

SECTION 4

PROGRAM LOGIC



SECURE-TECH

DETENTION ELECTRONIC SYSTEMS

ETECH CONTROLS CORPORATION - MANUFACTURER
4051 ALVIS COURT #3, ROCKLIN, CALIFORNIA, USA 95677
TEL (916) 630-1300 • FAX (916) 630-1100 • FREE (800) 800-2523

LOC-PRO SERIES

SYSTEM CONTROLLER ASSEMBLIES

FEATURES:

- **NEC 725 COMPLIANT** - FACTORY TESTED
- HC-0682 SYSTEM CONTROLLER
- HC-0714 32 INPUT
- HC-0715 32 OUTPUT
- HC-0826 INTERCOM AMPLIFIER
- HC-0845 PLC 16 STATION INTERCOM SELECTOR
- HC-0802 8 DOOR RED OR GREEN MONITOR
- HC-0803 8 FUSED 10 AMP RELAYS
- ALL PLUG CONNECTION (EXCEPT POWER)
- OPTO-ISOLATED (7500V) INPUTS
- FUSED 12VDC POWER SUPPLY
- NEMA RATED ENCLOSURE
- 2 YEAR WARRANTY



FUNCTIONAL DESCRIPTION:

Factory assembled and tested System Controller Assemblies are **NEC 725 compliant**, and are designed for use with a separate custom control panel, or touchscreen computer, that communicates via RS-485. See the Operator Interface section for available options.

A single HC-0682 System Controller is the heart of any custom configured system, with its Input / Output capabilities extended as required by adding slave HC-0682 modules, and / or HC-0701 Remote Panel Controllers.

Field end-of-line device inputs; for door monitoring, duress annunciation, etc.; are opto-isolated, and converted to ribbon cable to mate with HC-0714 32 Input modules, by connecting the field wire / cable to HC-0802 modules.

Field end-of-line devices are controlled via the fused dry contact relay outputs provided on HC-0803 modules. HC-0715 32 Output modules drive the HC-0803 modules.

Multi-level systems may be configured with up to 320 local inputs and 320 local outputs per HC-0682 module, may include HC-0701 modules (128 inputs / 128 outputs) on the same RS-485 channel, and may contain up to fourteen microprocessors (HC-0682 and / or HC-0701 modules) on a single HC-0682 master RS-485 channel.

See the foldout example HC-0682 and HC-0701 system hook-up diagram for a visual concept of configuration possibilities.

All assemblies are custom designed to meet the application, and are available in whatever equipment control / monitor capacity is required.

INSTALLATION:

Wall or floor mount (as sized for the application) the Nema rated enclosure(s), and connect fifteen amp circuits of 120vac 60hz single phase power, as required for the control circuitry load. Connect separate 120vac 60hz single phase power circuits and / or low voltage power supply circuits, as required to serve the controlled equipment loads. Low voltage controlled equipment power supplies (24 vac / vdc), where required, are not included.

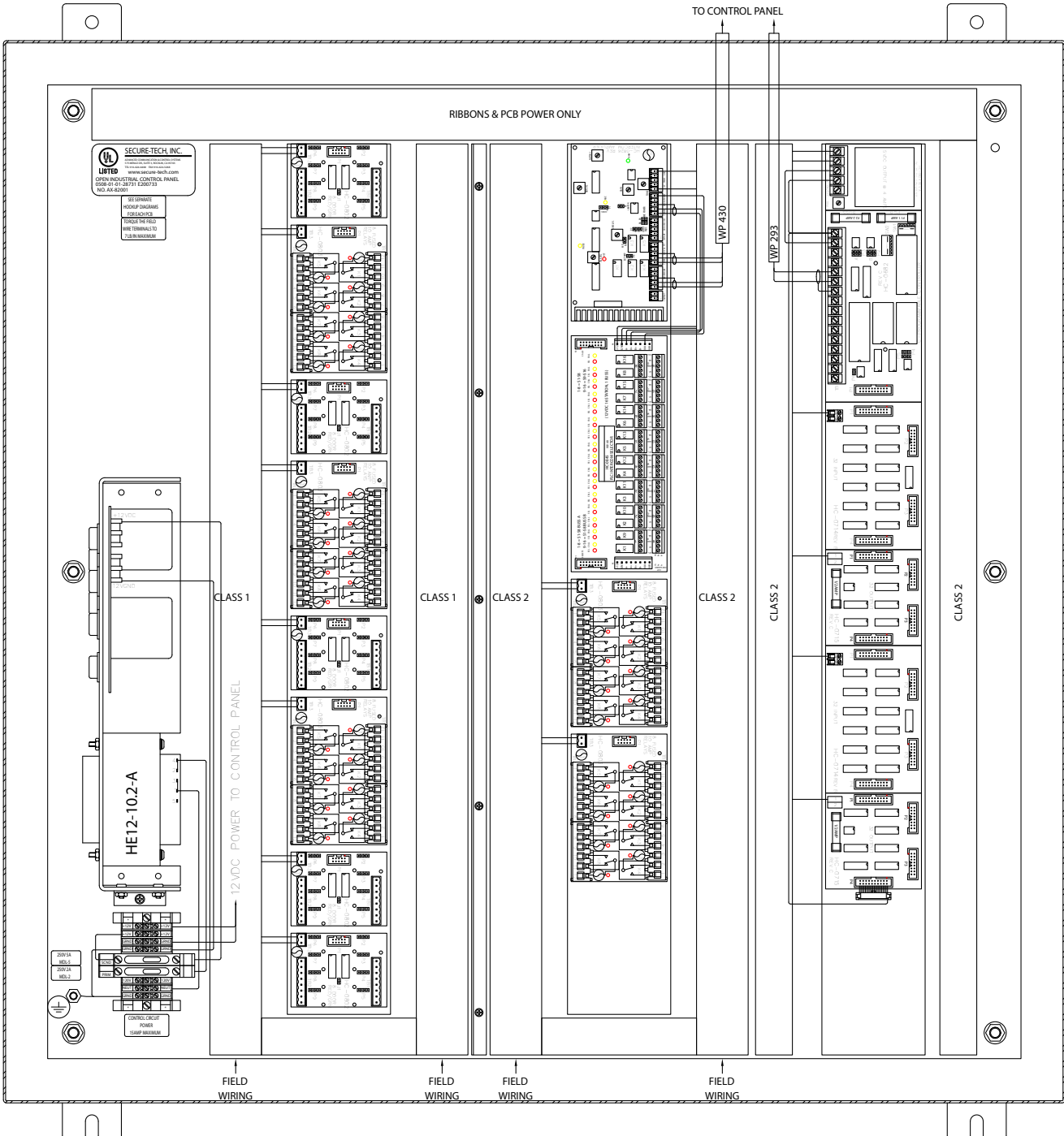
Remote RS-485 communicating control panels, or touchscreen computer terminals, are factory tested and guaranteed to function properly **only when manufactured by Secure-Tech**. RS-485 data communication is via twisted pair shielded cable connection, between all I / O equipment enclosures and control panel I / O points.

Field end-of-line device wires / cables are connected to either Phoenix type compression screw terminal plug connectors, provided on the control / monitor I / O modules, or to the Molex type insertion tool plug connectors provided on some models of the HC-0845 PLC 16 Station Intercom Selectors modules.

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LOC-PRO SERIES SYSTEM CONTROLLER ASSEMBLIES

HOOK-UP DIAGRAM



UL508 assembly shown, NEC requirements differ



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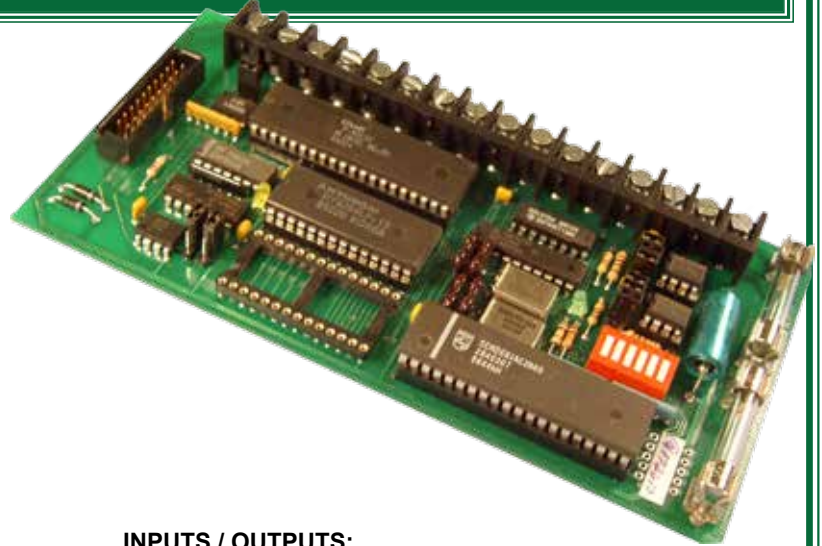
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MODEL
HC-0682

SYSTEM CONTROLLER

FEATURES:

- MASTER OR SLAVE OPERATION
- 2 RS-485 CHANNELS AT 19,200 BAUD
- 640 LOCAL INPUTS AND OUTPUTS
- 8,960 REMOTE I/O MAXIMUM
- FAILSAFE OPERATION
- FACTORY PROGRAMMING ONLY
- YELLOW AND GREEN STATUS LEDs
- 3.25" SNAP TRACK MOUNT
- 2 YEAR WARRANTY



FUNCTIONAL DESCRIPTION:

An HC-0682 System Controller master can communicate via two RS-485 channels with up to fourteen HC-0682 slave modules and / or HC-0701 Remote Panel Controllers, and a host PC.

One yellow LED and one green LED is provided to indicate multiple operational status conditions. A flashing green LED and an off yellow LED indicates normal operation. All other indication combinations identify various possible errors.

See the foldout example HC-0682 and HC-0701 system hook-up diagram for a visual concept of configuration possibilities.

SIZE:

3.25" W x 6.50" L x 0.55" D
82.6mm W x 165.1mm L x 14mm D

POWER:

5 VDC, 500ma, 1 amp PCB fuse, 2 amp buss fuse

INPUTS / OUTPUTS:

Two RS-485 channels are provided and are connected to saddle clamp type screw terminal strips sized for 22 to 12 AWG stranded conductors. The local I/O is connected via a 20-pin male header plug. The mating female ribbon type plug is provided.

