SONY

VIDEO PROJECTOR

# VPL-VW85

PROTOCOL MANUAL

1st Edition

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お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

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This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

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Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

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Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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# 1. Overview

## 1-1. Introduction

The projector is remotely controllable over RS-232C. It is useful for setting up the projector away from the operator.
This protocol manual describes the specifications such as packet format and procedures for controlling the projector.
In the following sections below, the term “CONTROLLER” is used as a device which controls the projector. CONTROLLER can be a PC or other specific device that is able to handle RS-232C.
Although most of commands are available for both RS-232C.

## 1-2. Glossary of Terms

**Table 1-1 Glossary of Terms**

| Terms | Abbreviated | Description |
|---|---|---|
| CONTROLLER | – | Command initiator such as PCs. |
| PROJECTOR | – | Front projector. |

## 1-3. Protocol Stack Structure

The protocol stack structure diagram is shown below. Though the stack is drawn for RS-232C, the following portions are common.

**Table 1-2 Common Portions in Protocol Stack**

| Layer Name | Description |
|---|---|
| Sub Command | Value is assigned for projector’s functions. Refer to the section 2-1 for detail description. |
| Simplified Command | Packet format for sending/receiving “Sub Command”. Refer to the section 3-6-1 for detail description. |

(1) RS-232C

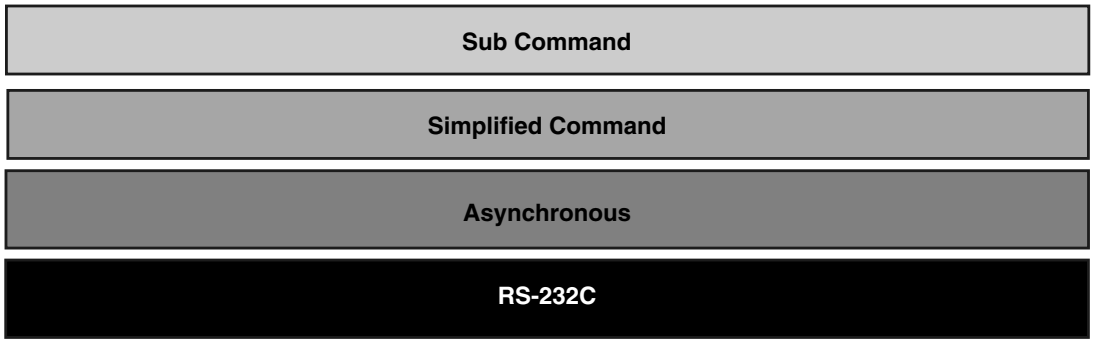



**Fig. 1-1 RS-232C Protocol Stack**

“RS-232C” layer is physical portion and “Asynchronous” is the traditional protocol layer as shown in the section 3-2.

# 2. Common Commands

## 2-1. Sub Commands

Sub Command is the value which is used by Simplified Command. Value is assigned for executing function. For example, if you want to change the picture mode, the appropriate value assigned for the desired picture mode should be chosen.

### 2-1-1. ITEM List

Item list tables are described below. Tables are shown per function category.

**Table 2-1 ITEM List For Picture**

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| Picture Mode | 00h | 02h | Dynamic | 0000h | Set/Get |
| | | | Standard | 0001h | |
| | | | Cinema1 | 0002h | |
| | | | Cinema2 | 0003h | |
| | | | Cinema3 | 0004h | |
| | | | User | 0005h | |
| Contrast | 00h | 10h | Set Value | 0000h to 0064h (0 to 100) | |
| Brightness | 00h | 11h | Set Value | 0000h to 0064h (0 to 100) | |
| Color | 00h | 12h | Set Value | 0000h to 0064h (0 to 100) | |
| Hue | 00h | 13h | Set Value | 0000h to 0064h (0 to 100) | |
| Sharpness | 00h | 14h | Set Value | 0000h to 0064h (0 to 100) | |
| Color Temp. | 00h | 17h | High | 0000h | |
| | | | Mid | 0001h | |
| | | | Low1 | 0002h | |
| | | | Custom1 | 0003h | |
| | | | Custom2 | 0004h | |
| | | | Custom3 | 0005h | |
| | | | Custom4 | 0006h | |
| | | | Low2 | 0007h | |
| | | | Custom5 | 0008h | |
| Lamp Control | 00h | 1Ah | Low | 0000h | |
| | | | High | 0001h | |
| Black Level Adj.*1 | 00h | 1Ch | Set Value | FFFDh to 0003h (−3 to 3) | |

*1 The data definition of “Black Level Adj.” differs depending on the model.

