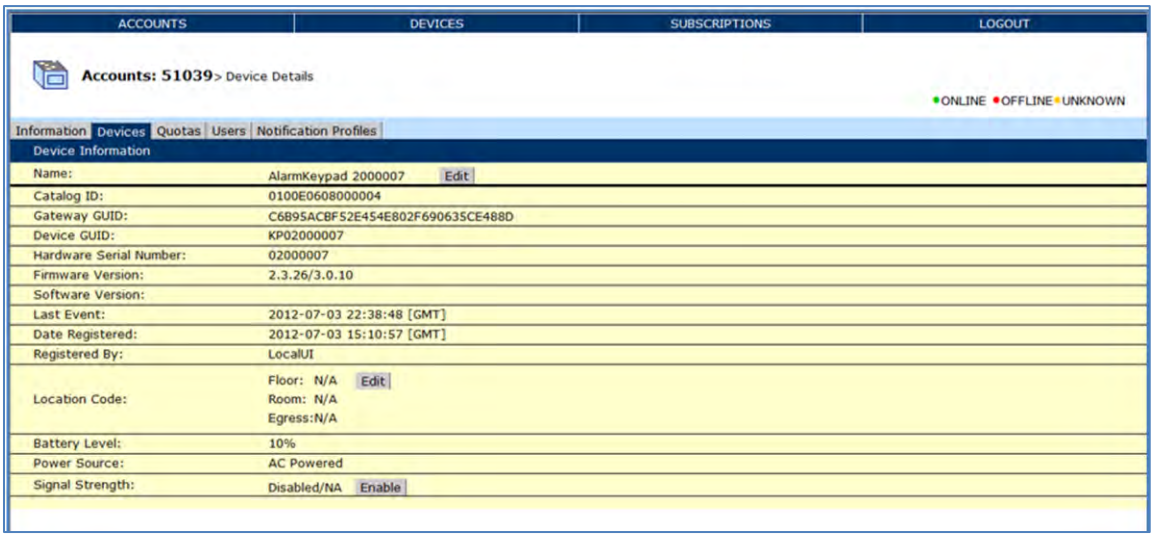
If the DLT wants to label or change the label on a specific device, the DLT can select the Devices tab, which will return to the Devices screen as depicted in Figure 19.

Figure 19: DLD—Devices Screen



The DLT can select the specific device that he wants to re-label as depicted in Figure 20 by selecting the "Edit" button.

Figure 20: DLD—Specific Device Screen



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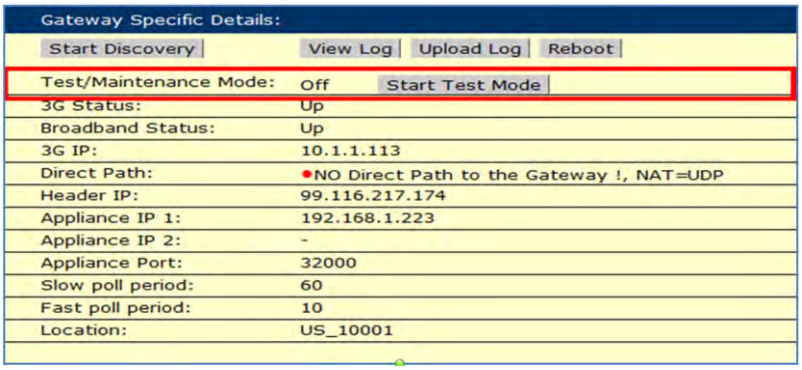
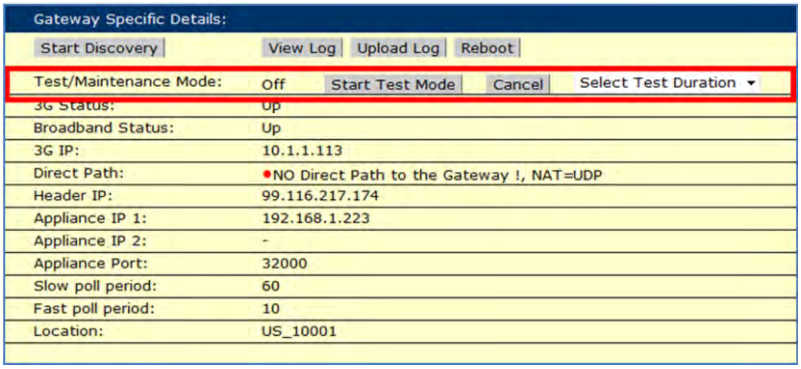
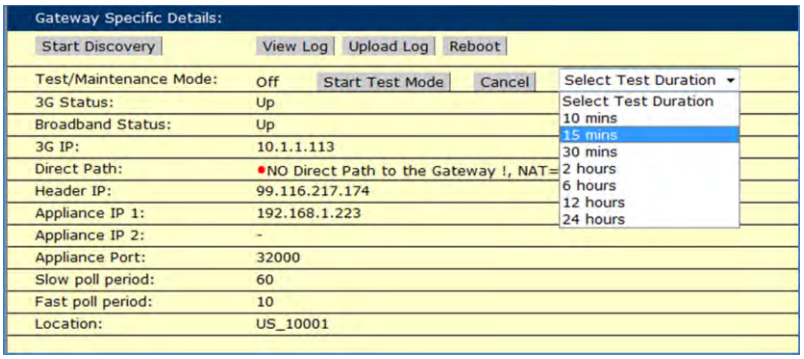
3.3 *Test Mode (Performing Test /Maintenance)*

The DLT can utilize DLD to place the DLC-200C (Gateway) into Test Mode in order to test the system (*see, Section 11: Testing the System*). When the DLC-200C is in Test Mode, alarms are sent to the AT&T Digital Life Central Monitoring Centers, but they display as no action required.

