

ABC STARGUIDE III SATELLITE RECEIVER TROUBLESHOOTING GUIDE

Starguide III Receiver

Features of the Starguide III satellite receiver:

- L-Band input (950 MHz – 1450 MHz). A Phase Lock Loop (PLL) LNB (Low Noise Block Downconverter) is required for nominal operation. A “digital-ready” LNB is not the same thing and may provide sub-standard performance.
- Six (6) “ports” are available on the back for any number of available expansion cards
- Standard ABC News Affiliate Package: two (2) audio decoders, one (1) relay card, and one (1) Netcue/Data card.
- Standard ABC 24-hr Format Affiliate Package: two (2) audio decoders, one (1) relay card

Receiver Condition	Indicators	Cause/Resolution
NORMAL	Green SIGNAL, SYNC and POWER LEDs illuminated. LCD display reads: STARGUIDE III EB XX.X AG XXX (where X = numerical value)	N/A
UNABLE TO FIND ANY ABC SERVICES ON STARGUIDE CARRIER	Green SIGNAL, SYNC and POWER LEDs illuminated. LCD display reads: STARGUIDE III EB XX.X AG XXX (where X = numerical value) Under CARRIER MENU, carrier name listed as NSN, ViretX, Westwood East, OneOnOne.	Receiver not set for ABC frequency and data rate. Tune receiver to ABC Starguide carrier from CARRIER MENU . AMC-8: FREQ: 0990000 kHz RATE: 12288000BPS VIT: 2/3 NOTE: Receiver must have software version 2.16 or higher in order to tune to the ABC Starguide carrier on AMC-8.

Receiver Condition	Indicators	Cause/Resolution
UNABLE TO ACQUIRE A CARRIER	Green POWER and red FAULT LEDs illuminated. LCD display reads: STARGUIDE III ACQUIRING AG reading below 200. AG reading can be found under STATUS MENU and SIGNAL STRENGTH sub-menu.	Incorrect frequency, incorrect data rate and/or incorrect Viterbi setting. Tune receiver to ABC Starguide carrier from CARRIER MENU . AMC-8: FREQ: 0990000 kHz RATE: 12288000BPS VIT: 2/3
UNABLE TO ACQUIRE A CARRIER	Green POWER LED and red FAULT LEDs illuminated. LCD display reads: STARGUIDE III ACQUIRING AG reading at 255. AG can be found under STATUS MENU and SIGNAL STRENGTH sub-menu.	No LNB power. Turn on LNB VOLTAGE switch located at back of receiver.
KEYPAD AND/OR FRONT PANEL LED's DO NOT FUNCTION	Only POWER LED is lit. Unable to program receiver through keypad.	Ribbon cable connector between keypad and receiver motherboard is loose or disconnected. Remove cover on top of receiver and restore ribbon cable connection.
INTERMITTENT DROPOUTS	Green SIGNAL, SYNC and POWER LEDs illuminated. LCD display reads: STARGUIDE III EB XX.XX AG XXX (where X = numerical value) EB value drops and red FAULT LED lights when dropout occurs (this feature only available with receiver firmware version 2.16)	RF interference affecting reception or intermittent coaxial connection. If other receivers on same antenna affected, problem is between the dish antenna and the receivers. Check and replace any coaxial connections or L-band splitters for corrosion or damage. Check for any nearby RF source (cell phone tower, airport with radar, U.S. Air Force base). May require a bandpass filter. Check dish alignment and polarization for possible adjacent satellite interference.

Audio Decoder Card

This card has the ability to receive 1 data pipe (128kb, 192kb, etc.). Depending on how the headend MUSICAM encoder is set (Joint Stereo, Dual Mono or Mono) you will get 2 audio channels on the DB-9 (AUDIO) connector on the card. The audio channels (called services) are divided into one of three categories, known as a "PROVIDER", for ease in navigation.