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| Advanced Iris | 00h | 1Dh | Off | 0000h | Set/Get |
| | | | Manual | 0001h | |
| | | | Auto1 | 0002h | |
| | | | Auto2 | 0003h | |
| Real Color Processing | 00h | 1Eh | Off | 0000h | |
| | | | User1 | 0001h | |
| | | | User2 | 0002h | |
| | | | User3 | 0003h | |
| Film Mode | 00h | 1Fh | Off | 0000h | |
| | | | Auto1 | 0001h | |
| | | | Auto2 | 0002h | |
| Gamma Correction | 00h | 22h | Off | 0000h | |
| | | | Gamma 1 | 0001h | |
| | | | Gamma 2 | 0002h | |
| | | | Gamma 3 | 0003h | |
| | | | Gamma 4 | 0004h | |
| | | | Gamma 5 | 0005h | |
| | | | Gamma 6 | 0006h | |
| | | | Gamma 7 | 0007h | |
| | | | Gamma 8 | 0008h | |
| | | | Gamma 9 | 0009h | |
| | | | Gamma 10 | 000Ah | |
| NR | 00h | 25h | Off | 0000h | |
| | | | Low | 0001h | |
| | | | Middle | 0002h | |
| | | | High | 0003h | |
| Block NR | 00h | 26h | Off | 0000h | |
| | | | Low | 0001h | |
| | | | Middle | 0002h | |
| | | | High | 0003h | |
| Mosquito NR | 00h | 27h | Off | 0000h | |
| | | | Low | 0001h | |
| | | | Middle | 0002h | |
| | | | High | 0003h | |
| White Level Adj. | 00h | 28h | Set Value | FFFDh to 0003h (–3 to 3) | |
| Color Space | 00h | 3Bh | Normal | 0000h | |
| | | | Wide1 | 0001h | |
| | | | Wide2 | 0002h | |
| | | | Wide3 | 0003h | |

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| User Gain Red | 00h | 50h | Set Value | FFE2h to 001Eh (−30 to 30) | Set/Get |
| User Gain Green | 00h | 51h | Set Value | FFE2h to 001Eh (−30 to 30) | |
| User Gain Blue | 00h | 52h | Set Value | FFE2h to 001Eh (−30 to 30) | |
| User Bias Red | 00h | 53h | Set Value | FFE2h to 001Eh (−30 to 30) | |
| User Bias Green | 00h | 54h | Set Value | FFE2h to 001Eh (−30 to 30) | |
| User Bias Blue | 00h | 55h | Set Value | FFE2h to 001Eh (−30 to 30) | |
| Iris Sensitivity | 00h | 56h | Recommend | 0000h | |
| | | | Fast | 0001h | |
| | | | Slow | 0002h | |
| Iris Manual | 00h | 57h | Set Value | 0000h to 0064h (0 to 100) | |
| Film Projection | 00h | 58h | Off | 0000h | |
| | | | Mode1 | 0001h | |
| | | | Mode2 | 0002h | |
| | | | Mode3 | 0003h | |
| Motion Enhancer | 00h | 59h | Off | 0000h | |
| | | | Low | 0001h | |
| | | | High | 0002h | |
| xvColor | 00h | 5Ah | Off | 0000h | |
| | | | On | 0001h | |

**Table 2-2 ITEM List For Screen**

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| Wide Mode | 00h | 20h | Full | 0000h | Set/Get |
| | | | Normal | 0001h | |
| | | | Wide Zoom | 0002h | |
| | | | Zoom | 0003h | |
| | | | Full1 | 0007h | |
| | | | Full2 | 0008h | |
| | | | Anamorphic Zoom | 000Bh | |
| Over Scan | 00h | 23h | Off | 0000h | |
| | | | On | 0001h | |
| Screen Area | 00h | 24h | Full | 0000h | |
| | | | Through | 0001h | |