Follow these steps to place the device in Test mode:

Action	Web Page
1. From the Gateway Specific Details section, click **Start Test Mode.**	
The Select Test Duration displays.	
2. Click the dropdown arrow and select the test duration. The Test/Maintenance Mode field is updated.	

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3.4 Administer DLC-200C Digital Life Controller Features

The administration of DLC-200C features is accomplished by accessing the "Alarm Manager Information" on the "Devices" tab in DLD, as shown in Figure 21.

Figure 21: DLD— Alarm Manager Information

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Table 1 contains a mapping of UL required features to DLD administration features. (See *Section 12 CP-01-2010 Supported Features to False Alarm Reduction* for more details).

NOTE: Table 1 mapping reference is SIA CP-01-2010.

Table 1: UL to DLD CP-01-2010 Feature Mapping

UL Required				Digital Life Direct
Paragraph	**Feature**	**Settings**	**Default**	**Feature**
4.2.2.1	Exit Time	45-120 seconds	60 seconds	Exit Delay **NOTE:** In accordance with UL 681 Section 19, the total exit time cannot exceed 120 seconds as per UL1023 Section 26.14.
4.2.2.2	Progress Annunciation with rapid annunciation during last ten (10) seconds of Exit Time.	Enabled/Silent Exit Feature Not Supported	Enabled	Pulsating audible sound during Exit Time with rapid annunciation during last ten (10) seconds of Exit Time. **NOTE:** The ability to DISABLE annunciation is not supported in DLD.
4.2.2.3	Exit Time Restart	Enabled/Disabled	Enabled	Exit time restart enable
4.2.2.5	Auto Stay Arm on Unvacated Premises	Enabled/Disabled	Enabled	Auto Stay on Unvacated

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UL Required				Digital Life Direct
Paragraph	Feature	Settings	Default	Feature
				Premises enable
4.2.4.4	Exit Time and Progress Annunciation/Disable - for Remote Arm	Enabled/Silent Exit Feature Not Supported	Enabled	Pulsating audible sound during Exit Time with rapid annunciation during last ten (10) seconds of Exit Time. **NOTE:** The ability to DISABLE annunciation is not supported in DLD.
4.2.3.1	Entry Delay	30-240 seconds	30 seconds	Entry Delay **NOTE:** In accordance with UL standards, the aggregate of the Entry Delay time and the Abort Window time shall not exceed one (1) minute.
4.2.5.1	Abort Window – for Non-Fire Zones (Windows)	Enabled/Disabled	Enabled	Set Abort Delay feature to zero (0) setting
4.2.5.1	Abort Window Time – for Non-Fire Zones (Windows)	0-45 seconds	30 seconds	Abort Delay **NOTE:** In accordance with UL standards, the aggregate of the Entry Delay time and the Abort

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UL Required				Digital Life Direct
Paragraph	Feature	Settings	Default	Feature
				Window time shall not exceed one (1) minute.
4.2.5.1.2	Abort Annunciation	Enabled/Disabled	Enabled	Abort Sound On/Off
4.2.5.4	Cancel Window	Enabled/Disabled	Enabled	Alarm Timeout, 3-60 minutes settings, default 5 minutes
4.2.5.4.1	Cancel Annunciation	Enabled/Disabled	Enabled	Cancel Sound On/Off
4.3.1	Cross Zoning	Enabled/Disabled	Disabled	Set per device and disabled by default **NOTE:** For UL requirements, each zone shall have the capability of protecting the area individually. (Overlapping of protective zones).
4.3.1	Programmable Cross Zoning Time	1-30 seconds	Per walk path in protected premises	System Level Cross Zoning Delay
4.3.2	Swinger Shutdown	1-6 trips	2 trips	Swinger Shutdown
4.3.2	Swinger Shutdown Disable	Enabled/Disabled	Enabled	Enable Swinger Shutdown
4.3.3	Fire Alarm Verification	Enabled/Disabled	Disabled	Enable Fire Alarm Verification

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NOTE: In accordance with UL 681 Section 19, the total exit time cannot exceed 120 seconds as per UL1023 Section 26.14.

A CP-01-2010 compliant installation must include the following:

- Digital Life Controller (DLC-200C)
- Keypad (Model SR-KPD02)
- Indoor Siren (Model SW-ATT-SRN)
- One, or more, Smoke Sensor (Model 562NSTT-OEM-ATT01)
- One, or more, of the following burglary alarm initiating devices:
    - Surface Contact Sensor (Model SW-ATT-V2)
    - Recessed Contact Sensor (Model SW-ATT-RDW)
    - Glass Break Sensor (Model SW-ATT-GB)
    - Motion Sensor (SW-ATT-PIR)

3.4.1 Alarm Manager Features

The Alarm Manager administrative features are listed below:

3.4.1.1.1 Security PIN

The Security PIN is used to disarm the system or clear an alarm.

1. In order to enter a Security PIN, click the “Edit” button.
2. Enter a four (4) digit Security PIN in the Security field.
3. Click the “Set Code” button.
4. Verify that the desired change(s) has been made.

3.4.1.1.2 Entry Delay

Entry Delay allows a user when they are entering their home sufficient time to get to the keypad and enter their Security PIN before the system sounds an alarm.

1. In order to change the Entry Delay time, click the “Edit” button on the Entry Delay line.
2. Use the drop-down menu to select the desired Entry Delay time.

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3. Click the “Change” button.
4. Verify that the desired change has been made.

3.4.1.1.3 Exit Delay

Exit Delay delays the activation of the indoor siren, to allow the user sufficient time to exit their home after arming the system without sounding an alarm.

1. In order to change the Exit Delay, click the “Edit” button on the Exit Delay line.
2. Use the drop-down menu to select the desired Exit Delay time.
3. Click the “Change” button.
4. Verify that the desired change has been made.

