

# Overdrive Digital Controller

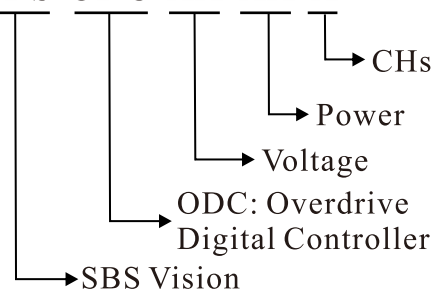


## Products Features

- ▶ Overdrive voltage can be 48V, the brightness of the LED Lights can be increased by more than 3 times.
- ▶ With outsourcing trigger way, emitting time can be adjusted within 10-999us.
- ▶ Adjust the intensity by RS232, DIN or bottom mounting hole installation.
- ▶ The trigger delay time of the lighting and the output of the camera can be adjusted within 0-999us.

## Model Description

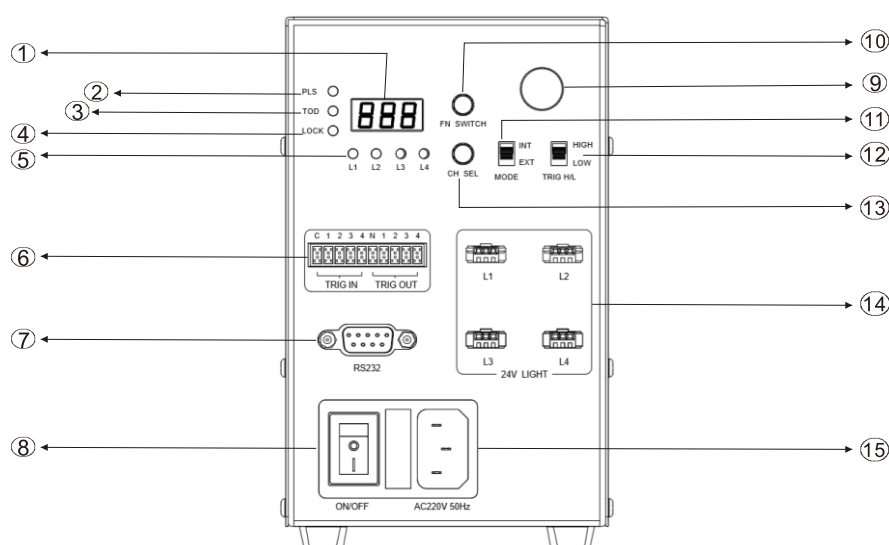
SBS-ODC-XX-XX-X



## Parameter

| Item                     | Model                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------|
|                          | SBS-ODC48-120-4                                                                                         |
| Channels                 | 4                                                                                                       |
| Error inspection showing | digital bar showing with numbers                                                                        |
| Over current protection  | it works when the output current is more than 107%, and it shows OCP, restart the controller to recover |
| Input voltage            | AC100-240V                                                                                              |
| Trigger function         | bidirectional input, regardless of polarity                                                             |
| Trigger input voltage    | DC5-24V                                                                                                 |
| Total output power       | 120W (total power of 4 channels)                                                                        |
| Peak output voltage      | DC48V                                                                                                   |
| Peak output current      | <20A (single channel)                                                                                   |
| Trigger delay            | <1μS                                                                                                    |
| Strobe time              | it can be set into 0-999μS                                                                              |
| Trigger way              | outsourcing trigger way and software trigger way                                                        |
| Usage environment        | temperature: -10~50℃ humidity: 20-85% RH (not frozen)                                                   |
| Storage environment      | temperature: -20~60℃ humidity: 20-85% RH (not frozen)                                                   |
| Cooling way              | nature cooling                                                                                          |

