Simplex®

UL Listed

TrueCom®

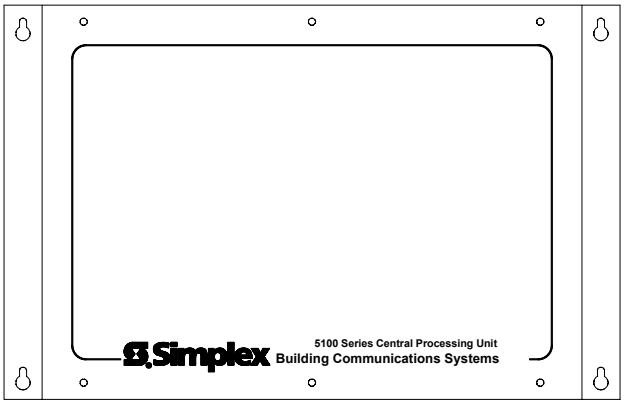
Building Communications Systems
5110-Series Controllers

Features

- Cost-effective Solid State Intercom
- Expandable to 120 Points
- Privacy and Pre-Announce Tones are User Selectable
- Telephone Paging to Multiple Paging Zones or All Call
- Enhanced Caller ID - Compatible with most Existing Phone Systems
- Customer Configured via Software
- Customized Digital Announcements
- Programmable via Phone or Windows® Based Programmer
- Direct Architectural Room Dialing
- Up to Four Administrative Telephones w/Displays
- Programmable Voice Announced Call Identification
- Call Confirmation Tones
- Dynamic PC based Administrative Tool
- Emergency All-Call Paging
- Automatic All-Call Emergency Voice ID Announcement
- 8 Programmable Class Change Tone Schedules
- Time Tone Signaling with Nine Tones Built-In
- Individual Power Amps Directly Coupled to Station Speakers
- Provisions for Three Audio Programs and a Paging Microphone
- Provisions for Integrated Master Clock
- "Off Site" Programming and Diagnostics Capability via Modem or LAN connection
- Compatible with 45 ohm (5110-900X) and/or 25 volt speakers (5110-903X)

Description

The 5110-9000 series is a high performance microprocessor controlled Building Communications System (BCS). It has been specifically designed to provide intercom functions, paging and distribution of audio programs to specific speakers, or groups of speakers, using solid state switching.



5110 BCS System

This technologically advanced design eliminates the need for cumbersome mechanical switches and the inherent electrical and mechanical problems associated with them. Solid state switching allows paging and distribution of audio programs from multiple locations equipped with Touchtone® phones eliminating the need to return to the main console, improving staff efficiency.

The basic 5110-9001 system is factory configured to provide communications ability for up to 24 locations. The system can be easily expanded to 120 stations. Stations can be assigned any 2, 3, or 4 digit number.

Any of the speaker circuits can be assigned to one or multiple paging zones for telephone paging. Zone paging can be easily initiated from any of the system's telephones by entering a two digit code on any telephone in the system. Up to 72 different paging zones may be utilized. All call paging is also available.

Operation

The 5110 has provisions for connection of up to four Administrative phones. Calls from any of the call-in stations may be routed to any Administrative phone. Any one Administrative phone may be designated to receive Emergency only calls. Each Administrative phone may have one of three priority levels assigned to it, each allowing different levels of system access.

The system's microprocessor based CPU and memory provides architectural dialing. This allows each intercom station to use its corresponding room number eliminating the need for telephone directories.

Operation, *Continued*

The system allows the use of any standard Touchtone phone as the Administrative phone. In addition, a call from the users phone system may be forwarded into the 5110 system and conferenced between 5110 Administrative phones. With the interconnection of the 5110 to the in-house phone system, Administrative phones may receive calls from the telephone network and the 5110 can transfer these calls to any phone on the 5110 system. Several styles of Administrative phones are available including cordless models. The system is also fully compatible with "CLID" (Caller Identification) telephone technology that allows the displaying of caller ID number on CLID telephones. Options such as displays, programmable multi-function buttons and speakerphones are offered in all styles.

The 5110's station speakers are directly coupled to the program and intercom amplifiers. In addition, each station circuit is equipped with its own individual amplifier with short circuit protection. This ensures system reliability since any shorted circuit will only affect the one speaker and all other speakers remain operational. Systems using one large power amplifier lose all call paging capability if any speaker line is shorted.

