iTrans DX-BOX-44

Central control commands

Communication interfaces supported:

- RS485
- RS232
- UDP protocol, port 5062, requires device software version 2.0.0.11 or higher
- Some central control commands require version 2.0.0.45 or higher

Update date	By	Version number	Update Notes
2020.2.11	Technical Dept.	v1.6-->v1.7	New command format control return
2020.2.22	Technical Dept.	v1.7-->v1.8	Modification of the new DCA/GROUP central control
2020.3.18	Technical Dept.	V1.8->v1.9	New notification level acquisition
2021.3.15	Technical Dept.	V1.9->v1.10	New acquisition

Command Format

Boot code	Control codes		Checksum
	Type of control	value	
2 bytes	2 bytes	3 bytes	1 byte
0xA5AB			Last two digits of the sum of the control codes

The central control command uses a fixed length of 8 bytes, the boot code: "0xA5AB", "0x" is a hexadecimal code, all the above bytes are, when writing the central control command line does not need to enter.

Control types: Scene load, Input mute, Input unmute, Input volume +, Input volume -, Output mute, Output unmute, Output volume +, Output volume -, Mixer mix, Mixer unmix, Input volume setting, Output volume setting

Check code: sum of control code bytes (sum of byte 3 to byte 7 followed by remainder of 0x100, calculated in hexadecimal, i.e. byte8 = (Byte3+ Byte4+ Byte5+ Byte6+ Byte7)%0x100

The following command format has been added (currently only used for Query output mute status Query input mute status Query fantasy power status)

Note: The 8-byte format command displays the status of 24 channels only. 13-byte format displays the status of 64 channels, depending on the situation.

Boot code	Control codes		Checksum
	Type of control	value	
2 bytes	2 bytes	8 bytes	1 byte
0xA5AB			Last two digits of the sum of the control codes

Check code: sum of control code bytes (sum of byte3 to byte12 followed by remainder of 0x100, calculated in hexadecimal, i.e. byte8 = (Byte3 + ... + Byte12) + Byte12)%0x100

Caution.

Scene serial numbers 0x01 to 0x08 (decimal 1 to 8).

(a) The start and end channels range from 0x01 to 0x10 (decimal 1 to 16) and the start channel must be less than or equal to the end channel.

(a) Numeric parameters such as gain and step size must be converted to hexadecimal.

Mixing input channels 0x01 to 0x10 are analogue inputs 1 to 16, 0x11 is the auto-mix input, 0x12 is the feedback cancellation input, 0x13 is the noise cancellation input and 0x14 is the echo cancellation input

The control command return code is the same as the one sent.
The "parameter" item of the query command is sent with a 0

Scene loading

Boot code	Control codes				Checksum
	Scene loading	Scenery group	Scene number	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0130	0x01	0x00~0x08	0x00	Sum of control codes
For example, loading scenario 5, the value of each field is set as follows.					
0xA5AB	0x0130	0x01	0x05	0x00	0x37
The final central control command is: A5AB013001050037					

Scene saving

Boot code	Control codes		Checksum
	Scene loading	Reserved bytes	
2 bytes	2 bytes	3 bytes	1 byte
0xA5AB	0x0140	0x00	Sum of control codes
For example, to save a scene, set the value of each field as follows.			
0xA5AB	0x0140	0x000000	0x41
The final central command is: A5AB014000000041			

Input Mute

Boot code	Control codes				Checksum
	Input Mute	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0231	0x01~0x10	0x01~0x10	0x00	Sum of control codes
For example, if input channels 5 to 12 are set to mute, the value of each field is set as follows.					
0xA5AB	0x0231	0x05	0x0C	0x00	0x44
The final central command is: A5AB0231050C0044					

Input non-silent

Boot code	Control codes				Checksum
	Input non-silent	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0232	0x01~0x10	0x01~0x10	0x00	Sum of control codes
For example, if input channels 5 to 14 are set to non-mute, the value of each field is set as follows.					
0xA5AB	0x0232	0x05	0x0E	0x00	0x47
The final central command is: A5AB0232050E0047					