## Panel



| No. | Keys                                             | Function                                                                                                                                                                                                                                                                   |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | Digital screen                                   | The selected data will be show in the screen (The selected data can be read in the screen)                                                                                                                                                                                 |
| ②   | Lighting flash time indicator                    | The lighting flash time can be set from 0 to 999 level (Press the "FN Switch" key until the lighting flash time indicator light is on)                                                                                                                                     |
| ③   | Trigger delay time indicator                     | The lighting flash time can be set from 0 to 999 level (Press the "FN Switch" key until the lighting trigger time indicator light is on)                                                                                                                                   |
| ④   | Lock data indicator                              | The set data can be locked after setting finished ( Press the "FN Switch" key until the lock data indicator light is on)                                                                                                                                                   |
| ⑤   | Channels from 1 to 4                             | 4 lights can be connected                                                                                                                                                                                                                                                  |
| ⑥   | Out signal input connector                       | For connection outside signal                                                                                                                                                                                                                                              |
| ⑦   | RS232 connector                                  | Connect with PC                                                                                                                                                                                                                                                            |
| ⑧   | Power switch key                                 | Power turn on or off                                                                                                                                                                                                                                                       |
| ⑨   | Data adjust key                                  | Adjust light flash time, trigger delay time, or light on time ( turn right or left to adjust the selected data to set)                                                                                                                                                     |
| ⑩   | Function switch key                              | Select the light flash time, trigger delay time or light on time<br>( Press "FN Swich" to select which time you want to set, when the "light flash time indicator"and "trigger delay time indicator"is on together, then press it longer to switch to "light on time" set) |
| ⑪   | Out signal trigger & internal trigger switch key | Select the trigger way by the signal source (4 sequences sets internal into controller)                                                                                                                                                                                    |
| ⑫   | High & low voltage trigger switch key            | Select the trigger way by the input voltage<br>( depend on the outside signal input voltage, 0-5V is low voltage trigger, 5V-24V is high voltage trigger)                                                                                                                  |
| ⑬   | Channels switch key                              | Select Channel from 1 to 4 (Select the Channel to adjust the related intensity)                                                                                                                                                                                            |
| ⑭   | Lighting connector                               | 4 Channels                                                                                                                                                                                                                                                                 |
| ⑮   | Power input connector                            | AC100-240V/50~60Hz                                                                                                                                                                                                                                                         |

## Serial communication description

## Parameter of communication

| Protocol | Working mode     | Rate     | Transport format |           |           |          |
|----------|------------------|----------|------------------|-----------|-----------|----------|
| RS-232   | half-duplex mode | 19200bps | Start bit        | Data bits | Check bit | Stop bit |
|          |                  |          | 1                | 8         | 0         | 1        |

## Communication format

| Identifier(0X40) | " Length<br>LEN " | " Device<br>CODE " | " Device<br>CODE ID " | Command 1   |                   |      | Command | Checksum |
|------------------|-------------------|--------------------|-----------------------|-------------|-------------------|------|---------|----------|
|                  |                   |                    |                       | Command CMD | Channel No<br>CHN | DATA | ....    |          |

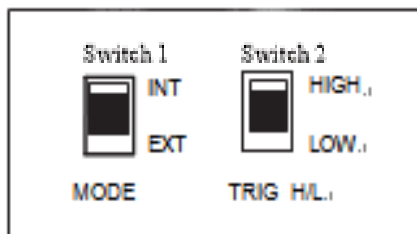
## Command

| Device Code:0x02                                              | CMD  | CHN   | Data         | Remark                              |
|---------------------------------------------------------------|------|-------|--------------|-------------------------------------|
| Setting ID                                                    | 0x09 | NO    | 00-63        | Factory default ID 0                |
| Setting ON/OFF                                                | 0x2A | 00-03 | 00-01        | 00-Off,01-ON                        |
| Setting Internal Trigger Frequency                            | 0X11 | NO    | 00-14        | 0Hz-Continuous Lighting             |
| Setting Trigger Mode                                          | 0X23 | NO    | 00-03        | Trigger definition as follows chart |
| Designate channel operating parameters                        | 0x22 | 00-03 |              | Single or multi-channel optional    |
| Setting Strobe light time                                     | 0xA0 | 00-03 | 0000-03E7    | 000-999                             |
| Setting light delayed time                                    | 0xA1 | 00-03 | 0000-03E7    | 000-999                             |
| Setting Trigger output delayed time                           | 0XA2 | 00-03 | 0000-03E7    | 000-999                             |
| Setting Locked/unlock                                         | 0XA3 | NO    | 00-01        | 00-Unlock,01-Locked                 |
| Read Channel Parameters                                       | 0x31 | 00-03 |              | Ending Channel>Beginning Channel    |
| Reset                                                         | 0xF0 | NO    | 0XF0         | Reset Code 0xF0                     |
| Device Correct                                                | 0X00 | NO    | Correct Code | 40 03 02 00 00 45                   |
| Device Error                                                  | 0x01 | NO    | Erroe Code   | 40 03 02 00 00 46                   |
| Note: Command collect all code,CHN and CMD are in hexadecimal |      |       |              |                                     |

