

ABOUT RS-232C

Connecting RS-232C

When the RS-232C terminal is connected to the PC, the Camera can be controlled from the PC.

For Setting up

To use communication control, be sure to set the Camera and the PC as follows:

1. Connect the Camera to the PC with an RS-232C cable.

Note:

- When using a commercial RS-232C cable, make sure that the pins are connected as shown below.
- To protect the Camera and the PC, be sure to turn OFF the power switch of each unit before starting the connection work.

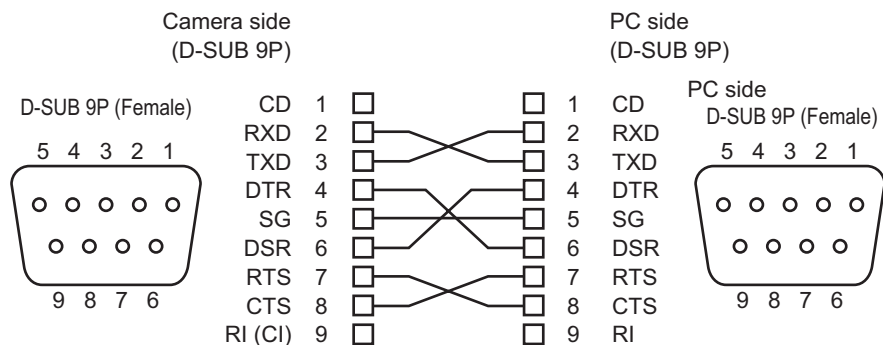
2. Start the PC, and set the communication mode of the RS-232C to the communication mode of the Camera.

Note:

- For the information how to set the communication mode of the RS-232C, refer to the instruction manual of the PC.

3. Start the program to operate the Camera from the PC.
The RS-232C control starts.

How to connect the cables



Specifications of RS-232C

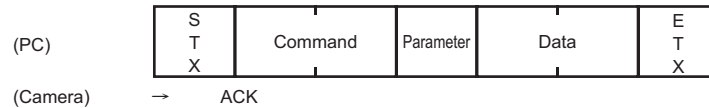
Data Format Specifications

This command is executed in the form of 1 command/1 packet. Until one processing is completed, the next command is not accepted.

- The communication command always starts with STX (Start of Text) and ends with ETX (End of Text).
- If the communication format or command name is wrong, the Camera will not respond normally but send NAK (Abnormal receiving: Negative Acknowledge).
- When the correct communication format is received, the Camera sends ACK (Normal receiving: Acknowledge).

Operation command (PC → Camera)

Each operation command is executed in ASCII code, and transmitted in a set of 7 bytes as follows:



Response data format (Camera → PC)

All response data is transmitted in ASCII code, corresponding to the parameters in the operation command table.

• Status 0

| | | | | | | | | | |
|-------------|------|-------|---------------|---------------|-----------------|---------|-------|-------------|-------------|
| S T X | Lamp | Guide | Posi /Nega | Color /B&W | Output video | Display | Pause | Flickerless | E T X |
|-------------|------|-------|---------------|---------------|-----------------|---------|-------|-------------|-------------|

• Status 2

| | | | | | | | | | |
|-------------|------|--------------------|-------------------|----------------|------------------|------|------------|-------------|-------------|
| S T X | Iris | Gamma switching | Image rotation | Edge effect | White balance | Text | Resolution | USB mode | E T X |
|-------------|------|--------------------|-------------------|----------------|------------------|------|------------|-------------|-------------|

• ROM Ver.1 (SLAVE)

| | | | | | | | |
|-------------|----------|----------|----------|-------|-------|-------|-------------|
| S T X | V 56H | H 48H | Q 51H | * * H | * * H | * * H | E T X |
|-------------|----------|----------|----------|-------|-------|-------|-------------|