48V phantom power on

Boot code	Control codes				Checksum
	Phantom power on	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x023B	0x01~0x10	0x01~0x10	0x00	Sum of control codes
Example: Turn the phantom power supply on for input channel 5 and set the value of each field as follows.					
0xA5AB	0x023B	0x05	0x05	0x00	0x47
The final central command is: A5AB023B05050047					

48V phantom power off

Boot code	Control codes				Checksum
	Phantom power on	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte

0xA5AB	0x023C	0x01~0x10	0x01~0x10	0x00	Sum of control codes
Example: Turn the phantom power off for input channel 5 and set the value of each field as follows.					
0xA5AB	0x023C	0x05	0x05	0x00	0x48
The final central control command is: A5AB023C05050048					

Input sensitivity

Boot code	Control codes				Checksum
	Input sensitivity	Start channel	End of access	Sensitivity	
2 bytes	2 bytes	1 byte	2 bytes	1 byte	1 byte
0xA5AB	0x0238	0x01~0x10		-60->0	Sum of control codes
Description: Set the sensitivity of input 2 channel to -6, then the value is -6 (0xE2)					
0xA5AB	0x0238	0x02	0x02	0xE2	0x20
The final central control command is: A5AB02380202E220					

Input volume +

Boot code	Control codes				Checksum
	Input volume +	Start channel	End of access	Stepping	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0233	0x01~0x10	0x01~0x10	0x01~0x0C	Sum of control codes
Note: The step is the db value of the increase in volume for each central control code sent. The value is equal to the db value multiplied by 10. For example, to increase the volume of input channels 8 to 12 by 5.0dB, set the value of each field as follows.					
0xA5AB	0x0233	0x08	0x0C	0x32	0x7B
The final central command is: A5AB0233080C327B					

Input volume-

Boot code	Control codes				Checksum
	Input volume-	Start	End of	Stepping	

		channel	access		
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0234	0x01~0x10	0x01~0x10	0x01~0x0C	Sum of control codes

Note: The step is the db value of the reduction in volume for each central control code sent. The value is equal to the db value multiplied by 10.

For example, to reduce the volume of input channels 8 to 12 by 5.0dB, set the value of each field as follows.

0xA5AB	0x0234	0x08	0x0C	0x32	0x7C

The final central command is: A5AB0234080C327C

Output silence

Boot code	Control codes				Checksum
	Output silence	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0331	0x01~0x10	0x01~0x10	0x00	Sum of control codes

For example, if output channel 5 is set to mute, the value of each field is set as follows.

0xA5AB	0x0331	0x05	0x05	0x00	0x3E

The final central control command is: A5AB03310505003E

Output non-silent

Boot code	Control codes				Checksum
	Output non-silent	Start channel	End of access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0332	0x01~0x10	0x01~0x10	0x00	Sum of control codes

For example, if output channels 5-10 are set to non-mute, the value of each field is set as follows

0xA5AB	0x0332	0x05	0x0A	0x00	0x44

The final central control command is: A5AB0332050A0044

Output volume +

Boot code	Control codes				Checksum
	Output volume +	Start channel	End of access	Stepping	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0333	0x01~0x10	0x01~0x10	0x01~0x0C	Sum of control codes

Note: The step is the dB value of the increase in volume for each central control code sent. The value is equal to the db value multiplied by 10.

Example:Increase the volume of each of the output channels 1 to 16 by 3.0dB, setting the value of each field as follows.					
0xA5AB	0x0333	0x01	0x10	0x1E	0x65
The final central command is: A5AB033301101E65					

Output volume-

Boot code	Control codes				Checksum
	Output volume-	Start channel	End of access	Stepping	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0334	0x01~0x10	0x01~0x10	0x01~0x0C	Sum of control codes
Note: The step is the dB value by which the volume is reduced for each central control code sent. The value is equal to the db value multiplied by 10. Example:To reduce the volume of each of the 3rd output channels by 12dB, set the value of each field as follows.					
0xA5AB	0x0334	0x03	0x03	0x78	0xB5
The final central command is: A5AB0334030378B5					