**Table 2-3 ITEM List For Setup**

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| Input | 00h | 01h | Video | 0000h | Set/Get |
| | | | S Video | 0001h | |
| | | | Input A | 0002h | |
| | | | Component | 0003h | |
| | | | HDMI1 | 0004h | |
| | | | HDMI2 | 0005h | |
| Picture Muting | 00h | 30h | Off | 0000h | |
| | | | On | 0001h | |
| Input-A Signal Sel | 00h | 32h | Auto | 0000h | |
| | | | Computer | 0001h | |
| | | | Component | 0002h | |
| | | | Video GBR | 0003h | |

**Table 2-4 ITEM List For Status**

| <Table 1> | | | <Table 2> | | Remarks |
|---|---|---|---|---|---|
| Item Number | | | Data | | |
| Item | Upper byte | Lower byte | Data | Byte | |
| Status Error | 01h | 01h | No Error | 0000h | Get only |
| | | | Lamp Error | 0001h | |
| | | | Fan Error | 0002h | |
| | | | Cover Error | 0004h | |
| | | | Temp Error | 0008h | |
| | | | D5V Error | 0010h | |
| | | | Power Error | 0020h | |
| | | | Temp Warning | 0040h | |
| | | | NVM Data Error | 0080h | |
| Status Power | 01h | 02h | Standby | 0000h | |
| | | | Start Up | 0001h | |
| | | | Startup Lamp | 0002h | |
| | | | Power On | 0003h | |
| | | | Cooling1 | 0004h | |
| | | | Cooling2 | 0005h | |
| | | | Saving Cooling1 | 0006h | |
| | | | Saving Cooling2 | 0007h | |
| | | | Saving Standby | 0008h | |
| Lamp Timer | 01h | 13h | Use Time | 0000h to FFFFh *1 | |
| Status Error (2) | 01h | 25h | No Error | 0000h | |
| | | | Lens Shutter Error | 0001h | |
| | | | Highland Warning | 0020h | |

*1 Example) In case the lamp timer indicates 1000H, return value is [03E8h].

**Table 2-5 ITEM List For Infrared Remote Command**

| <Table 1> | | | <Table 2> | | | Remarks |
|---|---|---|---|---|---|---|
| Item Number | | | Data | | | |
| Item | Upper byte | Lower byte | Data | Upper byte | Lower byte | |
| Infrared Remote Command (15 bit category) | 17h | Refer to the section 2-1-2 *1. (Table 2-6 - Table 2-9) | – | 00h | 00h | Set Only |
| Infrared Remote Command (20 bit category) | 19h | Refer to the section 2-1-2 *1. (Table 2-6 - Table 2-9) | – | 00h | 00h | |
| Infrared Remote Command (20 bit category) | 1Bh | Refer to the section 2-1-2 *1. (Table 2-10) | – | 00h | 00h | |

*1: By using this Item Number, it is possible to simulate the infrared remote controller.
Choose your desired Code from the table in the section 2-1-2 and use it as the Lower byte of Item Number.

**Note**

Depending on the category, different value (Upper byte) is assigned.

## 2-1-2. Infrared Remote Command Code

Tables are shown per function category.

- 15 bit PROJECTOR: Table 2-6-Table 2-9
- 20 bit PROJECTOR-E: Table 2-6-Table 2-9
- 20 bit PROJECTOR-EE: Table 2-10