The system is designed to use 45-ohm speakers, 25-volt speakers, or any combination of both. Using 45-ohm speakers offers the advantage of using Cat-3 or Cat-5 wiring that is a standard in 'structured cabling' installations. Cat-3 and Cat-5 wiring accommodates future technologies and provides lower cabling costs. In addition, 45-ohm speakers eliminate conventional matching transformers with their inherent power losses and frequency limitations. 45-ohm speakers also provide a clearer and more understandable signal in the Talk-Back Mode (listening to a location through its speaker). The 25-volt application accommodates the use of twisted/shielded cables and devices.

The 5120 system may be controlled via any Windows based PC directly connected to the system or over a network. This simple to use point and click tool allows administration to easily facilitate common tasks such as distributing music, adjusting time schedules or activating emergency tones to name a few. The drop down windows provides the user an easy to follow format.

A prompting 4 x 20 character LCD backlit display (5130-9253/9254) is also available for administrative purposes. When not being used for programming the -9253 displays the time, day and date as well as the current operating master time schedules. Up to three incoming calls can be displayed as well as how many additional calls beyond three are on hold in the calling queue.

The 5110 provides the user with caller identification via the use of synthesized speech. When a call is answered, the system announces the calling location number on the receiving handset and can automatically connect the calling party. With this feature, the traditional display phone is not required.

Each 5100 CPU is provided with a voice chip providing the facility with their choice of a male or female voice for automatic announcements. In addition, four (4) minutes of spare memory is accessible for custom messaging with any desired voice, accent or language. The ability to add custom tones is also provided to meet the needs of particular facilities. As easy-to-use Windows™ Tool is provided to edit or record custom tones and phrases.

Each call switch may be programmed to ring a specific Administrative phone. During the night, these calls may be programmed to ring a different Administrative phone, and automatically return to the original phone in the morning.

A calling station may be transferred to another Administrative phone, or the attendant may set up a conference call between the station and another Administrative phone.

Each of the intercom stations may be programmed for one of seven priority levels (normal, security, normal/emergency, urgent/emergency, night, emergency only, ignore). This allows calls from specified areas to take precedence over other calls. As an example, typical classrooms might be specified normal priority, the gymnasium urgent priority, and the nurse office emergency priority. In the event the Administrative stations are handling calls, high priority calls will cause the person using the Administrative phone to hear a distinct signal, indicating a priority call is waiting. Emergency priority calls will automatically move to the top of the stack, followed by urgent priority, etc. Pending calls cannot be lost.

Any single call button can be used to signal both a normal call and emergency call. An Emergency call will be initiated when a call-in button is pushed repeatedly four times. A three-beep signal is provided over the corresponding speaker to tell the caller that the call has been upgraded from normal to emergency. In the event the emergency call is not answered via the selected Administrative phone within a definable period of time, the system can automatically transfer to an emergency sequence which turns on a user programmable group of speaker circuits and transmits the room number using synthesized voice I.D. to indicate where the emergency condition originated.

The 5110 system is equipped with an intercom amplifier that includes Automatic Gain Control (AGC). An additional intercom amplifier is supplied with each additional 24 stations.

Six definable inputs are available so the user can access a variety of system functions, including sounding emergency tones, all-clear signals, manual class change signals, All-Call paging, audio distribution, etc.

The system is capable of distributing up to three simultaneous audio programs from sources such as tuners, cassette decks, compact discs, etc. (not included). The 5110 systems also have a provision for a directly connected Low Impedance Microphone for all-call announcements, bus loading and emergency paging.

The 5110 has been designed to interface with conventional in-house phone systems without the need for costly interface modules. In most applications, the existing phone system can access the communications system via one of its trunk ports (loop start trunk ports required).

The 5110 system is equipped with nine different tones, which can be selected by the user for Class Change Tones and Emergency signaling.

The tones are:

- #1 600 Hz
- #2 650 Hz
- #3 700 Hz
- #4 1250 Hz
- #5 Hi-Low (700/440 Hz)
- #6 Warble
- #7 Chime High (1250 Hz)
- #8 Chime Low (700 Hz)
- #9 Dual Chime (1250/700 Hz)

Each 5100 system is equipped with eight auxiliary relays. These relays may be programmed to respond to various functions with the system. Unanswered emergency calls can activate a relay to operate a telephone dialer to request additional assistance. Relays may also be used for door control in conjunction with an intercom station.

