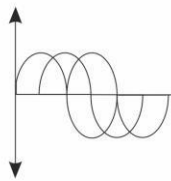


*John Cabrillo Elementary
New Clock and Public
Address System*



BORRELLI
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Equipment Data Sheets

Borrelli And Associates, Inc.

BAI Project # 23117

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April 28, 2023

Head End Equipment



TCC2000 Telecenter U Campus Controller

FEATURES

- Master Controller For All Telecenter U Devices In a School
- Connects To External Phone Systems Through a SIP Gateway
- Interfaces To Telecenter U District Server For District-wide Capabilities
- Local Survivability For Emergency Functions Without Connection To District Server
- Status And Configuration Indicators To Simplify Installation And Operation
- Compatible With High Performance 1000Base-T Networks
- Supports Up To 500 Classroom Speaker Modules Per School
- Digital Encryption Of All Control Signals For Excellent Security
- Compatible With Most Existing Network Infrastructure To Reduce installation Costs
- UL listed for enhanced code compliance

SPECIFICATIONS

Power Requirements: 100 - 240 VAC, 5A, 50 – 60 Hz, <50 Watts

Network Requirements: 10/100/1000 Mb

Cat5e+

Multicast Enabled Switches

Fully Switched Network (no broadcast hubs)

Network Connector: One RJ45 Network Socket

Wiring Requirements: 24 AWG Minimum (Cat5e+)

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity : 15% to 95%,
non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 1.7" (4.4 cm)

Width: 19.0" (49.2 cm)

Depth: 8.7" (22.5 cm)

Weight: 8.5 lbs (3.9 kg)

DESCRIPTION

The TCC2000 is the main component of a Telecenter U school. School safety is improved with Telecenter U installations because of its local survivability. When short term connection to the District Server is lost, the TCC2000 can still make pages, intercom calls, SIP-based features, and provide local emergency notification indefinitely. In addition, the System is able to maintain configured bell schedules for a minimum of 48 hours.

Providing full page and audio control of all local campus devices, the TCC2000 gives administrators the power to handle all school communication functions. The TCC2000 is also a SIP Gateway and provides full administration of all locally attached campus communication devices.

Network compatibility is assured with flexibility for 10-100-1000 Base-T networks. The TCC2000 provides continuous hardware monitoring of

network status to ensure system operations. Front panel LEDs give installers and users a visual indication of TCC2000 operational status. To simplify TCC2000 installation, configuration is done using a standard Web browser. All call-in and call control information is stored in the TCC2000 Campus Controller.

The TCC2000 enables the Telecenter U system to distribute simultaneous live audio streams that handle the paging needs of small, medium and large schools. All live or pre-recorded paging streams can be routed to up to 100 paging zones throughout a facility or district. In addition to pre-recorded audio paging, the TCC2000 can provide scheduled bell tones and program audio distribution to all, or select, paging zones. All audio tasks can be prioritized, this allows, for example, Emergency notifications to be heard in place of lower priority audio events such as bells.

ASSOCIATED EQUIPMENT

TCU2000SW Telecenter U Campus Edition, Enterprise License

TCC2011 IP Classroom Module

TCC2022 Zone Module

TCC2033 Auxiliary I/O Module

TCC2044 IP Admin. Console

TCC2055 Program Line Input Module

Architect and Engineer (A&E) Specifications available online at: customerconnection.rauland.com
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MODEL: TCC2033 — TELECENTER U AUXILIARY INPUT/OUTPUT MODULE



TCC2033 Telecenter U Auxiliary Input/Output Module



FEATURES

- Provides Dual Input And Dual Output Contact Closure Points to Control External Devices
- Provides Interface to External Systems such as Cameras or Security Monitoring
- Facilitates Control of External Devices such as Alert Lights/Strobes
- Provides the Ability to Connect a Panic Button to the System
- Digital Encryption of all Control Signals for Excellent Security
- Compliant with IEEE 802.3af Power Over Ethernet (PoE) Standard
- Rack or Wall Mountable
- UL listed for enhanced code compliance

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af (12.5 Watts Max)
 Network Requirements: Fully Switched 100 Mb/s
 Network Connector: One RJ45 Network Socket
 Wiring Requirements: 24 AWG Minimum (Cat5e+)
 Cabling Distance: Supports I/O Connections up to 2,000' (610 Meters)
 Input/Output Connector: 10 Position, Phoenix Type Screw Connectors
 Independent Inputs: 2, Optically Isolated
 Independent Relay Outputs: 2, Dual Pole, Single Throw (DPST), 30 VDC at 5 Amperes, 125 VAC at 5 Amperes

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
 Relative Humidity : 15% to 95%, non-condensing
 Storage: Temperature: -4° to 158° F (-20° to 70° C)
 Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 4.1" (10.5 cm)
 Width: 4.2" (10.6 cm) (not including mounting tabs)
 Width: 5.4" (13.8 cm) (including mounting tabs)
 Depth: 1.25" (3.2 cm)

Mounting Slot Locations:

(2) Keyholes, 0.156" (0.396 cm) Channel Width, 0.42" (1.07 cm)
 (2) Holes 0.156 (0.396 cm) Diameter:
 Height: 2.0" (5.1 cm) (center to center)
 Width: 4.85" (12.3 cm) (center to center)

Weight: 0.35 lbs (0.16 kg)

DESCRIPTION

The TCC2033 Auxiliary Input/Output Module provides two (2) network enabled, individually addressable contact closures for external devices connected to the Telecenter U Campus System. These contact closures can be used to control external devices such as strobes or door latches. They are also capable

of providing a contact closure for fire alarm panels and security systems. The two (2) inputs allow activation of emergencies and sequences via external system or panic button. The TCC2033 is compatible with most standard LAN topologies, including 10-100 Base-T networks.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller
 TCC2011 IP Classroom Module
 TCC2022 Zone Module

TCC2044 IP Administrative Console
 TCC2099 Universal Rack Mounting Kit
 TCC2099 Universal Rack Mounting Kit

Architect and Engineer (A&E) Specifications available online at: customerconnection.rauland.com
 Specifications subject to change without notice

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TCC2045 Telecenter U Administrative Console

FEATURES

- Provides Full Access to School-wide Telecenter U Activities
- Be Notified of Emergencies Through a Color Display Interface
- Simultaneously Display Up to (3) Incoming Call-ins on a Single Screen
- Able to Scroll Call-in Display Screen to See all Call-ins on the System
- Communicate with any Classroom in Your Facility
- Initiate Live or Pre-recorded Pages to all or Individual Classrooms
- Initiate Emergencies with Highly Customizable Events to Match Facility Response Plans
- Visually Review Safe Locations During Lockdowns
- Quickly Know Who has Secured Their Classroom During Emergencies
- Highly Flexible Configuration to Suit Personal Preferences
- Trigger Customizable Sequences for Nearly Any Action or Event
- Speaker Phone Capable with Adjustable Volume
- Desk or Wall Mountable
- Compliant with IEEE 802.3af Power Over Ethernet (PoE) Standard
- UL listed for enhanced code compliance

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af
(12.5 Watts Maximum)

Network Requirements: 100 Mbps or Faster

Network Connector: One RJ45 Network Socket

Wiring Requirements: 24 AWG Minimum (Cat5e+)

Housing: High Impact Molded Cylcoloy 2950, UL94-5VB,
Charcoal Gray

Control Buttons: (12) Standard Dial Pad Buttons
(4) Programmable Soft Touch Buttons
(3) Line Select Buttons
(2) Volume Control Buttons
(4) Scroll Buttons
(1) Speaker Phone Button
(1) Push-To-Talk Button

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity : 15% to 95%,
non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions (not including desktop base): 10.4" (26.4 cm) wide
9.2" (23.3 cm) high
1.9" (4.8 cm) deep

Weight: 4.6 lbs (2.1 kg)

DESCRIPTION

The TCC2045 Administrative Console provides a single point for administration of Telecenter U functions. The Console user can initiate classroom intercom discussions, zone or system-wide pages and get visual alerts for classroom communications. Both live and prerecorded pages can be initiated from the Console and distributed throughout a facility. The Console can also initiate pre-programmed sequences and emergencies for the school. The TCC2045 works in both standard handset mode as well as hands-free speaker phone mode. With adjustable volume controls and customizable display options, the TCC2045 offers great flexibility to suit personal preferences.

In emergency situations, the TCC2045 console can be configured to act as an emergency display console, display check-in information when a lock-down or lock-out has been activated, and allows instant communications with any classroom that has not secured their area.

The full color display on the TCC2045 shows call-in information such as room number and priority. Call-ins can be responded to in any order the user chooses by pushing the scroll and line select buttons on the TCC2045.

The (4) programmable soft keys can be used to initiate and cancel events, schedules and user-defined sequences at all or specific locations. Each soft key can be customized by color and action and with up to 16 planes, the user has access to 64 uniquely programmable soft key button features on each TCC2045 console. Each TCC2045 includes a mounting base and an Ethernet wall plate.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2011/TCC2011A IP Classroom Module

TCC2022 Zone Page Module

TCC2033 Auxiliary I/O Module

TCC2024 24-Port Gateway

TCC2055 Program Line Input Module

TCC2077 Microphone Input Module

TCC2088 Status Light



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MODEL: TCC2055 — PROGRAM LINE INPUT MODULE



TCC2055 Program Line Input Module

FEATURES

- Encodes Analog Audio Signals to Digital, IP-Based Data
- Accepts Stereo or Mono Line Level Audio
- Equipped with 3.5 mm Socket for Enhanced Compatibility
- Connection Status Indicator LED
- Mounts in Rack or Desktop
- Digital Encryption of Control Signals for Excellent Security
- Compliant with IEEE 802.3af Power Over Ethernet (PoE) Standard
- Includes a Male 3.5 mm Plug to Dual Male RCA Cable Adapter

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af (12.5 Watts Maximum)

Network Requirements: Fully Switched 100 Mb/s

Network Connector: One RJ45 Network Socket

Wiring Requirements: Classroom Devices – 24 AWG Minimum (Cat5e+)

Audio Connectors: 3.5 mm Input Socket

Audio Signal: 1.228 VRMS Maximum (professional audio range)

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)

Relative Humidity: 15% to 95%, non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)

Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 1.25" (3.2 cm)

Width: 4.2" (10.6 cm) (not including mounting tabs)

Width: 5.4" (13.8 cm) (including mounting tabs)

Depth: 4.1" (10.5 cm)

Mounting Slot Locations:

(2) Keyholes, 0.156" (0.396 cm) Channel Width, 0.42" (1.07 cm)

(2) Holes 0.156: (0.396 cm) Diameter:

Depth : 2.0" (5.7 cm) (center to center)

Width: 4.85" (12.3 cm) (center to center)

Weight: 1.7 lbs (0.77 kg)

DESCRIPTION

Equipped with a stereo analog audio input, the TCC2055 provides a connection point for program or music audio sources. The TCC2055 enables audio to be distributed throughout a facility or to one or more rooms or zones in any combination. The audio signal is connected through a 3.5 mm (headphone style) socket. Any stereo, line-level audio input signal that is fed to the TCC2055 is internally mixed to a mono signal for use in the Telecenter U system. The audio fed to the TCC2055 provides TCU audio with Program Distribution System Priority.

When used in conjunction with the TCC2099 Universal Rack Mounting Kit, the TCC2055 can be mounted in a standard 19" data rack. For greater user flexibility, it can also be mounted on a desktop by installing the included rubber feet. This facilitates quick connection of a personal music player, radio or any other device with a line level audio output. The TCC2055 provides excellent compatibility with new or existing Telecenter U, Campus Edition networks that use the 100 Base-T protocols, and is powered through a standard Power Over Ethernet network. The TCC2055 includes a male 3.5mm to dual male RCA connector cable

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2099 Universal Rack Mounting Kit

Audio Source Devices with 3.5mm or Dual RCA Line Level Output

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MODEL: TCC2099 — UNIVERSAL RACK MOUNTING KIT



TCC2099 Universal Rack Mounting Kit

FEATURES

- Provides 19" Rack Mounting Location for Any Combination of Three (3) TCC2022, TCC2033 and TCC2055 Modules
- Allows Easy Visibility of Activity Monitoring LEDs on Various IP Modules
- Front Panel Label Block for Quick Identification
- Three (3) Knockout Panels For Increased Mounting Flexibility
- Made of Heavy Gauge Cold Rolled Steel for Superior Fit and Longterm Reliability
- Includes All Necessary Mounting Hardware
- Mount up to Three (3) Telecenter U, Campus Edition Modules in One (1) Rack Unit
- Designed with cable management holes to all clean cable routing

SPECIFICATIONS

Materials: 16 Gauge Cold Rolled Steel

Finish: Textured, Semi-gloss Black Powder Coat

Dimensions:

| | |
|----------------|-----------------|
| Height: | 1.7" (4.4 cm) |
| Width (Front): | 19.0" (49.2 cm) |
| Width (Back): | 16.4" (41.5 cm) |
| Depth: | 4.3" (10.8 cm) |

Mounting Slot Locations:

(2) Slots, 0.156" (0.396 cm) Channel Width, 0.42" (1.07 cm)

(2) Holes 0.156 (0.396 cm) Diameter:

| | |
|---------------|------------------------------------|
| Depth : | 2.0" (5.7 cm) (center to center) |
| Height (stud) | 0.37" (0.95 cm) |
| Width: | 4.85" (12.3 cm) (center to center) |
| Width (stud): | 0.15" (0.39 cm) |

Weight: 1.7 lbs (0.77 kg)

DESCRIPTION

The TCC2099 Universal Rack Mounting Kit provides a sturdy, 19" rack mounting location for Telecenter U, Campus Edition, modules in a single rack unit (1U) space. The TCC2099 accepts up to three (3) IP modules, with mounting studs to secure those units. Made of 16 gauge cold rolled steel finished with a textured black powder coat and reinforced rack mounting holes, the TCC2099 provides many years of service.

Designed with three (3) front panel knockouts that allow high visibility of LED indicators to show the status of each Telecenter U module, the TCC2099 affords quick review of Telecenter U hardware operating conditions. The TCC2099 also provides a front panel whitespace label to note the equipment mounted within it.