A local 320 inputs and 320 outputs may be connected to each HC-0682 module via HC-0714 32 Input and HC-0715 32 Output modules, which are in turn connected to end-of-line device input modules (HC-0802), end-of-line device output modules (HC-0803), or to HC-0845/HC PLC 16 Station or shared HC-0846 PLC 8 Station Intercom Selectors.

Communication with the control panel is with the 128 In/128 Out Module HC-0701 .

A second path of communications is an RS-485 serial circuit utilizing addressable HC-0850 48 Output and HC-0851 48 Input also using end-of-line device input modules (HC-0802), end-of-line device output modules (HC-0803), or to HC-0845/HC PLC 16 Station or shared HC-0846 PLC 8 Station Intercom Selectors.

A third mode of communications is an RS-485 serial circuit utilizing addressable HC-0855 8In/4Out and HC-0856 48 Input I/O with intercom. (Typical - Nurse Call or holding cell).

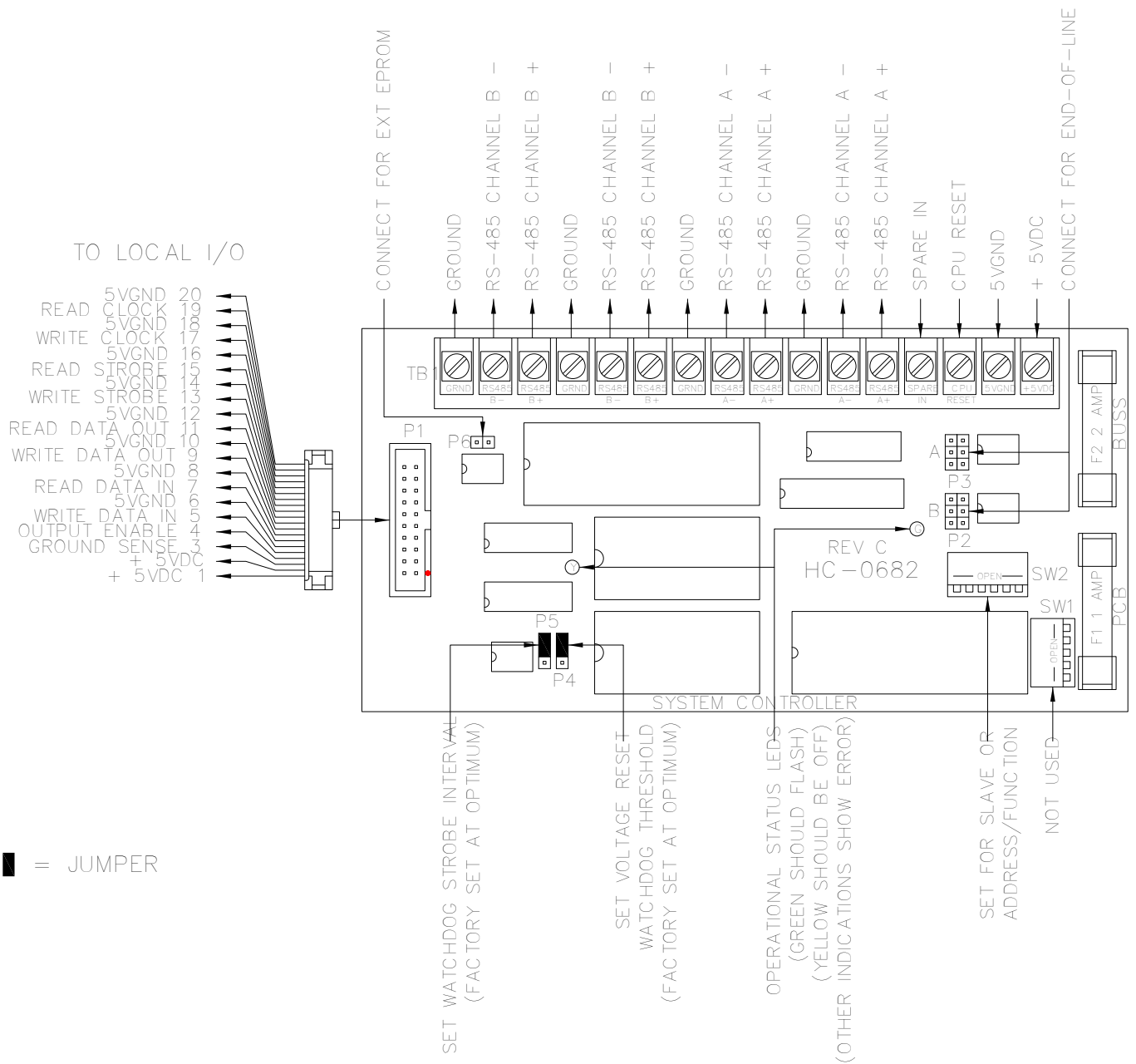
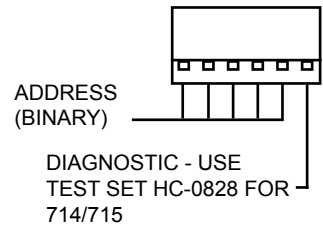
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MODEL

HC-0682

SYSTEM CONTROLLER

HOOK-UP DIAGRAM



■ = JUMPER



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MODELS
HC-0714
HC-0715

32 INPUT / 32 OUTPUT

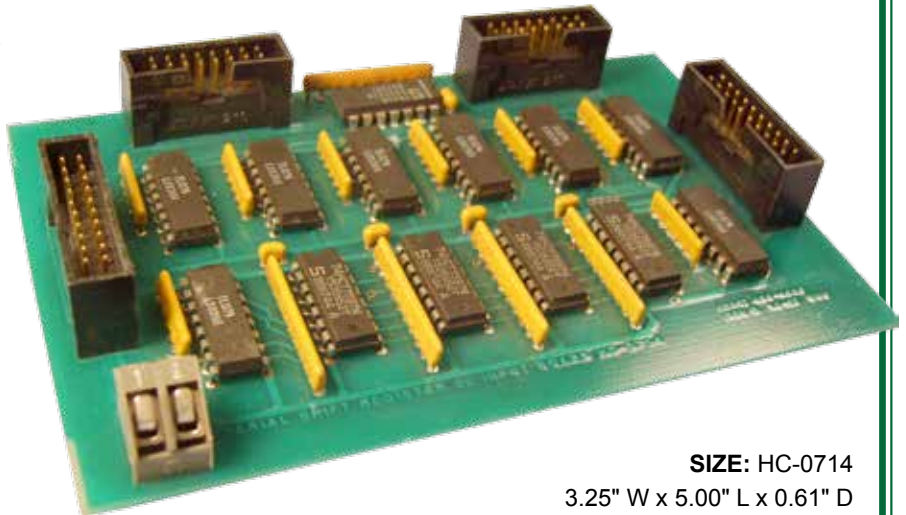
FEATURES: INPUT

- 32 OPTO-ISOLATED (7500V) INPUTS
- INTERFACES WITH HC-0682
- 3.25" SNAP TRACK MOUNT

FEATURES: OUTPUT

- 32 OUTPUTS
- FUSE PROTECTED 5 VDC CIRCUIT
- INTERFACES WITH HC-0682
- 3.25" SNAP TRACK MOUNT

-
- 2 YEAR WARRANTY



SIZE: HC-0714

3.25" W x 5.00" L x 0.61" D

82.6mm W x 127mm L x 15.5mm D

FUNCTIONAL DESCRIPTION:

The HC-0714 provides a communications interface for thirty-two inputs into the HC-0682 System Controller. The HC-0715 provides a communications interface for thirty-two outputs from the HC-0682 System Controller.

End-of-line device field inputs are typically from HC-0802 (DPS/LPS) or HC-0845/46 modules (IC call-in), or other pushbuttons (panic, etc).

End-of-line device field outputs are typically connected to HC-0803, HC-0724 or HC-0845/46 relay modules or any individual relay or assembly.

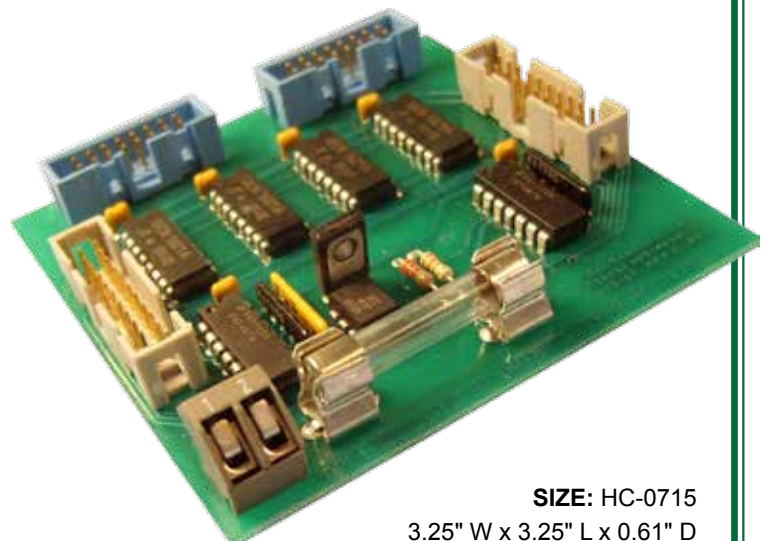
INPUTS / OUTPUTS:

Thirty-two inputs/outputs are connected via two 16-pin male headers. The passed-through communication buss, from the HC-0682 System Controller, is connected via two 20-pin male headers. The mating female ribbon plugs are provided. Inputs are 5 - 24 VDC @ 5ma.