The system relays can be used to control clocks requiring standard sync-wired 12-hour correction as well as 24 VDC Digital Clocks requiring 12-hour correction without the need of an additional Master Clock module. The addition of slave relays with contact ratings suited for the clocks being corrected is required. A 5130-9165 Master Clock option is required to control relays by time.

Note: 5110 system auxiliary relays cannot be programmed to ring 120VAC bells. If any electro-mechanical bells are to be included on any time tone schedules, you must order the 5130-9165 master clock option. See the description of the master clock assembly under "Optional Equipment."

Software Diagnostics

Each 5110 system is equipped with a built-in software diagnostics program which, on power up, determines if any troubles are present in the system and informs the user. Additionally, should a trouble condition occur during normal operation, the operator will be advised and LED's on the CPU board will indicate the trouble condition.

Battery Backup

Since the 5110 operates on the 5120-9174 6 Amp, 24VDC power supply, the system can remain operable when commercial power fails by using an optional uninterruptible power supply (UPS) which consists of a 5120-9175 with 5120-9172 battery set. When this option is ordered, one UPS and one battery set is required per system power supply.

Built-in 10 BaseT LAN and RS-232 Ports

Each 5110 is equipped with a LAN and RS-232 ports, which may be utilized for many functions. Both ports will allow full field programmability through any Windows® 95, 98, 2000 or NT 4.0 based computer. Using a conventional auto dial-up modem, the system may be queried for trouble conditions from a remote location and the diagnostic program may be initiated. Additionally, the system may be fully programmed from a remote location via a dedicated optional modem or LAN connection.

Optional Equipment

The **5130-9165 master clock** assembly can be directly integrated into the system for correcting Simplex and some competitive clocks and automatically controlling the eight (8) internal relays. Cycling of any one or all relays during user programmable time periods is also available. This option also provides a port for Station Message Detail Recording (SMDR). By connecting a printer to this port, a hard copy log of system call activity can be generated so the time, day, date, and length of each stations calls can be obtained and reviewed.

The **5120-9150 Graphic** PC Board provides 72 open collector outputs for driving custom graphic call annunciation panels. Each output can drive up to 28 milliamps @ 24 VDC.

The **5120-9151 Graphic I/O** PC Board provides 72 outputs for driving custom graphic call annunciation panels. Each output can drive a single LED. Each output may also monitors a switch input for direct selection of intercom stations, emergency tone activation, and time schedule control.

The **VSRCA Network board** allows the 5120 to communicate over a standard Ethernet LAN/WAN to remotely located 5100 shelves. These remote shelves can contain any of the 5120 system's feature boards. Up to 15 remote shelves may be supported

The **5130-9132 Paging Board** is used to provide 24 individual one-way page ports. These outputs can drive multiple speaker zones using self-amplified speakers or drive 25/70-volt amplifiers. These 1 VRMS outputs are specifically designed to drive these devices directly without the need of any type of impedance matching modules. A dry contact closure is also provided for each output for overriding auxiliary equipment.

The 5195-9000 Series of Digital Telephone Systems can be directly connected providing a state of the art PBX/Intercom system. The seamless integration of the 5195 and 5110 adds the high performance of a digital switch to one of the most advanced intercom communication systems available in the industry today.

Refer to individual data sheets for more details on optional equipment.

Configuration Information

The following table shows the quantity of modules provided for each different Building Communications System.