ASSOCIATED EQUIPMENT

TCC2022 Zone Page Module

TCC2033 Auxiliary Input Output Module

TCC2055 Program Line Input Module

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Clocks and Speakers

Interior Combination Clock and Speaker

Speakers • Horns • Speaker Accessories

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MODEL: ACC1480 — 8 OHM, 8" SPEAKER ASSEMBLY
WITH RJ45 CONNECTOR



ACC1480 — 8 Ohm, 8" Speaker Assembly

FEATURES

- Includes Attached Mounting Bracket for TCC2011 IP Speaker Module
- Pre-Assembled for Time-Saving Installation
- Mar-Proof Baked White Finish
- Premium Quality 8 Ohm, 8" Speaker
- "Whizzer" Cone for Extended High Frequency Response
- RJ45 Connector Socket For Quick Installation With Structured Cabling

SPECIFICATIONS

Speaker Type: 8 inch (20.3 cm) Permanent Magnet
Power Rating: 8 Watts RMS
Sensitivity: 93 dB @ 1 Meter with 1 Watt Input
Frequency Response: 65 to 17,000 Hertz
Magnet: 5 oz. (141.7 g) PM
Voice Coil Impedance: 8 Ohms

Voice Coil Diameter: 0.75" (1.9 cm)
Baffle: White, 22-gauge Cold-rolled Steel
Baffle Diameter: 12 7/8"
Mounting Depth (with TCC2011 IP Module): 2.75" (7.0 cm)
Finish: Baked Enamel
Weight: 2 lbs. 6 oz. (1.1kg)

DESCRIPTION

The ACC1480 8 Ohm Speaker Assembly consists of a high efficiency USO188 8" loudspeaker mounted on a round, steel, white baffle (ACC1000), which can be attached to an ACC1100, ACC1101, ACC1103, ACC1110 Backbox, an ACC1104 Speaker Support Bridge, or an ACC1109 Channel Support. The high efficiency ACC1480 provides maximum sound output with minimal audio power.

The ACC1480 Speaker Assembly is well suited for use in classrooms, hallways, meeting rooms, or any area that requires a flush mount speaker with excellent sound reproduction quality. The ACC1480 Speaker Assembly is packaged as a complete unit that significantly reduces installation time and project costs.

ASSOCIATED EQUIPMENT

ACC1000 Flush Mount Square Backbox
ACC1101 Flush Mount Round Backbox
ACC1101 Flush Mount Round Backbox
ACC1103 Flush Mount Round Backbox
ACC1110 Flush Mount Round Backbox
ACC1104 Speaker/Baffle Tile Bridge Support
ACC1109 Speaker/Baffle Support Channel
TCC2011 Telecenter U Campus IP Classroom Module
All 8 Ohm Audio Equipment

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FEATURES

- Provides Programmable 2W Audio Signal to an 8Ω Speaker
- Supports Bi-Directional Audio Capable of Operation as Both Microphone and Speaker Interface
- Onboard Relay Facilitates Control of External Devices such as Alert Lights/Strobes
- Connects Classroom Devices such as Call Switches and Speakers
- Supports All Current Rauland Callswitch Models
- Mountable in Wall, 4-Gang Electrical Box or Plenum Spaces
- Digital Encryption of all Control Signals for Excellent Security
- Compliant with IEEE 802.3af Power Over Ethernet Standard
- UL Listed for Enhanced Code Compliance

TCC2011A Telecenter U IP Classroom Module
(network cable not included)

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af (12.5 Watts Max)

Network Requirements: Fully Switched 100 Mb/s

Network Connector: One RJ45 Network Socket

Connectors: Two RJ45 Sockets

Wiring Requirements: Classroom Devices - 24 AWG Minimum
(Cat5e+)

Cabling Distance: Maximum of 10' (3 Meters) from TC2011A to 8Ω Classroom Speaker,
Maximum of 100' (30 Meters) from TCC2011A to Call Switch

Audio Controlled Relay Output: Single Pole, Single Throw (SPST),
Normally Open, 24VDC @ 1A, 125VAC @ 1A

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity : 15% to 95%,
non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 4.6" (11.7 cm)

Width: 2.95" (7.5 cm) (not including mounting tabs)

Width: 3.8" (9.6 cm) (including mounting tabs)

Depth: 1.1" (2.8 cm)

Mounting Slot Locations:

Height: 1.8 (4.6 cm) (center to center)

Width: 3.3" (8.3 cm) (center to center)

Width: 0.15" (0.39 cm)

Height: 0.37 (0.92 cm)

Weight: 0.25 lbs (0.11 kg)

DESCRIPTION

The TCC2011A IP Classroom Module is an integral part of the Telecenter U system and provides a reliable communications link to the front office by utilizing the school's data network. Based on IP standards, the TCC2011A controls two way audio signals for clear, noiseless full bandwidth intercom and paging. Equipped with a SPST relay, the TCC2011A can also trigger a visual indicator such as a strobe whenever high priority audio signals are present. The versatile TCC2011A includes a pair of RJ45 output sockets for the connection of room devices. The additional output socket greatly simplifies integration with Telecenter Class sound reinforcement systems.

Connection points for call switches and speakers are included on the TCC2011A. All current Rauland call switches except those with call assurance LEDs are supported as well as all 8 Ohm speakers.

With a 2 Watt audio output, the TCC2011A provides excellent audio coverage for all K-12 classrooms. Designed for optimal installation flexibility, the TCC2011A can be mounted on Rauland speakers or in a 4-gang electrical box. The TCC2011A IP Classroom Module is UL approved for direct installation in air handling spaces without a backbox, in strict accordance with section 300.22(c) of the National Electrical Code.

Capable of delivering a full 2W of audio power to an 8 Ohm speaker, the TCC2011A audio power output is also software configurable for maximum installation flexibility. The 8 Ohm speaker output of the TCC2011A can be easily programmed to provide 2W, 1.5W, 1W, 0.5W, and 0.25W to meet the needs of any size classroom with the an 8 Ohm speaker. This simple configuration is done using a standard Web browser without difficult and labor intense field wiring changes to transformer taps. Additionally the advanced Web GUI provides individual volume control for each device with a simple volume slider interface.



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ASSOCIATED EQUIPMENT

Campus Components

- TCC2000 Campus Controller
- TCC2022 Zone Module
- TCC2033 Auxiliary I/O Module
- TCC2044 IP Admin. Console
- TCC2055 Program Module
- TCC2077 Microphone Input Module
- TCC2088 Status Light

Callswitches

- 2305CS Single Pushbutton
- 2308PC Three Position Privacy
- HSS13 Single Pushbutton High Security
- HSS8 High Security Emergency
- 603302 Dual Pushbutton Normal/Emergency with RJ45 Jack
- TCDPB2 Dual Pushbutton
- TCSPB1 Single Pushbutton
- TCPVY Privacy Callswitch
- TCC2201PB Single Pushbutton with RJ45 Jack
- TCC2211PB Dual Pushbutton Emergency/Check-In with RJ45 Jack

Speakers

- ACC1480 8 Ohm 5 Watt Assembly with Baffle
- ACCWB8RJ 8 Ohm, Surface Mount Speaker Assembly with RJ45 Jack
- BAFKIT1X2S8RJ 1' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- BAFKIT2X2L8RJ 2' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- US0880 8 Ohm, 8" Speaker

Misc.

- 603101 Category Cabling Breakout Module
- CSLMIC Telecenter Class Wireless Microphone
- CSMREC Telecenter Class Receiver Module



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MODEL: TCC3011S — SMALL MESSAGE BOARD



TCC3011S Small Message Board

FEATURES

- Instant visual messaging to any or all locations
- Static or scrolling message display
- Multiple colors for added impact
- POE and POE+ compatibility allows simple installation from a single network drop
- Pass through POE network port for connection of other Telecenter U Modules
- Display emergency instructions to enhance student and staff response
- Allows immediate or scheduled message distribution to single or all message boards
- Various formats of time/date display
- Create new or use preconfigured messages for immediate distribution
- Metal enclosure for maximum durability
- Tinted lens to increase message legibility

SPECIFICATIONS

Power Requirements:

- 802.3af POE
- 802.3at POE+

Network Speed Requirements: Fully Switched 100Mb/s

Network Connector: RJ45 Socket (all 3 ports)

Auxiliary Port Parameters:



- PIN 1 – N/C
- PIN 2 – OUT 1
- PIN 3 – T
- PIN 4 – DATA +
- PIN 5 – DATA –
- PIN 6 – G
- PIN 7 – 0 V
- PIN 8 – DCC

Wiring Requirements:

Data Network (POE IN): Category 5e or Category 6, up to 328' (100 m) from network switch

Downstream Network Port (POE OUT): Category 5e or Category 6, up to 328' (100 m) to a Telecenter U POE device

AUX Port: Category 5e or Category 6, maximum of 100' (30.5 m)

Dimensions:

Height: 3.75" (9.53 cm)

Width: 12.91" (32.80 cm)

Depth: 1.55" (3.94 cm) without mounting bracket

Depth: 2.125" (5.40 cm) with mounting bracket

Mounting Holes:

Single-gang back-box mounted vertically

Single-gang back-box mounted horizontally

Dual-gang backbox

Weight: 1.85 lbs (0.84 kg)

Display:

8 by 40 LED display

3 color LEDs

Lens Opening: 2.375" (6.03 cm) high by 11.85" (30.10 cm) wide

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)

Relative Humidity: 0% to 85%, non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)

Barometric Pressure: 8.3 PSI (15,600 Ft)

DESCRIPTION

The TCC3011S Small Message Board provides visual notification to any area in a facility. Designed for use with the Telecenter U Communication System. The TCC3011S enhances notification capabilities by providing a visually stimulating, multi-color LED display. The TCC3011S can display both everyday and emergency messages that are critical to an orderly response.

Messages can be configured to be either static or scrolling. All messages are generated by and sent from Telecenter U. Each message can be scheduled to appear once or multiple times in various formats

and colors. Messages can also be created on-the-fly and instantly distributed to one or all message boards. The TCC3011S has a special lens over the LEDs that allow for greater viewing distance and angles.

The TCC3011S uses Power Over Ethernet (POE) or POE+ to facilitate quick installation that requires a single data network drop. When connected to a POE+ network port, an additional TCU Module can be added as a downstream data device from the POE OUT on the TCC3011S Small Message Board. TCU Accessories such as a Status Light can be connected to the AUX output port on the TCC3011S.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2011/TCC2011A IP Classroom Module

TCC2022 Zone Module

TCC2033 Auxiliary I/O Module

TCC2055 Program Module

TCC2077 Microphone Input Module

TCC2088 Status Light



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MODEL: ACC3011SBB — SURFACE MOUNT BACKBOX



ACC3011SBB Surface Mount Backbox for ACC3011S Baffle

FEATURES

- Baked, powdered epoxy finish for increased durability and enhanced appeal
- Provides mounting point for TCC2011/TC2011A IP Classroom Module
- Four (4) knockouts for surface mount field cabling
- Mounts the ACC3011S message board/speaker baffle assembly
- Heavy duty 20-gauge, cold-rolled steel protects internal electronic devices
- Flexible design supports speaker or message board at top of baffle

SPECIFICATIONS

Material: 20-gauge cold-rolled steel

Finish: White baked epoxy

Mounting Holes for TCC2011/TCC2011A IP Classroom Module: 8-32 x 1/16"

Dimensions:

H: 14.7" (37.34 cm)

W: 14.27" (36.25 cm)

D: 2.78" (7.06 cm)

Weight: 3.3 lbs (1.50 kg)

DESCRIPTION

The ACC3011SBB is a surface mount backbox designed to mount the ACC3011S message board/speaker baffle. Each side of the ACC3011SBB has a knockout for surface mount field wiring. It also allows field cabling entrance through the back of the backbox. The ACC3011SBB is made from 20-gauge, cold-rolled steel to provide a sturdy, protective enclosure. The finish on the ACC3011SBB is a baked

white epoxy that inhibits rust while providing an attractive backbox for the ACC3011S message board/speaker baffle. The ACC3011SBB has threaded mounting holes that accommodate the TCC2011/TCC2011A IP Speaker Module.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2011/TCC2011A IP Classroom Module

TCC3011S Small Message Board

ACC3011S Message Board/Speaker Baffle Assembly



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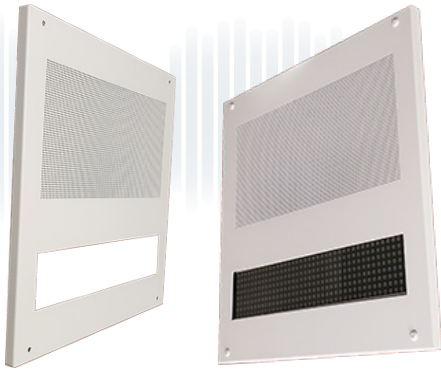
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MODEL: ACC3011S — MESSAGE BOARD AND 8" SPEAKER BAFFLE ASSEMBLY



ACC3011S Message Board/Speaker Baffle Assembly (shown with TCC3011S Message Board, not included)

FEATURES

- Mounts a message board and speaker in single baffle
- Includes a high efficiency, full range 8" speaker for excellent audio reproduction
- Superior design that facilitates quick installation
- Heavy duty, 20-gauge, cold-rolled steel protects internal electronic devices
- Flexible design supports speaker or message board at top of baffle
- Complete RJ45 connectivity for fast and foolproof installation
- Includes two (2) color coded patch cables to inspire proper connections
- Baked, powdered epoxy finish for increased durability and enhanced appeal

SPECIFICATIONS

Material: 20-gauge, cold-rolled steel

Finish: White baked epoxy

Dimensions:

H: 14.80" (37.59 cm)

W: 14.38" (36.52 cm)

D: 0.5" (1.27 cm, does not include speaker)

Weight: 4.1 lbs (1.86 kg)

Speaker:

Type: 8 inch (20.3 cm) Permanent Magnet

Power Rating: 8 Watts RMS

Sensitivity: 93 dB @ 1 Meter with 1 Watt Input

Frequency Response: 65 to 17,000 Hertz

Magnet: 5 oz. (141.7 g) PM

Voice Coil Impedance: 8 Ohms

Voice Coil Diameter: 0.75" (1.9 cm)

DESCRIPTION

The ACC3011S provides a mounting location for the TCC3011S Small Message board and an 8" (20.3 cm), 8Ω, high efficiency speaker. Two (2) 18" (45.7 cm) patch cables, as well as a US0880-type speaker, are included with the ACC3011S. The patch cables are different colors to simplify connections during installation and prevent incorrect wiring. All connectors in the ACC3011S are RJ45 sockets that allow very quick, highly reliable connection of the speaker, IP Classroom Module and message board.

The micro-hole pattern and white, baked, powdered epoxy on the ACC3011S provide a visually appealing, long lasting baffle. The ACC3011S provides the convenience of a single mounting location for the message board and speaker. The ACC3011S can be either flush mounted using the ACC3011FBB backbox or surface mounted using the ACC3011SBB backbox. The chosen backbox provides mounting points for the TCC2011/TCC2011A IP Classroom Module. The ACC3011S includes all necessary mounting hardware.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2011/TCC2011A IP Classroom Module

TCC3011S Small Message Board

ACC3011FBB Flush Mount Backbox

ACC3011SBB Surface Mount Backbox



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Interior Horns



Front



Rear

Model No.

