EAS APPLICATION NOTE No. 1003

REMOTE CONTROL OF THE EAS 911 WITH THE EAS 941 REMOTE CONTROL/STATUS MODULE

Remote control of an EAS 911 Encoder/Decoder can be accomplished with an EAS 941 or EAS 941A Remote Control/Status Module. The EAS 941 can duplicate certain control functions and status information available on the EAS 911 front panel. The 941 and 911 communicate via an RS-485 interface using twisted pair wiring at distances up to 2000 feet.

The EAS 941 and EAS 941A provide connections for external LED indicators and momentary-contact switches for control of the EAS 911. The two units are nearly identical in operation; the EAS 941A includes an input for a one-button Required Weekly Test and an On Air Control output for the EAS 940 Program/Transmitter Interrupt Unit.

Manually forwarding messages using the EAS 941 follows the same sequence as forwarding with the EAS 911. An LED flashes to alert the operator that a message has been received, then Flashing LEDs corresponding to switches guide the operator through the forwarding procedure.

Indicator Outputs

Each of the indicator outputs has an LED driver and 390Ω current limiting resistor to provide approximately 20 milliamperes to an external LED connected to the EAS 941A's +5V terminal on J2.

Message Waiting J1 pin 2	Logical low when a message has been received and no acknowledgment has been provided to the EAS 911. Duplicates the front panel MSG WAITING indicator.
Review Message J2 pin 2	Logical low when a message previously received is being reviewed. Logical high after the message has been completely reviewed. Duplicates the front panel REVW indicator
Manual Forward J1 pin 1	Logical low when a forwardable message has been received and acknowledged by pressing either the local or remote Message Waiting push-button.
Send Header J1 pin 6	Logical low to indicate that the EAS 911 is ready to send a header. Logical high after header has been sent. Duplicates the front panel SEND HEADER indicator.
Send EOM J2 pin 1	Logical low when the EAS 911 is ready to send End Of Message. Logical high after EOM has been sent. Duplicates the front panel SEND EOM indicator.
Auto Mode J1 pin 3	Logical low when the EAS 911 is in the Auto Forward mode. Duplicates the front panel AUTO Mode indicator.
Manual Mode J1 pin 4	Logical low when the EAS 911 is in the Manual Forward mode. Duplicates the front panel MAN Mode indicator.
On-Air J1 pin 5	Logical low when the EAS 911 On-Air relay is closed. Duplicates the front panel ON-AIR indicator.

On-Air Control Output

The On-Air Control output of the EAS 941A, J3 pin 7, is used to control an EAS 940 or EAS 940A Program/ Transmitter Interrupt Unit. It is an open collector transistor output that is logically low when that (and only that) EAS 941A has requested an action that causes the EAS 911's On-Air relay to close. This provides independent control of co-located stations from their respective studios. As many as 16 EAS 941As can be parallel-connected to an EAS 911 on a single twisted wire pair.

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Control Inputs

The control inputs duplicate the action of the most used EAS 911 front panel push-buttons. The EAS 941A's inputs are controlled with contact closures to ground through momentary push button switches with a minimum rating of 5VDC at 10 milliamperes.

Message Waiting J3 pin 1	Acknowledges a message that has been received by the EAS 911. Duplicates the front panel MSG WAITING push-button.
Review Message J3 pin 2	Activates the Review function of the EAS 911. Duplicates the front panel REVW push-button Displays the message on the LCD and Remote sign and outputs the voice recorder audio.
Manual Forward J3 pin 3	Commands the EAS 911 to forward the message and illuminates the SEND HEADER LED. This function bypasses password control.
Send Header J3 pin 5	Commands the EAS 911 to send the EAS header. Duplicates the front panel SEND HEADER push-button.
Send EOM J2 pin 1	Commands the EAS 911 to send the EAS End Of Message. Duplicates the front panel EOM push-button.
Mode Select J3 pin 4	Toggles between Manual and Auto Forward modes. Duplicates front panel MODE push-button. This function bypasses password control.
Weekly Test J3 pin 6	Duplicates the front panel WEEKLY TEST button. This function bypasses password control. (EAS 941A only)
Cancel J2 pin 4	Commands the EAS 911 to cancel any inputs and return to its Ready mode displaying date and time. Duplicates the front panel CANCEL push-button.

The EAS 941 provides +5VDC on J2 pin 5, and Grounds on J2 pin 6 and on J3 pins 6, 7 and 8.
The EAS 941A provides +5VDC on J2 pin 5, and Grounds on J2 pins 6, 7 and 8 and on J3 pin 8.