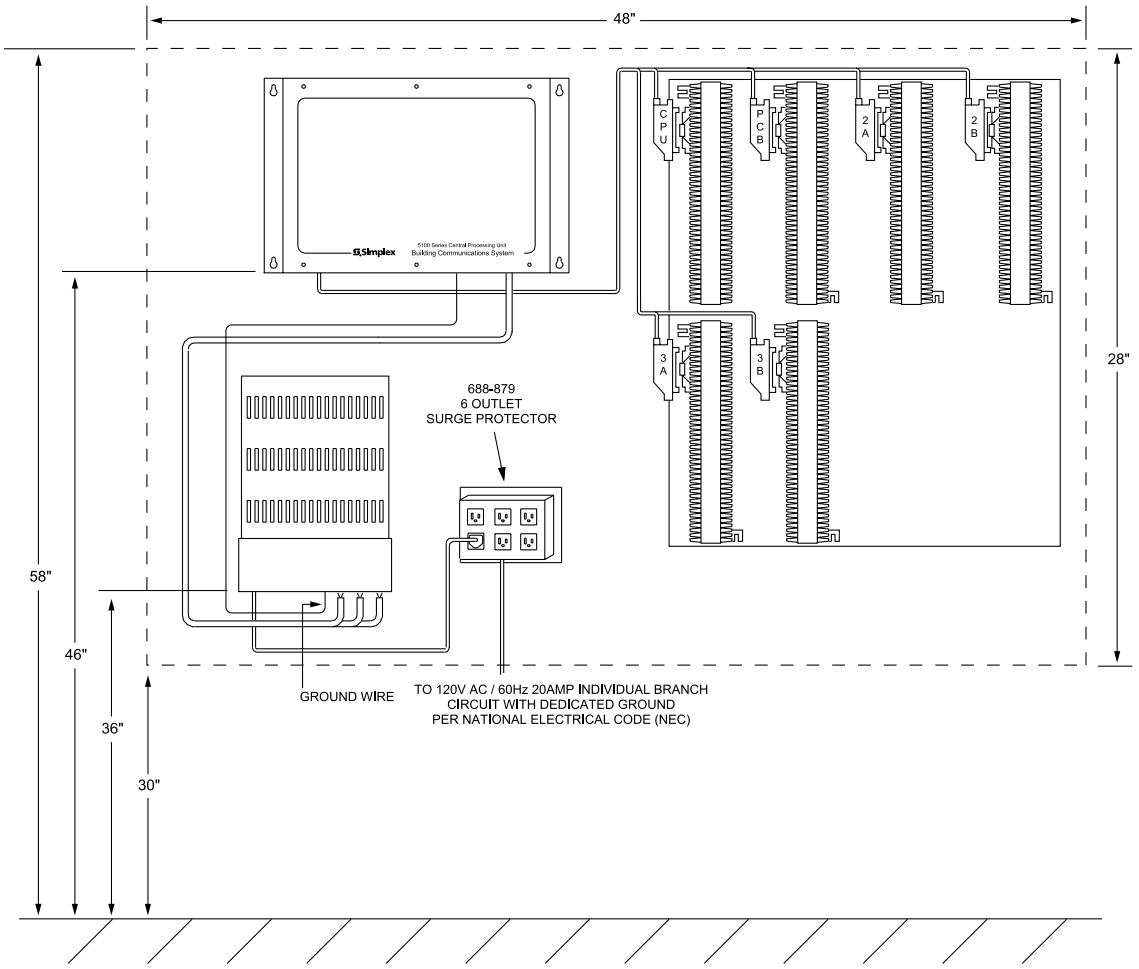
BCS Basic System Configuration	9000	9001	9031	9002
5110-9111 FOUR POSITION CARD RACK ASSY & WIRING	1	1	1	1
5130-9120 CENTRAL PROCESSOR P.C. BOARD	1	1	1	1
5130-9131 POWER CONVERTER P.C. BOARD	1	1	1	1
5130-9140 24 POINT STATION P.C. BOARD	0	1	0	2
5130-9142 12 POINT 25-VOLT STATION P.C. BOARD	0	0	2	0
5130-9165 MASTER CLOCK P.C. BOARD	1	OPT	OPT	OPT
5120-9174 VP-6124-P SIX AMP PWR SUPPLY	1	1	1	1
5120-9221 ADMINISTRATIVE TELEPHONE	1	1	1	1
5120-9903 DB15/TELCO MOD - SINGLE GANG PLATE	1	1	1	1
*5100-9920 PUNCH DOWN BLOCK	2	4	2	6
*5120-9923 SCREW TERMINAL BLOCK	0	0	2	0
*5120-9930 25 PAIR CABLE 5 FEET	2	4	4	6
5120-9914 DTK-6FX SURGE PROTECTOR	1	1	1	1
5120-9331 3 POSITION 40 PIN RIBBON CABLE	1	1	1	1
5120-9334 2 POSITION 16 PIN RIBBON CABLE	1	1	1	1
5120-9335 2 POSITION 20 PIN RIBBON CABLE	1	1	1	1
5120-9336 COMMON POWER CABLE	1	1	1	1
5120-9999 SHIPPING GROUP	1	1	1	1
5120-9338 VS407 40 PIN RIBBON CABLE	0	0	0	0