VRG-LUH15TX

Horn with Vandal-resistant Grille

The VRG-LUH15TX assembly features a cast aluminum grille mounted to a Unihorn® with weather-resistant housing engineered for labor-saving installation in brick, concrete block, plaster, or drywall (indoors or outdoors, recessed or surface-mount). For paging and general voice communications (25V, 70V, 100V or 8ohm). Ideal for school intercom systems (25V).

FEATURES

VANDAL-RESISTANT GRILLE (VRG-8):

- Cast aluminum with 18-gauge galvanized steel perf for added protection
- White finish
- Square (11.44" x 11.44")
- Screw-mount (includes Torx security screws)
- Country of origin: U.S.A.



UNIHORNS® (LUH-15TX):

- 15W compression driver
- Power rating of 15 watts RMS
- Re-entrant horn with weather resistant housing
- For indoor / outdoor use
- Country of origin: China

SELECTABLE TRANSFORMER:

- 25V @ .13, .25, .50, 1.0, 1.9, 4.7, 7.5, 15W
- 70V @ 1.0, 2.0, 3.8, 7.5, 15W
- 100V @ 2.0, 4.0, 7.5, 15W

OPTIONAL HARDWARE: (order separately)

- TSB: Torx security drill bit (for use with security screws)

A&E SPECIFICATIONS

The horn/grille assembly shall be Lowell Model VRG-LUH15TX, which shall feature a vandal-resistant cast aluminum grille with white finish and secondary galvanized steel perforation, mounted to a re-entrant horn. The horn shall feature a self-contained compression driver in cast aluminum weather-resistant housing that can be installed in 4-inch deep (minimum) space. Power rating shall be 15 watts continuous. The unit shall have a 100V/70V/25V transformer, with taps selectable on rear of horn, and 8ohm transformer bypass input. The assembly will ship ready for standard two-wire connection with cable exiting through a rear waterproof gland-type connector.

VRG SERIES SUMMARY

| Assembly Model No. | Driver | Transformer | Transformer Taps | Cast Aluminum with White Finish | Ideally Suited For |
|--------------------|------------------------|-----------------------------|---------------------|---------------------------------|-----------------------|
| VRG-810-72 | 8" 15W Dual Cone | 25V/70V | 0.25, 0.5, 1, 2, 5W | Square, screw-mount | Indoor |
| VRG-8C10MRB-72 | 8" 15W Single Cone | 25V/70V | 0.25, 0.5, 1, 2, 5W | Square, screw-mount | Indoor/Outdoor |
| VRG-LUH15TX | 15W Compression | 25V/70V/100V or 8ohm | varies | Square, screw-mount | Indoor/Outdoor |

THIS SPEC

SPEAKER ASSEMBLY SPECIFICATIONS (MEASURED HALF SPACE)

| Assembly No. | Driver Power Rating | Transformer Taps | Assembly Frequency Response | Assembly Dispersion @2000Hz Octave | Assembly Sensitivity | Assembly Mounting Depth * | Max SPL |
|--------------|---------------------|--|-----------------------------|------------------------------------|----------------------|---------------------------|------------|
| VRG-LUH15TX | 15W | 25V @ .13, .25, .50, 1.0, 1.9, 4.7, 7.5, 15W | 674Hz-5.8kHz (+6dB) | 85 degrees conical | 104.2dB | 2.84" | 116.0dB ** |
| | | 70V @ 1.0, 2.0, 3.8, 7.5, 15W | | (-6dB) | Avg SPL | | |
| | | 100V @ 2.0, 4.0, 7.5, 15W | | | | | |

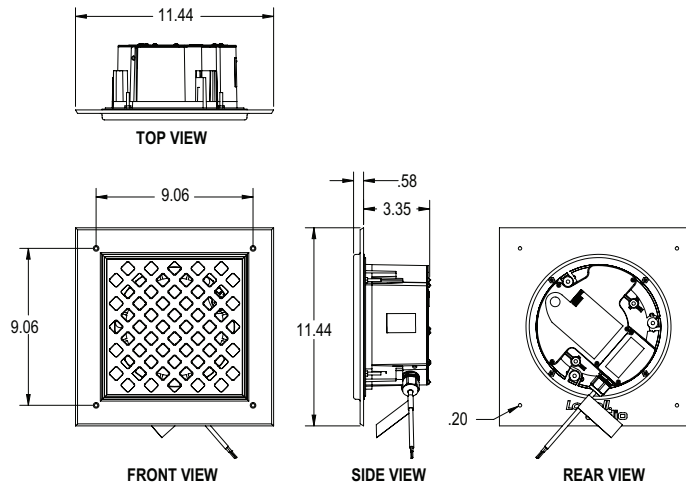
* Minimum enclosure depth required for assembly to be rear-mounted to grille. ** Calculated value 1M @ maximum transformer tap (15W). Additional information available on specification sheet for horn model LUH-15TX

Note on Spacing: To determine speaker spacing, see the technical paper "Distributed System Speaker Spacing for the Integrator." A free download is available at Lowellmfg.com, where an online spacing calculator is also available.

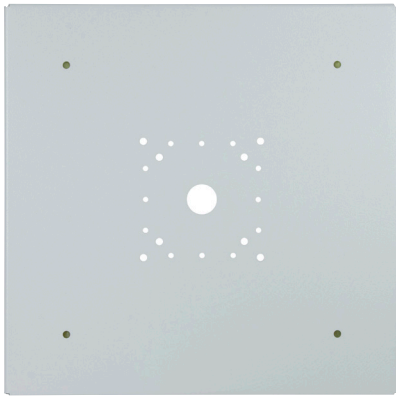
COMPATIBLE COMPONENTS (ORDER SEPARATELY):

Note: Grilles are designed to work with speakers, and enclosures listed on this specification sheet. Using the grille to install speakers without a metal enclosure may not meet the requirements of all local and national electrical and building codes. The installer should request approval of the installation method from the Authority Having Jurisdiction (AHJ) before installing the speaker system.

| Application | Enclosure | Mounting Aids |
|---------------------------------------|--|---|
| SURFACE-mount | CB84-SGVPA (indoor use only) CB84-SGVPO (outdoor use) | Mounting screws (furnished by contractor) |
| RECESSED in Tile Ceiling | P68XA (4"D) P68XA-6 (6"D) | SS24, SS30, or SS48 tile support rails or contractor's custom hardware |
| RECESSED Before Drywall Installed | P68XA (4"D) P68XA-6 (6"D) | SS24, SS30, or SS48 mounting rails (to span ceiling structural members) or contractor's custom hardware |
| RECESSED Retrofit in Existing Drywall | P68XA (4"D) P68XA-6 (6"D) | SS9 retrofit mounting rails or contractor's custom hardware |



WARNING! Speaker installation should only be performed by experienced qualified professionals with knowledge of load-rated hardware and safe installation, mounting, and rigging techniques. Improperly installed equipment can result in property damage, personal injury, death, and/or liability to the installing contractor. The speaker system must be mounted in accordance with all local, state, and federal codes and regulations and the installation must conform to industry standard practices. It is the responsibility of the installer to furnish all installation hardware, rigging hardware, and safety or restraint cables to be used. Before installation, it is the responsibility of the installer to consult a licensed mechanical or structural engineer to evaluate and certify the structural integrity and safety of any mounting method and the suitability of that method to be used to mount the loudspeaker to the building structure in this particular installation. Lowell Manufacturing is not responsible for the use, misuse, misapplication, or unsafe installation of this loudspeaker product.



Rear view



INSTALLATION: Surface-mount
FOR SPEAKER SIZE: 8" E.I.A.
FOR GRILLE TYPE: Screw-mount

Surface-mount galvanized steel enclosure for ceiling or wall installation is designed to screw-mount a grille (Lowell model VRG-8) with an 8" loudspeaker in vandal-prone areas or where tampering is a concern. The box can be mounted in protected outdoor areas* when used with a moisture-resistant speaker. Order grille and speaker separately.

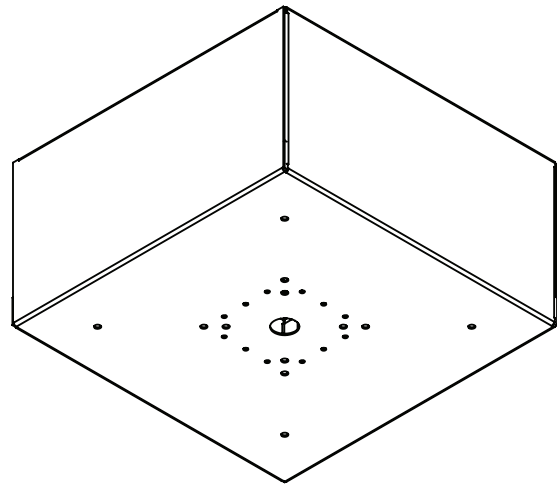
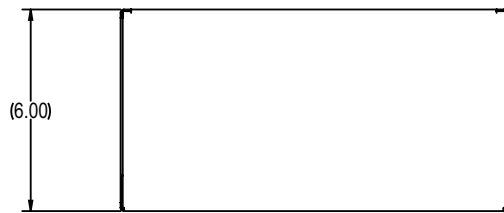
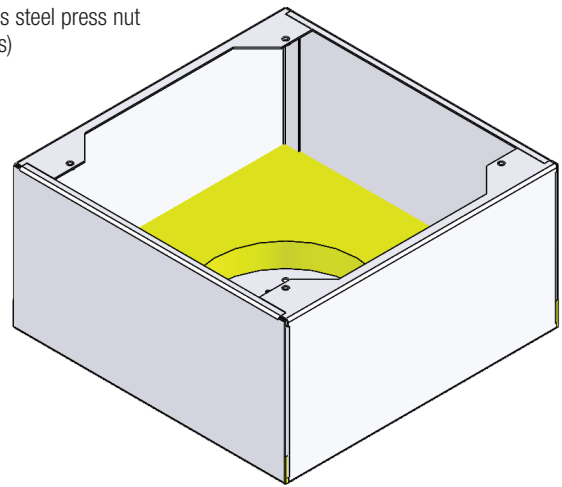
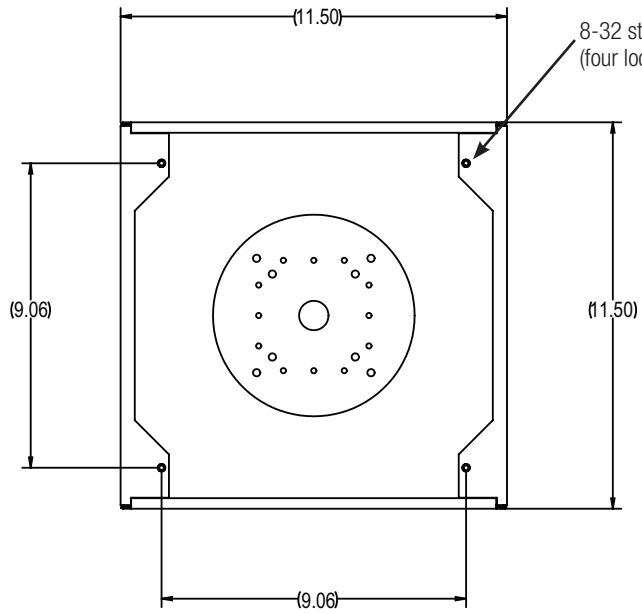
FEATURES:

- **Construction:** 16-gauge galvanized steel with white powder epoxy finish. Welded seams.
- **Length x Width:** 11.5" x 11.5"
- **Depth:** 6"D
- **Volume:** 0.459 cu.ft.
- **Acoustic Treatment:** 1" thick acoustic batting (yellow fiberglass)
- **Installation & Knockouts:**
 - Rear hole (0.875" dia.) for 1/2" conduit
 - Universal mounting pattern in rear for installation to 4"square, 4"octagon, 1-gang or 2-gang electrical box (not included).
 - Front formed flanges with rust-resistant 8-32 stainless steel press nuts will accept a screw-mount grille.
- **Country of Origin:** Made in U.S.A.
- **A&E Specifications:** The rust- and vandal-resistant surface-mount enclosure for 8" speakers shall be Lowell model CB86-SGVPO, which shall be galvanized steel with white powder epoxy finish measuring 11.5" square x 6"D. It shall feature a rear hole (.875 dia.) for 1/2" conduit or wire access and provisions to mount to an electrical box (4" square, 4" octagon, 1-gang, or 2-gang – not included). It shall also feature four mounting holes and 8-32 stainless steel press nuts to accept the specified screw-mount grille. The enclosure shall include 1" thick acoustic batting. It can be mounted in protected outdoor areas when used with a moisture-resistant speaker.

COMPATIBLE COMPONENTS (order separately):

- Speakers: 8" E.I.A. moisture-resistant speakers
- Grille (screw-mount): VRG-8

* Protected outdoor areas are those not subject to direct water spray, such as rain.



MODEL: TCC3022 — ZONE PAGE AMPLIFIER MODULE



TCC3022 Zone Page Amplifier Module
(with mounting brackets attached)

FEATURES

- Single piece network audio amplifier for paging zones
- 25VRMS output
- Drive multiple balanced speakers from a single device
- Enhance reliability by reducing component count with Zone Page Module and amplifier combined into single unit
- Rack mountable for increased security and maintenance
- 802.3at POE+ powered allows single network cable
- External power input for maximum audio output
- Detachable multi-position Euroblock connectors to simplify installation
- Eliminates the need for adding amplifiers to Telecenter U systems

SPECIFICATIONS

Power Requirements: Compliant with Power Over Ethernet Plus 802.3at (POE+)

Power Usage: Maximum of 25.5 Watts (POE+), 3.0 Watts Idle
External Power Adapter (TCC3022PS): 2 Position Male Euroblock Socket

Network Requirements: Fully Switched 100Mb/s

Network Connector: One RJ45 Network Socket

Wiring Requirements:

Data: CAT5e or CAT6 Network Cable, 24AWG Minimum Solid Copper (No CCA)

External Power (TCC3022PS): Use Attached 5' (152.4 cm) Power Cable

Ethernet Cabling Distance: 328' (100 m)

Audio Output Connector: 3 Position Male Euroblock Socket (no connection to center pin)

Audio Performance:

Output: 25V Balanced

Power:

14 Watts when 802.3at (POE+) Powered

35 Watts when TCC3022PS Powered

Materials: 18 Gauge Cold Rolled Steel with Black, Textured Finish
Environmental Parameters:

Operating:

Temperature: 32° to 122° F (0° to 50° C)

Relative Humidity: 0% to 85% non-condensing

Storage and Shipping:

Temperature: -4° to 158° F (-20° to 70° C)

Relative Humidity: Up to 85% non-condensing

Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 1.72" (4.37 cm)

Width: 9.0" (22.86 cm, not including rack mounting brackets)

Depth: 4.38" (11.13 cm)

Mounting: 19" Equipment Rack (with mounting brackets)

Weight:

3.06 lbs. (1.39 kg, without brackets)

3.80 lbs. (1.72 kg, with brackets)

DESCRIPTION

The TCC3022 Zone Page Amplifier Module provides a full audio solution in a single enclosure when used with a Telecenter U communications system. With an integrated amplifier and IP-based audio signal, the TCC3022 increases reliability of Telecenter U audio. This also reduces installation and maintenance labor by providing simple and quick Euroblock connectors for audio output and external power supply connection.