## Output channel

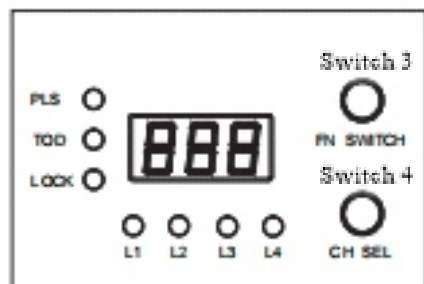
| Channel       | L1   | L2   | L3   | L4   |
|---------------|------|------|------|------|
| Setting index | 0x00 | 0x01 | 0x02 | 0x03 |

## Trigger mode



| Trigger Mode          | Switch 1 | Switch 2 | Settings |
|-----------------------|----------|----------|----------|
| External rising edge  | EXT      | HIGH     | 0X00     |
| External falling edge | EXT      | LOW      | 0X01     |
| Internal rising edge  | INT      | HIGH     | 0X02     |
| Internal Falling edge | INT      | LOW      | 0X03     |

## Function Setting



| Function Setting           | Switch 3 | Switch 4 |
|----------------------------|----------|----------|
| Internal Trigger Frequency | Press 3s | /        |
| ID NO                      | Press 3s | Press 3s |
| Reset                      | Press 6s | Press 6s |
| Locked                     | /        | Press 3s |

\*The continuous Lights been setted n00 of internal trigger frequency or reset directly

## Setting Example (Setting PBT4, Device ID IS 0)

Device No 01

| Identifier | LEN  | Device Code | Device Code ID | Command |        | Checksum |
|------------|------|-------------|----------------|---------|--------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | NEW ID |          |
|            |      |             |                | 0x09    | 0x01   | 0x50     |

## Reset

| Identifier | LEN  | Device Code | Device Code ID | Command |       | Checksum |
|------------|------|-------------|----------------|---------|-------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | Reset |          |
|            |      |             |                | 0xF0    | 0xF0  | 0x26     |

## Internal Trigger Frequency 10Hz

| Identifier | LEN  | Device Code | Device Code ID | Command |       | Checksum |
|------------|------|-------------|----------------|---------|-------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | Reset |          |
|            |      |             |                | 0x11    | 0x0A  | 0x61     |

## Trigger Mode-External falling edge

| Identifier | LEN  | Device Code | Device Code ID | Command |       | Checksum |
|------------|------|-------------|----------------|---------|-------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | Reset |          |
|            |      |             |                | 0x23    | 0x01  | 0x6A     |

## Channel L1 OFF (0x01 for ON,0x00 for OFF)

| Identifier | LEN  | Device Code | Device Code ID | Command |      |        | Checksum |
|------------|------|-------------|----------------|---------|------|--------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | CHN  | ON/OFF |          |
|            |      |             |                | 0x2A    | 0x00 | 0X00   | 0X71     |

## Multi-Channel ON/OFF (L1 for ON,L2 for ON,L4 for OFF)

| Identifier | LEN  | Device Code | Device Code ID | Command |      |        |      |        |      | Checksum |        |
|------------|------|-------------|----------------|---------|------|--------|------|--------|------|----------|--------|
| 0X40       | 0x09 | 0x02        | 0x00           | CMD     | CHN  | ON/OFF | CHN  | ON/OFF | CHN  |          | ON/OFF |
|            |      |             |                | 0x2A    | 0x00 | 0X01   | 0x01 | 0X01   | 0x03 |          | 0X00   |

## Designate channel operating parameters

(L2 Strobe Light time 257us,light delay time 264us, trigger output delay time 32us)

| Identifier | LEN  | Device Code | Device Code ID | Command |       |                   |       |                  |       |                           |      |        | Checksum |
|------------|------|-------------|----------------|---------|-------|-------------------|-------|------------------|-------|---------------------------|------|--------|----------|
| 0X40       | 0x0B | 0x02        | 0x00           | CMD     | CHN   | strobe Light time |       | light delay time |       | trigger output delay time |      | ON/OFF | 0X9C     |
|            |      |             |                | High 8  | Low 8 | High 8            | low 8 | High 8           | Low 8 |                           |      |        |          |
|            |      |             |                | 0x22    | 0x01  | 0X01              | 0x01  | 0X01             | 0x08  | 0X00                      | 0X20 | 0X01   |          |

