Digital Alert Systems

Application Note

Development / Interface Requirements for DASDEC™ RS-232 Serial Protocols

Introduction

The DASDEC/DASDEC-II EAS/CAP Encoder/Decoder is controlled via a web browser over a LAN or by using a connected keyboard/monitor/mouse and the built-in desktop browser interface. The unit has an option for 3 built-in radios providing FM/AM/WX reception. It also has a fourth analog audio decoder input that can be connected to an external receiver. The DASDEC offers both traditional analog EAS and digital EAS via serial and/or LAN control protocols. This document describes basic information regarding the serial control protocols on the DASDEC and a list of 3rd-party products using this communication mechanism.

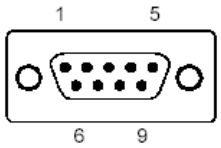
Background

The DASDEC platform supports a variety of RS-232 serial control protocols to many character generation systems (CGs) and to the Betabrite™ brand group of LED signs. Two of these protocols place the DASDEC as a slaved device (Monroe Cable Envoy and TFT standard). All other protocols have the DASDEC as the controlling host. The widely used Sage Generic protocol is a completely non-handshaking - one-way write of data to the remote device. The Betabrite protocol (formally named the Adaptive Systems Alpha® protocol) supports handshaking but in practice can and is used without data handshaking.

New Protocol Integration

Adding new serial protocols on the DASDEC requires implementation of new source code on the DASDEC for each protocol, as there are too many differences in the capabilities of target serial devices to design a general system that can be user configured at run time. On the DASDEC side new interfaces are not usually a difficult task , however it requires reliable information about the behavior of the serially controlled device and the control protocol and proper scheduling of development resources.

Understanding, for DAS programmers to support an unsupported, new serial protocol on the DASDEC requires a comprehensive operational description of the byte-by-byte data flow between the target device and the host control system (the DASDEC). This is usually available in a programmers protocol document prepared by the manufacturer of the target serial device. The document must describe the command set and status reply transactions between the serial device and the host systems. The command set must clearly describe the mapping between the actions of the controlled device (eg command to control screen placement of crawl text, color and font of text, text transfer, etc). Furthermore the document must describe the standard and basic COM port control settings such as supported baud rates, parity/no parity, data bits, etc.



9-Pin Serial Port

Pin	Signal	Description
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Table 1. DASDEC serial port wiring configuration.

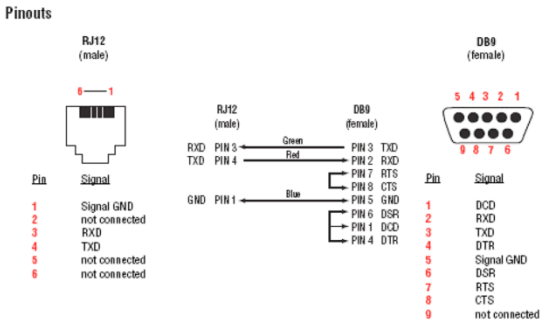


Figure 1. Wiring diagram for Betabrite LED sign

Digital Alert Systems
A division of **Monroe Electronics**
585-765-1155 | fax 585-765-9330
100 Housel Ave. | Lyndonville | NY | 14098
www.digitalalertsystems.com

Revision: 3.0 Publication: APNDAS-0106

DASDEC Serial Interfaces[1]

Company	Model	Product Description	Interface Requirements	Vendor Technical Support
Adaptive Micro Systems	**Betabrite™**	LED Sign board	Special DB-9 to RJ12 serial cable. See Figure 1. Protocol: BETABRITE LED Sign	www.betabrite.com
BTI	**BTI Emergency Alert Attendant**	Software to automatically collect, manage and deliver data, news, branding and promotions to air, online and to mobile devices.	BTI Attendant interface requires (1) A RS232 Serial port connection via Null modem cable and (2) GPIO to manage audio insertion Protocol: Sage Generic or TFT Standard	Business Technology Inc. www.bti.tv
Chyron	**Chyron Codi**	Character Generator	Serial RS232 connection (Customer supplied NULL modem cable) No audio support Protocol: Chyron CODI	Chyron www.chyron.com
Ensemble	**Avenue 5030**	System Control module	Ethernet and/or serial port cables	Ensemble Designs www.ensembledesigns.com
Ensemble	**Avenue 5035**	System Control module	Ethernet and/or serial port cables	Ensemble Designs www.ensembledesigns.com
Evertz	**Evertz 9625 LGA**	SDI Media Keyer System	Serial RS-232 connection (Customer supplied NULL modem cable) Protocol: Sage Generic or TFT Uses GPO to trigger on-air display	Evertz Microsystems Ltd. www.evertz.com
Evertz	**Evertz 9725 LGA (Name Dropper)**	SDI Media Keyer System	Serial RS232 connection (Customer supplied NULL modem cable) Audio input: Unbalanced AES (Balun required for direct DASDEC connection) Protocol: Sage Generic or TFT Uses GPO to trigger on-air display	Evertz Microsystems Ltd. www.evertz.com
Keywest Technology	**VDS-830**	Single channel analog character generator	Serial RS232 connection (Customer supplied NULL modem cable) Protocol: VDS, VDS830	Key West Technology www.keywesttechnology.com
Keywest Technology	**VDS-840**	Single channel analog character generator	Serial RS232 connection (Customer supplied NULL modem cable) Protocol: VDS, Standard VDS840	Key West Technology www.keywesttechnology.com
Keywest Technology	**Starmu**	Character Generator controller	Serial RS232 connection (Customer supplied NULL modem cable) Protocol: VDS, StarMU/Star 8	Key West Technology www.keywesttechnology.com
Keywest Technology	**Star-8**	8-Channel Character Generator	Serial RS232 connection (Customer supplied NULL modem cable) Protocol: VDS, StarMU/Star 8	Key West Technology www.keywesttechnology.com
Harris	**DTP**	Digital Television Program Multiplexer	Serial RS-232 connection (DB-9) Null Modem cable Audio input: ASI (AC3) input from external encoder Protocol: SAGE Generic Uses GPO's to trigger on-air display All DASDEC connections enter through JLCooper Ebox (Audio either AES or analog)	Harris harrisbroadcast.com/
Harris	**IconLogo**	Media Keyer	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES on DB-25 pin to breakout Protocol: SAGE Generic or TFT	Harris harrisbroadcast.com/