When powered by 802.3at (POE+), the TCC3022 provides 14 Watts of balanced (25V) audio power output. For more demanding applications, the TCC3022 provides 35 Watts of audio power when it is externally powered by the optional TCC3022PS power supply. The TCC3022 automatically senses which power source is being used. The TCC3022 includes mounting brackets to allow installation in a standard 19" equipment rack.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC3022PS 24VDC Power Supply (UL Listed)

All 25 Volt (Balanced) Speakers



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MODEL: TCC3022PS — POWER SUPPLY FOR ZONE PAGE AMPLIFIER



TCC3022PS Power Supply for
Zone Page Amplifier

FEATURES

- Provides external power for the TCC3022 Zone Page Amplifier
- Maximize audio output by the TCC3022 Zone Page Amplifier
- UL® Listed and CE certified for quality and performance assurance
- Stable power source for reliable, clean power
- Industry standard, detachable input cable allows installation ease
- 2-Conductor Euroblock output connector for quick installation

SPECIFICATIONS

Input Power: 100-240 VAC, 50-60 Hertz
Output Power: 24 VDC, 60 Watts
DC Output Cable: 3.74', +/- 1.97" (114 cm, +/- 5 cm)
AC Input Cable: Detachable 6' (182.9 cm) with IEC Connector
(included)
Regulatory: UL® Listed, CE Approved
Environmental Parameters:
Operating:
Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity: 20 to 85% non-condensing
Storage and Shipping:
Temperature: -4° to 158° F (-20° to 70° C)
Relative Humidity: 20 to 85% non-condensing
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions (body):
Height: 1.29" (3.27 cm)
Width: 4.25" (10.8 cm)
Depth: 2.67 (6.79 cm)
Weight: 0.88 lbs. (0.40 kg)

DESCRIPTION

By providing ample power to the TCC3022 Zone Page Amplifier, the TCC3022PS Power Supply enables maximum audio output by the TCC3022. The TCC3022PS provides a continuous maximum of 60 Watts, 24VDC power. Specifically designed to meet demanding industrial power requirements, the TCC3022PS Power Supply is a reliable, long lasting power source for the TCC3022 Zone Page Amplifier.

The TCC3022PS Power Supply includes a detachable power input cable that uses an industry standard IEC socket to allow maximum installation flexibility. It is also equipped with a 2-conductor Euroblock connector on the output cable for quick and easy attachment to the TCC3022.

ASSOCIATED EQUIPMENT

TCC3022 Zone Page Amplifier Module



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Cafeteria, Gym, and Multi-Purpose Room Clocks



TCC3012L Large Message Board

FEATURES

- Large single line text for maximum viewing distance
- Functions as single- or dual-line message board
- Instant visual messaging to any or all locations
- Static or scrolling message display
- Multiple colors for added impact
- POE+ powered that allows simple installation from a single network drop
- Display emergency instructions to enhance student and staff response
- Metal enclosure for maximum durability
- Allows immediate message distribution
- Various format of time/date display
- Create new or use preconfigured messages for immediate distribution
- Tinted lens to increase message legibility

SPECIFICATIONS

Power Requirements:

802.3at POE+ (25.5W max power draw at the device, 30.0W min required at the source)

Network Speed Requirements: Fully Switched 100Mb/s

Network Connector: RJ45 Network Socket

Auxiliary Port Connector: RJ45 Network Socket

Auxiliary Port Parameters:



- PIN 1 – N/C
- PIN 2 – OUT 1
- PIN 3 – T
- PIN 4 – DATA +
- PIN 5 – DATA –
- PIN 6 – G
- PIN 7 – 0 V
- PIN 8 – DCC

Wiring Requirements:

Data Network: Category 5e or Category 6, up to 300' (100 m) from network switch

AUX Port: Category 5e or Category 6, maximum of 100' (30.5 m)

Dimensions:

Height: 6.48" (16.46 cm)

Width: 24.84" (63.09 cm)

Depth: 1.55" (3.94 cm) without mounting bracket

Depth: 2.125" (5.40 cm) with mounting bracket

Mounting Hole Locations:

Single-gang back-box mounted vertically

Single-gang back-box mounted horizontally

Dual-gang backbox

Weight: 5.40 lbs (2.45 kg)

Display:

16 by 80 LED display

3 color LEDs

Lens Opening: 4.72" (11.99 cm) high by 23.775" (60.39 cm) wide

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)

Relative Humidity: 20% to 85%, non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)

Barometric Pressure: 8.3 PSI (15,600 Ft)

DESCRIPTION

The TCC3012L Large Message Board enhances notification capabilities by providing a large, visually appealing, multi-color LED display. Designed for use with the Telecenter U Communication System, the TCC3012L provides high visibility notification to any area in a facility. The TCC3012L can display both everyday and critical emergency messages that are essential to an orderly response.

All messages are generated by and sent from Telecenter U. All messages can be configured to be either static or scrolling and can appear at a scheduled time or upon command by TCU. Messages can also be

created on-the-fly and instantly distributed to each or all message boards. The TCC3012L can display large, 4", single-line, or smaller, 2", 2-line messages. To enhance legibility, the TCC3012L utilizes a special lens over the LEDs that allow for greater viewing distance and angles.

The TCC3012L uses Power Over Ethernet Plus (POE+) to facilitate quick installation that requires a single POE+ data network drop. TCU Accessories such as a Status Light can be connected to the AUX output port on the TCC3012L.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC2088 Status Light



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STI LED DISPLAY COVER



VFC01

PRODUCT OVERVIEW

The tough cover was designed for LED displays and more which require physical protection. Helps guard against vandalism (accidental or intentional), as well as dirt, dust and grime. Fast and easy to install, the cover mounts to the wall directly through the product mounting holes.

HOW THEY WORK

Vacuum formed PETg, food grade and chemical resistant material, the cover can take hard knocks in stride. The clear construction, and large radius corners, allows the protected device to be highly visible. As all protective covers, the LED Display Cover is backed by a three year guarantee against breakage in normal use.

KEY FEATURES

General Information

- Protects against both vandalism and accidental damage.
- Protects from dirt, dust and grime.
- Many uses include protective LED displays.
- Three year guarantee against breakage in normal use.

Construction

- Molded from PETg material.
- Resistant to most acids, alcohols, salts, hydrocarbons, mineral oils and petroleum.

Design

- Can take hard knocks in stride.
- Good impact resistance.
- Large radius corners for increased visibility at various angles.
- Designed for temperatures less than 140°F (60° C).

Installation

- Fast, easy installation.
- Mounts directly through product mounting holes.
- Indoor use recommended.
- Can be used outdoors where there is low sunlight exposure.



STI LED Display Cover

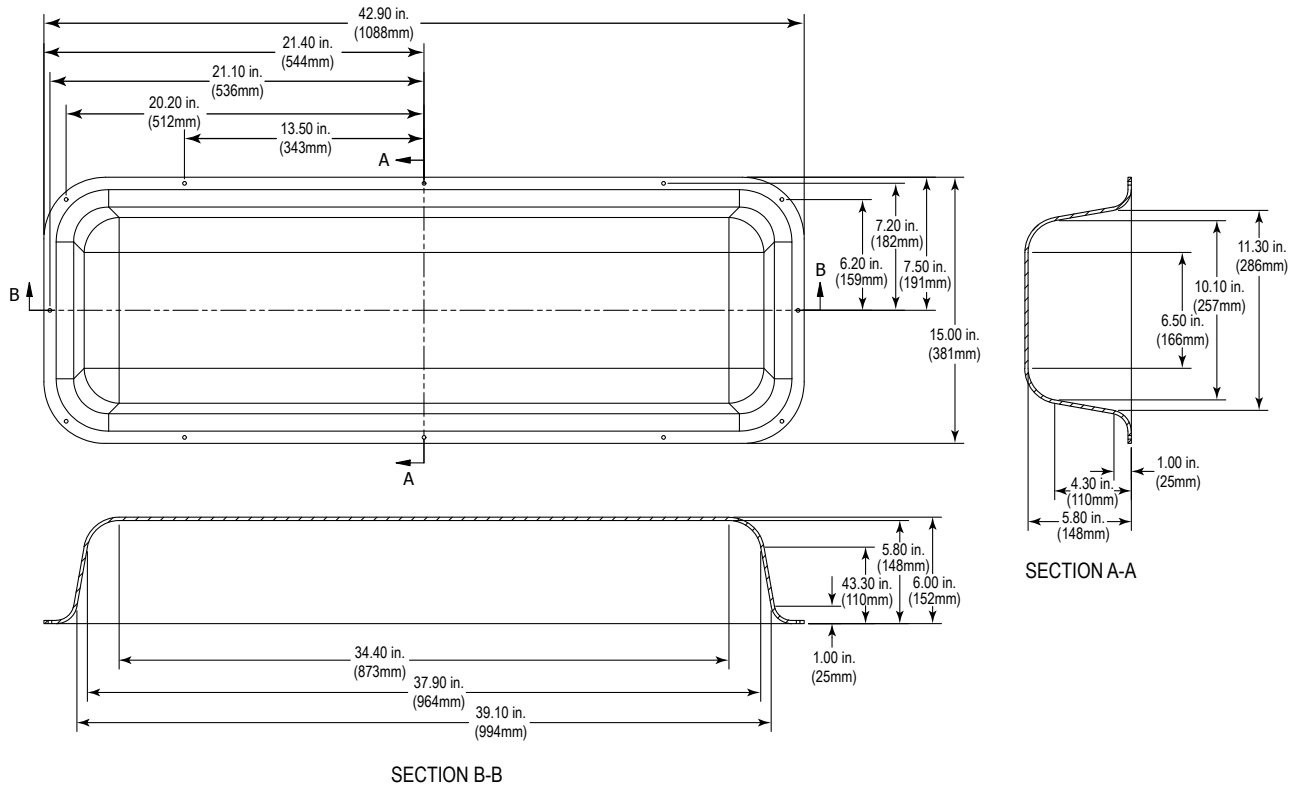
Dimensions and Technical Information

MODELS AVAILABLE

STI-VFC01 LED Display Cover

WARRANTY

Three year guarantee against breakage in normal use.



2306 Airport Road info@sti-usa.com
 Waterford, MI www.sti-usa.com
 48327, USA Tel:248-673-9898

Taylor House
 34 Sherwood Rd., Bromsgrove,
 Worcs., B60 3DR, England

info@sti-emea.com
 www.sti-emea.com
 Tel: +44 (0) 1527 520 999

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Interior Speakers

Speakers • Horns • Speaker Accessories

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MODEL: ACC1480 — 8 OHM, 8" SPEAKER ASSEMBLY
WITH RJ45 CONNECTOR



ACC1480 — 8 Ohm, 8" Speaker Assembly

FEATURES

- Includes Attached Mounting Bracket for TCC2011 IP Speaker Module
- Pre-Assembled for Time-Saving Installation
- Mar-Proof Baked White Finish
- Premium Quality 8 Ohm, 8" Speaker
- "Whizzer" Cone for Extended High Frequency Response
- RJ45 Connector Socket For Quick Installation With Structured Cabling

SPECIFICATIONS

Speaker Type: 8 inch (20.3 cm) Permanent Magnet
Power Rating: 8 Watts RMS
Sensitivity: 93 dB @ 1 Meter with 1 Watt Input
Frequency Response: 65 to 17,000 Hertz
Magnet: 5 oz. (141.7 g) PM
Voice Coil Impedance: 8 Ohms

Voice Coil Diameter: 0.75" (1.9 cm)
Baffle: White, 22-gauge Cold-rolled Steel
Baffle Diameter: 12 7/8"
Mounting Depth (with TCC2011 IP Module): 2.75" (7.0 cm)
Finish: Baked Enamel
Weight: 2 lbs. 6 oz. (1.1kg)

DESCRIPTION

The ACC1480 8 Ohm Speaker Assembly consists of a high efficiency USO188 8" loudspeaker mounted on a round, steel, white baffle (ACC1000), which can be attached to an ACC1100, ACC1101, ACC1103, ACC1110 Backbox, an ACC1104 Speaker Support Bridge, or an ACC1109 Channel Support. The high efficiency ACC1480 provides maximum sound output with minimal audio power.

The ACC1480 Speaker Assembly is well suited for use in classrooms, hallways, meeting rooms, or any area that requires a flush mount speaker with excellent sound reproduction quality. The ACC1480 Speaker Assembly is packaged as a complete unit that significantly reduces installation time and project costs.