**Table 2-6 Infrared Remote Command Code For Picture**

| CATEGORY | | Code | Name |
|---|---|---|---|
| 15 bit PROJECTOR | 20 bit PROJECTOR-E | | |
| ○ | – | 05 | MOTION ENHANCER TOGGLE |
| ○ | – | 07 | BLACK LEVEL TOGGLE |
| ○ | – | 08 | FILM PROJECTION TOGGLE |
| ○ | – | 18 | CONTRAST +HIGH |
| ○ | – | 19 | CONTRAST –LOW |
| ○ | – | 1A | COLOR +HIGH |
| ○ | – | 1B | COLOR –LOW |
| ○ | – | 1E | BRIGHTNESS +BRIGHT |
| ○ | – | 1F | BRIGHTNESS –DARK |
| ○ | – | 20 | HUE +GREENISH |
| ○ | – | 21 | HUE –PURPLISH |
| ○ | – | 22 | SHARPNESS +SHARP |
| ○ | – | 23 | SHARPNESS –SOFT |
| ○ | – | 72 | LENS SHIFT ↑ |
| ○ | – | 73 | LENS SHIFT ↓ |
| ○ | – | 74 | LENS FOCUS FAR |
| ○ | – | 75 | LENS FOCUS NEAR |
| ○ | – | 77 | LENS ZOOM LARGE |
| ○ | – | 78 | LENS ZOOM SMALL |
| – | ○ | 08 | RCP |
| – | ○ | 09 | ADJUST PICTURE TOGGLE |
| – | ○ | 4B | COLOR SPACE TOGGLE |
| – | ○ | 51 | PICTURE MODE DYNAMIC |
| – | ○ | 52 | PICTURE MODE STANDARD |
| – | ○ | 53 | PICTURE MODE CINEMA1 |
| – | ○ | 54 | PICTURE MODE CINEMA2 |
| – | ○ | 55 | PICTURE MODE CINEMA3 |
| – | ○ | 56 | PICTURE MODE USER |
| – | ○ | 5B | PICTURE MODE TOGGLE |
| – | ○ | 5C | COLOR TEMP TOGGLE |
| – | ○ | 5E | GAMMA COLLECTION TOGGLE |
| – | ○ | 5F | IRIS MODE TOGGLE |

**Table 2-7 Infrared Remote Command Code For Screen**

| CATEGORY | | Code | Name |
|---|---|---|---|
| 15 bit PROJECTOR | 20 bit PROJECTOR-E | | |
| ○ | – | 47 | PITCH |
| ○ | – | 48 | SHIFT |
| – | ○ | 60 | APA |
| – | ○ | 61 | PHASE |
| – | ○ | 62 | LENS ZOOM |
| – | ○ | 63 | LENS SHIFT |
| – | ○ | 64 | LENS FOCUS |
| – | ○ | 6E | WIDE MODE TOGGLE |

**Table 2-8 Infrared Remote Command Code For Setup**

| CATEGORY | | Code | Name |
|---|---|---|---|
| 15 bit PROJECTOR | 20 bit PROJECTOR-E | | |
| ○ | – | 15 | POWER ON/OFF *1 |
| ○ | – | 24 | PICTURE MUTING |
| ○ | – | 25 | STATUS ON |
| ○ | – | 26 | STATUS OFF |
| ○ | – | 29 | MENU |
| ○ | – | 2A | VIDEO |
| ○ | – | 2B | INPUT A |
| ○ | – | 2C | COMPONENT |
| ○ | – | 2E | POWER ON *1 |
| ○ | – | 2F | POWER OFF |
| ○ | – | 33 | CURSOR → |
| ○ | – | 34 | CURSOR ← |
| ○ | – | 35 | CURSOR ↑ |
| ○ | – | 36 | CURSOR ↓ |
| ○ | – | 57 | INPUT SELECT |
| ○ | – | 5A | ENTER |
| ○ | – | 5F | S VIDEO |
| ○ | – | 6F | HDMI 1 |
| ○ | – | 70 | HDMI 2 |
| ○ | – | 7B | RESET |

*1: Send the command twice when this unit is in standby mode (Low) state.

**Table 2-9 Infrared Remote Command Code For Installation**

| CATEGORY | | Code | Name |
|---|---|---|---|
| 15 bit PROJECTOR | 20 bit PROJECTOR-E | | |
| – | ○ | 00 | V KEYSTONE + |
| – | ○ | 01 | V KEYSTONE – |
| – | ○ | 02 | LENS SHIFT ← |
| – | ○ | 03 | LENS SHIFT → |
| – | ○ | 3A | V KEYSTONE |
| – | ○ | 78 | LENS TOGGLE |

**Table 2-10 Infrared Remote Command Code for 20 bit PRJECTOR-EE**

| CATEGORY | Code | Name |
|---|---|---|
| 20 bit PROJECTOR-E | | |
| ○ | 6E | OPTIONS |
| ○ | 6F | EXIT |
| ○ | 70 | LINK MENU ON/OFF |
| ○ | 71 | PLAY |
| ○ | 72 | STOP |
| ○ | 73 | PAUSE |
| ○ | 74 | FAST REWIND |
| ○ | 75 | FAST FORWARD |
| ○ | 76 | PREVIOUS |
| ○ | 77 | NEXT |

