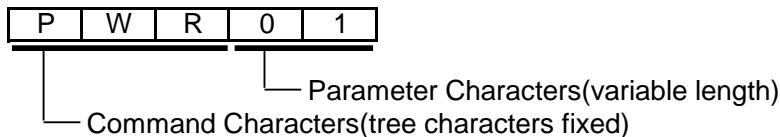


# ONKYO

## Integrated Serial Communication Protocol for MCA1120/PCA1120

### 1. Protocol Overview

ISCP (Integrated Serial Control Protocol) consists of three command characters and parameter character(s) of variable length.



### 1.1. ISCP over RS-232C

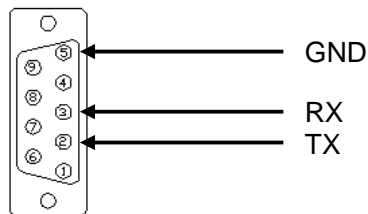
#### Hardware Overview

3wire RS-232C protocol

9600 baud / 8 data bits / 1 stop bits / no parity / no flow control

9 pin female D type connector (pin 2 is transmit, pin 3 is receive, pin 5 is signal ground)

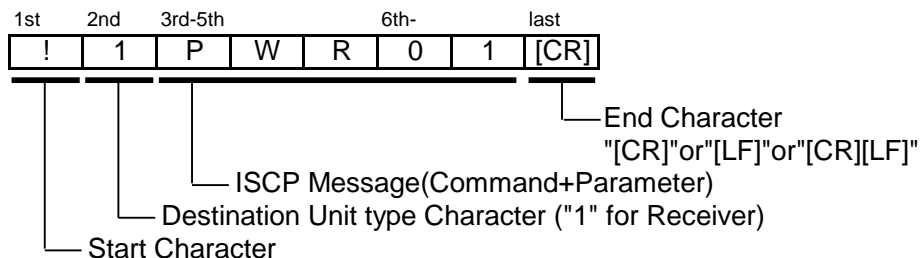
Use a straight-thru cable to connect to your PC.



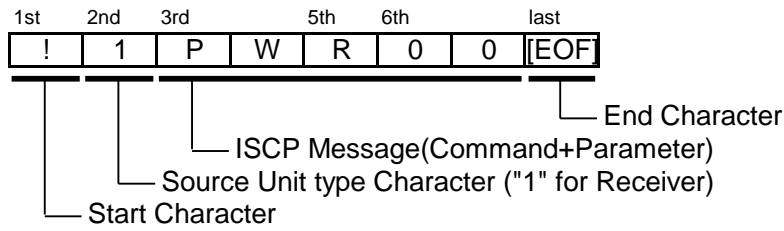
DB9 Male

#### Software Overview

#### Controller -> Device Message Example (Power On)



**Device -> Controller Message Example (Power Status = Standby)**



**Special Characters**

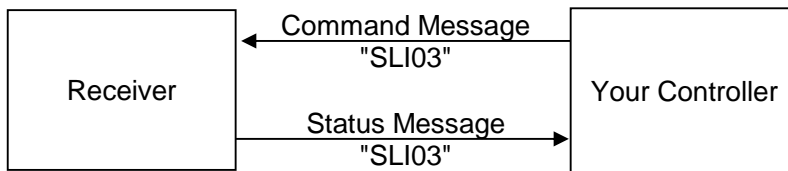
[CR]	Carriage Return	ASCII Code 0x0D
[LF]	Line Feed	ASCII Code 0x0A
[EOF]	End of File	ASCII Code 0x1A

**2. COMMUNICATION FLOW DESCRIPTION**

Receiver uses Question, Command and Notification messages to have to communicate with a given Controller. This protocol is designed for point to point communication between a third party controller and Receiver.

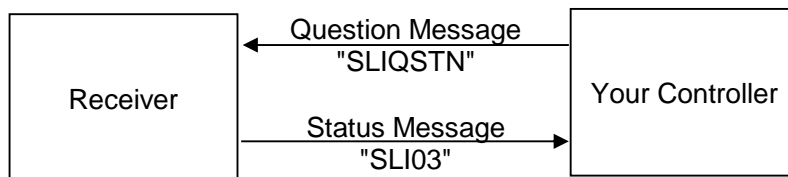
**2.1. Command Communication**

Send a "Command Message" to Receiver from the Controller for control of the device. Unsolicited feedback - If Receiver's status changes , a "Status Message" is sent to the Controller. Receiver will respond with a status message within 50msec. If Receiver does not respond within 50msec, the communication has failed.



