



CR106 External Control

Change Log

REVISION	DATE	NOTES
A	7/23/2025	Initial Release

Overview

This protocol is compatible with Crestron, AMX, Savant, Control4, and other RS232-based control systems.

Packet Structure

External commands over RS232 and TCP/IP are represented as ASCII data:

Start Byte	Command ID	Parameter(s)	Stop Byte	Carriage Return / New Line
1 Byte	3 Bytes	N Bytes	1 Byte	2 Bytes (Optional)

PACKET COMPONENT	DESCRIPTION
Start Byte	Indicates the start of a packet: [0x28] or ' ('
Command ID	3-Character Unique ID, which informs the desired command.
Parameter(s)	Command-specific; each parameter must be prefixed with a space character [0x20].
Stop Byte	Indicates the end of a packet: [0x29] or ') '
Carriage Return / New Line	Used optionally by the product to format communications for readability: [0x0D 0x0A]

Note: If no parameter is specified, the command will return the status for the requested command.

Operation

When the CR106 is first connected to AC, it will reply with the Model Number, Serial Number, and System Firmware Version:

```
>> (CR106)
>> (Serial Number: XXX####)
>> (FW Version: #.#.#)
```

After processing a Command, the CR106 will typically echo the same Command as an acknowledgement. If the command is invalid or corrupt, an appropriate Error Message will be sent instead.

When status changes occur in the CR106, updates will be automatically transmitted to the host control system. This allows the control software to internally maintain the current state of the preamplifier—allowing proper Command and Event execution.

RS232

Packet Configuration

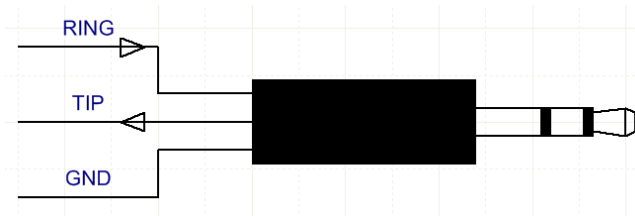
The CR106 RS232 interface assumes the following Packet Configuration:

- Data Bits = 8
- Parity = None
- Stop Bits = 1
- Flow Control = None
- Baud Rate = 115200

Hardware Requirements

The CR106 uses a 3.5mm TRS cable for RS232C serial control with the following pinout:

- Tip: TXD (Data Transmitted by CR106)
- Ring: RXD (Data Received by CR106)
- Sleeve: Ground



TCP/IP

The CR106 RS232 uses port 57012 for these communications.

Error Messages

ERROR TYPE	MESSAGE	DESCRIPTION
UNKNOWN	(ERR 2)	Default Message for all unclassified Errors.
INVALID_ARGUMENT	(ERR 3)	Parameter is invalid for specified Command.
FAILED_PRECONDITION	(ERR 9)	Parameter is incompatible with current value(s) for one or more other settings.
UNIMPLEMENTED	(ERR 12)	Command is not supported/recognized.

Core Commands

FUNCTION	ID	PARAMETERS	COMMENTS
Query	QRY		
Status Enable	STA	'1' -> On '0' -> Off	Enabling this allows status messages to be transmitted by the unit automatically when its state updates.
Power	PWR	'1' -> On '0' -> Off	If Power is Off, all non-Power RS232 Commands will return a FAILED_PRECONDITION error.
Display Brightness	TDB	'1' -> 25% '2' -> 50% '3' -> 75% '4' -> 100%	
Meter Lights	TML	'1' -> On '0' -> Off	

Input Commands

Start: '('	Command ID	Space	Unit ID	Space	Input ID	Space	Parameter	Stop: ')'
0x28	3 Bytes	0x20	1 Byte	0x20	1 Byte	1 Byte	N Bytes	0x29

PACKET COMPONENT	DESCRIPTION
Unit ID	The Unit/Link ID of the target CR106; values range from '1' to '5' (i.e., 0x31 to 0x35)
Input ID	0x30 / '0' -> NONE: Input Selection for Zones/Groups Only 0x31 / '1' -> AUX 1 0x32 / '2' -> AUX 2 0x33 / '3' -> AUX 3 0x34 / '4' -> AUX 4 0x35 / '5' -> COAX 1 0x36 / '6' -> COAX 2 0x37 / '7' -> OPT 1 0x38 / '8' -> OPT 2 0x39 / '9' -> BLUETOOTH
Parameter(s)	Command-specific; each parameter must be prefixed with a space character (0x20).