## L1 Strobe Light time 341us

| Identifier | LEN  | Device Code | Device Code ID | Command |      |                   |       | Checksum |
|------------|------|-------------|----------------|---------|------|-------------------|-------|----------|
| 0X40       | 0x06 | 0x02        | 0x00           | CMD     | CHN  | Strobe Light time |       |          |
|            |      |             |                |         |      | High 8            | Low 8 |          |
|            |      |             |                | 0xA0    | 0x00 | 0X01              | 0x55  |          |

## L1 light delay time 342us

| Identifier | LEN  | Device Code | Device Code ID | Command |      |                    |       | Checksum |
|------------|------|-------------|----------------|---------|------|--------------------|-------|----------|
| 0X40       | 0x06 | 0x02        | 0x00           | CMD     | CHN  | light delayed time |       | 0X40     |
|            |      |             |                |         |      | High 8             | Low 8 |          |
|            |      |             |                | 0xA1    | 0x00 | 0X01               | 0x56  |          |

L1 Tigger output delay time 343us

| Identifier | LEN  | Device Code | Device Code ID | Command |      |                          |       | Checksum |
|------------|------|-------------|----------------|---------|------|--------------------------|-------|----------|
| 0X40       | 0x06 | 0x02        | 0x00           | CMD     | CHN  | tigger output delay time |       |          |
|            |      |             |                |         |      | High 8                   | Low 8 | 0X42     |
|            |      |             |                | 0xA2    | 0x00 | 0X01                     | 0x57  |          |

Locked (0x01 for locked,0x00 for unlock)

| Identifier | LEN  | Device Code | Device Code ID | Command |               | Checksum |
|------------|------|-------------|----------------|---------|---------------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | Locked/Unlock |          |
|            |      |             |                | 0xA3    | 0x01          |          |

Channel L2 parameter

| Identifier | LEN  | Device Code | Device Code ID | Command |               |             | Checksum |
|------------|------|-------------|----------------|---------|---------------|-------------|----------|
| 0X40       | 0x04 | 0x02        | 0x00           | CMD     | Start Channel | End Channel |          |
|            |      |             |                | 0x31    | 0x01          | 0X01        |          |

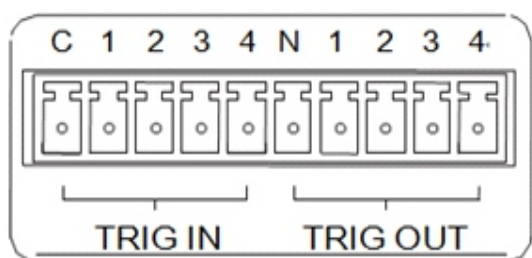
Command Return: 40 0B 02 00 31 01 01 A5 02 6D 02 09 01 A0

All Channel parameter

| Identifier | LEN  | Device Code | Device Code ID | Command |               |             | Checksum |
|------------|------|-------------|----------------|---------|---------------|-------------|----------|
| 0X40       | 0x05 | 0x02        | 0x00           | CMD     | Start Channel | End Channel |          |
|            |      |             |                | 0x31    | 0x01          | 0X03        |          |

Command Return: 40 23,02,00,31,00 00 79 01 41 00 DD 01 01 A5 02 6D 02 09 01 02 02 D1 03 99 03 35 01 03 00 15 03 E7 00 1F 01 1D 40 0B 02 00 31 00 00 79 01 41 00 DD 01 17