**2.2. Question Communication**

Send a "Question Message" to Receiver from the Controller to get the current system status. Receiver will respond with a status message.



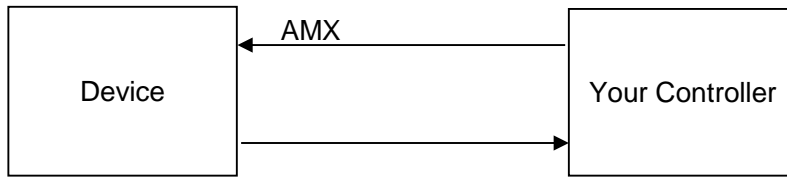
**2.3. Event Notice Communication**

If the system status changes, the Receiver will notify the Controller by sending the new current



## 4. AMX DDDP(Dynamic Device Discovery Protocol)

### 4.1 Serial Control (RS-232C)



AMXB<-SDKClass=Receiver><-Make=ONKYO><-Model=MCA1120><-Revision=1.0.0>\r'

### 4.2 IP Control (Ethernet)



AMXB<-SDKClass=Receiver><-Make=ONKYO><-Model=MCA1120><-Revision=1.0.0>  
<-UUID=0009b0aabbcc><-Port=60128>\r'

<-SDKClass=Receiver>  
<-Make=\*\*\*\*\*> : ONKYO  
<-Model=\*\*\*\*\*> : Model Name  
<-Revision=1.0.0>

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**Contact Information:** 1-10-5 Yokoami, Sumida-ku, Tokyo 130-0015 Japan • (03) 6284-1380

#### Revision History:

Version	Date	Contents
1.00	28 September 2018	first edition MCA1120, PCA1120

#### Note:

Model	Date	Contents

- Specifications and features are subject to change without notice.

<https://www.onkyoinstallation.com/>



## Main-related Command Support List

Code	Means	MCA1120	PCA1120	
<b>"PWR" - System Power Command</b>				
"00"	sets System Standby	Yes	Yes	
"01"	sets System On	Yes	Yes	
"QSTN"	gets the System Power Status	Yes	Yes	
<b>"AMT" - Audio Muting Command</b>				
"00"	sets Audio Muting Off	Yes	Yes	
"01"	sets Audio Muting On	Yes	Yes	
"TG"	sets Audio Muting Wrap-Around	Yes	Yes	
"QSTN"	gets the Audio Muting State	Yes	Yes	
<b>"MVL" - Master Volume Command</b>				
"00"-"64"	Volume Level 0 – 100 ( In hexadecimal representation)	Yes	Yes	
"UP"	sets Volume Level Up	Yes	Yes	
"DOWN"	sets Volume Level Down	Yes	Yes	
"QSTN"	gets the Volume Level	Yes	Yes	
<b>"IV1" - Input Volume-1 Command (Bluetooth / LINE 1)</b>				
"00"-"64"	Input Volume Level 0 – 100 ( In hexadecimal representation)	Yes	No	
"UP"	sets Input Volume Level Up	Yes	No	
"DOWN"	sets Input Volume Level Down	Yes	No	
"QSTN"	gets the Input Volume Level	Yes	No	
<b>"IV2" - Input Volume-2 Command (LINE 2)</b>				
"00"-"64"	Input Volume Level 0 – 100 ( In hexadecimal representation)	Yes	No	
"UP"	sets Input Volume Level Up	Yes	No	
"DOWN"	sets Input Volume Level Down	Yes	No	
"QSTN"	gets the Input Volume Level	Yes	No	
<b>"IV3" - Input Volume-3 Command (MIC 1)</b>				
"00"-"64"	Input Volume Level 0 – 100 ( In hexadecimal representation)	Yes	No	
"UP"	sets Input Volume Level Up	Yes	No	
"DOWN"	sets Input Volume Level Down	Yes	No	
"QSTN"	gets the Input Volume Level	Yes	No	
<b>"IV4" - Input Volume-4 Command (MIC 2 / LINE 3)</b>				
"00"-"64"	Input Volume Level 0 – 100 ( In hexadecimal representation)	Yes	No	
"UP"	sets Input Volume Level Up	Yes	No	
"DOWN"	sets Input Volume Level Down	Yes	No	
"QSTN"	gets the Input Volume Level	Yes	No	
<b>"PLM" - Front Panel Lock Mode (enable while 3.5mm Serial cable is plugged in RS 232 terminal)</b>				
"00"	sets Front Panel Lock Mode Unlock	Yes	Yes	
"01"	sets Front Panel Lock Mode Partial Lock	Yes	Yes	
"02"	sets Front Panel Lock Mode All Lock	Yes	Yes	
"QSTN"	gets Front Panel Lock Mode	Yes	Yes	
<b>"RST" - Reset Command</b>				
"ALL"	Reset All : restart the unit without initializing settings	Yes	Yes	
<b>"TFR" - Tone(Front) Command</b>				
"Bxx"	Front Bass (xx is "-A"... "00"... "+A"[-10...0...+10 1 step])	Yes	Yes	
"Txx"	Front Treble (xx is "-A"... "00"... "+A"[-10...0...+10 1 step])	Yes	Yes	
"BUP"	sets Front Bass up(1 step)	Yes	Yes	
"BDOWN"	sets Front Bass down(1 step)	Yes	Yes	
"TUP"	sets Front Treble up(1 step)	Yes	Yes	
"TDOWN"	sets Front Treble down(1 step)	Yes	Yes	
"QSTN"	gets Front Tone ("BxxTxx")	Yes	Yes	