Note: Requesting a disabled Input will return a FAILED_PRECONDITION error.

FUNCTION	ID	PARAMETERS	COMMENTS
Input Trim Level	ITL	"-10" to "10" -> Set Level	Step size is 0.5dB.
BT Pair	IBT		Only valid for Bluetooth; status not supported.

Zone Commands

Start: '('	Command ID	Space	Unit ID	Space	Zone ID	Space	Parameter	Stop: ')'
0x28	3 Bytes	0x20	1 Byte	0x20	1 Byte	1 Byte	N Bytes	0x29

PACKET COMPONENT	DESCRIPTION
Unit ID	The Unit/Link ID of the target CR106; values range from '1' to '5' (i.e., 0x31 to 0x35)
Zone ID	The index of the target Zone; values range from '1' to '6' (i.e., 0x31 to 0x36)
Parameter(s)	Command-specific; each parameter must be prefixed with a space character (0x20).

Note: Requesting a disabled Zone will return a FAILED_PRECONDITION error.

FUNCTION	ID	PARAMETERS	COMMENTS
Zone Query	ZQY		Returns all settings for the requested Zone.
Zone Select	ZNS		Sets the Zone Context of the display.
Volume	ZVL	'U' -> Up 1% 'D' -> Down 1% '0' to "100" -> Set %	
Mute	ZMT	'1' -> Mute '0' -> Unmute	
Input Selection	ZIA	Parameter 1 = Unit ID Parameter 2 = Input ID	For Input IDs, see Input Commands .
Balance	ZBA	'L' -> Left 1dB 'R' -> Right 1dB "-50" to "50" -> Set Value	Sign indicates Left (-) or Right (+)
B Channel Trim Level	ZBT	"-10" to "10" -> Set Level	Step size is 0.5dB.
Subwoofer Trim Level	ZST	"-10" to "10" -> Set Level	Step size is 0.5dB.
Tone Bass	ZTB	'U' -> Up 1dB 'D' -> Down 1dB "-12" to "12" -> Set Level	
Tone Treble	ZTT	'U' -> Up 1dB 'D' -> Down 1dB "-12" to "12" -> Set Level	
Equalizer	ZEQ	'0' -> Off '1' -> "Music" '2' -> "Music II" '3' -> "Relaxed" '4' -> "Tilt" '5' -> "Action" '6' -> "Action + Movie"	
High Pass	ZHP	'0' -> Disable '1' -> Enable "40" to "120" -> Set Hertz	Status returns both settings, for example: (ZHP 1 3 0 50) = 1-ZONE3 has high pass disabled and frequency set to 50Hz.
Low Pass	ZLP	'0' -> Disable '1' -> Enable "40" to "120" -> Set Hertz	Status returns both settings, for example: (ZLP 4 2 1 70) = 4-ZONE2 has low pass enabled and frequency set to 70Hz.

Group Commands

Start: '('	Command ID	Space	Group ID	Space	Parameter	Stop: ')'
0x28	3 Bytes	0x20	1 Byte	1 Byte	N Bytes	0x29

PACKET COMPONENT	DESCRIPTION
Group ID	The index of the target Zone; values range from '1' to '6' (i.e., 0x31 to 0x36)
Parameter(s)	Command-specific; each parameter must be prefixed with a space character (0x20).

FUNCTION	ID	PARAMETERS	COMMENTS
*Group Query	GQY		Returns all settings for the requested Group. *If the Group ID field is omitted from the packet, this command instead returns a list of the current set of Group IDs.
Volume	GVL	'U' -> Up 1% 'D' -> Down 1% '0' to "100" -> Set %	
Mute	GMT	'1' -> Mute '0' -> Unmute	
Input Selection	GIA	Parameter 1 = Unit ID Parameter 2 = Input ID	For Input IDs, see Input Commands .
*Create Group	GMK	Parameter N = "ij" i = Unit ID j = Zone ID	*This command omits the Group ID its preceding space character. e.g., (GMK 12 22 31 54) creates a new group with the following Zones: 1-ZONE2, 2-ZONE2, 3-ZONE1, 5-ZONE4
Delete Group	GRM		
Update Zones	GUZ	Parameter N = "ij" i = Unit ID j = Zone ID	e.g., (GMK 3 12 22 31 54) updates existing Group 3 to the following Zones: 1-ZONE2, 2-ZONE2, 3-ZONE1, 5-ZONE4