Mixer settings for mixing

Boot code	Control codes				Checksum
	Mixer mixing	Input channels	Output channels	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0435	0x01~0x14	0x01~0x10	0x00	Sum of control codes
0x11~0x14 input please refer to Note 4 for description For example: to mix the signal of 5 channels of input in 8 channels of output, the value of each field is set as follows.					
0xA5AB	0x0435	0x05	0x08	0x00	0x46
The final central control command is: A5AB043505080046					

Mixer to cancel mixes

Boot code	Control codes				Checksum
	Cancel the mix	Input channels	Output channels	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0436	0x01~0x14	0x01~0x10	0x00	Sum of control codes

0x11~0x14 input please refer to Note 4 for description

Example:To cancel the mix signal from input 5 to output 8, set the value of each field as follows.

0xA5AB	0x0436	0x05	0x08	0x00	0x47

The final central control command is: A5AB043605080047

Feedback input settings

Boot code	Control codes			Checksum
	Noise input settings	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0635	0x01~0x10	0x0100	Sum of control codes
For example:To set up a feedback input for an input of 5 channels, set the value of each field as follows.				
0xA5AB	0x0635	0x05	0x0100	0x41
The final central command is: A5AB063505010041				

Feedback input cancellation

Boot code	Control codes			Checksum
	Noise input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0636	0x01~0x10	0x0100	Sum of control codes
Example:Cancel input 5 channels of signal feedback input cancellation, the value of each field is set as follows.				
0xA5AB	0x0636	0x05	0x0100	0x42
The final central command is: A5AB063605010042				

Noise input settings

Boot code	Control codes			Checksum
	Noise input settings	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0635	0x01~0x10	0x0200	Sum of control codes
Example:Add the input 5-channel signal to the noise cancellation setting and set the value of				

each field as follows.

0xA5AB	0x0635	0x05	0x0200	0x42

The final central command is: A5AB063505020042

Noise input cancellation

Boot code	Control codes			Checksum
	Noise input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0636	0x01~0x10	0x0200	Sum of control codes
Example: To cancel the signal noise cancellation for input 5 channels, set the value of each field as follows.				
0xA5AB	0x0636	0x05	0x0200	0x43
The final central command is: A5AB063605020043				

Echo cancellation local input settings

Boot code	Control codes			Checksum
	Echo local input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0635	0x01~0x10	0x0300	Sum of control codes
Example:Add the signal from input channel 5 to the Echo Cancellation Local Input setting, with the value of each field set as follows.				
0xA5AB	0x0635	0x05	0x0300	0x43
The final central command is: A5AB063505030043				

Echo cancellation local input cancellation

Boot code	Control codes			Checksum
	Echo local input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0636	0x01~0x10	0x0300	Sum of control codes
Example: To cancel the signal echo cancellation local cancellation for input 5 channels, the value of each field is set as follows.				
0xA5AB	0x0636	0x05	0x0300	0x44
The final central control command is: A5AB063605030044				

Echo cancellation remote input settings

Boot code	Control codes			Checksum
	Echo remote input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0635	0x01~0x10	0x0400	Sum of control codes
Example: To cancel the signal echo cancellation remote input setting for input 5 channels, set the value of each field as follows.				
0xA5AB	0x0635	0x05	0x0400	0x44
The final central control command is: A5AB063505040044				

Echo cancellation remote input cancellation

Boot code	Control codes			Checksum
	Echo remote input	Input channels	Reserved bytes	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0636	0x01~0x10	0x0400	Sum of control codes
Example:Cancel input 5 channel signal echo cancellation remote input cancellation, the value of each field is set as follows.				
0xA5AB	0x0636	0x05	0x0400	0x45
The final central control command is: A5AB063605040045				

Input volume setting

Boot code	Control codes			Checksum
	Input volume setting	Access	Volume	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0237	0x01~0x10	-7200->1200	Sum of control codes
Note: The volume value is equal to the db value multiplied by 100. For example, if you set the gain value of input 2 channel to -20.78, set the volume value to -2078 (0xF7E2)				
0xA5AB	0x0237	0x02	0xF7E2	0x14
The final central command is: A5AB023702F7E214				

Output volume setting

Boot code	Control codes			Checksum
	Output volume setting	Access	Volume	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0337	0x01~0x10	-7200->1200	Sum of control codes

Note: The volume value is equal to the level value multiplied by 100.