Code	Means	MCA1120	PCA1120	
<b>"OSM" - BGM Mode (Original Sound Mode)</b>				
"00"	sets Off	Yes	Yes	
"01"	sets Mode1:Lively(アパレルモード)	Yes	Yes	
"02"	sets Mode2:Natural(BGMモード)	Yes	Yes	
"03"	sets Mode3:Calm(カフェ・クリニックモード)	Yes	Yes	
"UP"	sets BGM Mode Wrap-Around Up	Yes	Yes	
"DOWN"	sets BGM Mode Wrap-Around Down	Yes	Yes	
"QSTN"	gets the BGM Mode	Yes	Yes	
<b>"HSW" - HPF for Subwoofer (for noise at ultra Low frequency, in case only if it's used as Subwoofer Amp. Default is off)</b>				
"00"	sets 10Hz	No	Yes	
"01"	sets 20Hz	No	Yes	
"02"	sets 30Hz	No	Yes	
"QSTN"	gets frequency of HPF for subwoofer	No	Yes	
<b>"HMC" - HPF for Mic Input (in case for wind and pop noise. Default is 100Hz)</b>				
"00"	sets 100Hz	Yes	No	
"01"	sets 200Hz	Yes	No	
"02"	sets 250Hz	Yes	No	
"QSTN"	gets frequency of HPF for mic input	Yes	No	
<b>"DLV" - Ducker Level (Attenuate BGM level, when the ducker sense audio from Mic input. Default is -24dB)</b>				
"00"	sets -40dB	Yes	No	
"01"	sets -24dB	Yes	No	
"02"	sets -∞dB	Yes	No	
"QSTN"	gets ducker level	Yes	No	
<b>"PM1" - Proximity Correction MIC1 (auto adjust low frequency response as Speaker get closer to Min. Default is off)</b>				
"00"	sets Off	Yes	No	
"01"	sets On	Yes	No	
"QSTN"	gets status of Proximity Correction MIC1	Yes	No	
<b>"PM2" - Proximity Correction MIC2</b>				
"00"	sets Off	Yes	No	
"01"	sets On	Yes	No	
"QSTN"	gets status of Proximity Correction MIC1	Yes	No	
<b>"DDH" - Distortion Detection for Howling (mute function when it detect significantly distorted signal)</b>				
"00"	sets Off	Yes	No	
"01"	sets On	Yes	No	
"QSTN"	gets status of Distortion Detection for Howling	Yes	No	
<b>"NGL" - Noise Gate Level (automatically mute Mic input signal when it below threshold level. Default is Middle)</b>				
"00"	sets Off	Yes	No	
"01"	sets High Level	Yes	No	
"02"	sets Middle Level	Yes	No	
"03"	sets Low Level	Yes	No	
"QSTN"	gets Noise Gate Level	Yes	No	