ABC RADIO: Music Formats including Tom Joyner and Doug Banks
 ABC NEWS: ABC Radio News, ESPN East and ESPN West, ABC Talk
 ABC NY: All other, mainly client services and ABC Talk

Once a port with an audio card is selected, PROVIDER is the first part of the Menu Tree. If the port is set to the wrong provider, you will not see the SERVICE, or channel, you are looking for. Once the PROVIDER is set, you then go to the SERVICE menu to select the channel.

Starguide is a closed system, so permissioning is required. If a receiver is not authorized for a service, the last 2 characters in the services window will say 'NA'. The ABC RADIO and ABC NEWS Providers are set-up to only permission if you are an affiliate. Most services in the ABC NY Provider are permissioned to everyone (client services). A client needs to buy a full data pipe in order to do permissioning and WOR is currently the only client that is using that function. All others are open. Basically if you are not an affiliate and buy a receiver from us you will only be able to get services under the ABC NY Provider.

There is also a DB-15 connector (DIGITAL IF). MPEG Layer 2 protocol is designed to include overhead data, which allows for Starguide relay closures (similar to our ABR-200 Ku feeds from ESPN and KGO for closures). The Protocol can accept up to 16 closures. However, only the first 4 are available on the audio card via the DB-15 connector. **THIS IS NOT NETCUE.** The Starguide relay closure information is embedded in the MPEG L2 frames. This requires a box on the Headed called a PBE (push button encoder) for each audio pipe (128kb or 192kb). This box has 16 inputs (one for each relay) and a single serial data output that is wired to the associated encoder (both PRI & SEC). This PBE generates the proper data steam for closures that gets muxed with the digital audio to provided the proper MPEG Layer 2 data protocol.

Audio Card Condition	Cause/Resolution
NO AUDIO OUTPUT	Receiver port not properly configured. Start at top level menu. Press <Enter> on the Starguide keypad: Press ? until you get to PORT MENU, press <Enter> Press ? until you get to the desired PORT with audio card, press <Enter> Press ? until you get to CARD TYPE, press <Enter> Press ? until you get to AUDIO, press <Enter> Press ? until you get to PROVIDER, press <Enter> Press ? until you get to desired PROVIDER , press <Enter> Press ? until you get to SERVICE, press <Enter> Press ? until your desired service displayed, press <Enter>.
TWO AUDIO FEEDS MONITORED	Equipment wired to MONO SUM output from decoder card. Rewire decoder output to separate LEFT/RIGHT connections.

16-function Relay Card

MPEG L2 Protocol allows up to 16 relays as part of the Data Frame, but only the first 4 are available on the audio card. If more are needed, then a relay Expansion Card is required.

The RELAY card is PHYSICALLY MATED ON TOP OF THE DESIRED AUDIO CARD. Both the RELAY card on top and the AUDIO card on the bottom have to be connected together outside of the Starguide receiver, and then physically inserted together in vertical slots.

The RELAY card has a DB-37 connector and all 16 relays of the desired audio channel can be decoded. If a different SERVICE is selected on the associated AUDIO card, the relays change as well. ABC is using Starguide relays for F/T Formats (Dallas) and F/T client feeds (F/T clients also get NetCue). All occasional use clients will only be allowed to use NetCue for closures.

If a station needs to remove the relay card, or the audio card directly beneath the relay card, **BOTH CARDS MUST BE REMOVED AT THE SAME TIME**. Both cards will be damaged if you attempt to remove just one of the cards!