• ROM Ver.2 (LENS)

| | | | | | | | |
|-------------|----------|----------|----------|-------|-------|-------|-------------|
| S T X | V 56H | H 48H | Q 51H | * * H | * * H | * * H | E T X |
|-------------|----------|----------|----------|-------|-------|-------|-------------|

• ROM Ver.3 (MAIN) ... Upper 6 bytes

| | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------------|
| S T X | * * H | * * H | * * H | * * H | * * H | * * H | E T X |
|-------------|-------|-------|-------|-------|-------|-------|-------------|

• ROM Ver.4 (MAIN) ... Lower 4 bytes

| | | | | | | | |
|-------------|-------|-------|-------|-------|-----|-----|-------------|
| S T X | * * H | * * H | * * H | * * H | 20H | 20H | E T X |
|-------------|-------|-------|-------|-------|-----|-----|-------------|

Communication Specifications

- Full-duplex asynchronous method
- Start bit: 1 bit
- Data bit: 8 bits
- Stop bit: 1 bit
- Parity bit: None
- X parameter: None
- Baud rate (Communication speed): 9600bps

UART Communication Format

Commands, parameters and data are all transmitted in ASCII code.

| Operation | Command | Parameter | Data | Function |
|------------------------|---------|------------|------|---|
| Auto focus | AF | 0 | ■ ■ | To perform the one-shot auto focus. |
| Focus adjustment | FO | + (Near) | ■ ■ | To adjust the focus. |
| | | - (Far) | | |
| | | 0 (Stop) | | |
| Zoom adjustment | ZO | + (Tele) | ■ ■ | To adjust the zoom. |
| | | - (Wide) | | |
| | | 0 (Stop) | | |
| Iris adjustment | IR | + (Open) | ■ ■ | To adjust the iris. |
| | | - (Close) | | |
| | | 0 (Stop) | | |
| | | 1 (Auto) | | |
| | | 2 (Manual) | | |
| Lamp switching | PL | 0 (OFF) | ■ ■ | To turn ON/OFF the lamp. |
| | | 1 (BASE) | | |
| | | 2 (UPPER) | | |
| Output video switching | AV | 0 (Camera) | ■ ■ | To switch the output video. |
| | | 1 (RGB IN) | | |
| | | 2 (SD) | | |
| Direction | KE | 0 (Menu) | ■ ■ | To select the OSD menu item, and scroll the screen when the digital zoom is in operation. To feed forward/backward the saved images in the SD mode. |
| | | 1 (Enter) | | |
| | | 2 (→) | | |
| | | 3 (←) | | |
| | | 4 (↑) | | |
| | | 5 (↓) | | |
| Pause | FZ | 0 (OFF) | ■ ■ | To pause the video. |
| | | 1 (ON) | | |

* For " ■ ■ " in the data column, transmit the SPACE [20H] twice.