3.4.1.1.4 Abort Delay

Abort Delay is the time delay between when an alarm has been triggered and when the alarm is actually sent to the AT&T Digital Life Central Monitoring Center. Abort Delay allows the user time to cancel an accidental alarm and help reduce false alarms.

Follow these steps to enable/disable the Abort Delay:

1. In order to change the Abort Delay time, click the “Edit” button on the Abort Delay line.
2. Use the drop-down menu to select the desired Abort Delay time.
3. Click the “Change” button.
4. Verify that the desired change has been made.

3.4.1.1.5 Siren Timeout

Siren Timeout is the length of time, in minutes, that the alarm siren sounds following an alarm. The default is four (4) minutes and the range is four (4) to sixty (60) minutes.

1. In order to change the Siren Timeout time, click the “Edit” button on the Siren Timeout line.
2. Use the drop-down menu to select the desired Siren Timeout time.

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3. Click the “Change” button.
4. Verify that the desired change has been made.

3.4.1.1.6 Cross Zoning Delay

Cross Zoning Delay requires that two (2) intrusion sensors are tripped within a preset time, before an alarm is sent. The range is one (1) to thirty (30) seconds.

1. In order to change the Cross Zoning Delay, click the “Edit” button on the Cross Zoning Delay line.
2. Use the drop-down menu to select the desired Cross Zoning Delay time.
3. Click the “Change” button.
4. Verify that the desired change has been made.

3.4.1.1.7 Swinger Shutdown

Swinger Shutdown is a false alarm prevention feature that counts the number of alarms caused by a specific intrusion device. The system will auto-bypass a specific intrusion device based on the swinger shutdown count setting. After a specified number of alarms caused by the same intrusion device within the same arming period, the system will shutdown that intrusion device for the remainder of the arming period. This reduces the number of alarms sent to the AT&T Digital Life Central Monitoring Center. The default count setting is two (2) trips.

1. In order to change the Swinger Shutdown Trips, click the “Edit” button on the Swinger Shutdown line.
2. Use the drop-down menu to select the desired Swinger Shutdown Trips setting.
3. Click the “Change” button.
4. Verify that the desired change has been made.

NOTE: To invoke this feature, you must enable Swinger Shutdown in the AM Flags section. The counts are done per intrusion device.

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3.4.2 Alarm Manager Flags

The Alarm Manager (AM) Flags are listed below:

3.4.2.1.1 Exit Time Restart Enable

The Exit Time Restart Enable feature resets the Exit Delay time when a user is arming Away or Stay and leaves and reenters their home. This provides the user more time to leave again.

1. In order to activate Exit Time Restart, in the AM Flags section, select the "Exit time restart enable" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.4.2.1.2 Abort Sound On

The Abort Sound On feature, if enabled, generates one long beep from the Keypad when the user aborts an alarm during the Abort Delay time.

1. In order to activate Abort Sound, in the AM Flags section, click the "Abort sound on" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.4.2.1.3 Chirp on Entry/Exit Door/Open Close

The Chirp on Entry/Exit Door/Open Close feature, if enabled, generates three (3) chirps from the Keypad when a door is opened and two (2) chirps from the Keypad when a door is closed.

1. In order to activate Chirp on Entry/Exit Door/Open Close, in the AM Flags section, click the "Chirp on entry/exit open close" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

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3.4.2.1.4 Enable Fire Alarm Verification

The Fire Alarm Verification feature is utilized to reduce the number of false alarms that are reported to the AT&T Digital Life Central Monitoring Center. When the feature is enabled, the DLC-200C must receive two smoke detection messages from a Smoke Sensor before reporting a smoke alarm to the AT&T Digital Life Central Monitoring Center. When the feature is not enabled, if the DLC-200C receives one smoke detection message from a Smoke Sensor, a smoke alarm is reported to the AT&T Digital Life Central Monitoring.

1. In order to Enable Fire Alarm Verification, in the AM Flags section, click the "Enable Fire Alarm Verification" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

WARNING!

The DLS supports Fire Alarm Verification for use with Smoke Sensors which can be utilized to delay the transmission of a smoke alarm to the AT&T Digital Life Central Monitoring Center. When smoke is detected, the alarm sounds a loud temporal 3 local alarm (three beep sequence then silence repeating) and the built-in transmitter sends a digitally coded wireless Smoke Sensor message to the DLC-200C. The wireless Smoke Sensor message will be repeated every twenty (20) seconds as long as smoke is still present. In order to reduce the likelihood of reporting false smoke alarms, the Fire Alarm Verification feature can be used. The DLC alarm verification period is twenty (20) seconds. If the Fire Alarm Verification feature is enabled, the DLC-200C waits for two Smoke Sensor messages within ninety (90) seconds before a smoke alarm is reported to the AT&T Digital Life Central Monitoring Center.

In addition to the photoelectric sensor, the unit contains an integrated fixed 135° temperature and rate-of-rise heat sensor that will send an alarm signal based on temperature detected.

3.4.2.1.5 Auto Stay on Unvacated Premises Enable

When the Auto Stay on Unvacated Premises Enable feature is enabled and a user activates the Armed-AWAY mode using the Keypad (Model SR-KPD02), but does not leave the home, then the system will automatically be armed in the Armed-STAY mode rather than the Armed-AWAY mode.

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1. In order to activate Auto Stay on Unvacated Premises, in the AM Flags section, click the "Auto Stay on Unvacated Premises enable" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.4.2.1.6 Cancel Sound On

The Cancel Sound On feature, if enabled, generates two (2) long beeps from the Keypad when the user cancels an alarm.

1. In order to enable Cancel Sound On, in the AM Flags section, click the "Cancel sound on" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.4.2.1.7 Chirp on Non-Entry/Exit Open Close

The Chirp on Non-Entry/Exit Door/Open Close feature, if enabled, generates three (3) chirps from the Keypad when a door is opened and two (2) chirps from the Keypad when a door is closed.