For example, to set the channel 11 level to -20.78db, set the volume value to -2078 (0xF7E2), with the following values for each field.

| 0xA5AB | 0x0337 | 0x0B | 0xF7E2 | 0x1E |

The final central command is: A5AB03370BF7E21E

Input equalisation settings

Boot code	Control codes					Checksum
	Modules	Type	Paragraph	Access	Parameters	
2 bytes	1 byte	3Bit	5Bit	1 byte	2 bytes	1 byte
0xA5AB	0x08			0x01~0x10		Sum of control codes

Description: Type 0=Bypass 1=Freq 2=Gain 3=Oct

Example: Set the centre frequency of input 1 channel equalisation 1 band to 20Hz

| 0xA5AB | 0x08 | 0x41 | | 0x01 | 0x0014 | 0x5E |

The final central command is: A5AB08410100145E

Input volume constraint

Boot code	Control codes				Checksum
	Input volume constraint	Access	Minimum volume	Maximum volume	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0241	0x01~0x10	-72~12	-72~12	Sum of control codes

Example: Set the Channel 1 digital gain value to -50dB to 0dB, with the following values for each field.

| 0xA5AB | 0x0241 | 0x01 | 0xCE | 0x00 | 0x12 |

The final central command is: A5AB024101CE0012

Output volume constraint

Boot code	Control codes					Checksum
	Input volume constraint	Access	Minimum volume	Maximum volume		
2 bytes	2 bytes	1 byte	1 byte	1 byte		1 byte
0xA5AB	0x0341	0x01~0x10	-72~12	-72~12		Sum of control codes

Example: Set the Channel 1 digital gain value to -50dB to 0dB, with the following values for each field.

0xA5AB	0x0341	0x01	0xCE	0x00		0x13

The final central command is: A5AB034101CE0013

GROUP/DCA channel management - add/remove

Boot code	Control codes				Checksum
	Access Management	Grouping Number	Access	Parameters	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x1001	0x01~0x08	1~128/0xff	0~3/0x80/0x7f	Sum of control codes

For example, set DCA/GROUP grouping 3 to add channel 2 in, with each field value as follows.

Parameter description.

Specify type increase: 0 for input DCA, 1 for output DCA, 2 for input GROUP, 3 for output GROUP

Ignore type increase: 0x7F for Add specified channel to specified group

Specified channel delete: 0x80 Delete command

Clear group channels: only when the pass is numbered 0xff and the parameter is 0x80, all channels in the group are cleared

Returned successfully: The command sent and the command returned are the same, which means the increase is successful.

Failure to return: byte 7 of the return code is an error return

Return code: 0xff i.e. channel out of bounds

Return code: 0xfe Illegal operation (e.g. i.e. input channel added to output group)

0xA5AB	0x1001	0x03	0x02	0x01	0x18

The final central control command is: A5AB100103020118 (add channel 2 to group 3, group type DCA output)

0xA5AB	0x1001	0x03	0x02	0x7F	0x95

The final central command is: A5AB100103027f95 (add channel 2 to group 3, ignoring the group type)

0xA5AB	0x1001	0x03	0x02	0x80	0x96

The final central command is: A5AB100103028096 (in group 3 delete channel 2)

0xA5AB	0x1001	0x03	0xFF	0x80	0x93
The final central command is: A5AB100103ff8093 (clears all channels in group 3)					

GROUP/DCA volume control

Boot code	Control codes				Checksum
	Volume control	Grouping Number	Type	Parameters	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x1002	1~8	0~3	0~100/-84~0	Sum of control codes
Note: When the type is DCA, the parameter range is 0~100; when the type is GROUP, the parameter range is -84~0 Note: Type 0 is input DCA, 1 is output DCA, 2 is input GROUP, 3 is output GROUP For example, to control Group group 2 with a volume value of -8.0, each field value would be as follows					
0xA5AB	0x1002	0x02	0x03	0xF7	0x0E
The final central command is A5AB10020203F70E					