BCS Basic System Configuration	9032	9003	9033	9004
5110-9111 FOUR POSITION CARD RACK ASSY & WIRING	2	2	2	2
5130-9120 CENTRAL PROCESSOR P.C. BOARD	1	1	1	1
5130-9131 POWER CONVERTER P.C. BOARD	1	1	1	1
5130-9140 24 POINT STATION P.C. BOARD	0	3	0	4
5130-9142 12 POINT 25-VOLT STATION P.C. BOARD	4	0	6	0
5130-9165 MASTER CLOCK P.C. BOARD	OPT	OPT	OPT	OPT
5120-9174 VP-6124-P SIX AMP PWR SUPPLY	2	2	3	2
5120-9221 ADMINISTRATIVE TELEPHONE	1	1	1	1
5120-9903 DB15/TELCO MOD - SINGLE GANG PLATE	1	1	1	1
*5100-9920 PUNCH DOWN BLOCK	2	8	2	10
*5120-9923 SCREW TERMINAL BLOCK	4	0	6	0
*5120-9930 25 PAIR CABLE 5 FEET	6	8	8	10
5120-9914 DTK-6FX SURGE PROTECTOR	1	1	1	1
5120-9331 3 POSITION 40 PIN RIBBON CABLE	1	0	0	0
5120-9334 2 POSITION 16 PIN RIBBON CABLE	1	1	1	1
5120-9335 2 POSITION 20 PIN RIBBON CABLE	1	1	1	1
5120-9336 COMMON POWER CABLE	1	1	1	1
5120-9999 SHIPPING GROUP	1	1	1	1
5120-9338 VS407 40 PIN RIBBON CABLE	1	1	1	1

BCS Basic System Configuration	9005
5110-9111 FOUR POSITION CARD RACK ASSY & WIRING	2
5130-9120 CENTRAL PROCESSOR P.C. BOARD	1
5130-9131 POWER CONVERTER P.C. BOARD	1
5130-9140 24 POINT STATION P.C. BOARD	5
5130-9142 12 POINT 25-VOLT STATION P.C. BOARD	0
5130-9165 MASTER CLOCK P.C. BOARD	OPT
5120-9174 VP-6124-P SIX AMP PWR SUPPLY	2
5120-9221 ADMINISTRATIVE TELEPHONE	1
5120-9903 DB15/TELCO MOD - SINGLE GANG PLATE	1
*5100-9920 PUNCH DOWN BLOCK	12
*5120-9923 SCREW TERMINAL BLOCK	0
*5120-9930 25 PAIR CABLE 5 FEET	12
5120-9914 DTK-6FX SURGE PROTECTOR	1
5120-9331 3 POSITION 40 PIN RIBBON CABLE	0
5120-9334 2 POSITION 16 PIN RIBBON CABLE	1
5120-9335 2 POSITION 20 PIN RIBBON CABLE	1
5120-9336 COMMON POWER CABLE	1
5120-9999 SHIPPING GROUP	1
5120-9338 VS407 40 PIN RIBBON CABLE	1

* Items not included in main system configuration. Items provided with system installation kits.

5110-9000, -9001, -9031, -9002 BCS System (Typical)