POWER:

5 VDC, 75ma

5 - 24 VDC, 160ma



SIZE: HC-0715

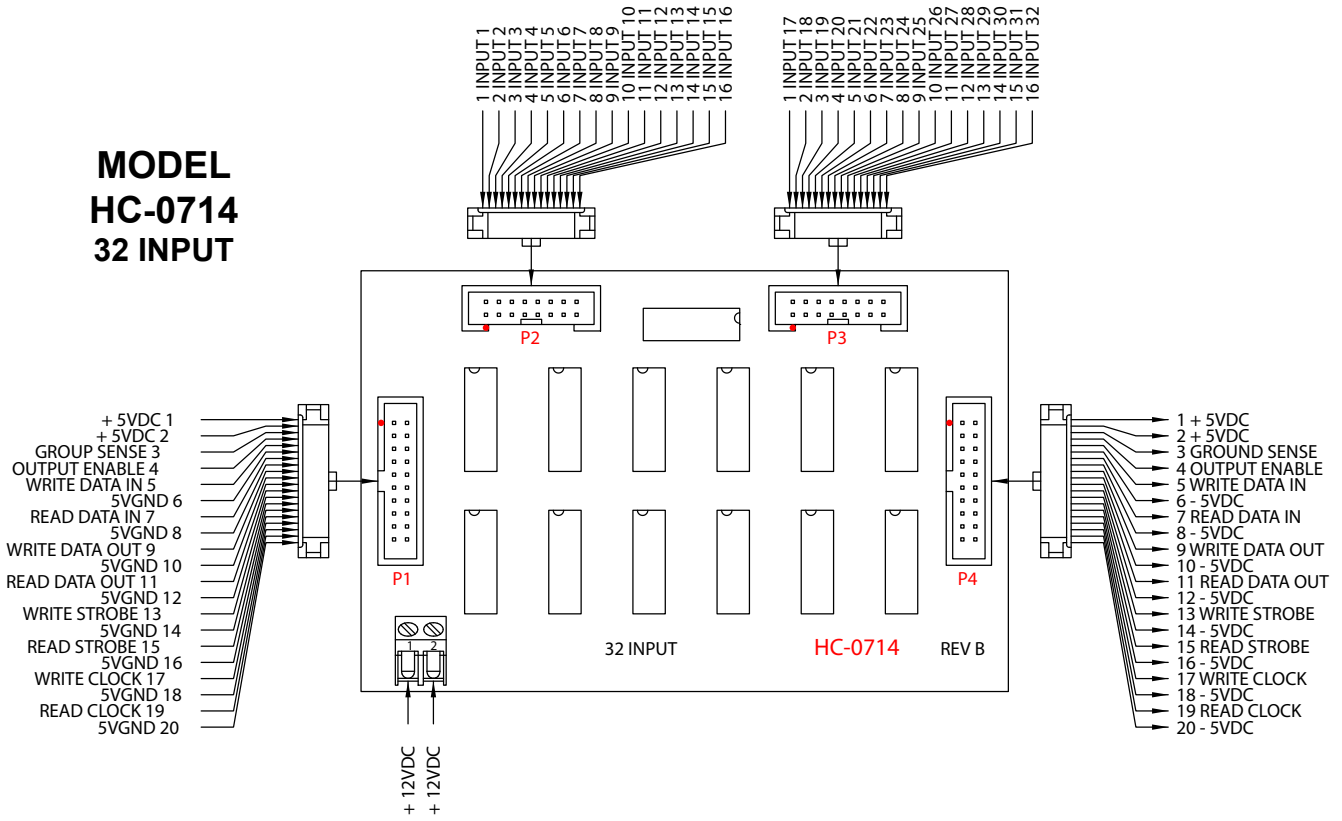
3.25" W x 3.25" L x 0.61" D

82.6mm W x 82.6mm L x 15.5mm D

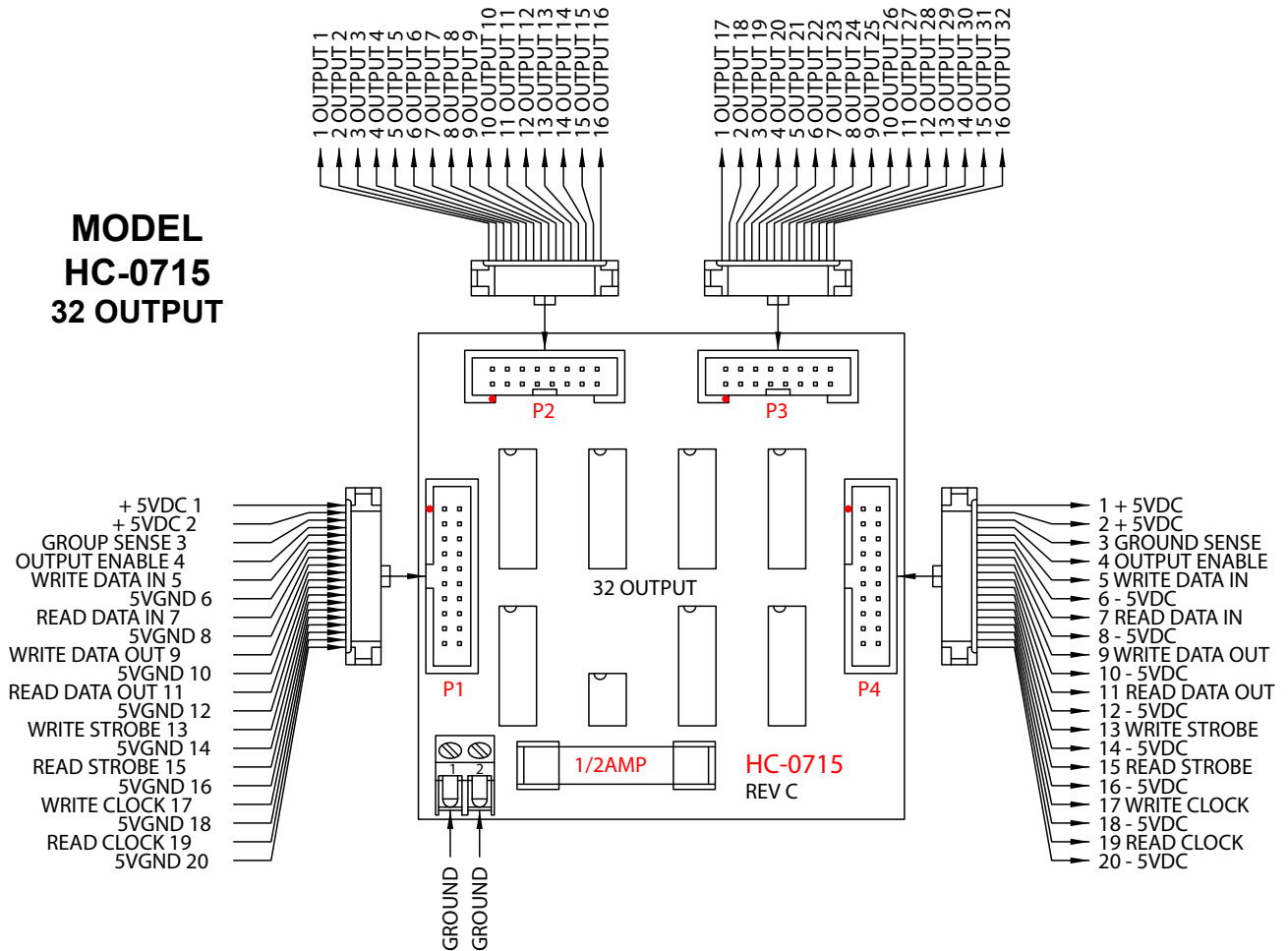
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HOOK-UP DIAGRAMS

MODEL HC-0714 32 INPUT



MODEL HC-0715 32 OUTPUT





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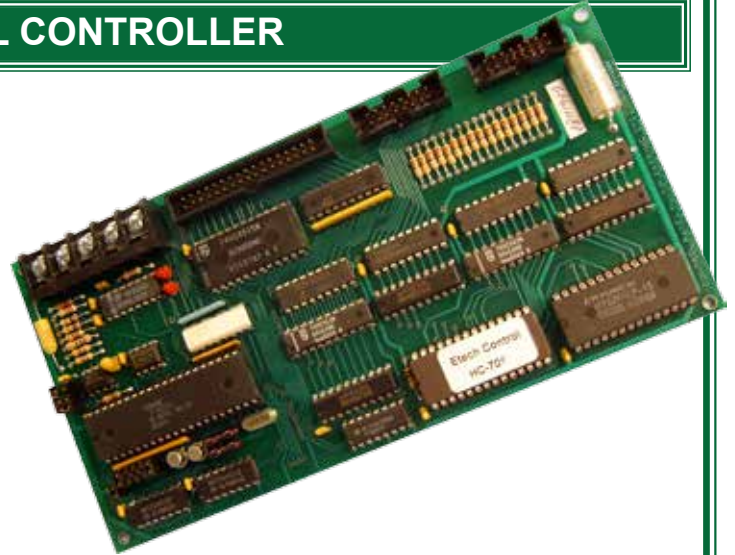
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MODEL
HC-0701

REMOTE PANEL CONTROLLER

FEATURES:

- 128 SWITCH INPUTS
- LAMP TEST INPUT
- CPU RESET INPUT
- 128 LED OUTPUTS
- SONALERT OUTPUT
- SWITCH FEEDBACK AUDIO BLIP TONE OUTPUT
- RS-485 COMMUNICATION AT 19,200 BAUD
- EXTREMELY LOW COST PER I/O
- DIAGNOSTIC MODE
- 2 YEAR WARRANTY



FUNCTIONAL DESCRIPTION:

The HC-0701 communicates with an HC-0682 System Controller, or a Personal Computer, via a single twisted pair shielded RS-485 data cable. Multiple HC-0701 modules may be used on control panels with greater than 128 I/O.

Substantial reductions in connecting wire and conduit size requirements are obtained by using the HC-0701 Remote Panel Controller.

An output is provided to activate an audio blip tone for switch activation feedback on membrane type control panels.

A diagnostic mode is provided that activates each output when it's corresponding input is activated (ie input 1 = output 1, etc.). The RS-485 communication connection must be removed during diagnostic mode operations. Two red status LEDs are provided that indicate a hardware error whenever either is lit.

Jumper pins are provided to set the board for end-of-line connection. The factory default is set to end-of-line by jumpering all pins. Jumper pins are also provided to set the board's binary address to correspond with it's master HC-0682 controller or host PC. The factory default address is set to one.

INPUTS / OUTPUTS:

Control panel input and output wiring connects to one 34-pin and two 16-pin male headers. The mating female ribbon type plugs are provided. Communication and power wiring connects to a saddle clamp type screw terminal strip, sized for 22 to 12 gauge stranded conductors.

The HC-0701 is intended to mount on four threaded stand-offs on the backside of the control panel, with the I/O ribbons converted to individual wire connections via either four HC-0731 16 Point Adapters or two 25 pair telephone type cable connectors. Allow enough clear space on the panel for the modules to be mounted and connected. When there is insufficient clear space available on the backside of the control panel to mount the modules, they may be mounted on a backpanel that must be located immediately underneath the control panel.