Relay Card Condition	Cause/Resolution
FUNCTION 5 (RLY 4) NOT WORKING	37-pin connector miswired. Rewire connector avoiding GND (pins 5, 10, 15, 24 and 33)
NO RELAYS WORKING	Receiver port(s) not properly configured. ALL RELAY CARDS MUST BE USED IN CONJUNCTION WITH AUDIO DECODER LOCATED DIRECTLY BENEATH IT. Start at top level menu. Press <Enter> on the Starguide keypad: Press ? until you get to PORT MENU, press <Enter> Press ? until you get to the desired PORT with RELAY card, press <Enter> Press ? until you get to CARD TYPE, press <Enter> Press ? until you get to RELAY, press <Enter> Start at top level menu. Press <Enter> on the Starguide keypad: Press ? until you get to PORT MENU, press <Enter> Press ? until you get to the desired PORT with an audio card, press <Enter> (If RELAY card is in PORT B, go to AUDIO card in PORT C) Press ? until you get to CARD SETTINGS, press <Enter> Press ? until you get to ASYNC PORT, press <Enter> Press ? until you get to NORMAL, press <Enter> Press ? until you get to BAUD RATE, press <Enter> Press ? until you get to 9600, press <Enter>

Relay Card Condition	Cause/Resolution																																																																															
NO RELAYS WORKING	<p data-bbox="516 237 833 258">37-pin connector miswired.</p> <p data-bbox="516 300 987 321">Rewire connector using following table.</p> <table border="1" data-bbox="626 363 1240 976"> <tbody> <tr><td>1</td><td>RLY0A</td><td>20</td><td>RLY0B</td></tr> <tr><td>2</td><td>RLY1A</td><td>21</td><td>RLY1B</td></tr> <tr><td>3</td><td>RLY2A</td><td>22</td><td>RLY2B</td></tr> <tr><td>4</td><td>RLY3A</td><td>23</td><td>RLY3B</td></tr> <tr><td>5</td><td>CHASSIS GND</td><td>24</td><td>CHASSIS GND</td></tr> <tr><td>6</td><td>RLY4A</td><td>25</td><td>RLY4B</td></tr> <tr><td>7</td><td>RLY5A</td><td>26</td><td>RLY5B</td></tr> <tr><td>8</td><td>RLY6A</td><td>27</td><td>RLY6B</td></tr> <tr><td>9</td><td>RLY7A</td><td>28</td><td>RLY7B</td></tr> <tr><td>10</td><td>CHASSIS GND</td><td>29</td><td>RLY8B</td></tr> <tr><td>11</td><td>RLY8A</td><td>30</td><td>RLY9B</td></tr> <tr><td>12</td><td>RLY9A</td><td>31</td><td>RLY10B</td></tr> <tr><td>13</td><td>RLY10A</td><td>32</td><td>RLY11B</td></tr> <tr><td>14</td><td>RLY11A</td><td>33</td><td>CHASSIS GND</td></tr> <tr><td>15</td><td>CHASSIS GND</td><td>34</td><td>RLY12B</td></tr> <tr><td>16</td><td>RLY12A</td><td>35</td><td>RLY13B</td></tr> <tr><td>17</td><td>RLY13A</td><td>36</td><td>RLY14B</td></tr> <tr><td>18</td><td>RLY14A</td><td>37</td><td>RLY15B</td></tr> <tr><td>19</td><td>RLY15A</td><td></td><td></td></tr> </tbody> </table>				1	RLY0A	20	RLY0B	2	RLY1A	21	RLY1B	3	RLY2A	22	RLY2B	4	RLY3A	23	RLY3B	5	CHASSIS GND	24	CHASSIS GND	6	RLY4A	25	RLY4B	7	RLY5A	26	RLY5B	8	RLY6A	27	RLY6B	9	RLY7A	28	RLY7B	10	CHASSIS GND	29	RLY8B	11	RLY8A	30	RLY9B	12	RLY9A	31	RLY10B	13	RLY10A	32	RLY11B	14	RLY11A	33	CHASSIS GND	15	CHASSIS GND	34	RLY12B	16	RLY12A	35	RLY13B	17	RLY13A	36	RLY14B	18	RLY14A	37	RLY15B	19	RLY15A		
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Electronic Digital Audio Storage (eDAS) Card

The eDAS card can be used in two ways. One is to transfer digital audio files (primarily commercials and text instructions) to separate computers co-located with the receiver. The eDAS card also has the ability to store up to 144 minutes of digital audio on the card. Newer versions of the eDAS card can store up to 288 minutes of digital audio.