System Connections

System connections are shown in the Schematic on page 4; the Sequence of Operations is described below and is illustrated in the Timing Diagram.

Sequence of Operations:

A. The MESSAGE WAITING LED will flash at a one second rate to indicate that a message has been received.

B. The operator must acknowledge that a message has been received by pressing the MESSAGE WAITING switch.

C. The MESSAGE WAITING LED will go out.

D. If the message has been programmed to be automatically forwarded by the EAS 911, the MANUAL FORWARD LED will flash. The operator can review the message by pressing the REVIEW MESSAGE switch. (The EAS 911's audio output must be routed to a speaker at the location of the EAS 941.)

E. After review, the operator can initiate message forwarding by pressing the MANUAL FORWARD switch. The MANUAL FORWARD LED will stay on and the SEND HEADER LED will flash.

F. The operator can then forward the header and two-tone attention signal by pressing the SEND HEADER switch.

G. The ON-AIR RELAY LED will turn on to indicate that the header and attention signal are being transmitted and the EAS 941A's ON-AIR CONTROL output will go low.

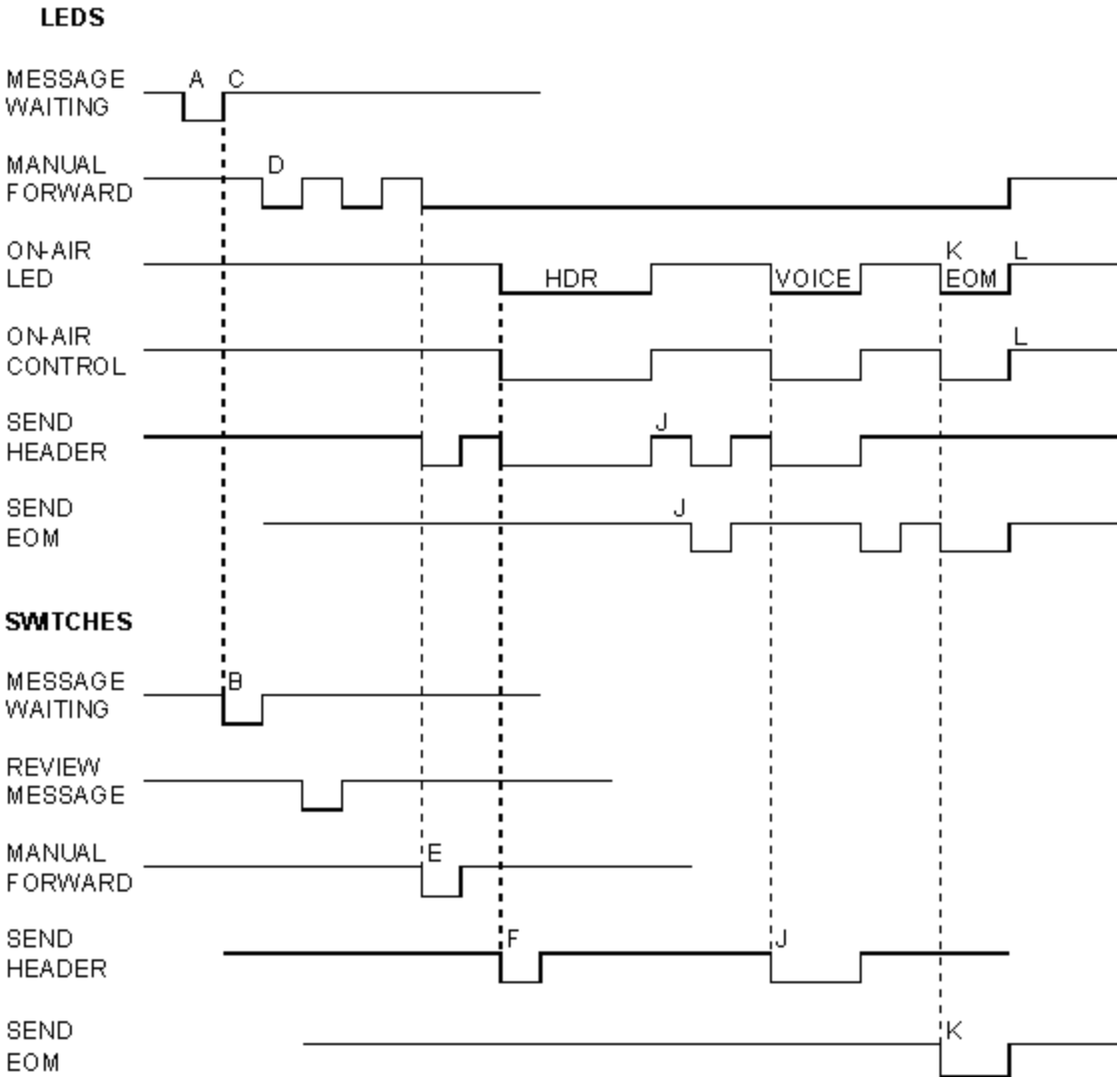
H. When the transmission is concluded, the ON-AIR LED will go out and the ON-AIR Control output will go high.