GROUP/DCA mute control

Boot code	Control codes				Checksum
	Silence control	Grouping Number	Parameters	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x1004	1~8	0~1		Sum of control codes
Note: Parameter 1 Mute 0 Non-mute For example: control DCA/GROUP grouping 2 as mute, with the following values for each field.					
0xA5AB	0x1004	0x01	0x0100		0x17
The final central control command is: A5AB100402010017					

GROUP/DCA group status search

Boot code	Control codes				Checksum
	Group Status Search	Grouping Number	Parameters	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte

| 0xA5AB | 0x1005 | 1~8 | - | - | Sum of control codes |

| For example: query DCA/GROUP grouping 3, with the following values for each field. |
| Return The 6th byte indicates the group status of the specified query |
| 0 for input DCA, 1 for output DCA, 2 for input GROUP, 3 for output GROUP |

| 0xA5AB | 0x1005 | 0x03 | 0x00 | 0x00 | 0x18 |

The final central control command is: A5AB100503000018

The final command returned is: A5AB100503010019 (indicating that the current group 3 is the DCA output group)

GROUP/DCA channel status search

Boot code	Control codes				Checksum
	Channel Status Enquiry	Grouping Number	Access	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x1006	1~8	1	-	Sum of control codes

For example: query DCA/GROUP grouping 3 with the following values for each field.

Return The seventh byte indicates whether the channel specified in the query exists in the regroup

0 means the query channel does not exist in the specified group 1 means the query channel exists in the specified group

| 0xA5AB | 0x1006 | 0x03 | 0x01 | 0x00 | 0x1a |

The final central command is: A5AB10060301001a

The final central command returned is: A5AB10050301011b (indicating that channel 1 is present in group 3)

The central control terminal sends a request packet and the device returns a level packet.

Get input level command

Boot code	Control codes			Checksum
	Setting mode	Data length	Data	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0004	0x00	0xffff	Sum of control codes

For example, each field value is as follows.

0xA5AB	0x0004	0x00	0xffff	...

The final central command is: ………………

Description When setting is complete, the first command returned is the same as the set command, and the level value is returned continuously thereafter.

Get Output Level command

Boot code	Control codes			Checksum
	Setting mode	Data length	Data	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0005	0x00	0xffff	Sum of control codes
For example, each field value is as follows.				
0xA5AB	0x0005	0x00	0xffff	...

The final central command is: …………

Description When setting is complete, the first command returned is the same as the set command, and the level value is returned continuously thereafter.

The length of the data is

    boot code + set mode + data length + data + checksum

    Lead Code Set Mode + Data Length + Checksum = 6

Number of bytes of level data = Length of data - 6

Level data range: 0 ~ -120 (-120 for anything less than -120)

    Level value of 0: maximum sound

    Level value of -120: minimum sound

The last byte is the parity bit 0x00 (the return code is not used for parity)

For example.

    Dante88 device sends the command: A5AB000400FFFF02

    The return code is: A5 AB 00 04 16 CE 9B 9D 9D 9D 9A 9C 9B 88 88 88 88 88 88 88 88 88 01

    Fifth byte 0x16: data length of 22 bits

    Data length followed by 22-6 = 16 channel levels (those with green underline), first 8 analogue channels, last 8 dante channels

    Calculation of actual level values.

        CE : 1100 1110 inverse -(0011 0001 + 1) = -(0011 0010) = -(0x32) = - 48

        88 : 1000 1000 Inverted -(0111 0111 + 1) = -(0111 1000) = -(0x78) = -120

Notification of input level setting

Boot code	Control codes			Checksum
	Notification of input level setting	Parameters	Data	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0006	0x00	0x0000	Sum of control codes
Example: Parameters: 1 Turn on the input level notification function (i.e. turn on level up) 0 Off (default)				
0xA5AB	0x0006	0x00	0x0000	...
The final central command is. Open notification input level setting: A5AB000601000007 Turn off the notification input level setting: A5AB000600000006				