1. In order to enable Chirp on Non-Entry/Exit Open Close in the AM Flags section, click the "Chirp on non-entry/exit open close" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.4.2.1.8 Enable Swinger Shutdown

1. In order to Enable Swinger Shutdown, in the AM Flags section, click the "Enable Swinger Shutdown" box and a checkmark will appear in the box.
2. Click the "Change" button.
3. Verify that the desired change has been made.

3.5 Troubleshooting Wireless Devices

DLD can be utilized by a DLT to assist in troubleshooting issues that may arise during the installation of a wireless device or devices, such as door/window sensors and

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keypads. Within DLD the DLT can enable the monitoring of received wireless signal strength in the DLC-200C for a selected wireless device or devices.

The possible values are presented from highest signal strength to lowest signal strength:

- Best
- Good
- Acceptable
- Low
- Weak

These values apply to both 433 MHz and 915 MHz devices. In general, if a DLT observes a Signal Strength of “Low” or “Weak”, the DLT will install a signal booster.

As depicted in Figure 22, Figure 23 and Figure 24 under the Devices tab the DLT will select the Device Information screen for the specific wireless device that they want to troubleshoot and enable Signal Strength monitoring on the DLC-200C. The DLT can repeat the steps for other devices. The operating procedure is different for 433 MHz (one-way) devices and 915 MHz (two-way) devices.

For 433 MHz (one-way) devices, after Signal Strength measurement has been started, the DLT must activate the device for a minimum of fifteen (15) times in order to obtain an accurate signal strength value. After a signal strength value has been determined and displayed, the DLT should click the Disable button to stop measuring signal strength or the DLC-200C will automatically stop signal strength measurement after fifteen (15) minutes.

For 915 MHz (two-way) devices, after Signal Strength measurement has been started, two-way messages will automatically be exchanged between the 915 MHz device and the DLC-200C and then a signal strength value is determined and displayed. This process should be completed in less than sixty (60) seconds. After a signal strength value has been determined and displayed, the DLT should click the Disable button to stop measuring signal strength or the DLC-200C will automatically stop signal strength measurement after fifteen (15) minutes.

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Figure 22: Enabling Signal Strength Monitoring