SIZE:

3.75" W x 7.50" L x 0.63" D
92.3mm W x 190.5mm L x 15.9mm D

POWER:

5 VDC, 700ma

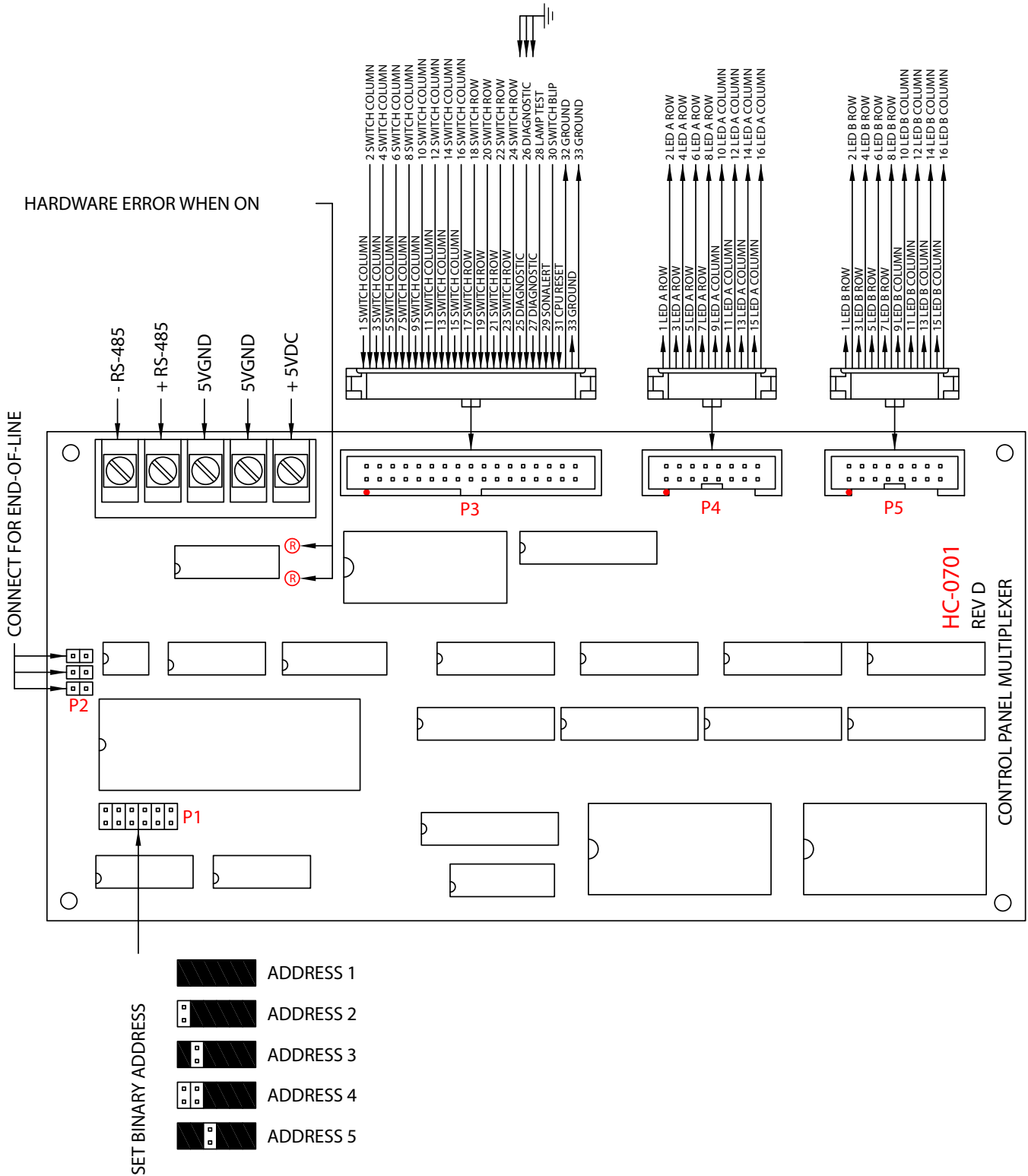
PLEASE NOTE: LED supervision boards, HC-0804 and HC-0806, may **NOT** be used in combination with the HC-0701 Remote Panel Controller.

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MODEL HC-0701 REMOTE PANEL CONTROLLER

HOOK-UP DIAGRAM

DISCONNECT RS-485 PRIOR TO DIAGNOSTICS





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**MODEL
HC-0845**

PLC 16 STATION INTERCOM SELECTOR

FEATURES:

- 8 OR 16 PLC CONTROLLED STATIONS
- 16 SELECT STATUS RED LEDs
- 16 CALL-IN STATUS YELLOW LEDs
- 1 OR 2 AUDIO BUSESSES
- SHARED, SINGLE OR DUAL MASTERS
- 12 OR 24 VDC OPERATION
- CCTV CALL-UP UP ON CALL-IN OR SELECT
- IN-USE BUSS
- ALL PLUG CONNECTIONS
- 3.25" SNAP TRACK MOUNT
- 2 YEAR WARRANTY

FUNCTIONAL DESCRIPTION:

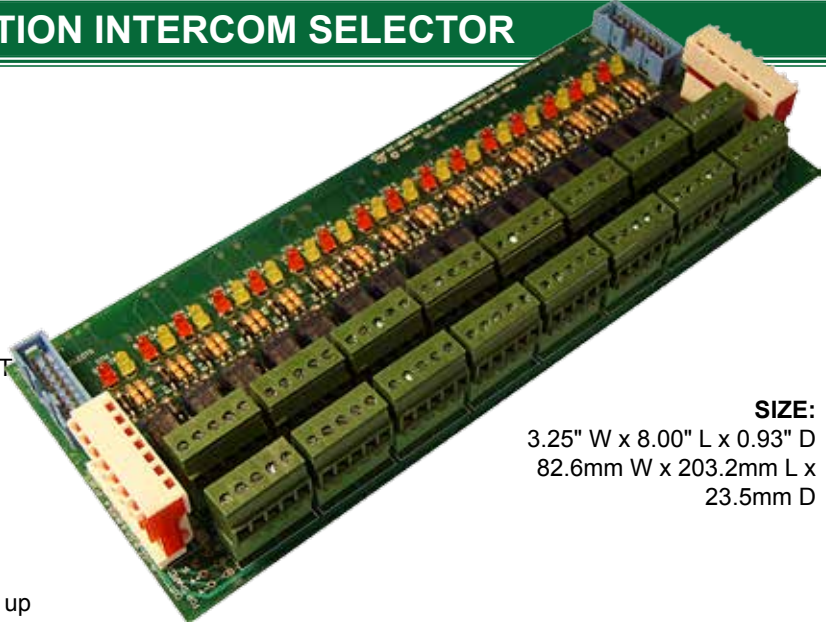
The HC-0845 provides the inputs and outputs for up sixteen intercom stations or paging zones, for operation by a programmable logic controller. It interfaces with all major manufacturers' PLCs (sinking modules) and the SECURE-TECH HC-0682 System Controller.

The ability to configure this product to be used in many different applications makes it very versatile. A single master can control sixteen audio channels. Two separate masters can share eight channels. Or, two masters can separately control eight channels each. Both 12 and 24 VDC operating voltages are offered. Molex type insertion tool terminating plugs are more cost effective and Phoenix type compression screw terminal plugs accept a range of conductor sizes. Both are offered.

Each audio channel provides a red Select status LED and a yellow Call-in status LED. An In-use buss is provided. A PLC operated Select point, on the field wiring terminal plug, can be used to interface with a CCTV switcher to provide a picture call-up upon Select. This same point can also be configured to add the momentary Call-in signal as well for CCTV call-up upon Call-in. Add (-C) to the model number for this function.

INPUTS / OUTPUTS:

Sixteen Call-in inputs and sixteen relay outputs are provided. Relay DPDT contacts are UL/CSA rated for 125 VAC @ 0.5 amp and 30 VDC @ 2 amps. The control I/O is connected via two 16-pin male ribbon headers. The mating female ribbon plugs are provided.



SIZE:

3.25" W x 8.00" L x 0.93" D
82.6mm W x 203.2mm L x
23.5mm D

POWER:

12 VDC or 24 VDC, 500ma

MODELS:

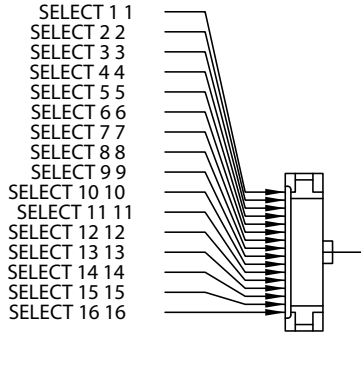
HC-0845-8-SH-12-M
8 stations, shared masters, 12 VDC, Molex
HC-0845-8-SH-24-M
8 stations, shared masters, 24 VDC, Molex
HC-0845-8-SH-12-P
8 stations, shared masters, 12 VDC, Phoenix
HC-0845-8-SH-24-P
8 stations, shared masters, 24 VDC, Phoenix
HC-0845-16-SI-12-M
16 stations, single master, 12 VDC, Molex
HC-0845-16-SI-24-M
16 stations, single master, 24 VDC, Molex
HC-0845-16-SI-12-P
16 stations, single master, 12 VDC, Phoenix
HC-0845-16-SI-24-P
16 stations, single master, 24 VDC, Phoenix
HC-0845-16-DU-12-M
16 stations, dual 8 station masters, 12 VDC, Molex
HC-0845-16-DU-24-M
16 stations, dual 8 station masters, 24 VDC, Molex
HC-0845-16-DU-12-P
16 stations, dual 8 station masters, 12 VDC, Phoenix
HC-0845-16-DU-24-P
16 stations, dual 8 station masters, 24 VDC, Phoenix