The eDAS card has a special “disk on a chip” that can hold digital audio files (commercials, shows, etc.) for store & forward applications. The idea of this card is that we can download all the commercials & schedules into this card from the Store & Forward system. One of the above mentioned audio cards can be routed thru it (the eDAS has a built-in mixer) so it passes audio.

On a command (usually a standard relay closures, not NetCue), the eDAS card will mute the audio going through it and play a file (commercial) from its own disk. When complete, it will restore audio from the network. With the eDAS card in place, rather than the Network playing the same commercial to a specific time zone, regional commercials can play to any station. In theory, every station across the Network could play a different commercial if required. Last minute copy can be downloaded at any time. The Store & Forward channel (S&F) has its own bandwidth running at 512 kb/s.

EDAS or Ethernet Card Condition	Cause/Resolution
CARD NOT WORKING	<p>Receiver port not properly configured.</p> <p>Start at top.level menu. Press <Enter> on the Starguide keypad: Press ? until you get to PORT MENU, press <Enter> Press ? until you get to PORT D, press <Enter> Press ? until you get to CARD TYPE, press <Enter> Press ? until you get to Ethernet Card, press <Enter> Press ? to select YES to confirm, then press <Enter> Press ? until you get to PROVIDER, press <Enter> Press ? until you get to ABC RADIO, press <Enter> Press ? until you get to SERVICE, press <Enter> Press ? until the S&F is displayed, press <Enter></p>
NO AUDIO MONITORED FROM EDAS CARD	<p>Audio card not configured properly or audio harness intermittent.</p> <p>Check audio card settings as described above. In a “play-to-air” configuration, the eDAS card (usually PORT D) will be connected with a wiring harness to the audio card (usually PORT C). If audio card is properly configured, remove wiring harness and check for audio direct from audio card.</p>
UNABLE TO CHANGE IP SETTINGS	<p>Ethernet or eDAS card requires firmware upgrade.</p> <p>ABC can upgrade a card over the satellite link. The Ethernet or eDAS card MUST be tuned to the correct CARD TYPE, PROVIDER and SERVICE setting above before ABC can send the upgrade to the card.</p>

Netcue Data Card

The Starguide system also utilizes ABC NetCue. NetCue data is transmitted along with ABC Data on its own 64 kb/s data channel. This data channel is located under the ABC NEWS provider and is called NETCUE/DATA.

1. All 16 relays are on the NetCue/Data card, no external Netcue Box is required.
2. NetCue relays can be programmed over the satellite link.

Netcue Card Condition	Cause/Resolution
CARD NOT WORKING. NO LED ACTIVITY ON CARD	Receiver port not properly configured. Start at top level menu. Press <Enter> on the Starguide keypad: Press ? until you get to PORT MENU, press <Enter> Press ? until you get to desired receiver port with Netcue Card, press <Enter> Press ? until you get to CARD TYPE, press <Enter> Press ? until you get to Ethernet Card, press <Enter> NOTE: If this Starguide III receiver also has an EDAS card, then you may need to set CARD TYPE to EDAS) Press ? to select YES to confirm, then press <Enter> Press ? until you get to PROVIDER, press <Enter> Press ? until you get to ABC NEWS, press <Enter> Press ? until you get to SERVICE, press <Enter> Press ? until the NETCUE/DATA is displayed, press <Enter>
UNABLE TO SET CARD TYPE TO ETHERNET	There is another Ethernet-type card (Ethernet or eDAS) configured incorrectly in the receiver. Configure other Ethernet-type card to proper settings.
NO RELAYS OR DATA OUTPUT	Incorrect PROVIDER and/or SERVICE settings. Follow the above instructions to set PROVIDER to ABC NEWS and SERVICE to NETCUE/DATA.