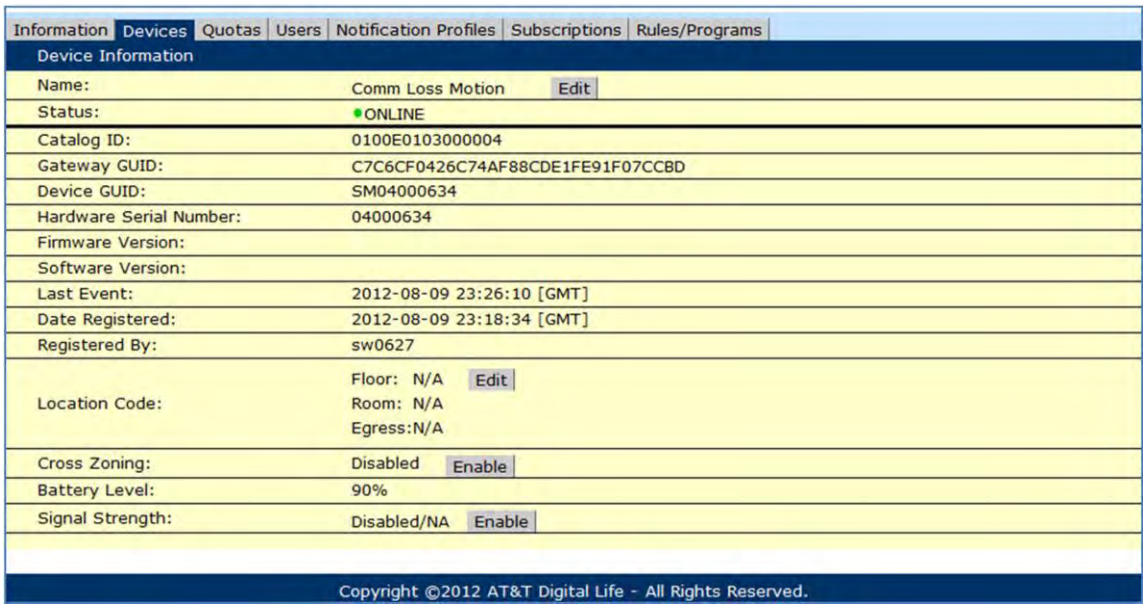

Figure 23: Signal Strength Monitoring Alert

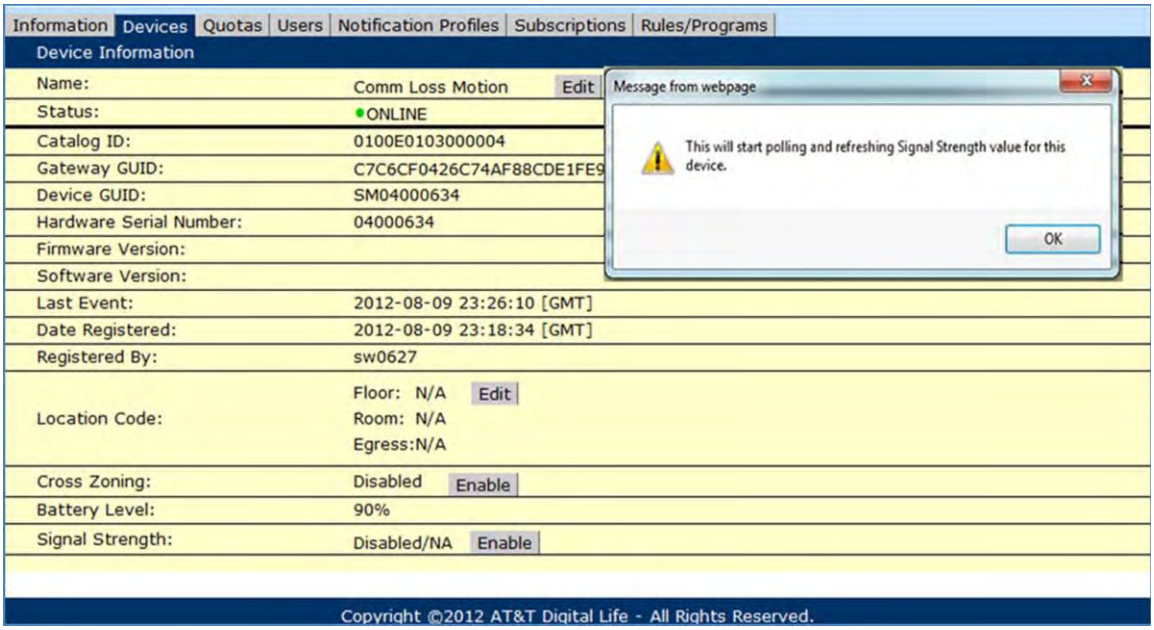

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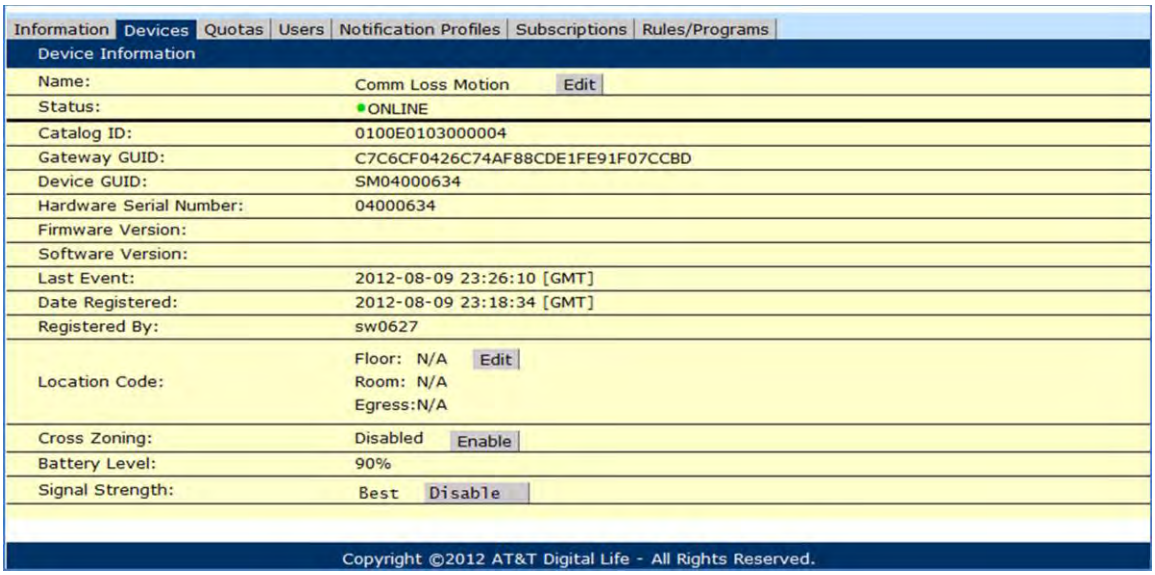
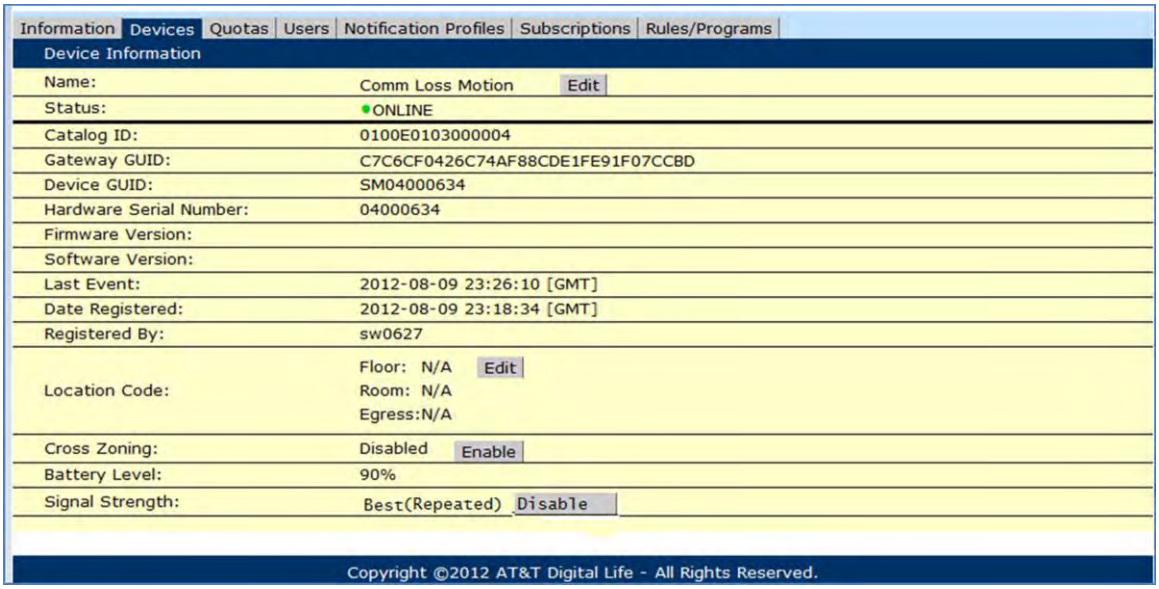
Figure 24: Signal Strength Monitoring



If the wireless signal that is being monitored by the DLC-200C is being repeated, such as by a Signal Booster (433), then the Signal Strength indicator will include a notation that the signal is being repeated as is depicted in Figure 25.