ENGLISH

| Operation | Command | Parameter | Data | Function |
|--------------------------------|---------|-------------------|------|---|
| Guide | GU | 0 (OFF) | ■■ | To set whether the main unit operation status should be displayed on the screen or not. |
| | | 1 (ON) | | |
| Display | DP | 0 (Single) | ■■ | To set the split screen display in the SD mode. |
| | | 1 (3x3) | | |
| | | 2 (4x4) | | |
| Slide show | SS | 0 (Stop) | ■■ | To start/stop the slide show. |
| | | 1 (Start) | | |
| Slide show image feed effect | SE | 0 (Left to right) | ■■ | To set the visual effect of the slide show. |
| | | 1 (LT to RB) | | |
| | | 2 (RT to LB) | | |
| | | 3 (None) | | |
| Slide show object file | ST | 0 (All) | ■■ | To select whether the slide show object should be all images recorded on the SD card or only the locked image file. |
| | | 1 (Locked) | | |
| Slide show feed order | SO | 0 (FWD) | ■■ | To set whether the slide show should be performed in the ascending order or in the descending order. |
| | | 1 (BWD) | | |
| Slide show image feed interval | SI | 0 (3s) | ■■ | To set the image switching interval of the slide show. |
| | | 1 (5s) | | |
| | | 2 (10s) | | |
| | | 3 (15s) | | |
| | | 4 (30s) | | |
| Slide show repeat | SR | 0 (OFF) | ■■ | To perform the slide show repeatedly. |
| | | 1 (ON) | | |
| File delete | DE | 0 (Current) | ■■ | To delete the image files on the SD card. |
| | | 1 (All) | | |
| File lock | SL | 0 (Current) | ■■ | To lock the image files on the SD card. |
| | | 1 (All) | | |
| File unlock | SU | 0 (Current) | ■■ | To unlock the locked image files on the SD card. |
| | | 1 (All) | | |
| Format | SF | 0 | ■■ | To format the SD card. |
| Image saving | CA | 0 | ■■ | To save the selected images on the SD card. |
| USB mode | UM | 0 (Mass Storage) | ■■ | To switch the USB mode. |
| | | 1 (Application) | | |
| Gamma setting | GM | 0 (High) | ■■ | To set the gamma value of the video. |
| | | 1 (Normal) | | |
| | | 2 (Low) | | |
| Flickerless | FL | 0 (60Hz) | ■■ | To set the flickerless. |
| | | 1 (50Hz) | | |
| Language setting | LG | 0 (English) | ■■ | To set the language. |
| | | 1 (Japanese) | | |

* For "■■" in the data column, transmit the SPACE [20H] twice.

| Operation | Command | Parameter | Data | Function |
|----------------------|---------|--------------|------|---|
| Resolution switching | RL | 1 (SXGA) | ■■ | To switch the resolution. |
| | | 2 (XGA) | | |
| | | 3 (HD) | | |
| Image Rotation | RO | 0 (0°) | ■■ | To rotate the image. |
| | | 1 (180°) | | |
| Edge effect | AP | 0 (OFF) | ■■ | To set the edge effect. |
| | | 1 (Low) | | |
| | | 2 (Mid) | | |
| | | 3 (High) | | |
| White balance | AW | 0 (Manual) | ■■ | To switch the White Balance mode. |
| | | 1 (Auto) | | |
| | | 2 (One Push) | | |
| | | 3 (R_Up) | | |
| | | 4 (R_Down) | | |
| | | 5 (B_Up) | | |
| Text | CT | 0 (GRAPHICS) | ■■ | To set the contrast. |
| | | 1 (TEXT1) | | |
| | | 2 (TEXT2) | | |
| | | 3 (TEXT3) | | |
| Posi/Nega | NP | 0 (Posi) | ■■ | To set the Posi/Nega. |
| | | 1 (Nega) | | |
| Color/B&W | CB | 0 (Color) | ■■ | To set the Color/B&W. |
| | | 1 (B&W) | | |
| Local lockout | LL | 0 (OFF) | ■■ | To invalidate the operation of the front operating panel and wireless remote control. |
| | | 1 (ON) | | |
| Default | DF | 0 | ■■ | To reset to the default settings. |
| Status request | QS | 0 | ■■ | To inquire about the unit status. |
| | | 2 | | |
| White balance | AW | 0 (Manual) | ■■ | To switch the White Balance mode. |
| ROM version | QR | 1 | ■■ | To inquire about the ROM version. |
| | | 2 | | |
| | | 3 | | |
| | | 4 | | |
| ACK check | SA | 0 (OFF) | ■■ | To switch the ACK Check mode. |
| | | 1 (ON) | | |
| CR addition | SC | 0 (OFF) | ■■ | To switch the CR addition settings. |
| | | 1 (ON) | | |

* For "■■" in the data column, transmit the SPACE [20H] twice.

Note:

- If the RS-232C cable is not connected correctly between the Camera and the PC, no ACK is transmitted.
- Connect the RS-232C cable correctly, and fix it firmly with the connector set screws before starting the operation.