Notification of output level setting

Boot code	Control codes			Checksum
	Notification of output level setting	Parameters	Data	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0007	0x00	0x0000	Sum of control codes
Example: Parameters: 1 Turn on the output level notification function (i.e. turn on level reporting) 0 Off (default)				
0xA5AB	0x0007	0x00	0x0000	...
The final central command is. Open notification input level setting: A5AB000701000008 Turn off the notification input level setting: A5AB000700000007				

Notification of input and output level settings

Boot code	Control codes			Checksum
	Notification of output level setting	Parameters	Data	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0008	0x00	0x0000	Sum of control codes
Example: Parameters: 1 Turn on the output level notification function (i.e. turn on level reporting) 0 Off (default)				
0xA5AB	0x0008	0x00	0x0000	...
The final central command is. Open notification input level setting: A5AB000801000009				

Turn off the notification input level setting: A5AB000800000008

The length of the data is

boot code + set mode + data length + data + checksum

Lead Code Set Mode + Data Length + Checksum = 6

Number of bytes of level data = Length of data - 6

Level data range: 0 ~ -120 (-120 for anything less than -120)

Level value of 0: maximum sound

Level value of -120: minimum sound

The last byte is the parity bit 0x00 (the return code is not used for parity)

For example.

Dante88 device sends the command: A5AB000601000007

The return code is: A5 AB 00 06 16 CE 9B 9D 9D 9D 9A 9C 9B 88 88 88 88 88 88 88 88 88 88 01

Fifth byte 0x16: data length of 22 bits

Data length followed by 22-6 = 16 channel levels (those with green underline), first 8 analogue channels, last 8 dante channels

Calculation of actual level values.

CE : 1100 1110 inverse -(0011 0001 + 1) = -(0011 0010) = -(0x32) = - 48

88 : 1000 1000 Inverted -(0111 0111 + 1) = -(0111 1000) = -(0x78) = -120

Echo cancellation noise reduction levels

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0637	0x00~0x05	0x00	0x00	Sum of control codes
Example: Level: 0: Closed 1: Weak 2: Weak 3: Strong 4: Stronger 5: Super Strong					
0xA5AB	0x0637	0x05	0x00	0x00	0x42
The final central command is: A5AB063705000042					

Echo cancellation level

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x0638	0x01~0x03	0x00	0x00	Sum of control codes

Example: 1: small room 2: medium room 3: large room					
0xA5AB	0x0638	0x03	0x00	0x00	0x41
The final central command is: A5AB063803000041					

Get echo cancellation noise reduction levels

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x063B	0x00	0x00	0x00	Sum of control codes
Example: Level: 0: Closed 1: Weak 2: Weak 3: Strong 4: Stronger 5: Super Strong					
0xA5AB	0x063B	0x00	0x00	0x00	0x41
The final central control command is: A5AB063B00000041					

Get an Echo Cancellation Rating

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x063A	0x00~0X03	0x00	0x00	Sum of control codes
Example: 1: small room 2: medium room 3: large room					
0xA5AB	0x063A	0x00	0x00	0x00	0x40
The final central control command is: A5AB063A00000040					

Get noise cancellation noise reduction levels

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x063C	0x00	0x00	0x00	Sum of control codes
For example: Grade: 1: Weaker 2: Weaker 3: Stronger 4: Stronger 5: Super Strong					
0xA5AB	0x063C	0x00	0x00	0x00	0x41
The final central control command is: A5AB063C00000042					

Set noise cancellation noise reduction levels

Boot code	Control codes				Checksum
	Noise cancellation	Grade	Reserved bytes	Reserved bytes	
2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
0xA5AB	0x063D	0x01~0X05	0x00	0x00	Sum of control codes
For example: Grade: 1: Weaker 2: Weaker 3: Stronger 4: Stronger 5: Super Strong					
0xA5AB	0x063D	0x01	0x00	0x00	0x40
The final central command is: A5AB063D01000044					

Set the current delay time

Boot code	Control codes				Checksum
	Time delay codes	Type	Access	Data	
2 bytes	1 byte	1 byte	1 byte	2 bytes	1 byte
0xA5AB	0x0D	0x1~0x3	0x01~0x10	0x0000~0x07D0	Sum of control codes
Example: A5AB0D010100000F Enabling the first channel delay function A5AB0D0101010010 Disabling the first channel delay function					
0xA5AB	0x0D01		0x01	0x0000	0xF
The final central command is: .					