[1] Information herein is considered accurate at the time of publication. We constantly strive to improve our products and services therefore some specifications are subject to change without notice.

Company	Model	Product Description	Interface Requirements	Vendor Technical Support
Harris	**IconMaster**	Media Keyer	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES on DB-25 pin to breakout Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display	Harris harrisbroadcast.com/
Harris	**IconStation**	Media Keyer	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES on DB-25 pin to breakout Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display	Harris harrisbroadcast.com/
Leitch/Harris	**Lidia V (IconLogo)**	Media Keyer	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES on DB-25 pin to breakout Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display Must have MGI-LIDIA-EAS option	Harris harrisbroadcast.com/
Leitch/Harris	**MGI-3903 MGI-3903HD**	Media Keyer	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES (will need balun for direct DASDEC connection) Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display	Harris harrisbroadcast.com/
MasterPlay	**OnAir**	Playback Server	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES on DB-25 pin to breakout Protocol: SAGE Generic Uses GPO's to trigger on-air display	www.masterplay.tv
Miranda	**LGK-3901**		Serial RS-232 connection (DB-9) Audio input Balanced AES Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display	Miranda www.miranda.com
Miranda	**ImageStore**	Imagestore-Modular single card master control and branding processor for Densité frame. keying, character generation for EAS	Serial RS-232 connection (RJ-45) Audio input(s) AES Protocol: SAGE Generic or TFT	Miranda www.miranda.com
Miranda	**Vertigo**	The Vertigo XG processor is a single/dual channel graphics processor for multi-level character generation, animation/still and clip playout, as well as dual DVEs and audio mixing.	Serial RS-232 connection (DB-9) Audio input(s) Unbalanced AES (Balun required for direct DASDEC connection) Protocol: SAGE Generic or TFT	Miranda www.miranda.com
Monroe Electronics	**R194**	8-Channel EAS Crawl Generator & Stereo Audio Switch w/ EAS Audio DA	Serial RS232 connection (Cable supplied with unit) Protocol: Monroe R194 CG	Monroe Electronics www.monroe-electronics.com
Newsroom Solutions	**Newsticker**	NewsTicker is an integrated suite of software that works with the Freedom® series of hardware for graphics insertion	Serial RS-232 connection (DB-9) No audio support Protocol: SAGE Generic or TFT Data on serial triggers on-air display	Newsroom Solutions www.newsroomsolutions.com
Rushworks CoolTV	**Cool TV Server**	Integrated playout server used for audio and video playout	Serial RS-232 connection (DB-9) Audio input(s) Balanced stereo analog or unbalanced AES. Protocol: SAGE Generic Data on serial triggers on-air display	Rushworks www.rushworks.tv
Thomson	**Sapphire Server**	Sapphire is a "channel-in-a-box" broadcast server in a single unit providing functions necessary to acquire, process, brand and generate TV channels	Serial RS-232 connection (DB-9) Audio input: 1) ASI input from external encoder (eg.Vibe) or, 2) MPEG (AC3) over IP using DASEC-MPEG2-4 board (recommend EXP-3NICGIG) Protocol: SAGE Generic or TFT Uses GPO's to trigger on-air display	Thomson Broadcast www.thomson-networks.com
Utah Scientific	**MC-2020**	The HD/SD-2020 Digital Master Control Processors provide digital audio and video processing for master control switching applications.	Requires: 1.Utah's EAS software 2. AES Inputs 3.Serial port connection Protocol: Sage Generic or TFT	Utah Scientific www.utahscientific.com

Company	Model	Product Description	Interface Requirements	Vendor Technical Support
Utah Scientific	**SqueezeMax™ SD/HD**	Digital video effects and graphics unit	Serial RS232 or EAS-Net™. GPI input from master control triggers EAS audio output (Audio is managed separately via ADA and/or MC2020) Protocol: Sage Generic	Utah Scientific www.utahscientific.com

Table 2. Products with serial interface control from DASDEC