MODEL

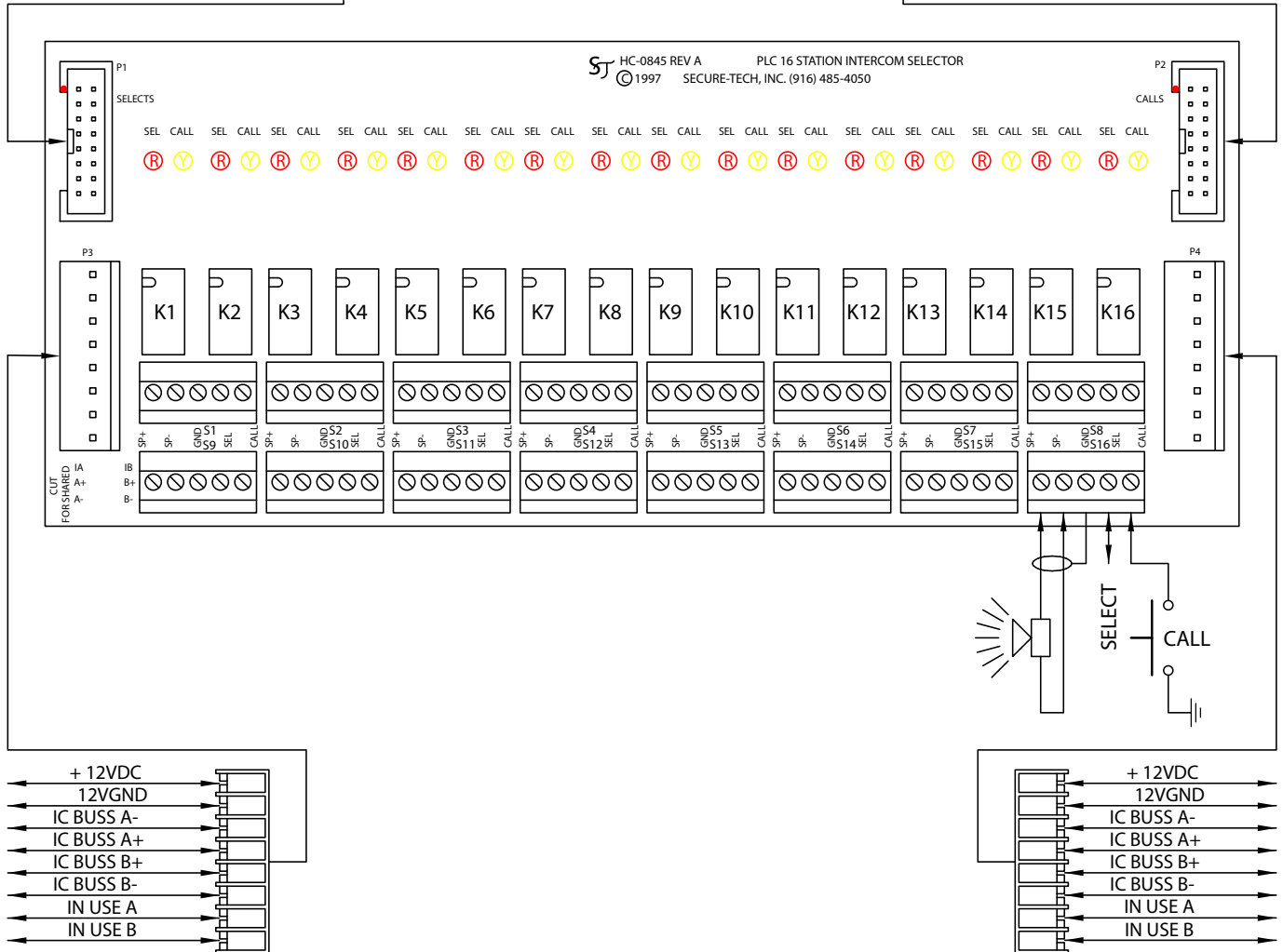
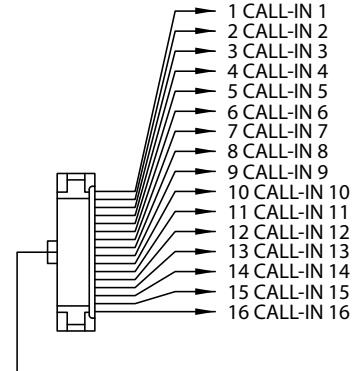
HC-0845 PLC 16 STATION INTERCOM SELECTOR

HOOK-UP DIAGRAM ALL CONTROL FUNCTIONS ARE SINKING

FROM OUTPUT MODULE



TO INPUT MODULE





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MODEL
HC-0846

PLC 8 STATION INTERCOM SELECTOR

FEATURES:

- 8 PLC CONTROLLED STATIONS
- 16 SELECT STATUS RED LEDs
- 16 CALL-IN STATUS YELLOW LEDs
- 2 AUDIO BUSSES
- ACCEPTS HC-0654 SOUND ALARM
- SINGLE OR DUAL MASTERS
- 12 OR 24 VDC OPERATION
- 2 IN-USE BUSSES
- ALL PLUG CONNECTIONS
- 3.25" SNAP TRACK MOUNT
- 2 YEAR WARRANTY

FUNCTIONAL DESCRIPTION:

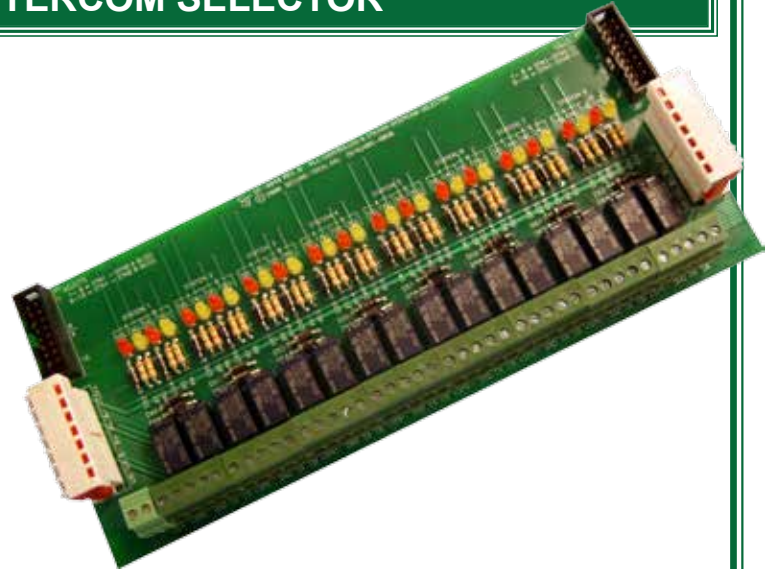
The HC-0846 provides the inputs and outputs for up eight intercom stations or paging zones, for operation by a programmable logic controller, with access to two different audio buses. It interfaces with all major manufacturers' PLCs and the HC-0682 System Controller.

The ability to configure this product to be used in many different applications makes it very versatile. A single master can control eight audio channels, and select them individually to two different audio buses, i.e. intercom or music background. Or, two separate masters can share eight channels. Molex type insertion tool terminating plugs are more cost effective and Phoenix type compression screw terminal plugs accept a range of conductor sizes. The HC-0654 Sound Alarm daughterboard can be plugged directly onto the HC-0846 when the field connectors are Molex type.

Each audio channel provides a red Select status LED and a yellow Call-in status LED. Two In-use buses are provided. Call-in "B" is the normal field input point. Use call-in "A" when the HC-0654 Sound Alarm daughterboard is used. The Sound Alarm uses the call-in "B" input point. Or, two separate call-in buttons may be used per audio channel.

INPUTS / OUTPUTS:

Sixteen Call-in inputs and sixteen relay outputs are provided. Relay DPDT contacts are UL/CSA rated for 125 VAC @ 0.5 amp and 30 VDC @ 2 amps. The control I/O is connected via two 16-pin male ribbon headers. The mating female ribbon plugs are provided.



SIZE:

3.25" W x 7.75" L x 0.93" D
82.6mm W x 196.9mm L x 23.5mm D

POWER:

12 VDC or 24 VDC, 500ma

MODELS:

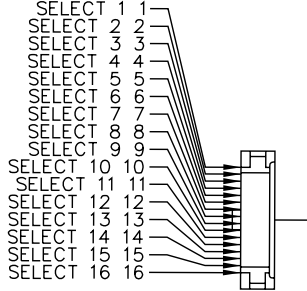
HC-0846-12-M	12 VDC, Molex (motherboard)
HC-0846-24-M	24 VDC, Molex (motherboard)
HC-0846-12-P	12 VDC, Phoenix (no sound alarm)
HC-0846-24-P	24 VDC, Phoenix (no sound alarm)

Note: There are other variations of this product available, with 90° angle Molex connectors, that plug onto an HC-0723 Intercom Exchange motherboard (not in catalog) to accommodate special applications like separate day and night sound alarms; additional masters; and duress alarm auto-selection to listen mode with CCTV picture call-up, all with high density space savings. Call the factory for special applications assistance.