## Connector

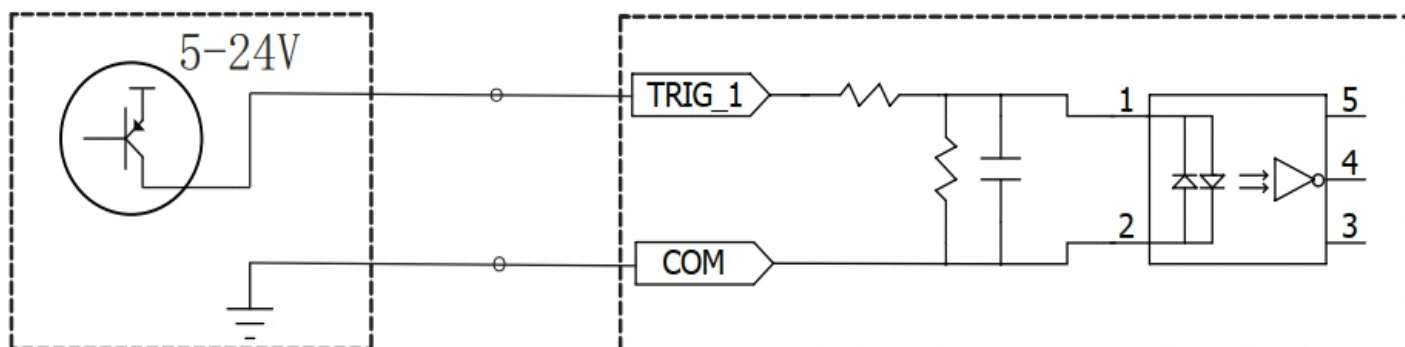


Trigger input is non-polar and support for bidirectional input. Trigger output has polarity, N represents the output negative pole. The voltage of the trigger output is 12V, and it can directly trigger the camera to take pictures.

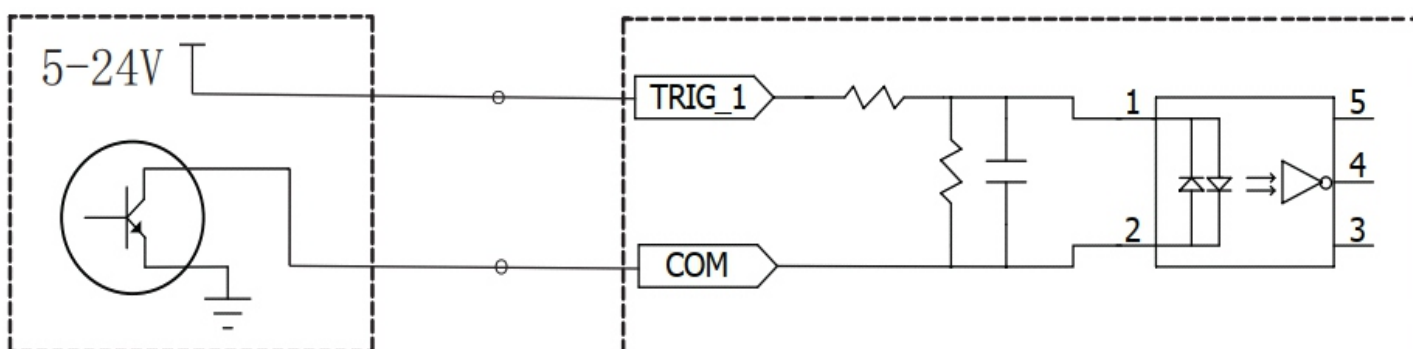
| TRIG IN | Wiring definition            | TRIG OUT | Wiring definition                 |
|---------|------------------------------|----------|-----------------------------------|
| C       | common port of trigger input | N        | common port of trigger output (-) |
| 1       | Channel 1 of trigger input   | 1        | Channel 1 of trigger output       |
| 2       | Channel 2 of trigger input   | 2        | Channel 2 of trigger output       |
| 3       | Channel 3 of trigger input   | 3        | Channel 3 of trigger output       |
| 4       | Channel 4 of trigger input   | 4        | Channel 4 of trigger output       |

## Trigger Wiring

PNP



NPN



\* Switches with strong mechanical characteristics such as relays cannot be used as external actuation of the controller.

## Control mode selection

| Trigger mode to HIGH                                                                                                                                                                  | Trigger mode to LOW                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>External(EXT).Rising Edge Triegger Mode</b></p> <p>High<br/>Input signal<br/>Low</p> <p>Light source output: not bright, bright, not bright</p> <p>Timing: &lt;1us, 0~999us</p> | <p><b>External(EXT).Falling Edge Triegger Mode</b></p> <p>High<br/>Input signal<br/>Low</p> <p>Light source output: not bright, bright, not bright</p> <p>Timing: &lt;1us, 0~999us</p> |
| <p><b>Internal (INT) trigger mode</b></p> <p>High<br/>Internal signal<br/>Low<br/>1~20Hz</p> <p>Light output: not bright, bright, not bright</p> <p>Timing: &lt;1us, 0~999us</p>      | <p><b>Internal (INT) Light Source Extinction mode</b></p> <p>high<br/>Internal signal<br/>Low</p> <p>Light output: not bright</p>                                                      |

**Note:**the camera should be set falling edge trigger mode when the controller trigger output function to trigger the camera to take the picture synchronously

## Dimensions(mm)