Description.

      Type: 1 Time-delay switch (0 on 1 off)

              2 millisecond delay (0~2000)

              3 microsecond delay (0 to 990)

For example.

    Set 1 channel delay time 10ms

        A5AB0D0201000A1A

Get the current delay time

Boot code	Control codes				Checksum
	Time delay codes	Type	Access	Parameters	
2 bytes	1 byte	1 byte	1 byte	2 bytes	1 byte
0xA5AB	0x0D	0x1~0x3	0x01~0x10	0xFFFF	Sum of control codes
Description: Type 1=Bypass 2=ms 3=us					
Example: Get the current millisecond delay time for channel 1					
0xA5AB	0x0D	0x2	0x01	0xffff	0x0E
The final central command is: A5AB0D0201FFFF0E					

For example.

    Check if the time delay switch is on

    The orders are

        A5AB0D0101FFFF0E

    If the time delay switch is currently open it returns.

        A5AB0D010100FF0E

    Otherwise it will return.

        a5ab0d010101ff0f

If the current system delay time is 10ms then it will return.

    A5AB0D0201000A1A

Caution.

    Millisecond delay and microsecond delay need to be obtained and set separately.

Central control panel P5 [Start].

Playback settings

Boot code	Control codes			Checksum
	Playback settings	Type	To be determined	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x000E	0x1~0x6	0x0000	Sum of control codes
Description: Type 1 = play 2 = pause 3 = stop 4 = next song 5 = previous song 6 = play				

position
Example: Set the current state to play

| 0xA5AB | 0x000E | 0x1 | 0x0000 | 0x0F |

The final central control command is: A5AB000E0100000F

Get Play Status

Boot code	Control codes			Checksum
	Playback settings	Type	To be determined	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x000E	0xFF	0x0000	Sum of control codes
For example: ……				
0xA5AB	0x000E	0xFF	0x0000	0x0D

The final central command is: A5AB000EFF00000D

USB playback control (not for DX-BOX-44)

Boot code	Control codes			Checksum
	Playback settings	Type	To be determined	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0002	0x1~0x5	0x0000	Sum of control codes
Description: Type 1 = play 2 = pause 3 = stop 4 = next song 5 = previous song				
Example: Set the current state to play				
0xA5AB	0x0002	0x1	0x0000	0x03

The final central command is: A5AB000201000003

USB recording control (not for DX-BOX-44)

Boot code	Control codes			Checksum
	Playback settings	Type	To be determined	
2 bytes	2 bytes	1 byte	2 bytes	1 byte
0xA5AB	0x0003	0x1~0x3	0x0000	Sum of control

				codes	
Description: Type 1 = Start Recording 2 = Pause Recording 3 = Stop Recording After stopping the recording the recording file CC_x is generated x is the number Example: Set current recording status					
0xA5AB	0x0003	0x1	0x0000		0x04
The final central command is: A5AB000201000003					

End]

Enquiry Instructions

	2 bytes	2 bytes	1 byte	1 byte	1 byte	1 byte
Scenes	0xA5AB	0x01B0	0x01	Parameters, scene number	0x00	Checksum
Sensitivity	0xA5AB	0x02B8				Checksum
Input volume	0xA5AB	0x02B7				
Output volume	0xA5AB	0x03B7	Access number	Parameters, as set		Checksum
Mixer	0xA5AB	0x04B5	Input channels	Output channels	Parameters	Checksum
Feedback input	0xA5AB	0x06B6	Input channels	0x01	Parameters	Checksum
Noise input	0xA5AB	0x06B6	Input channels	0x02	Parameters	Checksum
Echo Local Entry	0xA5AB	0x06B6	Input channels	0x03	Parameters	Checksum
Echo Remote Entry	0xA5AB	0x06B6	Input channels	0x04	Parameters	Checksum
Mixer 2	0xA5AB	0x04B9	Output channels	Parameters, mix status, press position (Analogue input only, others are queried using the "Mixer" command)		Checksum
Feedback input 2	0xA5AB	0x06B9	0x01	Parameters, mix status, press position		Checksum
Noise input 2	0xA5AB	0x06B9	0x02	Parameters, mix		Checksum

				status, press position	
Echo Local Entry 2	0xA5AB	0x06B9	0x03	Parameters, mix status, press position	Checksum
Echo Remote Entry 2	0xA5AB	0x06B9	0x04	Parameters, mix status, press position	Checksum
Get local level	0xA5AB	0x0004	Access number	Data bits	Checksum