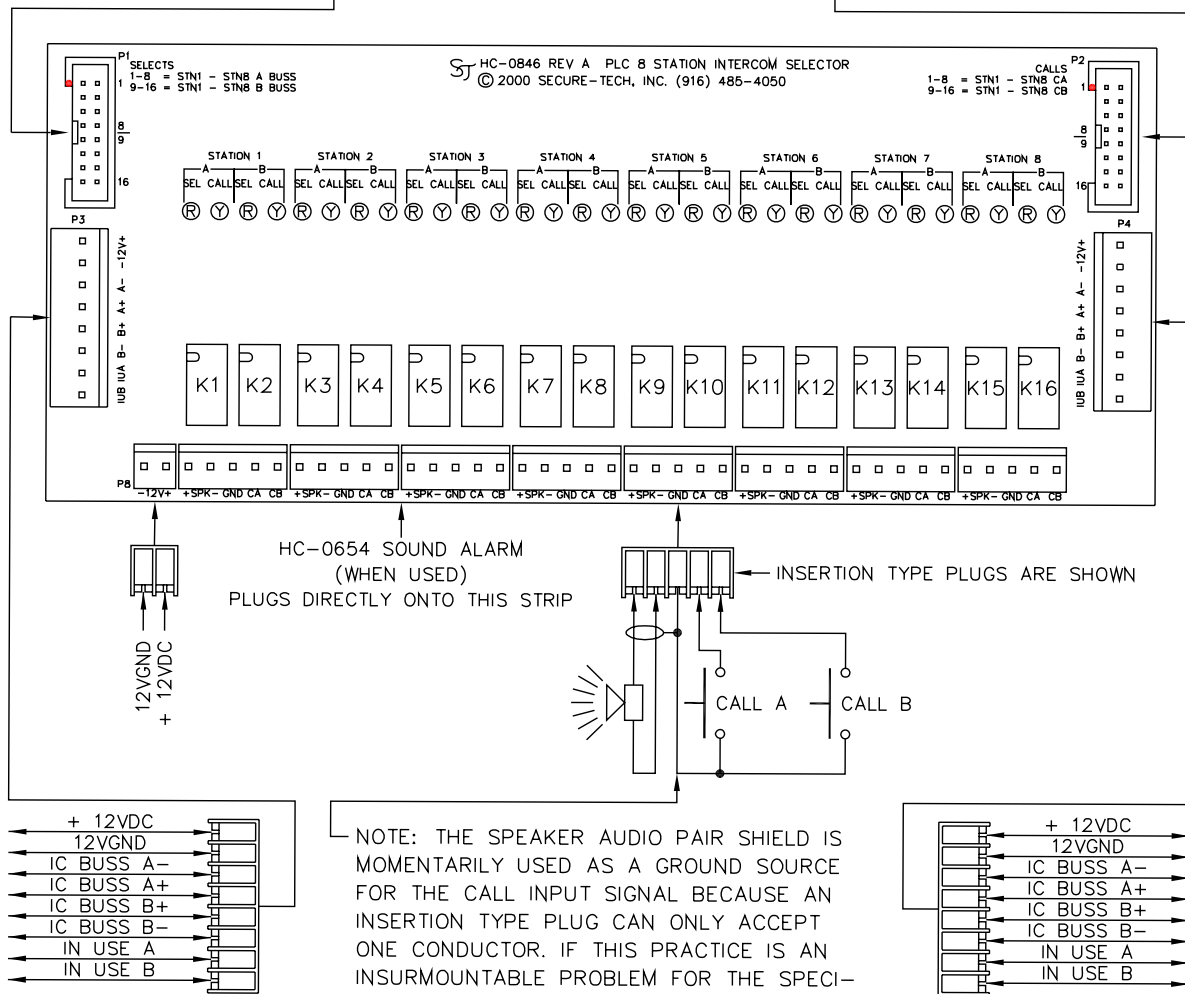
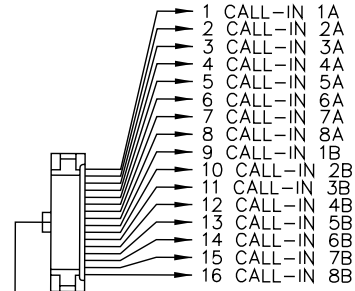
MODEL HC-0846 PLC 8 STATION INTERCOM SELECTOR

HOOK-UP DIAGRAM ALL CONTROL FUNCTIONS ARE SINKING

FROM OUTPUT MODULE



TO INPUT MODULE





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**MODEL
HC-0821**

20 X 20 CONTROLLER

FEATURES:

- 20 OPTO-ISOLATED (7500V) INPUTS
- 20 OUTPUTS
- CUSTOM PROGRAM SOFTWARE
- ALL PLUG CONNECTION
- 3.25" SNAP TRACK MOUNT
- 2 YEAR WARRANTY

FUNCTIONAL DESCRIPTION:

The HC-0821 is a programmable logic microcontroller. Any I/O logic functions your project requires can be performed by this unit. Four dipswitches and four LEDs are fully programmable, along with all of the input and output points. A separate green module status LED is also provided.

Our programmers will write a custom software program to perform the exact logic functions required for your application. The product is also C-programmable by the user. A 2kb EEPROM is provided for additional program function capabilities. Software programs with multiple application functions can be loaded and then chosen by dipswitch or other input selection. The program functionality possibilities are too vast to list here. Please call for further information.

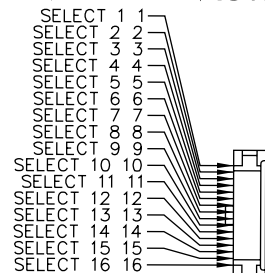
INPUTS / OUTPUTS:

Twenty opto-isolated (7500 volts) ground inputs and twenty sinking outputs are provided. The outputs can sink from 5 to 24 VDC at 50ma. The inputs and outputs are connected to Phoenix type compression screw terminal plugs, sized for 22 to 12 AWG stranded conductors. A 40-pin male header is also provided for ribbon cable connection. The mating female ribbon plug is provided.

The PCB operating power and field power sources may be separated to provide better opto-isolation.



FROM OUTPUT MODULE



SIZE:

3.25" W x 5.00" L x 1.24" D
82.6mm W x 127mm L x 31.5mm D

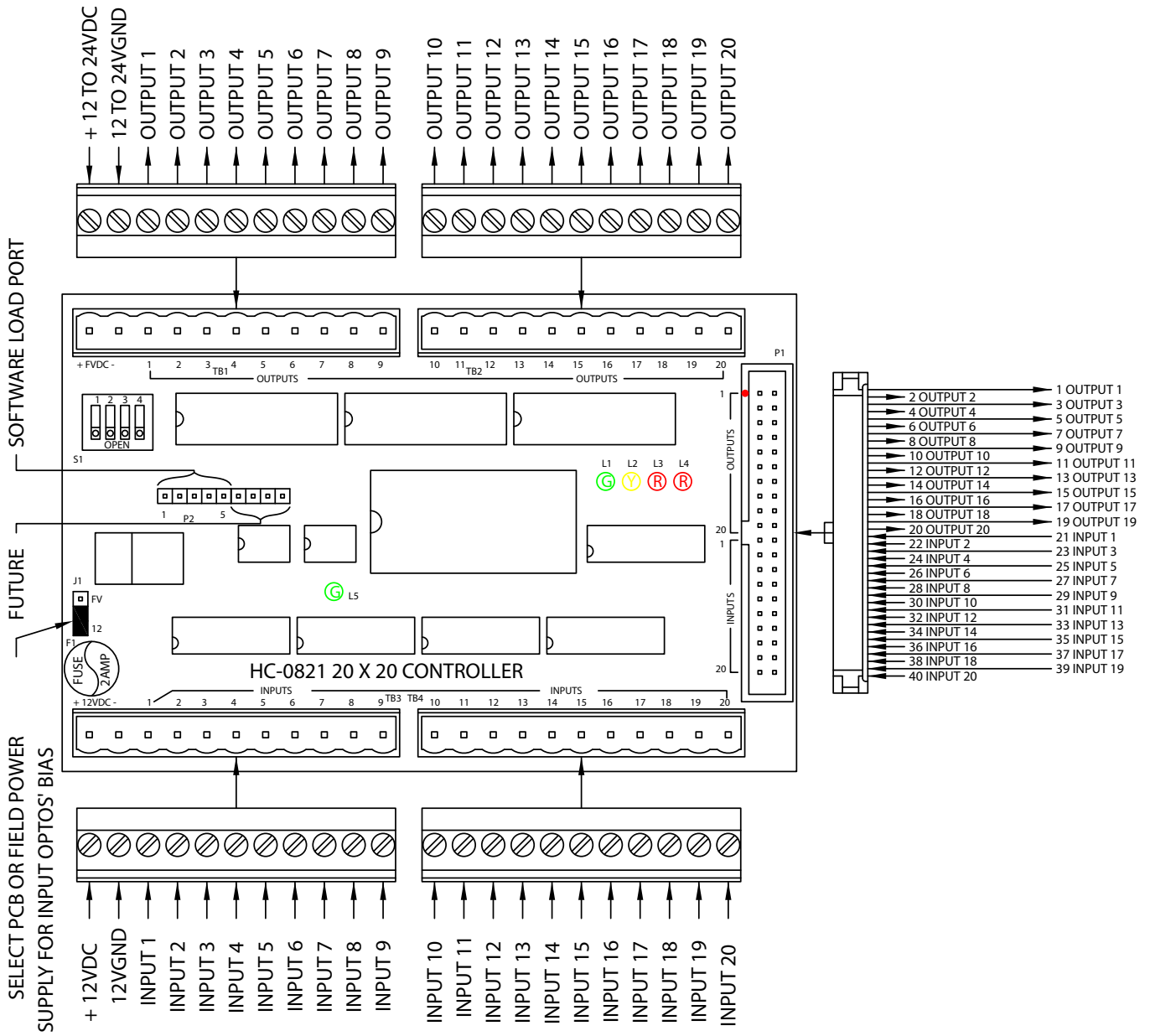
POWER:

12 - 14 VDC, 100ma, 2 amp plug-in fuse protected

MODEL

HC-0821 20 X 20 CONTROLLER

HOOK-UP DIAGRAM





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**MODEL
HC-0832/HC-0833
HC-0834**

32 / 64 / 96 POINT OMRON INPUT / OUTPUT CABLE ADAPTERS

FEATURES:

- SOLDER TO RIBBON CONNECTOR CONVERSION
- INPUT POINTS ORDER CONVERSION
- COMPATIBLE WITH OTHER STI INPUT MODULES
- AVAILABLE IN 16, 32, 64 AND 96 I/O
- 2 YEAR WARRANTY

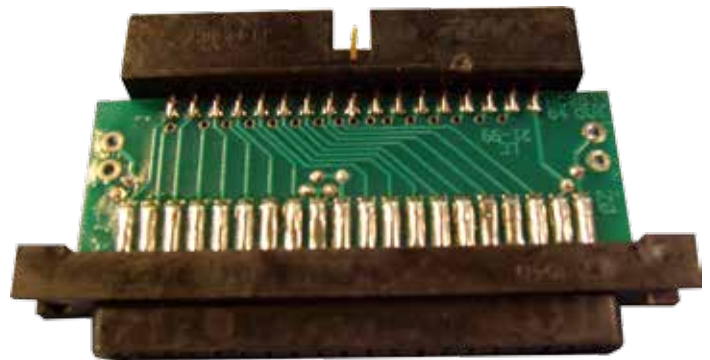
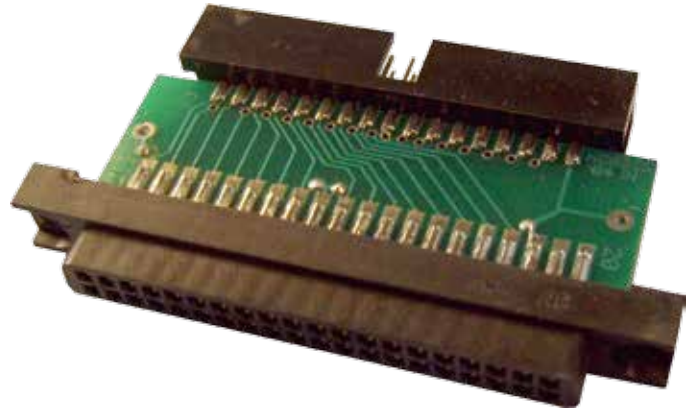
FUNCTIONAL DESCRIPTION:

This HC-0832 connector adapts the supplied connectors from an Omron C200H-ID217 DC Input Module, from forty individual wire solder connections to a 34 conductor ribbon connector, with a common 24VDC ground connection at both the top and the bottom. Each HC-0832 Input Module Adapter converts thirty-two input points. Two are required for each sixty-four point input module.