ASSOCIATED EQUIPMENT

ACC1000 Flush Mount Square Backbox
ACC1101 Flush Mount Round Backbox
ACC1101 Flush Mount Round Backbox
ACC1103 Flush Mount Round Backbox
ACC1110 Flush Mount Round Backbox
ACC1104 Speaker/Baffle Tile Bridge Support
ACC1109 Speaker/Baffle Support Channel
TCC2011 Telecenter U Campus IP Classroom Module
All 8 Ohm Audio Equipment

Architect and Engineer (A&E) Specifications available online at: customerconnection.rauland.com
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FEATURES

- Provides Programmable 2W Audio Signal to an 8Ω Speaker
- Supports Bi-Directional Audio Capable of Operation as Both Microphone and Speaker Interface
- Onboard Relay Facilitates Control of External Devices such as Alert Lights/Strobes
- Connects Classroom Devices such as Call Switches and Speakers
- Supports All Current Rauland Callswitch Models
- Mountable in Wall, 4-Gang Electrical Box or Plenum Spaces
- Digital Encryption of all Control Signals for Excellent Security
- Compliant with IEEE 802.3af Power Over Ethernet Standard
- UL Listed for Enhanced Code Compliance

TCC2011A Telecenter U IP Classroom Module
(network cable not included)

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af (12.5 Watts Max)

Network Requirements: Fully Switched 100 Mb/s

Network Connector: One RJ45 Network Socket

Connectors: Two RJ45 Sockets

Wiring Requirements: Classroom Devices - 24 AWG Minimum
(Cat5e+)

Cabling Distance: Maximum of 10' (3 Meters) from TC2011A to 8Ω Classroom Speaker,
Maximum of 100' (30 Meters) from TCC2011A to Call Switch

Audio Controlled Relay Output: Single Pole, Single Throw (SPST),
Normally Open, 24VDC @ 1A, 125VAC @ 1A

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity : 15% to 95%,
non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 4.6" (11.7 cm)

Width: 2.95" (7.5 cm) (not including mounting tabs)

Width: 3.8" (9.6 cm) (including mounting tabs)

Depth: 1.1" (2.8 cm)

Mounting Slot Locations:

Height: 1.8 (4.6 cm) (center to center)

Width: 3.3" (8.3 cm) (center to center)

Width: 0.15" (0.39 cm)

Height: 0.37 (0.92 cm)

Weight: 0.25 lbs (0.11 kg)

DESCRIPTION

The TCC2011A IP Classroom Module is an integral part of the Telecenter U system and provides a reliable communications link to the front office by utilizing the school's data network. Based on IP standards, the TCC2011A controls two way audio signals for clear, noiseless full bandwidth intercom and paging. Equipped with a SPST relay, the TCC2011A can also trigger a visual indicator such as a strobe whenever high priority audio signals are present. The versatile TCC2011A includes a pair of RJ45 output sockets for the connection of room devices. The additional output socket greatly simplifies integration with Telecenter Class sound reinforcement systems.

Connection points for call switches and speakers are included on the TCC2011A. All current Rauland call switches except those with call assurance LEDs are supported as well as all 8 Ohm speakers.

With a 2 Watt audio output, the TCC2011A provides excellent audio coverage for all K-12 classrooms. Designed for optimal installation flexibility, the TCC2011A can be mounted on Rauland speakers or in a 4-gang electrical box. The TCC2011A IP Classroom Module is UL approved for direct installation in air handling spaces without a backbox, in strict accordance with section 300.22(c) of the National Electrical Code.

Capable of delivering a full 2W of audio power to an 8 Ohm speaker, the TCC2011A audio power output is also software configurable for maximum installation flexibility. The 8 Ohm speaker output of the TCC2011A can be easily programmed to provide 2W, 1.5W, 1W, 0.5W, and 0.25W to meet the needs of any size classroom with the an 8 Ohm speaker. This simple configuration is done using a standard Web browser without difficult and labor intense field wiring changes to transformer taps. Additionally the advanced Web GUI provides individual volume control for each device with a simple volume slider interface.



Rauland
A Division of AMETEK, Inc.

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Toll Free

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From Outside
the U.S.

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Architect and Engineer (A&E) Specifications
available online at customerconnection.rauland.com
Specifications subject to change without notice.

ASSOCIATED EQUIPMENT

Campus Components

- TCC2000 Campus Controller
- TCC2022 Zone Module
- TCC2033 Auxiliary I/O Module
- TCC2044 IP Admin. Console
- TCC2055 Program Module
- TCC2077 Microphone Input Module
- TCC2088 Status Light

Callswitches

- 2305CS Single Pushbutton
- 2308PC Three Position Privacy
- HSS13 Single Pushbutton High Security
- HSS8 High Security Emergency
- 603302 Dual Pushbutton Normal/Emergency with RJ45 Jack
- TCDPB2 Dual Pushbutton
- TCSPB1 Single Pushbutton
- TCPVY Privacy Callswitch
- TCC2201PB Single Pushbutton with RJ45 Jack
- TCC2211PB Dual Pushbutton Emergency/Check-In with RJ45 Jack

Speakers

- ACC1480 8 Ohm 5 Watt Assembly with Baffle
- ACCWB8RJ 8 Ohm, Surface Mount Speaker Assembly with RJ45 Jack
- BAFKIT1X2S8RJ 1' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- BAFKIT2X2L8RJ 2' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- US0880 8 Ohm, 8" Speaker

Misc.

- 603101 Category Cabling Breakout Module
- CSLMIC Telecenter Class Wireless Microphone
- CSMREC Telecenter Class Receiver Module



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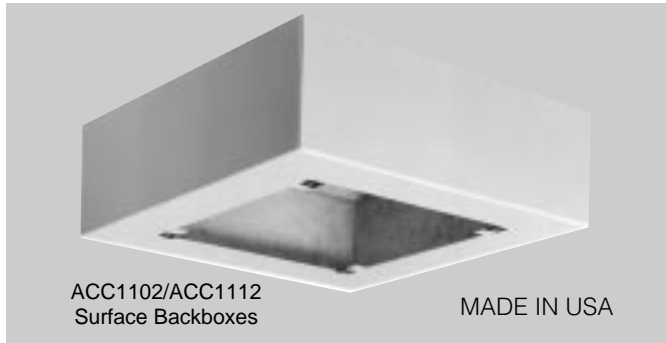
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ACC1102/ACC1112
Surface Backboxes

MADE IN USA



ACC1113/ACC1118
Surface Backboxes

MADE IN USA

FEATURES

- Attractive White Epoxy Finish
- Surface-Mounted Design
- 18-Gauge Steel Construction

SPECIFICATIONS

Type: Square surface backbox
Material: 18-gauge cold-rolled steel
Finish: White epoxy
Size: 12-1/2" (31.75 cm) square, 4" (10.16 cm) deep
Weight: 6-1/2 lbs. (2.94 kg)
Used With: ACC1102—ACC1004 Baffle
 ACC1112—ACC1003 Baffle

DESCRIPTION

The Rauland ACC1102 /ACC1112 Backboxes are square surface enclosures designed for convenient installation in new or existing construction. The ACC1102 backbox is designed for use with the Rauland ACC1004 baffle. The ACC1112 backbox is for use with the Rauland ACC1003 baffle. The backboxes are made of 18-gauge cold-rolled steel and have a white epoxy finish. The interior surfaces are jute-lined to prevent metallic resonance and vibration and afford proper acoustical results. The backboxes, measuring 12-1/2" (31.75 cm) square x 4" (10.16 cm) deep, accommodate 8" speaker/baffle assemblies. Four-baffle-mounting fasteners are provided.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Backbox shall be a Rauland (ACC1102/ACC1112) or approved equal surface mounted enclosure designed to accommodate 8" speaker/baffle assemblies. The ACC1102 backbox shall be designed for use with the ACC1004 baffle; the ACC1112 backbox shall be used with the ACC1003 baffle. It shall be constructed of 18-gauge cold-rolled steel and shall have a semi-gloss white epoxy finish. The interior surfaces shall be jute lined to eliminate metallic resonance and vibration. The backbox shall measure no more than 12-1/2" (31.75 cm) square x 4" (10.16 cm) deep. Four mounting fasteners shall be provided.

FEATURES

- Virtually Tamper-Proof
- Surface-Mounted Design
- .060" Steel Construction
- No Damping Required

SPECIFICATIONS

Type: Square surface backbox
Material: .060" cold-rolled steel
Finish: White epoxy
Size: 11.625" (29.53 cm) square
 ACC1113—4" (10.16 cm) deep
 ACC1118—6" (15.24 cm) deep
Weight: 6 lbs. (2.72 kg)

DESCRIPTION

The Rauland ACC1113/ACC1118 Backboxes are square surface-mounting enclosures designed for easy wall or ceiling installation. They are constructed of a single piece of .060" cold-rolled steel folded and welded for maximum protection against vandalism. The steel construction eliminates the need for internal damping. The finish is durable white epoxy. The ACC1113 Backbox (4" deep) accommodates the Rauland ACC1003 or ACC1012 baffles. The ACC1118 backbox (6" deep) accommodates the Rauland ACC1014 Baffle and 3607 horn.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Backboxes shall be Rauland (ACC1113/ACC1118) or approved equal surface-mounted enclosure designed to accommodate (ACC1012/ACC1003 baffles) (ACC1014 baffle and 3607 horn) assemblies. They shall be constructed of a single piece of .060" cold-rolled steel folded and welded for maximum protection against vandalism. The thickness and rigidity of the steel construction shall eliminate the need for internal damping. The finish shall be white epoxy. The ACC1113 shall measure 11.625" (29.53 cm) square x 4" (10.16 cm) deep. The ACC1118 shall measure 11.625" (29.53 cm) square x 6" (15.24 cm) deep.

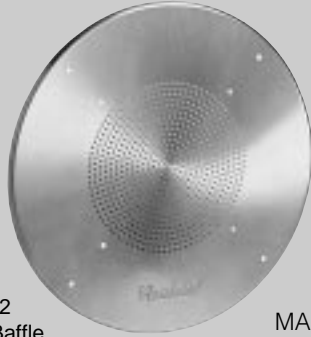
RAULAND-BORG CORPORATION

3450 West Oakton Street, Skokie, Illinois 60076-2958 • Tel: (847) 679-0900 • FAX: (847) 679-0625

ACC1002/ACC1003 Baffles

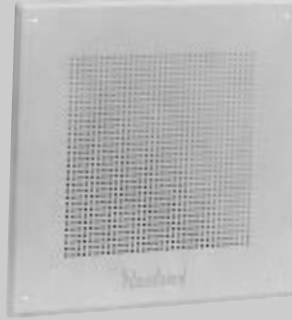


SPEAKERS • HORNS • SPEAKER ACCESSORIES



ACC1002
Ceiling Baffle

MADE IN USA



MADE IN USA

ACC1003
Ceiling Baffle

FEATURES

- Handsome Brushed Aluminum Finish
- Sturdy One-Piece Construction
- Matches Many Existing Installations
- Exceptional Baffle Value

SPECIFICATIONS

Type: Round one-step contour

Material: Heavy spun aluminum

Finish: Brushed aluminum

Size: 12-5/8" (32.06 cm) diameter

Weight: 6.5 oz. (184.27 g)

Recommended Backbox: ACC1100, ACC1101, ACC1103, ACC1110, ACC1104 Bridge ACC1109 Channel Support

DESCRIPTION

The Rauland ACC1002 Baffle is designed for efficient and attractive flush wall or ceiling mount. It is constructed of aluminum in one piece, with attractive brushed satin finish. Designed to accommodate 8" speakers, it has a diameter of 12-5/8" (32.06 cm). The unit has pre-drilled holes for easy speaker mounting, and may be mounted in all standard backboxes, plaster rings or support bridges. An economical ceiling baffle, it is designed to complement the environment in which it is installed.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Flush-Mount (Ceiling/Wall) Baffle shall be a Rauland ACC1002 or approved equal. It shall be constructed in one piece of aluminum and shall have a brushed satin finish. It shall accommodate any 8" speaker and shall have a diameter of 12-5/8" (32.06 cm). The baffle shall have pre-drilled holes for convenient speaker mounting. It shall mount in all standard backboxes, plaster rings or support bridges. The baffle weight shall not exceed 6.5 oz. (184.27 g).

FEATURES

- Mar-Proof Baked Epoxy Finish
- 22-Gauge Steel One-Piece Construction
- Attractive Square Design
- Concealed Speaker Mounting Studs

SPECIFICATIONS

Type: One-step contour square

Finish: White, baked epoxy

Material: 22-gauge cold-rolled steel, zinc-treated

Size: 11-1/2" (29.21 cm) square

Weight: 20 oz. (567.0 g)

Recommended Backbox: ACC1104 Bridge, ACC1105, ACC1112, ACC1113, ACC1114

DESCRIPTION

The Rauland ACC1003 Baffle is intended for flush-mounting 8" speakers in walls or ceilings. It is constructed of 22-gauge cold-rolled steel, zinc-treated to resist corrosion. The finish is baked powdered epoxy which is virtually scratch-and mar-proof. The one-piece steel construction eliminates vibration, and the perforation pattern provides wide sound dispersion and exceptional audio quality. The baffle is designed for screw attachment to most standard backboxes and support bridges. It has four concealed welded studs for simple speaker mounting.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Flush-Mount (Ceiling/Wall) Speaker Baffle shall be a Rauland ACC1003 or approved equal. It shall be constructed of 22-gauge cold-rolled steel, zinc-treated to resist corrosion. The external finish shall be white baked powdered epoxy which shall be virtually scratch-and mar-proof. Construction shall be one-piece to eliminate vibration, and the perforation pattern shall be designed for wide sound dispersion. The baffle shall be designed for screw attachment to most standard backboxes and support bridges.

Specifications subject to change without notice.

RAULAND-BORG CORPORATION

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In Canada: RAULAND-BORG (CANADA) INC. • 6535 Millcreek Drive, Unit 5, Mississauga, Ontario, Canada L5N 2M2 • (905) 821-2225 • FAX: (905) 821-8325

Exterior Speakers

Model No.

8C10MRB

8-inch 15W Moisture-Resistant Cone Driver



INCLUDES:

- 8-inch 15W moisture-resistant cone driver

THE 8C10MRB MOISTURE-RESISTANT DRIVER is made for utility paging and low level background music systems that may be subjected to high humidity such as those in greenhouses, locker rooms, hot tub areas, protected spaces in outdoor cafes, and similar venues.

FEATURES

DESCRIPTION: The 8-inch single cone driver features a 10 oz. magnet, 1-inch voice coil, and cotton cloth cone that's treated with phenolic resin and coated with acrylic lacquer for moisture-resistant performance. The driver is made to mount to a standard 8-inch grille and backbox and is suitable for use in indoor areas or outdoor areas that protected from direct exposure to elements (rain, snow, sun, etc.).

FRAME: Stamped 20-gauge steel basket with zinc-plated finish to prevent rust and corrosion

POWER RATING: 15W RMS

FREQUENCY RESPONSE: 77Hz–7.5kHz (± 6 dB);
50Hz–20kHz (± 18.3 dB)

DISPERSION ANGLE: 90 degrees conical @2kHz octave
(-6dB).