New items	Header (2 bytes)	Cmd (2 bytes)	Data (3 bytes)	Checksum (1 byte)
Input Mute	0xA5AB	0x02B2	None	Checksum
Output silence	0xA5AB	0x03B2	None	Checksum
Phantom power	0xA5AB	0x02BD	None	Checksum

New items	Header (2 bytes)	Cmd (2 bytes)	Data (3 bytes)	Checksum (1 byte)
Software Version Search	0xA5AB	0x0001	None	Checksum
Get NET information	0xA5AB	0x0010	None	Checksum
Get serial number	0xA5AB	0x0011	None	Checksum
Get device name	0xA5AB	0x0012	None	Checksum

Example of a query instruction.

Query scenario, currently scenario 5 Sending code is: A5AB01B0010000B2 The return code is: A5AB01B0010500B7
Query input mute, current input mute channel is 5~12 Sending code is: A5AB02B1000000B3 The return code is: A5AB02B1000FF0B2
Query output mute, current output mute channel is 5~12 Sending code is: A5AB03B1000000B4 The return code is: A5AB03B1000FF0B3
Query phantom power, the current phantom power open channel is 5~12 Sending code is: A5AB02BC000000BA The return code is: A5AB02BC000FF0B9
Query input 1 sensitivity, current channel 1 input sensitivity is -6 Sending code is: A5AB02B8010100BC

The return code is: A5AB02B80101FAB6
Query input 2 volume, current input volume value for channel 2 is -20.78dB Sending code is: A5AB02B7020000BB The return code is: A5AB02B702F7E294
Query output 2 volume, current channel 2 output volume value is -20.78dB Sending code is: A5AB03B7020000CB The return code is: A5AB03B702F7E2A4
Query mixer 1-in/1-out status, current 1st input mix to 1st output Sending code is: A5AB04B5010100BB The return code is: A5AB04B5010100BB
Query feedback input 1 status, current 1st input into feedback processing Sending code is: A5AB06B6010100BE The return code is: A5AB06B6010100BE
Query feedback input status, the current 1st input goes into feedback processing Sending code is: A5AB06B9010000BE The return code is: A5AB06B901FFFEBD
Query input mute (more than 24 channels are displayed), current input mute channel is 5~12 Sending code is: A5AB02B2000000B3 The return code is: A5AB02B20000000000000FF0B3
Query output mute (more than 24 channels are displayed), current output mute channel is 5~12 Sending code is: A5AB03B2000000B4 The return code is: A5AB03B20000000000000FF0B4
Query phantom power (more than 24 channels displayed), current phantom power on channels 5~12 Sending code is: A5AB02BD000000BA The return code is: A5AB02BD0000000000000FF0BA
Check software version Sending code is: A5AB000100000001 The return code is: A5AB0001956500fb 95--dsp version-->149 65--arm version-->101
Check NET information Sending code is: A5AB001000000010 The return code is: A5AB0010C0A8029CFFFFFF00C0A8020100111313C31890 IP: C0 A8 02 9C --> 192 168 2 156 Mask: FF FF FF 00 --> 255 255 255 255 0 Gateway: C0 A8 02 01 --> 192 168 0 1 MAC: 00 11 13 13 C3 18
Search for serial number Sending code is: A5AB001100000011 The return code is: A5AB001153544333313830414236363358593200CC Serial number: 53544333313830414236363358593200 --> STC3180AB663XY2
Search for equipment names Sending code is: A5AB001200000012

The return code is: A5AB00124D41545249583132314E0A0000000005

Device name: 4D41545249583132314E0A000000000 --->MATRIX1212N