J. The SEND HEADER and SEND EOM LEDs will flash. The operator now has the option of inserting a live voice announcement before taking any action with the 941 or transmitting the recorded voice announcement by pressing the SEND HEADER switch.

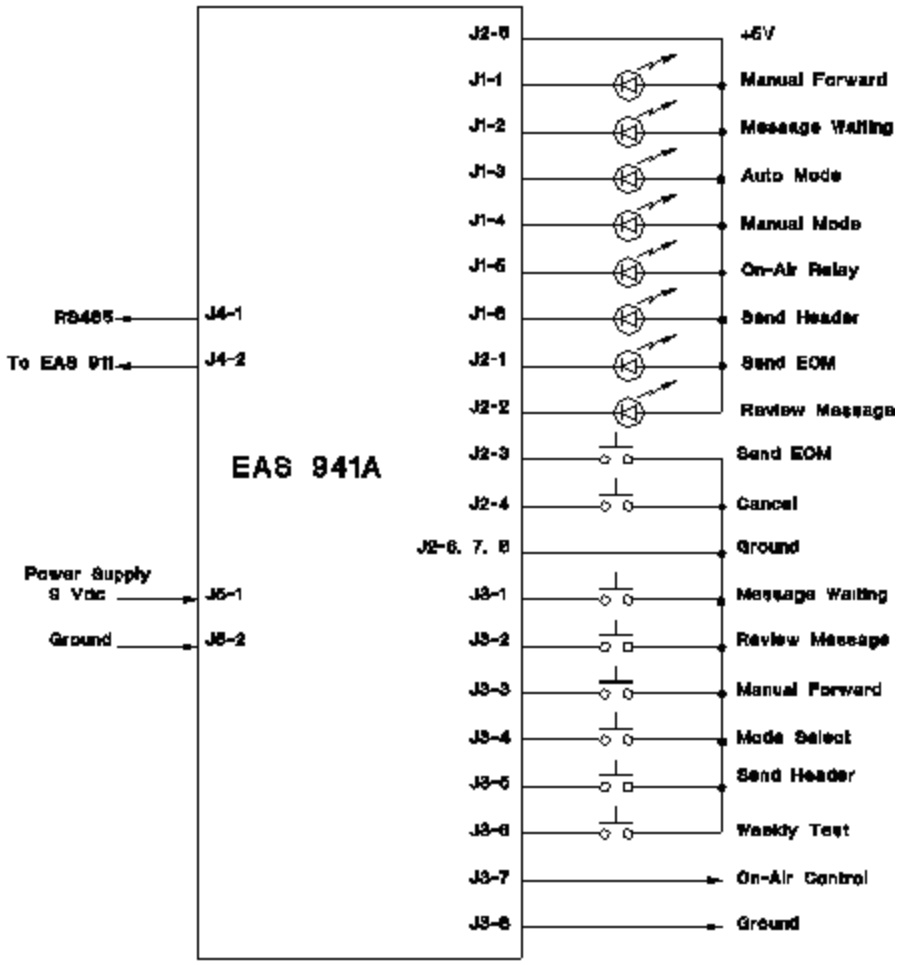
K. At the conclusion of the live or recorded voice announcement, the operator can forward the End Of Message by pressing the SEND EOM switch.

L. The EAS 941A's ON-AIR CONTROL output will go low and the ON-AIR LED will light to indicate that the EOM is being transmitted. At the conclusion of the EOM transmission, the ON-AIR LED will go out and the ON-AIR CONTROL output will go high.

Timing Diagram



EAS 941 and EAS 941A System Schematic



The switches and LEDs used for the EAS 941 front panel are universally available from parts distributors and retailers. Some sources are listed below.

Red LEDs, T-1¾	Radio Shack #276-087, 276-208, 276-209 Digi-Key #P300-ND, P-301-ND
LED Holders, T-1¾	Radio Shack #276-079 Digi-Key #LU4002-ND
Momentary Switches	C&K 8060 series or equivalent

A dimensioned drawing for a 1 unit high rack mount front panel is shown on page 5. It includes mounting dimensions for a typical 1.5" x 2.5" oval speaker that can be used for monitoring the EAS audio. A source for a blank front panel could be Bud #CH-14401.