## 2-2. Reply

| <Table 3> | | | |
|---|---|---|---|
| Item Number | | Data | |
| Item | Data | Upper byte | Lower byte |
| ACK | Complete | 00h | 00h |
| NAK | Undefined Command | 01h | 01h |
| | Size Error | | 04h |
| | Select Error | | 05h |
| | Range Over | | 06h |
| | Not Applicable | | 0Ah |
| | Check Sum Error | F0h | 10h |
| | Framing Error | | 20h |
| | Parity Error | | 30h |
| | Over Run Error | | 40h |
| | Other Comm Error | | 50h |

### Error description

### Check Sum Error
A check sum error occurred.

### Framing Error
A framing error occurred.

### Parity Error
A parity error occurred.

### Over Run Error
An overrun error occurred.

### Other Comm Error
Another error occurred.

# 3. RS-232C

## 3-1. Connection

Communication is enabled by the use of a D-Sub 9 Pin cross (reverse) cable.
The pin assignment of D-Sub 9 Pin and D-Sub 25 Pin is as follows.

| D-Sub 9 Pin | D-Sub 25 Pin | Name | |
|---|---|---|---|
| Shell = FG | 1 | FG | Grounding for safety protection or cable shield |
| 3 | 2 | TxD | Transmission data |
| 2 | 3 | RxD | Reception data |
| 7 | 4 | RTS | Transmission request |
| 8 | 5 | CTS | Transmission permission |
| 6 | 6 | DSR | Data set ready |
| 5 | 7 | SG | GND for signal |
| 1 | 8 | DCD | Data channel signal carrier detection |
| 4 | 20 | DTR | Data terminal ready |
| 9 | 22 | RI | Calling display (Presence/absence of calling signal) |

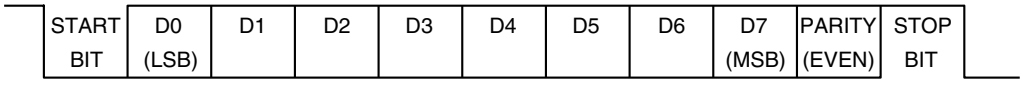
Pin numbers indicated as D-Sub 25 Pin are not used.
Assured cable length: 15 m (However, assurance may not be applicable for some cables.)

The software for controlling the projector from a PC is intended for performing transmission and reception for only the TxD and RxD lines.
Therefore the handshake normally performed by RS-232C is not necessary.

## 3-2. Communication Specifications

- Full duplex communication channels (Flow control not performed.)
- Start-stop synchronism system
- Baud rate: 38.4 kbps (bits per second)
- The bit configuration is defined as follows.

1 START Bit + 8 DATA Bits + 1 PARITY Bit + 1 STOP Bit




EVEN Parity ..... Total number of “1”s from D0 to D7 is an even number. ⇨ 0
..... Total number of “1”s from D0 to D7 is an odd number. ⇨ 1

## 3-3. Communication Procedure

### 3-3-1. Outline of Communication

All communication between CONTROLLER (PC, etc.) and DEVICE (PROJECTOR) is performed by the command block format. Communication is started by the issue of a command at CONTROLLER and ended when the return data is sent to CONTROLLER after DEVICE receives the command. CONTROLLER is prohibited from sending several commands at one time. This means that after CONTROLLER sends one command, it cannot send other commands until DEVICE returns the return data. DEVICE sends the return data after processing the command. The time from when CONTROLLER sends the command until the return data is returned differs according to the contents of the command.

**Note**

When Sircs Direct Command is sent, return data may not be returned in some cases.

## 3-4. Communication Rules

- When sending a command from CONTROLLER, the return data from PROJECTOR should be received first before sending the next command. Even if the next command is sent before receiving the return data, since PROJECTOR will not be able to receive that command, it does not return a response to CONTROLLER. Consequently, no error code is also sent.
  For detail of the waiting times for PROJECTOR to return the return data after CONTROLLER sends the command, refer to the section 3-5.
- When a communication error occurs, PROJECTOR ignores the data received until now, and set into the reception standby state.
- For undefined commands or commends determined as invalid by PROJECTOR, PROJECTOR will send the “NAK” return data to CONTROLLER .
- Take note that when data is written when the input signal of PROJECTOR is unstable, that data (value) will not be incorporated.
- When INDEX specified SIRCS direct command is transmitted, leave an interval of 45 msec until the next transmission. (Do not return the return data (ACK, NAK) when the SIRCS direct command is received.)