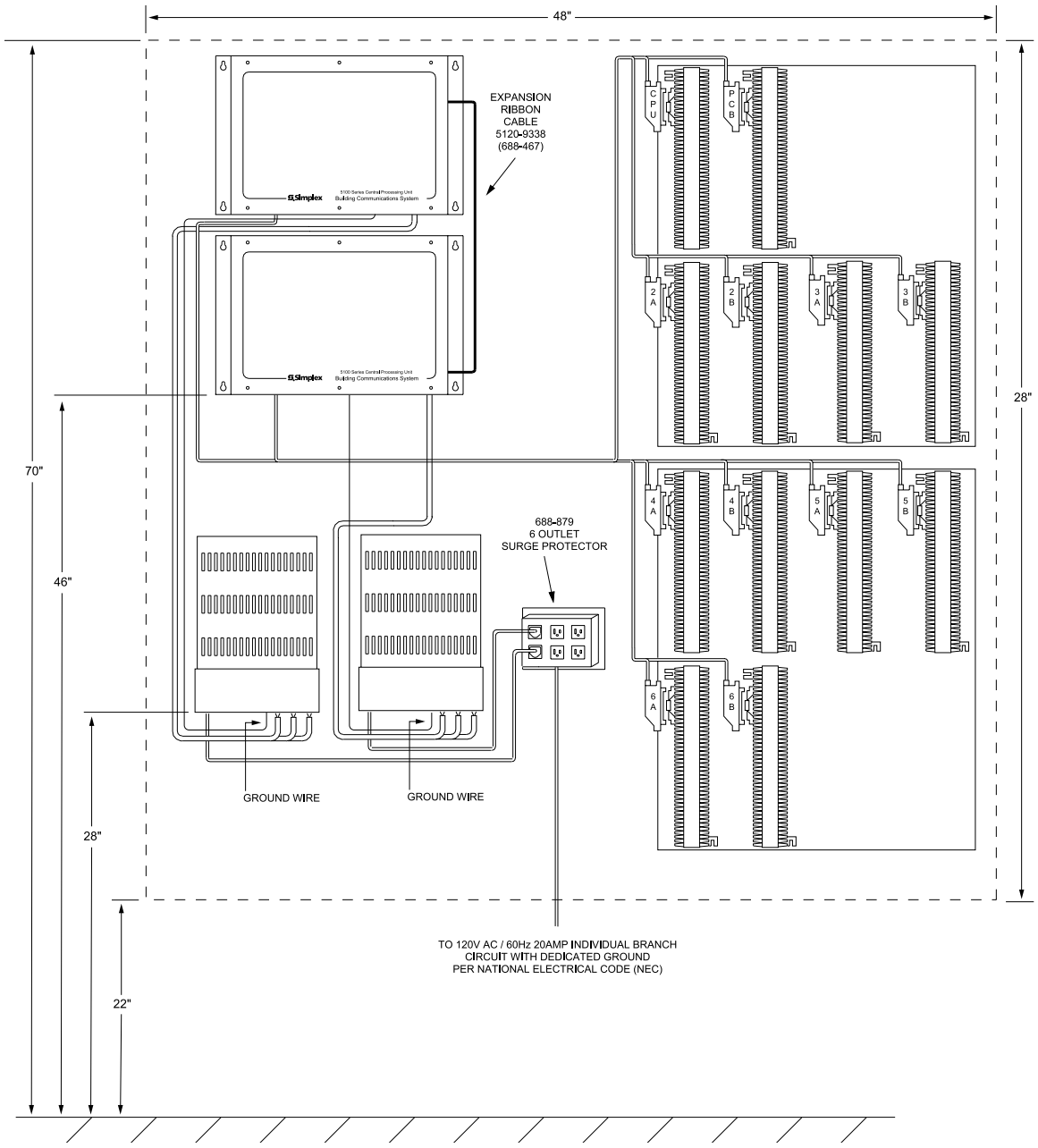


Note: Drawing is intended to denote mounting heights only. Equipment dimensions are not to scale.

Notes: The following guidelines should be used when installing a 5110-Series system.

1. 5110 system single-connector blocks or 5120-9923 terminal blocks may be mounted on an optional 5120-9924 Pre-Drilled Back Board.
2. 25-Pair Cables Supplied Length: 5 feet.
3. 5120-9914 Surge Suppressor Supplied.
4. Supplied by Electrical Contractor to be installed on wall near power supply assemblies. Connect to a 120VAC, 60Hz, 20 Amp breaker with a dedicated and isolated Earth Ground per NEC.
5. Connect to an approved building grounding electrode system using #10 AWG wire or larger per NEC.
6. Fire retardant coated 3/4" plywood wall backing sheet(s) cut to appropriate size (supplied by electrical contractor).
7. The expansion ribbon cable should be installed so that it is not subject to any physical damage or stress. Excess cable should be dressed within the 5110 cabinet as much as possible. External high voltage (AC Power, etc.), with the exception of system 120VAC, should be kept at least four (4) feet from the expansion ribbon cable.
8. 5110 Controller dimensions: 10-3/8"H x 16-3/16"W x 8-1/4"D

5110-9032, -9033, -9003, -9004, -9005 BCS (Expanded) System



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