Code	Means	MCA1120	PCA1120	
<b>"MQH" - Manual EQ for Microphone (Manual band-stop filter for feedback suppressor, Q factor is fixed as 3)</b>				
abcdefghijklmno pqrst	sets Manual EQ Value of all Band for Howling 0:Off, 1:-3dB, 2:-6dB, 3:-9dB, 4:-12dB, 5:-15dB, 6:-18dB  a: BAND1 b: BAND2 c: BAND3 d: BAND4 e: BAND5 f: BAND6 g: BAND7 h: BAND8 i: BAND9 j: BAND10 k: BAND11 l: BAND12 m: BAND13 n: BAND14 o: BAND15 p: BAND16 q: BAND17 r: BAND18 s: BAND19 t: BAND20	Yes	No	
<b>"QSTN"</b>	gets Manual EQ for Howling	Yes	No	

Center frequency of each band are fixed as below

- BAND1 = 125Hz
- BAND2 = 157Hz
- BAND3 = 198Hz
- BAND4 = 250Hz
- BAND5 = 315Hz
- BAND6 = 297Hz
- BAND7 = 500Hz
- BAND8 = 630Hz
- BAND9 = 794Hz
- BAND10 = 1kHz
- BAND11 = 1.26kHz
- BAND12 = 1.587kHz
- BAND13 = 2kHz
- BAND14 = 2.52kHz
- BAND15 = 3.175kHz
- BAND16 = 4kHz
- BAND17 = 5.04kHz
- BAND18 = 6.35kHz
- BAND19 = 8kHz
- BAND20 = 10.079kHz

Code	Means	MCA1120	PCA1120	
<b>"FWV" - Firmware Version</b>				
abcefhi00000000 000	Firmware Version Main: "a.bc" Bluetooth(Only for MCA): "1.ef" DSP: "1.hi" Don't care about "00000000000".	Yes	Yes	
"QSTN"	gets The Firmware Version State	Yes	Yes	
<b>"COT" - Cumulative Operation Time</b>				
"hhhhhh:mm"	Cumulative Operation Time (excluding during standby) hhhhh: 000000-065535 hours mm: 00-59 minutes (In decimal representation)	Yes	Yes	
"QSTN"	gets Cumulative Operation Time	Yes	Yes	
<b>"FQ1" - Full Custom EQ Preset1 (Please ask for more detail)</b>				
tffffqqgggg	This setting is effective when [Preset EQ for Loudspeaker] of DIP switch on the unit is [Off].  sets EQ Parameter t:Type of Filter 0:Parametric EQ 1:Low shelving filter 2:High shelving filter 3:Low Pass filter 4:High Pass filter ffff:Cut off/Center Frequency 0001, "0002" - "4E20"(1Hz, 2Hz - 20kHz :1Hz step) ( In hexadecimal representation) qq:Q factor 01, "02" - "64"(0.1, 0.2 - 10.0 :0.1step) ( x10 value In hexadecimal representation) gggg:Gain 0000, "0001" - "0078"(0.0dB, +0.1dB - +12.0dB :0.1dB step), FF88, "FF89" - "FFFF"(-12.0dB, -11.9dB - -0.1dB :0.1dB step) (x10 value In hexadecimal representation)	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ2" - Full Custom EQ Preset2</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ3" - Full Custom EQ Preset3</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ4" - Full Custom EQ Preset4</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ5" - Full Custom EQ Preset5</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ6" - Full Custom EQ Preset6</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ7" - Full Custom EQ Preset7</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQ8" - Full Custom EQ Preset8</b>				
tffffqqgggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	

Code	Means	MCA1120	PCA1120	
<b>"FQ9" - Full Custom EQ Preset9</b>				
tffffqggggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQA" - Full Custom EQ Preset10</b>				
tffffqggggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQB" - Full Custom EQ Preset11</b>				
tffffqggggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FQC" - Full Custom EQ Preset12</b>				
tffffqggggg	Parameter specification is same as "FQ1".	Yes	Yes	
"QSTN"	gets EQ Parameter	Yes	Yes	
<b>"FHD" - Field Preset EQ for Headroom Setting</b>				
"00"-18"	sets Headroom Information "00", "01", "02"-18" (0.0dB, 0.5dB, 1.0dB - 12.0dB :0.5dB step) ( In hexadecimal representation)	Yes	Yes	
"QSTN"	gets Headroom Information	Yes	Yes	

This parameter is sent only by Device(Commercial Amp etc.).

This parameter is received only by Device(Commercial Amp etc.).

While the unit is powered on, all commands are valid, but during standby it is valid only when the parameter is "QSTN". (Excluding some such as "PWR00", "PWR01" etc.)