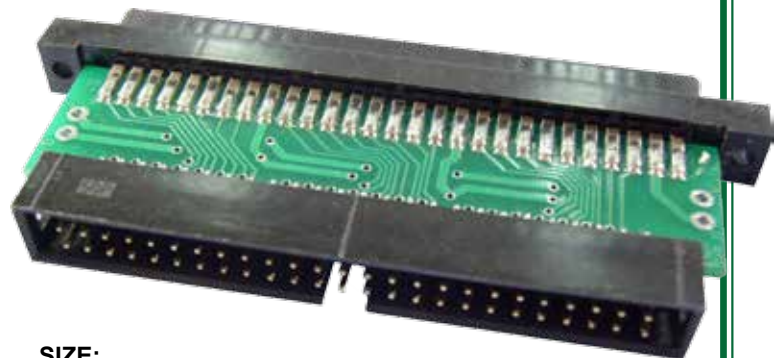
This HC-0833 connector adapts the supplied connectors from an Omron C200H-ID219 Transister Output Module, from forty individual wire solder connections to a 34 conductor ribbon connector, with a common 24VDC ground connection at both the top and the bottom. Each HC-0832 Input Module Adapter converts thirty-two input points. Two are required for each sixty-four point input module.

This HC-0834 connector adapts the supplied connectors from an Omron CS1W-ID291 DC Input Module or from an Omeron CS1W-OD291 Transister Output Module, from fifty-six individual wire solder connections to two separate common 24VDC ground connection at both the top and the bottom. Each HC-0834 Input Module Adapter converts fourty-eight points. Two are required for each ninety-six point input module. The difference between the two it the 24VDC power supply connection.

Send us the two connectors that come with the Omron Input Module, and we will return them adapted for much more useful ribbon cable connection. Significant labor savings are obtained by using the HC-0832 64 Point Omron Input Module Adapters.



NTS



SIZE:

1.50" W x 2.74" L x 0.36" D
38.10mm W x 69.60mm L x 9.14mm D

POWER:

Passed through connection to your Omron PLC.

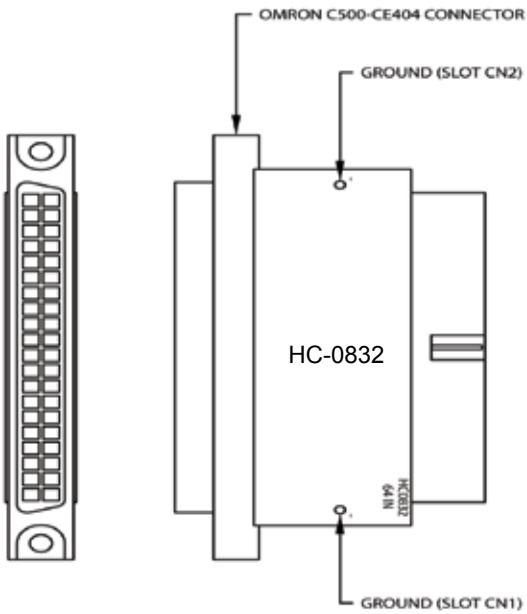
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MODEL