Figure 25: Signal Strength Monitoring for a Repeated Signal



It is recommended that the DLT disable Signal Strength Monitoring, after wireless troubleshooting has been completed.

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4 Digital Life Controller (DLC-200C) Cabinet and Internal Components

The Digital Life Controller (DLC-200C) is wall mounted in a closet, utility room or basement similar to a traditional security system and be adjacent to an AC power outlet. It is a two-piece assembly consisting of a wall mounting plate and a cabinet. The two-piece assembly is made of plastic and features battery backup compartment door at the bottom of the wall mounting plate.

Figure 26: DLC-200C Base

Figure 27: DLC-200C Wall Mounting Plate

During installation the DLT installs the wall mounting plate on a wall and then slides the cabinet onto the wall mounting plate and secures the cabinet to the wall mounting plate via a captured screw

When the DLC-200C is installed in a customer's home, the following radio modules will already have been installed in the cabinet:

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- 433 MHz Transceiver Module – is equipped with a proprietary one-way 433 MHz radio receiver, which is used to communicate with one-way 433 MHz devices in the home.
- 915 MHz Transceiver Module - is equipped with a proprietary two-way 915MHz transceiver which is used to communicate with two-way 915 MHz devices in the home.
- Wi-Fi Module – is an 802.11/b/g/n compliant access point and can be used in conjunction with Wi-Fi installed Indoor and Outdoor Cameras.
- Z-Wave Module – is a Z-Wave 908 MHz transceiver that operates in conjunction with software operating on the DLC-200C to enable the DLC-200C to function as a Z-Wave controller.

The DLC-200C Wall Mounting Plate may be equipped with an AT&T Cellular Data Modem. Alternatively an AT&T Cellular Data Modem may be installed remotely and connected to the DLC-200C cabinet via HomePlug AV (HPAV) technology operating over the in-home electrical wiring system.

At the time of installation the DLT will install the twenty-four (24) hour battery backup in the battery backup compartment at the bottom of the wall mounting plate. The high-level installation sequence is depicted in Figure 28 and Figure 29:

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Figure 28: DLC-200C Cabinet Installation (Steps 1–5)