SENSITIVITY: Average SPL = 96.7dB (@1W/1M);
Maximum SPL = 108.5dB (calculated based on power rating and measured sensitivity)

MOUNTING DEPTH: 2.84 inches

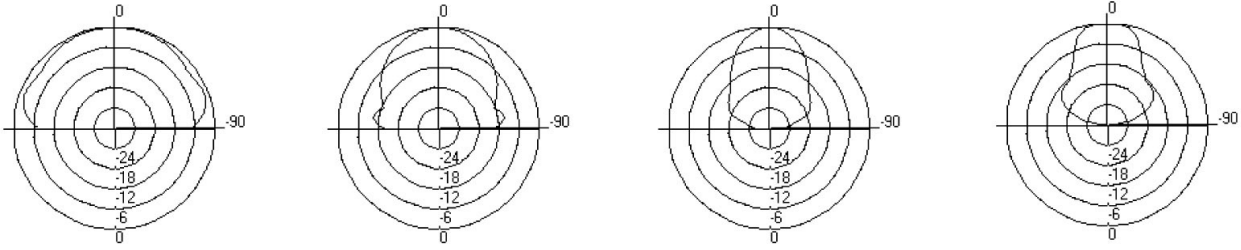
NET WEIGHT: 2.0 lbs.

COUNTRY OF ORIGIN: Assembled in U.S.A. with global components.

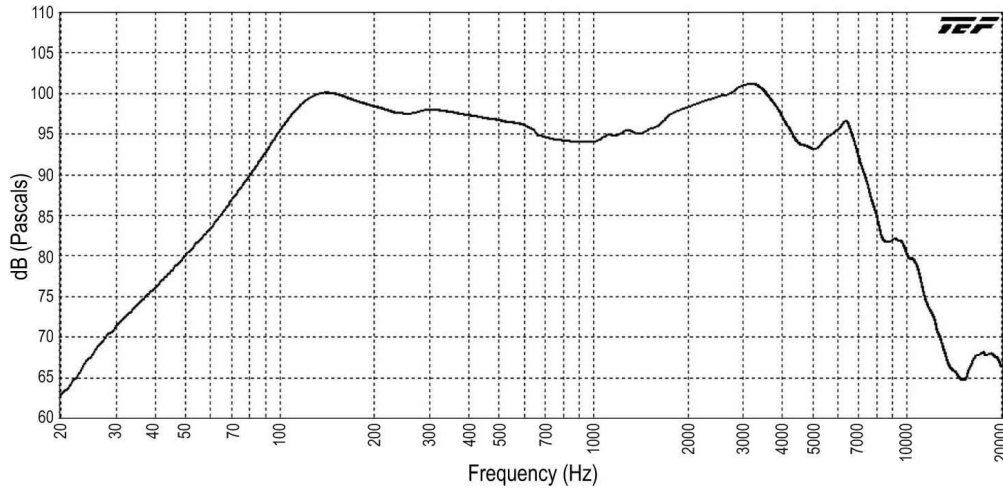
A&E SPECIFICATIONS

The 8-inch driver shall be Lowell Model 8C10MRB, which shall be the permanent magnet type with a cotton cloth cone treated with phenolic resin and coated with acrylic lacquer for moisture-resistant performance. It shall be capable of producing a uniform audible frequency response over the range of 77Hz–7.5kHz (± 6 dB) and 50Hz–20kHz (± 18.3 dB) with dispersion angle of 90 degrees @2000Hz (-6dB). Average sensitivity shall measure 96.7dB SPL (at 1W/1M). Rated power capacity shall be 15 watts RMS. The voice coil shall have a diameter of 1-inch and operate in a magnetic field derived from a strontium ferrite (ceramic) magnet having a nominal weight of 10 oz. Voice coil impedance shall be 8ohms. The frame shall be stamped 20-gauge steel with 8.062-inch diameter and 8 obround holes equally spaced at 45 degrees on the 7.625-inch diameter mounting bolt circle. Overall depth shall not exceed 2.84 inches. External metal parts shall be zinc-plated to resist rust and corrosion.

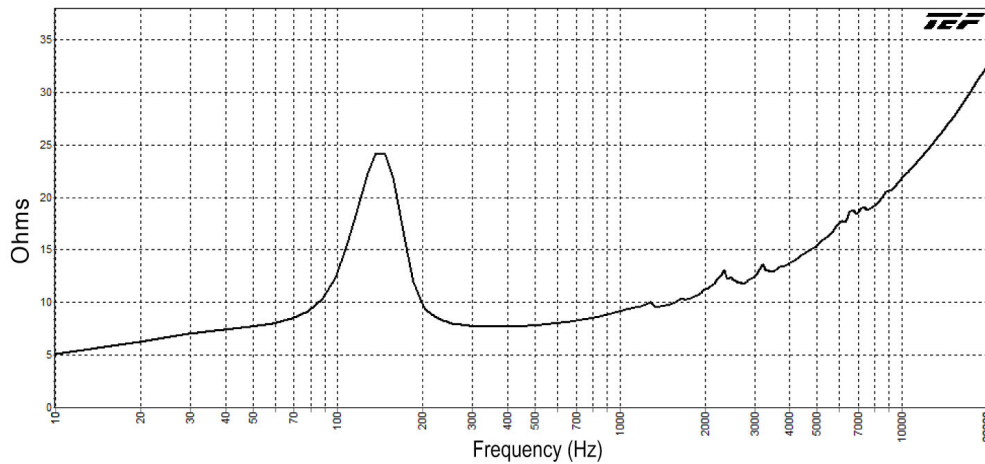
POLAR DATA (HALF SPACE)



SPL VS. FREQUENCY (1W/1M, HALF SPACE, ON-AXIS)



IMPEDANCE



DRIVER SPECIFICATIONS

PERFORMANCE:

| | |
|--------------------------|--|
| Power Rating | 15 watts RMS (nominal) measured per E.I.A. Standard RS-426B |
| Sensitivity | 96.7dB Average SPL (measured 2.83V @1m) 108.5dB Maximum SPL (calculated based on power rating and measured sensitivity) |
| Impedance | Driver Nominal Impedance: 8 ohms Driver Minimum Impedance: 7.7 ohms @303Hz |
| Frequency Response | 77–7.5kHz (±6dB); 50–20kHz (±18.3dB) |
| Dispersion Angle | 90 degrees conical @2kHz octave (-6dB) |

PHYSICAL – WOOFER:

| | |
|------------------|--|
| Cone | Moisture-resistant impregnated cloth with self edge surround |
| Magnet | 10 oz. (264g), strontium ferrite ceramic |
| Voice Coil | 1 in. (26mm) diameter, copper wire |
| Terminals | Quick disconnect type, spade lugs |

MECHANICAL:

| | |
|---------------------------|---|
| Basket | 20-gauge stamped steel with zinc plating |
| Outside Diameter | 8.062 in. (205mm) |
| Mounting Bolt Circle..... | 7.625" Fits grilles with 7.5 to 7.75-in. (190.5–196.9mm) mounting centers, with 8 obround holes equally spaced at 45 degrees |
| Cutout Diameter | For rear mounting: 6.875 in. (174.6mm) For front mounting: 7.15 in. (181.6mm) |
| Mounting Depth | 2.84 in. (72mm) |
| Net Weight..... | 2.0 lbs. (0.92kg) |

THIELE-SMALL PARAMETERS:

| | | | | | | | |
|-----------|----------|----------|-------|--------------------|-------------|-----------|-----------------------|
| Pe | 15 W | Qts..... | 1.225 | BL..... | 6.3 Tm | Sd | 227.0 cm ² |
| Fs | 123.4 Hz | Qes..... | 1.451 | Efficiency, h..... | 1.71 % | Mms..... | 9.01 g |
| Xmax..... | 0.3 mm | Qms..... | 7.91 | Vas | 13.7 liters | Cms | 187.8 uM/N |
| Re | 7.6 ohms | | | | | | |

SCOPE OF PERFORMANCE AND POWER TESTS: Lowell drivers and loudspeaker systems are tested to provide specifiers and contractors with data that reflects the performance of production products. Testing equipment includes the GoldLine TEF-20 analyzer (for performance measurements) and the LinearX LMS measurement system (for Thiele-Small Parameters).

Power Rating is tested based on EIA Standard RS-426B.

Frequency Response data is provided which is the measured frequency response range (defined by ±6dB) which is useful in predictive engineering calculations.

Sensitivity (SPL) data is presented in two ways:

1. Log Average SPL is a computer calculated log average of the SPL measured at 1 meter with 1 watt input over the stated frequency response range.
2. Maximum SPL is calculated based on the measured log average SPL and the 8ohm power rating of the speaker. Maximum SPL for speakers that do not include an 8ohm input, is calculated based on the measured log average SPL and the highest transformer power tap.

Dispersion Angle is defined as the angle of coverage that is no more than 6dB down from the on-axis value averaged over the 2000Hz octave band. Since speech intelligibility is very dependent upon the 2000Hz octave, this specification is quite useful in designing speech reinforcement systems that provide even coverage and speech intelligibility.

Thiele-Small Parameters for raw drivers are measured using the LinearX LMS measurement system. These parameters are useful in determining the optimum type and size of enclosure for a specific driver.

Polar Data is presented for the averaged one octave band surrounding the center frequencies of 1000Hz, 2000Hz, 4000Hz, and 8000Hz. Radial polar response curves show the relative change in sound pressure level as one moves from directly on-axis to an increasingly off-axis listening position. Since coaxial speaker drivers are symmetrical in the vertical and horizontal directions, only one set of polar plots will be presented for coaxial drivers and speaker systems incorporating coaxial drivers.

Impedance Data may be represented in four different ways depending on the particular model:

1. Nominal Impedance is the generally accepted impedance value for use in making comparisons with competitive products.
2. Impedance Curve is a graphical representation of the 8ohm driver impedance measured in the lab and gives the impedance of the device over the audio frequency range.
3. Minimum Impedance is the lowest impedance measurement of the 8ohm driver at a frequency within the specified frequency response range of the speaker.
4. Impedance Measured at 1kHz is the reading expected to be measured by a technician in the field using a typical industry 1kHz impedance meter.

8C10MRB SERIES OVERVIEW

THIS SPEC

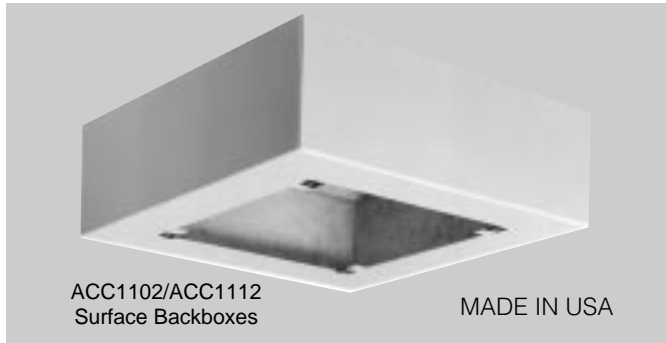
| Model No. | Driver | Transformer | Transformer Primary Taps | Mounting Depth* | Outside Diameter | Net Weight | Sensitivity*** | System Specs Frequency Response | Dispersion Angle**** |
|-------------|--------------------------------|-------------|--------------------------|-----------------|------------------|------------|----------------|--|----------------------|
| 8C10MRB | 8" 15W moisture-resistant cone | --- | --- | 2.84" | 8.062" | 2 lbs. | 96.7 dB | 77Hz-7.5kHz (±6dB) 50Hz-20kHz (±18.3dB) | 90° |
| 8C10MRB-T72 | 8" 15W moisture-resistant cone | 25V/70V | .25, .5, 1, 2, 5W | 2.84" | 8.062" | 2.4 lbs. | 96.8 dB | 75Hz-7.5kHz (±6dB) 50Hz-20kHz (±17.8dB) | 90° |

* Mounting Depth: Minimum depth required for assembly to be rear-mounted to grille in an enclosure.

** Sensitivity: Average SPL (measured 2.83V @ 1M)

*** Dispersion Angle: Conical @ 2kHz octave (-6dB)

Note on Speaker Spacing: Conical dispersion measurements are provided for comparison with other speakers. To determine correct speaker spacing, see the technical paper "Distributed System Speaker Spacing for the Integrator" (www.Lowellmfg.com) which explains the difference between conical and linear dispersion and the measurements to use for best results. For quick calculations, a calculator for speaker spacing is also available online under Resources – Interactive Tools.



ACC1102/ACC1112
Surface Backboxes

MADE IN USA



ACC1113/ACC1118
Surface Backboxes

MADE IN USA

FEATURES

- Attractive White Epoxy Finish
- Surface-Mounted Design
- 18-Gauge Steel Construction

SPECIFICATIONS

Type: Square surface backbox
Material: 18-gauge cold-rolled steel
Finish: White epoxy
Size: 12-1/2" (31.75 cm) square, 4" (10.16 cm) deep
Weight: 6-1/2 lbs. (2.94 kg)
Used With: ACC1102—ACC1004 Baffle
 ACC1112—ACC1003 Baffle

.DESCRIPTION

The Rauland ACC1102 /ACC1112 Backboxes are square surface enclosures designed for convenient installation in new or existing construction. The ACC1102 backbox is designed for use with the Rauland ACC1004 baffle. The ACC1112 backbox is for use with the Rauland ACC1003 baffle. The backboxes are made of 18-gauge cold-rolled steel and have a white epoxy finish. The interior surfaces are jute-lined to prevent metallic resonance and vibration and afford proper acoustical results. The backboxes, measuring 12-1/2" (31.75 cm) square x 4" (10.16 cm) deep, accommodate 8" speaker/baffle assemblies. Four-baffle-mounting fasteners are provided.

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Backbox shall be a Rauland (ACC1102/ACC1112) or approved equal surface mounted enclosure designed to accommodate 8" speaker/baffle assemblies. The ACC1102 backbox shall be designed for use with the ACC1004 baffle; the ACC1112 backbox shall be used with the ACC1003 baffle. It shall be constructed of 18-gauge cold-rolled steel and shall have a semi-gloss white epoxy finish. The interior surfaces shall be jute lined to eliminate metallic resonance and vibration. The backbox shall measure no more than 12-1/2" (31.75 cm) square x 4" (10.16 cm) deep. Four mounting fasteners shall be provided.

FEATURES

- Virtually Tamper-Proof
- Surface-Mounted Design
- .060" Steel Construction
- No Damping Required

SPECIFICATIONS

Type: Square surface backbox
Material: .060" cold-rolled steel
Finish: White epoxy
Size: 11.625" (29.53 cm) square
 ACC1113—4" (10.16 cm) deep
 ACC1118—6" (15.24 cm) deep
Weight: 6 lbs. (2.72 kg)

DESCRIPTION

The Rauland ACC1113/ACC1118 Backboxes are square surface-mounting enclosures designed for easy wall or ceiling installation. They are constructed of a single piece of .060" cold-rolled steel folded and welded for maximum protection against vandalism. The steel construction eliminates the need for internal damping. The finish is durable white epoxy. The ACC1113 Backbox (4" deep) accommodates the Rauland ACC1003 or ACC1012 baffles. The ACC1118 backbox (6" deep) accommodates the Rauland ACC1014 Baffle and 3607 horn.