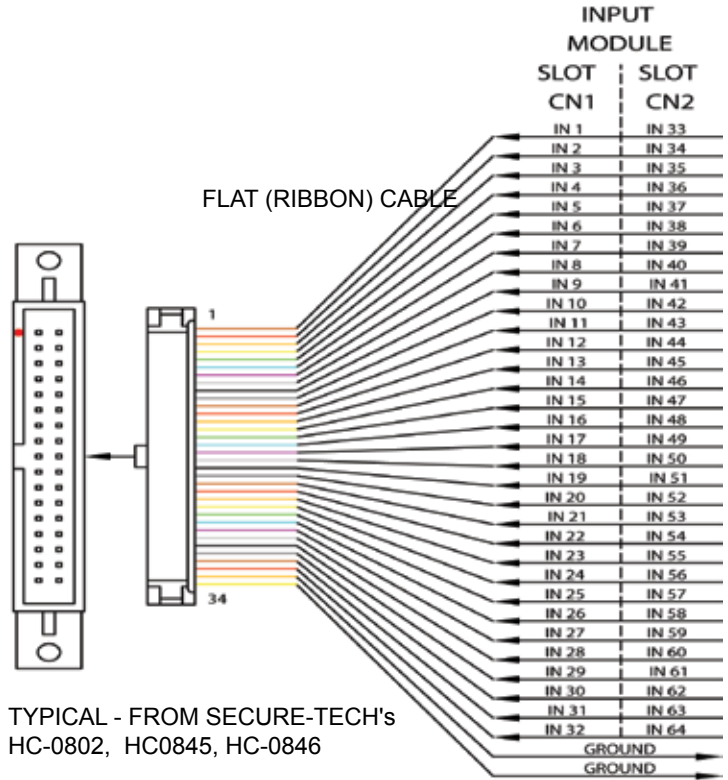
HC-0832 / 33

OMROM CONNECTORS

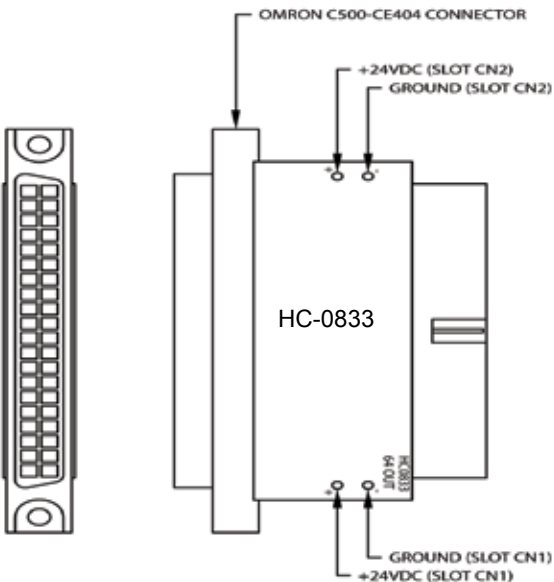
HOOK-UP DIAGRAMS



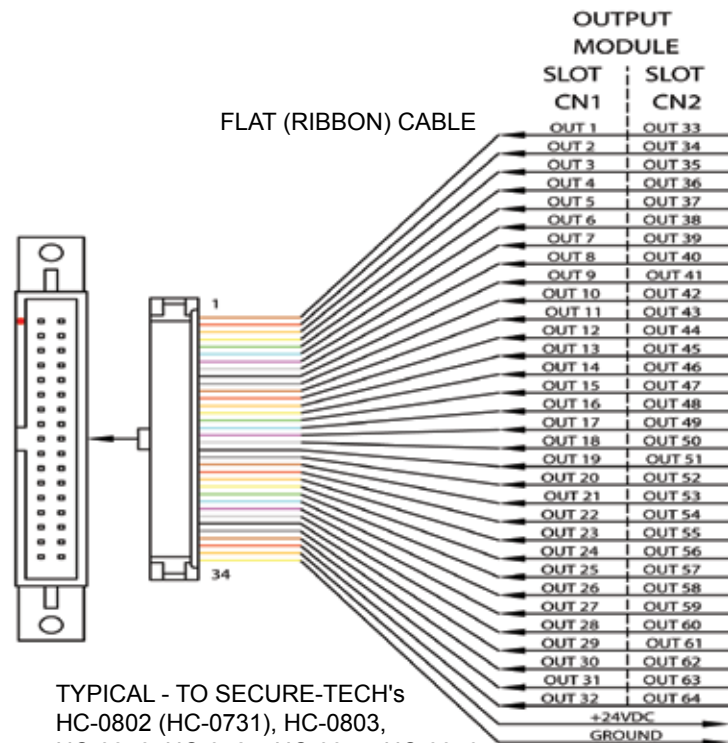
SLOT CN2 ORIENTATION IS SHOWN
SLOT CN1 ORIENTATION IS UPSIDE DOWN



TYPICAL - FROM SECURE-TECH's
HC-0802, HC0845, HC-0846



SLOT CN2 ORIENTATION IS SHOWN
SLOT CN1 ORIENTATION IS UPSIDE DOWN



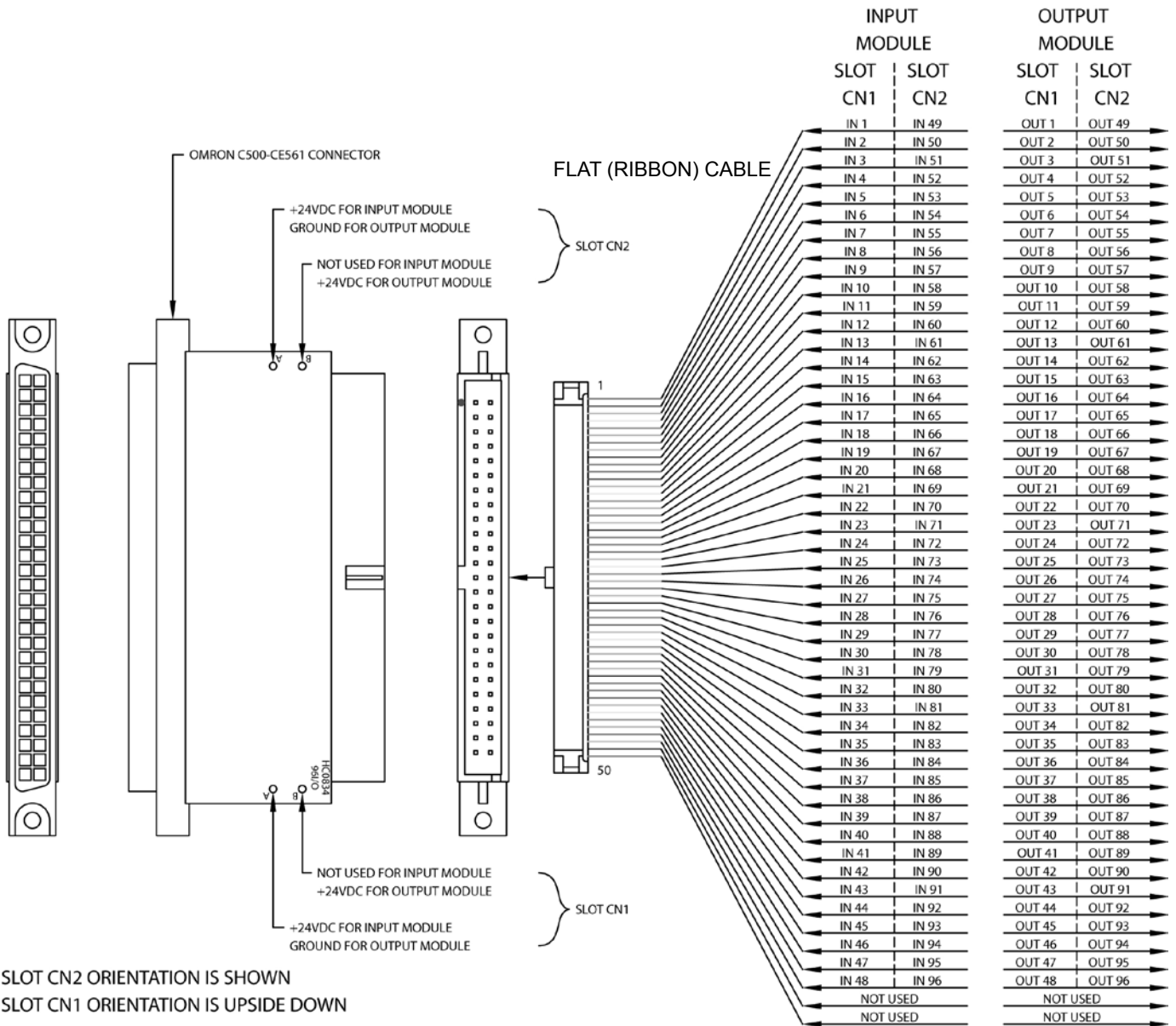
TYPICAL - TO SECURE-TECH's
HC-0802 (HC-0731), HC-0803,
HC-0848, HC-0724, HC-0845, HC-0846

MODEL

HC-0834

OMROM CONNECTORS

HOOK-UP DIAGRAM



SLOT CN2 ORIENTATION IS SHOWN
SLOT CN1 ORIENTATION IS UPSIDE DOWN

TYPICAL - TO SECURE-TECH's
HC-0802 (HC-0731), HC-0803, HC-0848,
HC-0724, HC0845, HC-0846

SECURE-TECH

DETENTION ELECTRONIC SYSTEMS

ETECH CONTROLS CORPORATION - MANUFACTURER

4051 ALVIS COURT #3, ROCKLIN, CALIFORNIA, USA 95677

TEL (916) 630-1300 FAX (916) 630-1100 FREE (800) 800-2523



SECURE-TECH

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MODEL
HC-0850
HC-0851

48 INPUT - 48 OUTPUT

FEATURES:

- 48 OPTO-ISOLATED (7500V) INPUTS
- BOTH MODULES ARE INTERPOSING DEVICES
- INTERFACES WITH HC-0682 SYSTEM CONTROLLER
- 3.25" SNAP TRACK MOUNT
- 2 YEAR WARRANTY

FUNCTIONAL DESCRIPTION:

The HC-0851 provides a communications interface for FORTY-EIGHT OPTO-ISOLATED inputs into the HC-0682 System Controller.

The HC-0850 provides a communications interface for FORTY-EIGHT single FUSED outputs from the HC-0682 System Controller.

Both modules provide access for field devices controlled by the Nurse Call Control panels; door control, fire alarm annunciation, duress, etc.

INPUTS / OUTPUTS:

FORTY-EIGHT inputs or FORTY-EIGHT outputs are connected through a 50 pin ribbon header. Commands between the HC-0682 System Controller and these module are passed via on-board RS-485 data port. Inputs are 5 - 24 VDC @ 5ma.

SIZE:

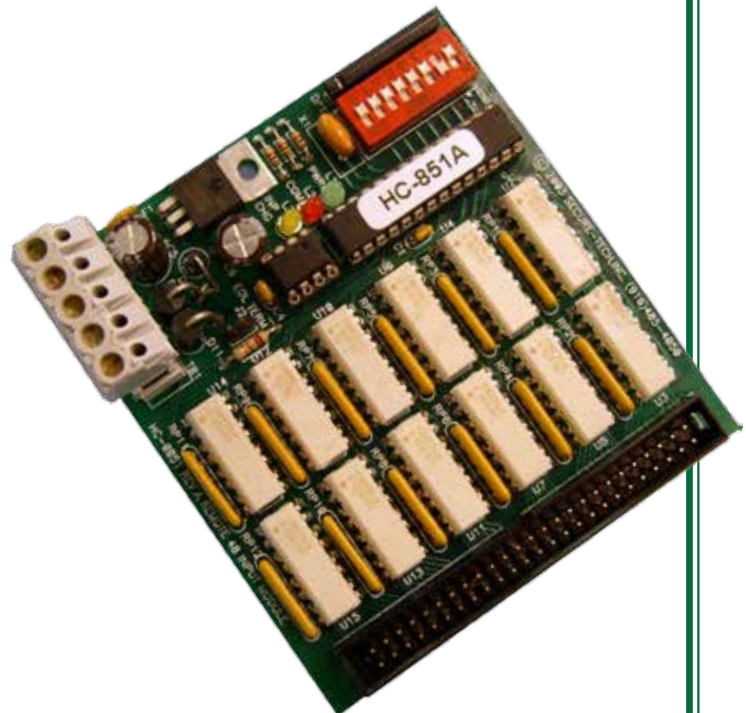
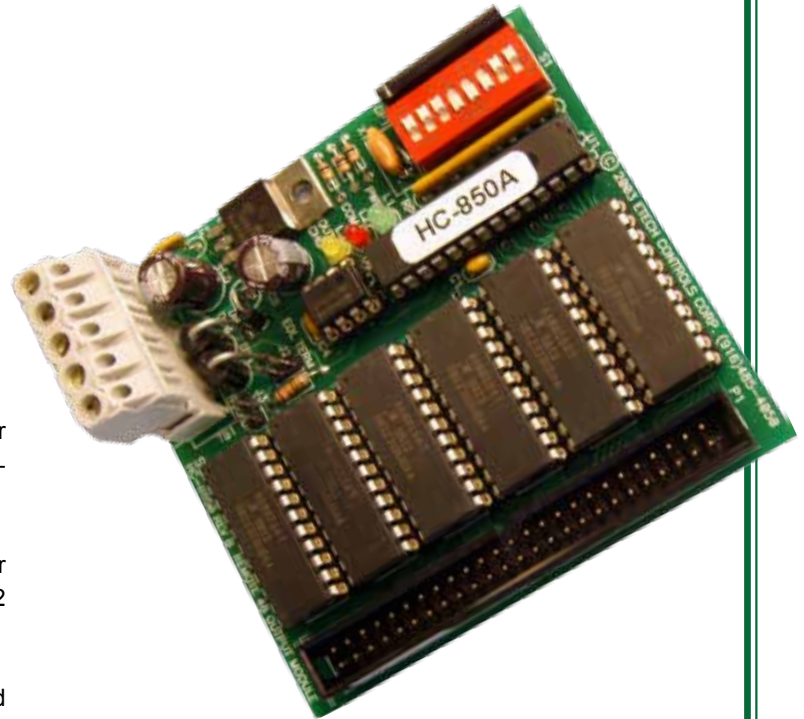
HC-0850	3.25" W x 3.25" L x 0.61" D
HC-0851	3.25" W x 2.75" L x 0.61" D

POWER:

5 VDC, 75ma
5 - 24 VDC, 160ma

UNIVERSAL CAPABILITIES:

Prorocols can be provided for custom applications with your controller.

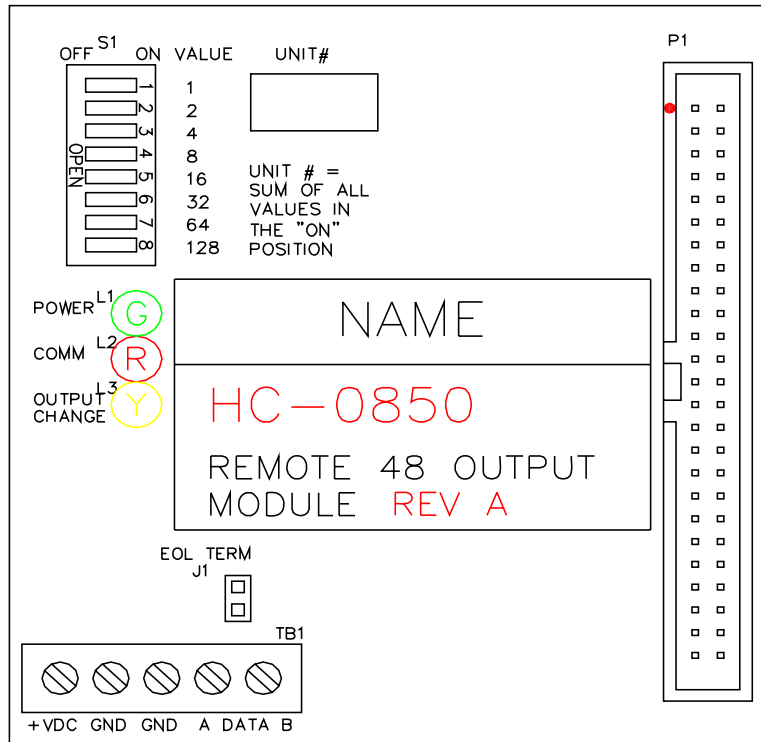


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MODEL

HC-0850 / 51 RS-485 OUTPUT / INPUT MODULES HOOK-UP DIAGRAMS

**OUTPUT:
PINS 1-48**



**INPUT:
PINS 1-48**