## 3-5. Approximate Return Waiting Times

The await-return time is approx. 30 to 2700 msec.

**Note**

This is the case, unless the communications are interfered anyway.

## 3-6. Command Block Format

The block format of Simplified Command for RS-232C as shown in the Fig. 1-1. In this section, the block format for Simplified Command is provided.

### 3-6-1. Simplified Command

#### [Send]

The block format for sending request is shown below.

| | | |
|---|---|---|
| B0 | START CODE | [A9h] |
| B1 | ITEM NUMBER | Put the item number.<br>Refer to the item list in the sections 2-1-1 and 2-1-2. |
| B2 | | |
| B3 | TYPE | SET: 00h (Set data)<br>GET: 01h (Get data) |
| B4 | DATA | SET: Put the Data value described in the item list in the sections 2-1-1 and 2-1-2.<br>GET: Unused. Set Dummy data [00h, 00h] |
| B5 | | |
| B6 | CHECK SUM*1 | Check Sum |
| B7 | END CODE | [9Ah] |

#### [Receive (without data)]

The block format for response which includes no return data is shown below. Response is always sent by PROJECTOR.

| | | |
|---|---|---|
| B0 | START CODE | [A9h] |
| B1 | ACK / NAK | Refer to the reply definition table in the section 2-2. |
| B2 | | |
| B3 | TYPE | [03h] |
| B4 | DUMMY DATA | This data does not mean any senses.<br>Dummy Data [00h, 00h] is stored. |
| B5 | | |
| B6 | CHECK SUM*1 | Check Sum |
| B7 | END CODE | [9Ah] |

#### [Receive (with data)]

The block format for response which includes return data is shown below. Response is always sent by PROJECTOR.

| | | |
|---|---|---|
| B0 | START CODE | [A9h] |
| B1 | ITEM NUMBER | Refer to the item list in the sections 2-1-1 and 2-1-2. |
| B2 | | |
| B3 | TYPE | [02h]<br>Express data to be Reply data |
| B4 | DATA | Data value described in the item list<br>in the sections 2-1-1 and 2-1-2. |
| B5 | | |
| B6 | CHECK SUM*1 | Check Sum |
| B7 | END CODE | [9Ah] |

*1: CHECK SUM: B1 to B5 are calculated by OR. Refer to the example below.

<Example of Calculation>

| | | | | | |
|---|---|---|---|---|---|
| 0xA9 | 1010 | 1001 | 0xA9 | 1010 | 1001 |
| 0xA9 | 1010 | 1001 | 0x9A | 1001 | 1010 |
| Answer | 1010 | 1001 | Answer | 1011 | 1011 |
| | | 0xA9 | | | 0xBB |

## 3-7. Packet Examples

### 3-7-1. Change “Wide Mode” to “Zoom”

START CODE = A9h
ITEM NUMBER = 0020h (Wide Mode)
SET/GET = 00h (SET)
DATA = 0003h (Zoom)
CHECK SUM = 23h
END CODE = 9Ah

You will receive the packet below if the process is successfully completed.

START CODE = A9h
ACK/NAK = 0000h (Complete)
ACK = 03h
DUMMY DATA = 0000h
CHECK SUM = 03h
END CODE = 9Ah

There’s another way to realize the same purpose. There is “WIDE MODE TOGGLE” key on the infrared remote controller. By using this key, wide mode can be changed. Issue the Infrared Remote Command for this key several times to set wide mode “Zoom”. Packet format will make as follows. Refer to the Table 2-7 for wide mode toggle.

START CODE = A9h
ITEM NUMBER = 196Eh (WIDE MODE TOGGLE)
SET/GET = 00h (SET)
DATA = 0000h
CHECK SUM = 7Fh
END CODE = 9Ah

## 3-8. AMX Device Discovery

This model is equipped with the protocol that conforms to the Device Discovery stipulated by AMX. Contact AMX for details about the Device Discovery.

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