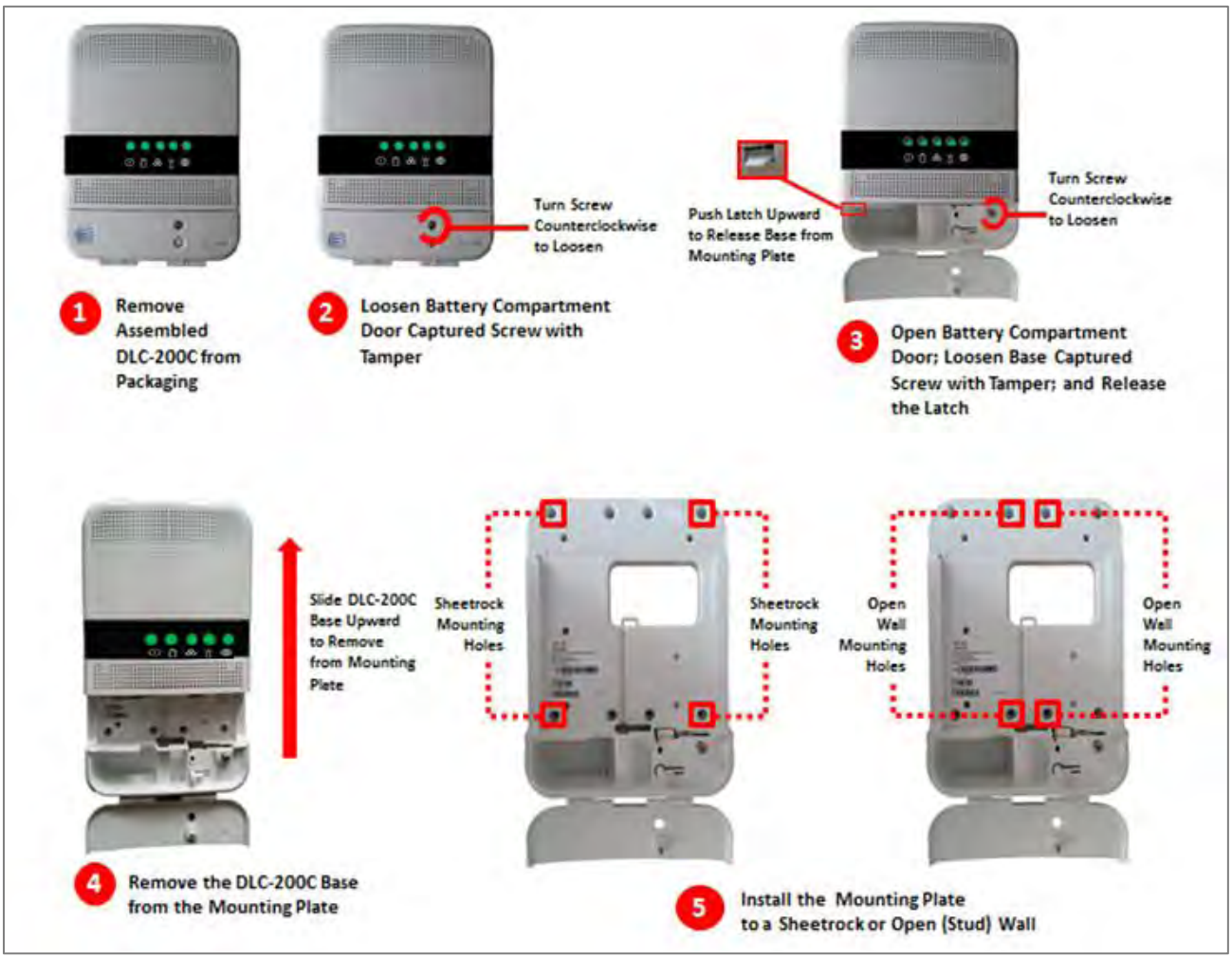

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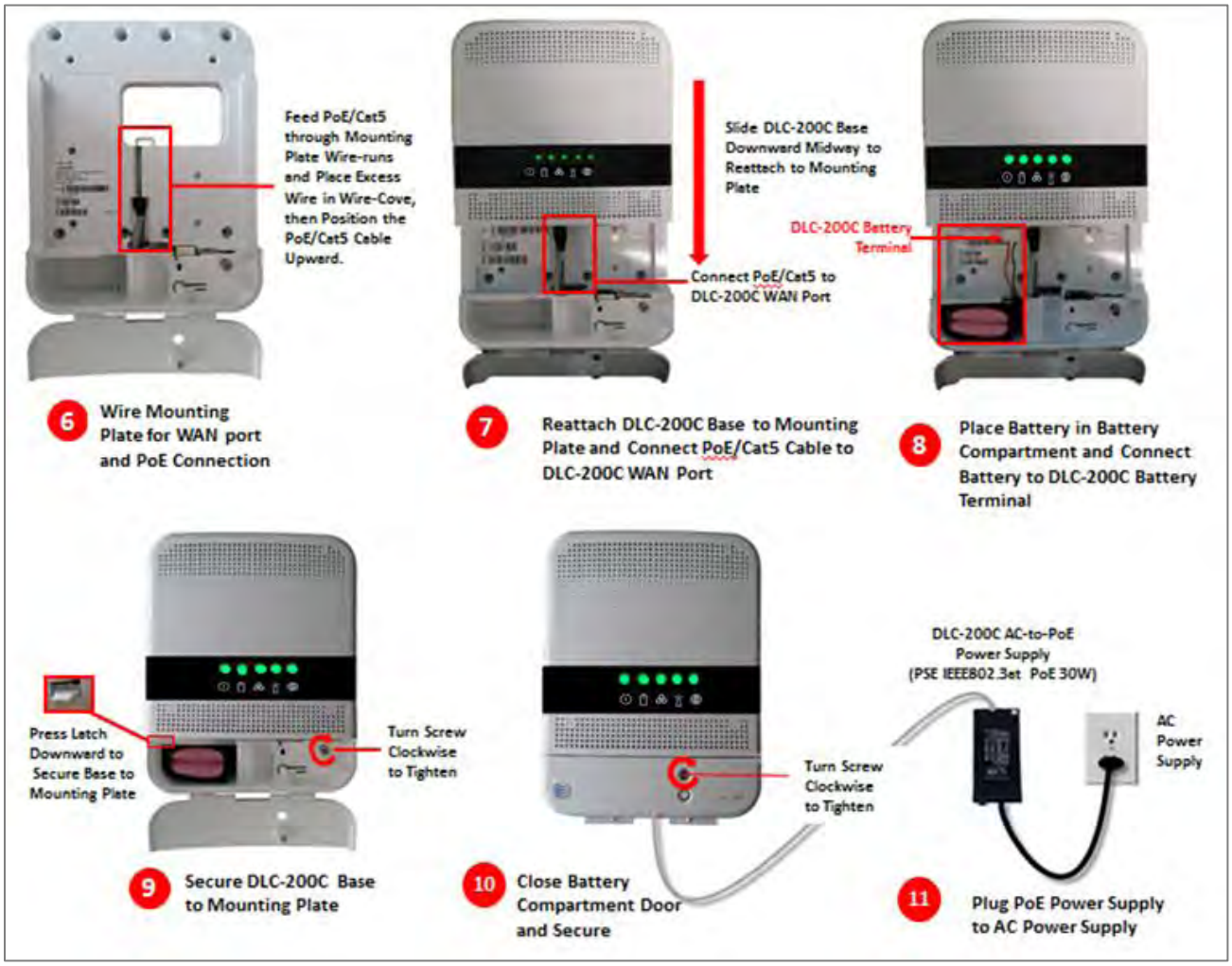
Figure 29: DLC-200C Cabinet Installation (Steps 6-11)



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5 System Installation

During the installation process, initially the DLT determines where to install the DLC-200C. When the DLC-200C Wall Mounting Plate is equipped with an AT&T Cellular Data Modem, then the DLT will measure AT&T Cellular Data Service signal strength at various locations in the home using an application installed on their wireless tablet device. The DLT will take into consideration AT&T Cellular Data Service strength measurements when determining where to install the cabinet. An AC power outlet must be in the proximity to where the DLC-200C is installed.

NOTE: DO NOT connect the DLC-200C AC to PoE Power Supply to an AC power outlet that is controlled by a switch or on a GFCI circuit.

In most installations, the DLC-200C will not be installed in proximity to the customer's Broadband Home Router (BHR). HomePlug AV (HPAV) technology is utilized to establish a data connection between an Ethernet port on the DLC-200C AC to PoE Power Supply and an Ethernet port on the BHR. HPAV technology can also be utilized to connect IP cameras to the Home Network and the BHR.

After establishing the location for the installation of the DLC-200C, the DLT will prepare the HPAV devices for installation. The preparation starts by the secure pairing of the HPAV devices with a random security (encryption) key (128 bits). Every Digital Life installation will have a unique random security key. Each HPAV unit is shipped from the factory with a random encryption key, so that security pairing must be done among HPAV units, so that the HPAV devices can communicate.

When the DLC-200C is installed in proximity to the customer's BHR, then the DLT will establish a Ethernet/Cat5 connection between an Ethernet port on the DLC-200C AC-to-PoE Power Supply and an Ethernet port on the BHR.