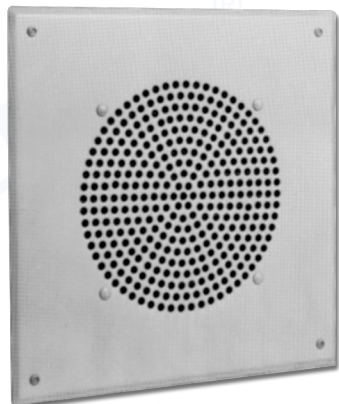
ARCHITECTS AND ENGINEERS SPECIFICATIONS

The Backboxes shall be Rauland (ACC1113/ACC1118) or approved equal surface-mounted enclosure designed to accommodate (ACC1012/ACC1003 baffles) (ACC1014 baffle and 3607 horn) assemblies. They shall be constructed of a single piece of .060" cold-rolled steel folded and welded for maximum protection against vandalism. The thickness and rigidity of the steel construction shall eliminate the need for internal damping. The finish shall be white epoxy. The ACC1113 shall measure 11.625" (29.53 cm) square x 4" (10.16 cm) deep. The ACC1118 shall measure 11.625" (29.53 cm) square x 6" (15.24 cm) deep.

RAULAND-BORG CORPORATION

3450 West Oakton Street, Skokie, Illinois 60076-2958 • Tel: (847) 679-0900 • FAX: (847) 679-0625

MODEL: ACC1012 – VANDAL RESISTANT, SQUARE 8" SPEAKER BAFFLE



ACC1012

FEATURES

- 14-Gauge, Carbon Steel Construction
- Heavy Gauge, Protective Lattice Grid Sub-Plate
- Mar-Proof, Baked Epoxy Finish Over A Thick Zinc Primer
- Easy, Flush Mount Installation
- Fits Most Standard Backboxes
- Tamper-Proof Hardware Is Included

SPECIFICATIONS

Type: Square, two-piece construction

Material: 14-gauge carbon steel, zinc-treated

Finish: White baked epoxy

Dimensions: 11.5" square (29.2 cm)

Weight: 3 lbs. (1.4 kg)

Recommended Backbox:

ACC1105 – Flush Mount Square Backbox

ACC1117 – Flush Mount Square Backbox

DESCRIPTION

The Rauland ACC1012 is a square, vandal-proof baffle with a modern appearance for flush-mounting 8" loudspeakers. It is recommended for use in speaker installations where vandal-proof operation is an important requirement. Its unobtrusive appearance is similar to most contemporary baffles.

The carbon steel faceplate is 14-gauge, with a tensile strength exceeding 55,000 p.s.i. It is dipped in a zinc bath to provide long lasting protection against rust and corrosion, and then coated with a baked, powdered epoxy to

provide a tough surface. A heavy gauge steel sub-plate incorporates a unique interlocking lattice grid pattern which provides maximum protection to the speaker, making it virtually tamper proof. This design prevents penetration by any tool or object, yet is acoustically transparent, permitting full passage of the speaker output.

The sub-plate and speaker are secured with hardened, square shank, carriage bolts. The baffle is easily secured to the ACC1105 Backbox with the included hardened, tamper-proof screws.

ASSOCIATED EQUIPMENT

Telecenter Communication Systems

ACC1105 – Flush Mount Square Backbox

ACC1117 – Flush Mount Square Backbox

*Architect and Engineer (A&E) Specifications available online at: customerconnection.rauland.com
Specifications subject to change without notice*

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www.rauland.com



Rauland-Borg Corporation



FEATURES

- Provides Programmable 2W Audio Signal to an 8Ω Speaker
- Supports Bi-Directional Audio Capable of Operation as Both Microphone and Speaker Interface
- Onboard Relay Facilitates Control of External Devices such as Alert Lights/Strobes
- Connects Classroom Devices such as Call Switches and Speakers
- Supports All Current Rauland Callswitch Models
- Mountable in Wall, 4-Gang Electrical Box or Plenum Spaces
- Digital Encryption of all Control Signals for Excellent Security
- Compliant with IEEE 802.3af Power Over Ethernet Standard
- UL Listed for Enhanced Code Compliance

TCC2011A Telecenter U IP Classroom Module
(network cable not included)

SPECIFICATIONS

Power Requirements: Power Over Ethernet 802.3af (12.5 Watts Max)

Network Requirements: Fully Switched 100 Mb/s

Network Connector: One RJ45 Network Socket

Connectors: Two RJ45 Sockets

Wiring Requirements: Classroom Devices - 24 AWG Minimum
(Cat5e+)

Cabling Distance: Maximum of 10' (3 Meters) from TC2011A to 8Ω Classroom Speaker,
Maximum of 100' (30 Meters) from TCC2011A to Call Switch

Audio Controlled Relay Output: Single Pole, Single Throw (SPST),
Normally Open, 24VDC @ 1A, 125VAC @ 1A

Environmental Parameters:

Operating: Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity : 15% to 95%,
non-condensing

Storage: Temperature: -4° to 158° F (-20° to 70° C)
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 4.6" (11.7 cm)

Width: 2.95" (7.5 cm) (not including mounting tabs)

Width: 3.8" (9.6 cm) (including mounting tabs)

Depth: 1.1" (2.8 cm)

Mounting Slot Locations:

Height: 1.8 (4.6 cm) (center to center)

Width: 3.3" (8.3 cm) (center to center)

Width: 0.15" (0.39 cm)

Height: 0.37 (0.92 cm)

Weight: 0.25 lbs (0.11 kg)

DESCRIPTION

The TCC2011A IP Classroom Module is an integral part of the Telecenter U system and provides a reliable communications link to the front office by utilizing the school's data network. Based on IP standards, the TCC2011A controls two way audio signals for clear, noiseless full bandwidth intercom and paging. Equipped with a SPST relay, the TCC2011A can also trigger a visual indicator such as a strobe whenever high priority audio signals are present. The versatile TCC2011A includes a pair of RJ45 output sockets for the connection of room devices. The additional output socket greatly simplifies integration with Telecenter Class sound reinforcement systems.

Connection points for call switches and speakers are included on the TCC2011A. All current Rauland call switches except those with call assurance LEDs are supported as well as all 8 Ohm speakers.

With a 2 Watt audio output, the TCC2011A provides excellent audio coverage for all K-12 classrooms. Designed for optimal installation flexibility, the TCC2011A can be mounted on Rauland speakers or in a 4-gang electrical box. The TCC2011A IP Classroom Module is UL approved for direct installation in air handling spaces without a backbox, in strict accordance with section 300.22(c) of the National Electrical Code.

Capable of delivering a full 2W of audio power to an 8 Ohm speaker, the TCC2011A audio power output is also software configurable for maximum installation flexibility. The 8 Ohm speaker output of the TCC2011A can be easily programmed to provide 2W, 1.5W, 1W, 0.5W, and 0.25W to meet the needs of any size classroom with the an 8 Ohm speaker. This simple configuration is done using a standard Web browser without difficult and labor intense field wiring changes to transformer taps. Additionally the advanced Web GUI provides individual volume control for each device with a simple volume slider interface.



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ASSOCIATED EQUIPMENT

Campus Components

- TCC2000 Campus Controller
- TCC2022 Zone Module
- TCC2033 Auxiliary I/O Module
- TCC2044 IP Admin. Console
- TCC2055 Program Module
- TCC2077 Microphone Input Module
- TCC2088 Status Light

Callswitches

- 2305CS Single Pushbutton
- 2308PC Three Position Privacy
- HSS13 Single Pushbutton High Security
- HSS8 High Security Emergency
- 603302 Dual Pushbutton Normal/Emergency with RJ45 Jack
- TCDPB2 Dual Pushbutton
- TCSPB1 Single Pushbutton
- TCPVY Privacy Callswitch
- TCC2201PB Single Pushbutton with RJ45 Jack
- TCC2211PB Dual Pushbutton Emergency/Check-In with RJ45 Jack

Speakers

- ACC1480 8 Ohm 5 Watt Assembly with Baffle
- ACCWB8RJ 8 Ohm, Surface Mount Speaker Assembly with RJ45 Jack
- BAFKIT1X2S8RJ 1' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- BAFKIT2X2L8RJ 2' x 2' Lay-in Assembly, 8Ω Speaker with RJ45 Jack
- US0880 8 Ohm, 8" Speaker

Misc.

- 603101 Category Cabling Breakout Module
- CSLMIC Telecenter Class Wireless Microphone
- CSMREC Telecenter Class Receiver Module



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MODEL: 603101 CATEGORY CABLING BREAKOUT MODULE



603101

FEATURES

- Three RJ45 and One RJ11 Jack for Category Cabling Connection
- Eight Color Coded Wires (pigtail) for Connection to Classroom Devices
- Connects Analog Phone, Speaker, Call Switch and Analog Clock to Category Cabling
- Simplifies Classroom Wiring
- Reduces Wiring Errors
- Enhances Profits by Decreasing Installation Time

SPECIFICATIONS

Connectors: (3) RJ-45 Jacks
 (1) RJ-11 Jack
 8-wire, color coded, 8" (20.3 cm), 22AWG, stranded, tinned wire pigtail

Dimensions: Height: 0.75" (1.9 cm)
 Width: 1.8" (4.5 cm)
 Depth: 1.4" (3.6 cm)

Environmental Parameters:

Temp: 30° F (0° C) – 120° F (50° C)
 Relative Humidity: 15% ~ 95% (non-condensing)

Weight: 0.06 lbs. (0.03 kg)

DESCRIPTION

The 603101 Cat5e or Cat6 Breakout Module can be used for connection of Category Wiring to classroom devices. With (3) RJ45 jacks wired in parallel, the 603101 enables quick connection and decreases the likelihood of errors. Most classroom devices, including call switches, analog phones, speakers and analog clocks, can be connected to the 603101.

Recommended Wiring:

| Wire Color | Connection |
|------------|---------------------|
| Brown | Speaker E |
| Red | Speaker D |
| Orange | Call Switch T |
| Yellow | Phone RING |
| Green | Phone TIP |
| Blue | Call Switch G |
| Violet | Secondary Clock (-) |
| Grey | Secondary Clock (+) |

The versatile 603101 Breakout Module facilitates connection to RJ45, RJ11 and standard, unterminated wiring. All pigtail wires from the 603101 are prestripped ½" (1.3 cm) and tinned for minimal handling. The complete 603101 is wrapped in a protective, non-conductive polyolefin coating. By significantly reducing installation time for classroom devices, overall project costs are also reduced.

Following the color-code guidelines by Rauland, a modestly skilled technician can quickly and correctly wire a phone, speaker, call switch and clock in the classroom. The 603101 Breakout Module ships as a 10-pack.

ASSOCIATED EQUIPMENT

Telecenter VI, VoIP and ICS Communication Systems
All Rauland Speakers and Paging Horns Tapped at 2 Watts or Less
RCKAN12, TCCKAN12 and TCCKAN16 Analog Clocks

601101 – Multi-Device Patch Panel
603302 – Dual Pushbutton Call Switch with RJ45 Connector
RJ45-terminated Category 5e/6 Cabling

*Architect and Engineer (A&E) Specifications available online at: customerconnection.rauland.com
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Exterior Horns



Front



Rear

Model No.

VRG-LUH15TX

Horn with Vandal-resistant Grille

The VRG-LUH15TX assembly features a cast aluminum grille mounted to a Unihorn® with weather-resistant housing engineered for labor-saving installation in brick, concrete block, plaster, or drywall (indoors or outdoors, recessed or surface-mount). For paging and general voice communications (25V, 70V, 100V or 8ohm). Ideal for school intercom systems (25V).

FEATURES

VANDAL-RESISTANT GRILLE (VRG-8):

- Cast aluminum with 18-gauge galvanized steel perf for added protection
- White finish
- Square (11.44" x 11.44")
- Screw-mount (includes Torx security screws)
- Country of origin: U.S.A.



UNIHORNS® (LUH-15TX):

- 15W compression driver
- Power rating of 15 watts RMS
- Re-entrant horn with weather resistant housing
- For indoor / outdoor use
- Country of origin: China

SELECTABLE TRANSFORMER:

- 25V @ .13, .25, .50, 1.0, 1.9, 4.7, 7.5, 15W
- 70V @ 1.0, 2.0, 3.8, 7.5, 15W
- 100V @ 2.0, 4.0, 7.5, 15W

OPTIONAL HARDWARE: (order separately)

- TSB: Torx security drill bit (for use with security screws)

A&E SPECIFICATIONS

The horn/grille assembly shall be Lowell Model VRG-LUH15TX, which shall feature a vandal-resistant cast aluminum grille with white finish and secondary galvanized steel perforation, mounted to a re-entrant horn. The horn shall feature a self-contained compression driver in cast aluminum weather-resistant housing that can be installed in 4-inch deep (minimum) space. Power rating shall be 15 watts continuous. The unit shall have a 100V/70V/25V transformer, with taps selectable on rear of horn, and 8ohm transformer bypass input. The assembly will ship ready for standard two-wire connection with cable exiting through a rear waterproof gland-type connector.