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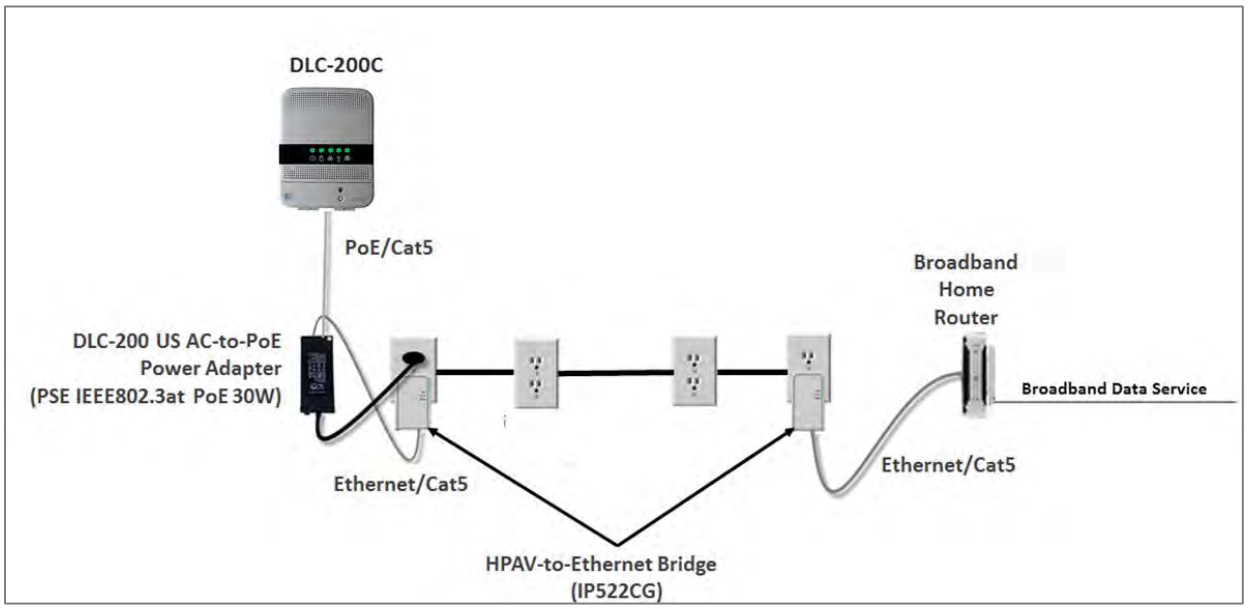
5.1 DLC-200C Installation Using HPAV

Figure 30 contains a depiction of a typical DLC-200C installation wherein HPAV is utilized to establish a data connection between the DLC-200C AC to PoE Power Supply and the BHR, as shown in Figure 30.

Figure 30: Typical DLC-200C Installation Using HPAV



5.2 HPAV Installation Kits

There are two (2) kits that can be included in the HPAV installation:

- IP522CG (For use with DLC-200C or Broadband Home Router)
  - (1) - IP522CG unit
  - (1) - 1.5 meters (4.92 feet) Cat5 cable
- IP532CG (For use with IP Cameras)
  - (1) - IP532CG unit
  - (1) - 5 meters (16.4 feet) Cat5 cable
  - (1) - 5 meters (16.4 feet) DC 12V power cable

NOTE: During a typical installation process, a IP522CG unit will be paired with one IP522CG unit and possibly one, or more, IP532CG units.

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5.2.1 IP522CG Features and Operation (HPAV to Ethernet Bridge)

The IP522CG has three (3) green LEDs (Power, PLC Link and Ethernet) located on the front of the unit and two (2) buttons (Security and Reset) located on the side of the unit. An Ethernet port is located on the bottom of the unit.

Figure 31: IP522CG – Front, Side and Bottom Panels

The functionality for each LED is described below:

- Power LED
  - SOLID – Device is receiving electrical power
  - BLINKING – Device is restarting or setting up security
  - OFF – Device is not receiving electrical power
- PLC Link LED
  - SOLID - HPAV connection is established with other devices on the same HPAV network that share the same security key
  - BLINKING - Data traffic exists over the HPAV network
  - OFF - Device has not found any compatible HPAV network using the same security key
- Ethernet LED
  - SOLID – Ethernet port is linked, but no data traffic exists

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- BLINKING – Ethernet port is linked and data traffic exists over the Ethernet port
- OFF – No Ethernet connection exists

The functionality of each button is described below:

- Security Button
  - Used for security pairing between devices
- Reset Button
  - Not used in Digital Life

WARNING!

The Reset Button restores the unit to Factory Default settings and **is not** used during Digital Life installations.

5.2.2 IP532CG Features and Operation

The IP532CG has three (3) green LEDs (Power, PLC Link and Ethernet) located on the front panel and two (2) buttons (Security and Reset) located on the side of the panel. The Ethernet port and DC 12V Output connectors located on the bottom of the unit. The IP532CG is designed for installation with Indoor Cameras. During installation Cat5/Ethernet and DC power connections are established with an Indoor Camera.

Figure 32: IP532CG – Front, Side, and Bottom Panels

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The functionality of each front panel LED is described as follows:

- Power LED
    - SOLID – Device is receiving electrical power
    - BLINKING – Device is restarting or setting up security
    - OFF – Device is not receiving electrical power
- PLC Link LED
    - SOLID – HPAV connection is established with other devices on the same HPAV network that share the same security key (128 bit encryption key)
    - BLINKING – Indicates data traffic over the HPAV network
    - OFF – Device has not found any other compatible HPAV network using the same security key
- Ethernet LED
    - SOLID – Ethernet port is linked, but there is no data traffic
    - BLINKING – Ethernet port is linked and there is data traffic over the Ethernet port
    - OFF – There is no Ethernet connection

The functionality of each side panel button is described below:

- Security Button
    - Used for security pairing between devices
- Reset Button
    - Not used in Digital Life

WARNING!

The Reset Button restores the unit to Factory Default settings and **is not** used during Digital Life installations.

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