VRG SERIES SUMMARY

| Assembly Model No. | Driver | Transformer | Transformer Taps | Cast Aluminum with White Finish | Ideally Suited For |
|--------------------|------------------------|-----------------------------|---------------------|---------------------------------|-----------------------|
| VRG-810-72 | 8" 15W Dual Cone | 25V/70V | 0.25, 0.5, 1, 2, 5W | Square, screw-mount | Indoor |
| VRG-8C10MRB-72 | 8" 15W Single Cone | 25V/70V | 0.25, 0.5, 1, 2, 5W | Square, screw-mount | Indoor/Outdoor |
| VRG-LUH15TX | 15W Compression | 25V/70V/100V or 8ohm | varies | Square, screw-mount | Indoor/Outdoor |

THIS SPEC

SPEAKER ASSEMBLY SPECIFICATIONS (MEASURED HALF SPACE)

| Assembly No. | Driver Power Rating | Transformer Taps | Assembly Frequency Response | Assembly Dispersion @2000Hz Octave | Assembly Sensitivity | Assembly Mounting Depth * | Max SPL |
|--------------|---------------------|--|-----------------------------|------------------------------------|----------------------|---------------------------|------------|
| VRG-LUH15TX | 15W | 25V @ .13, .25, .50, 1.0, 1.9, 4.7, 7.5, 15W | 674Hz-5.8kHz (+6dB) | 85 degrees conical | 104.2dB | 2.84" | 116.0dB ** |
| | | 70V @ 1.0, 2.0, 3.8, 7.5, 15W | | (-6dB) | Avg SPL | | |
| | | 100V @ 2.0, 4.0, 7.5, 15W | | | | | |

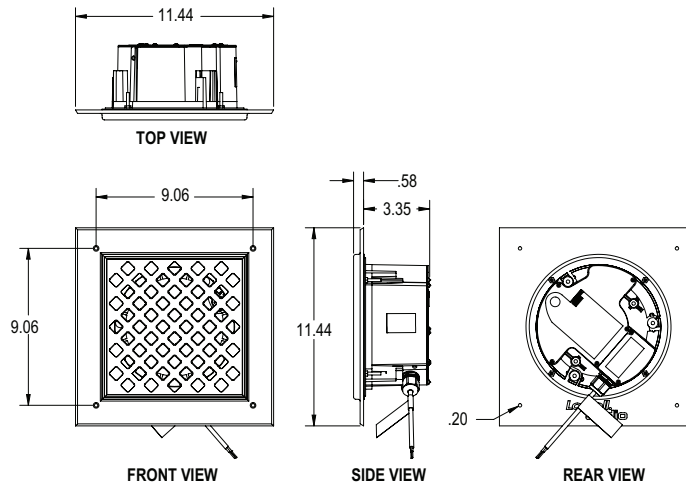
* Minimum enclosure depth required for assembly to be rear-mounted to grille. ** Calculated value 1M @ maximum transformer tap (15W). Additional information available on specification sheet for horn model LUH-15TX

Note on Spacing: To determine speaker spacing, see the technical paper "Distributed System Speaker Spacing for the Integrator." A free download is available at Lowellmfg.com, where an online spacing calculator is also available.

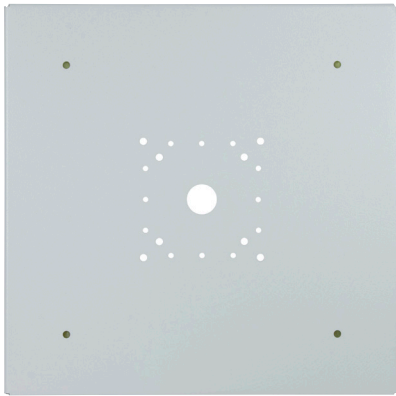
COMPATIBLE COMPONENTS (ORDER SEPARATELY):

Note: Grilles are designed to work with speakers, and enclosures listed on this specification sheet. Using the grille to install speakers without a metal enclosure may not meet the requirements of all local and national electrical and building codes. The installer should request approval of the installation method from the Authority Having Jurisdiction (AHJ) before installing the speaker system.

| Application | Enclosure | Mounting Aids |
|---------------------------------------|--|---|
| SURFACE-mount | CB84-SGVPA (indoor use only) CB84-SGVPO (outdoor use) | Mounting screws (furnished by contractor) |
| RECESSED in Tile Ceiling | P68XA (4"D) P68XA-6 (6"D) | SS24, SS30, or SS48 tile support rails or contractor's custom hardware |
| RECESSED Before Drywall Installed | P68XA (4"D) P68XA-6 (6"D) | SS24, SS30, or SS48 mounting rails (to span ceiling structural members) or contractor's custom hardware |
| RECESSED Retrofit in Existing Drywall | P68XA (4"D) P68XA-6 (6"D) | SS9 retrofit mounting rails or contractor's custom hardware |



WARNING! Speaker installation should only be performed by experienced qualified professionals with knowledge of load-rated hardware and safe installation, mounting, and rigging techniques. Improperly installed equipment can result in property damage, personal injury, death, and/or liability to the installing contractor. The speaker system must be mounted in accordance with all local, state, and federal codes and regulations and the installation must conform to industry standard practices. It is the responsibility of the installer to furnish all installation hardware, rigging hardware, and safety or restraint cables to be used. Before installation, it is the responsibility of the installer to consult a licensed mechanical or structural engineer to evaluate and certify the structural integrity and safety of any mounting method and the suitability of that method to be used to mount the loudspeaker to the building structure in this particular installation. Lowell Manufacturing is not responsible for the use, misuse, misapplication, or unsafe installation of this loudspeaker product.



Rear view



INSTALLATION: Surface-mount
FOR SPEAKER SIZE: 8" E.I.A.
FOR GRILLE TYPE: Screw-mount

Surface-mount galvanized steel enclosure for ceiling or wall installation is designed to screw-mount a grille (Lowell model VRG-8) with an 8" loudspeaker in vandal-prone areas or where tampering is a concern. The box can be mounted in protected outdoor areas* when used with a moisture-resistant speaker. Order grille and speaker separately.

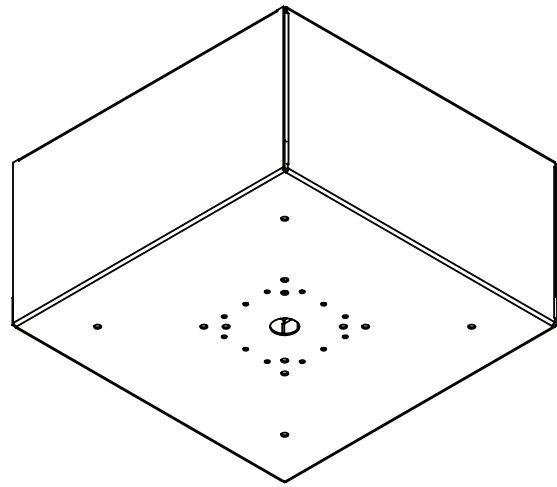
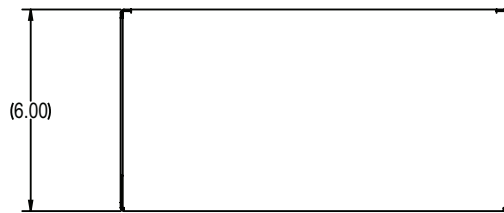
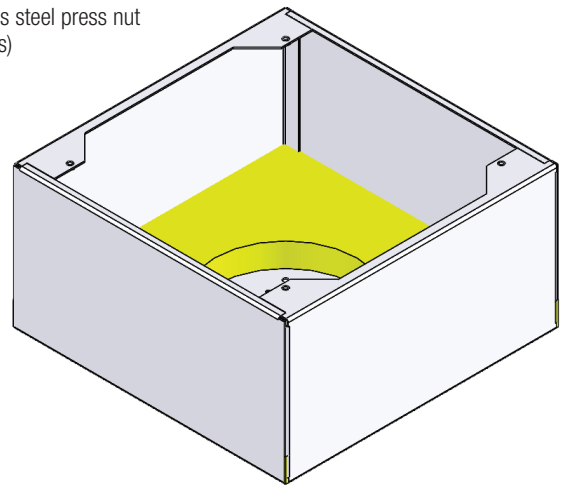
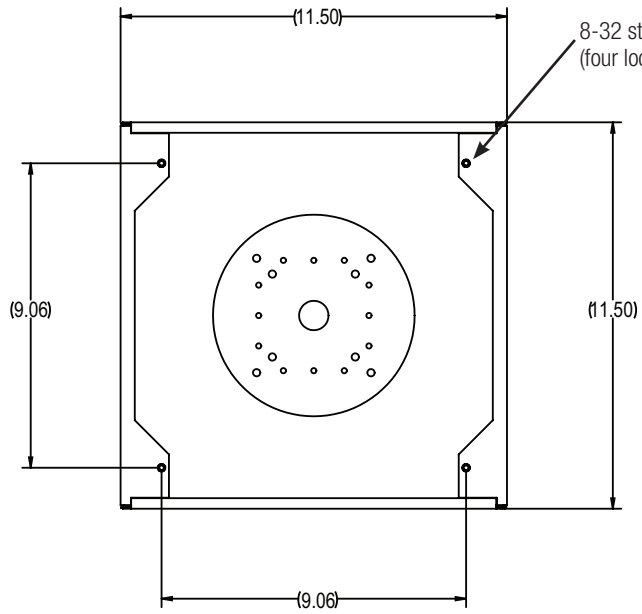
FEATURES:

- **Construction:** 16-gauge galvanized steel with white powder epoxy finish. Welded seams.
- **Length x Width:** 11.5" x 11.5"
- **Depth:** 6"D
- **Volume:** 0.459 cu.ft.
- **Acoustic Treatment:** 1" thick acoustic batting (yellow fiberglass)
- **Installation & Knockouts:**
 - Rear hole (0.875" dia.) for 1/2" conduit
 - Universal mounting pattern in rear for installation to 4"square, 4"octagon, 1-gang or 2-gang electrical box (not included).
 - Front formed flanges with rust-resistant 8-32 stainless steel press nuts will accept a screw-mount grille.
- **Country of Origin:** Made in U.S.A.
- **A&E Specifications:** The rust- and vandal-resistant surface-mount enclosure for 8" speakers shall be Lowell model CB86-SGVPO, which shall be galvanized steel with white powder epoxy finish measuring 11.5" square x 6"D. It shall feature a rear hole (.875 dia.) for 1/2" conduit or wire access and provisions to mount to an electrical box (4" square, 4" octagon, 1-gang, or 2-gang – not included). It shall also feature four mounting holes and 8-32 stainless steel press nuts to accept the specified screw-mount grille. The enclosure shall include 1" thick acoustic batting. It can be mounted in protected outdoor areas when used with a moisture-resistant speaker.

COMPATIBLE COMPONENTS (order separately):

- Speakers: 8" E.I.A. moisture-resistant speakers
- Grille (screw-mount): VRG-8

* Protected outdoor areas are those not subject to direct water spray, such as rain.



MODEL: TCC3022 — ZONE PAGE AMPLIFIER MODULE



TCC3022 Zone Page Amplifier Module
(with mounting brackets attached)

FEATURES

- Single piece network audio amplifier for paging zones
- 25VRMS output
- Drive multiple balanced speakers from a single device
- Enhance reliability by reducing component count with Zone Page Module and amplifier combined into single unit
- Rack mountable for increased security and maintenance
- 802.3at POE+ powered allows single network cable
- External power input for maximum audio output
- Detachable multi-position Euroblock connectors to simplify installation
- Eliminates the need for adding amplifiers to Telecenter U systems

SPECIFICATIONS

Power Requirements: Compliant with Power Over Ethernet Plus 802.3at (POE+)

Power Usage: Maximum of 25.5 Watts (POE+), 3.0 Watts Idle
External Power Adapter (TCC3022PS): 2 Position Male Euroblock Socket

Network Requirements: Fully Switched 100Mb/s

Network Connector: One RJ45 Network Socket

Wiring Requirements:

Data: CAT5e or CAT6 Network Cable, 24AWG Minimum Solid Copper (No CCA)

External Power (TCC3022PS): Use Attached 5' (152.4 cm) Power Cable

Ethernet Cabling Distance: 328' (100 m)

Audio Output Connector: 3 Position Male Euroblock Socket (no connection to center pin)

Audio Performance:

Output: 25V Balanced

Power:

14 Watts when 802.3at (POE+) Powered

35 Watts when TCC3022PS Powered

Materials: 18 Gauge Cold Rolled Steel with Black, Textured Finish
Environmental Parameters:

Operating:

Temperature: 32° to 122° F (0° to 50° C)

Relative Humidity: 0% to 85% non-condensing

Storage and Shipping:

Temperature: -4° to 158° F (-20° to 70° C)

Relative Humidity: Up to 85% non-condensing

Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions:

Height: 1.72" (4.37 cm)

Width: 9.0" (22.86 cm, not including rack mounting brackets)

Depth: 4.38" (11.13 cm)

Mounting: 19" Equipment Rack (with mounting brackets)

Weight:

3.06 lbs. (1.39 kg, without brackets)

3.80 lbs. (1.72 kg, with brackets)

DESCRIPTION

The TCC3022 Zone Page Amplifier Module provides a full audio solution in a single enclosure when used with a Telecenter U communications system. With an integrated amplifier and IP-based audio signal, the TCC3022 increases reliability of Telecenter U audio. This also reduces installation and maintenance labor by providing simple and quick Euroblock connectors for audio output and external power supply connection.

When powered by 802.3at (POE+), the TCC3022 provides 14 Watts of balanced (25V) audio power output. For more demanding applications, the TCC3022 provides 35 Watts of audio power when it is externally powered by the optional TCC3022PS power supply. The TCC3022 automatically senses which power source is being used. The TCC3022 includes mounting brackets to allow installation in a standard 19" equipment rack.

ASSOCIATED EQUIPMENT

TCC2000 Campus Controller

TCC3022PS 24VDC Power Supply (UL Listed)

All 25 Volt (Balanced) Speakers



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MODEL: TCC3022PS — POWER SUPPLY FOR ZONE PAGE AMPLIFIER



TCC3022PS Power Supply for
Zone Page Amplifier

FEATURES

- Provides external power for the TCC3022 Zone Page Amplifier
- Maximize audio output by the TCC3022 Zone Page Amplifier
- UL® Listed and CE certified for quality and performance assurance
- Stable power source for reliable, clean power
- Industry standard, detachable input cable allows installation ease
- 2-Conductor Euroblock output connector for quick installation

SPECIFICATIONS

Input Power: 100-240 VAC, 50-60 Hertz
Output Power: 24 VDC, 60 Watts
DC Output Cable: 3.74', +/- 1.97" (114 cm, +/- 5 cm)
AC Input Cable: Detachable 6' (182.9 cm) with IEC Connector
(included)
Regulatory: UL® Listed, CE Approved
Environmental Parameters:
Operating:
Temperature: 32° to 122° F (0° to 50° C)
Relative Humidity: 20 to 85% non-condensing
Storage and Shipping:
Temperature: -4° to 158° F (-20° to 70° C)
Relative Humidity: 20 to 85% non-condensing
Barometric Pressure: 8.3 PSI (15,600 Ft)

Dimensions (body):
Height: 1.29" (3.27 cm)
Width: 4.25" (10.8 cm)
Depth: 2.67 (6.79 cm)
Weight: 0.88 lbs. (0.40 kg)

DESCRIPTION

By providing ample power to the TCC3022 Zone Page Amplifier, the TCC3022PS Power Supply enables maximum audio output by the TCC3022. The TCC3022PS provides a continuous maximum of 60 Watts, 24VDC power. Specifically designed to meet demanding industrial power requirements, the TCC3022PS Power Supply is a reliable, long lasting power source for the TCC3022 Zone Page Amplifier.

The TCC3022PS Power Supply includes a detachable power input cable that uses an industry standard IEC socket to allow maximum installation flexibility. It is also equipped with a 2-conductor Euroblock connector on the output cable for quick and easy attachment to the TCC3022.

ASSOCIATED EQUIPMENT

TCC3022 Zone Page Amplifier Module



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