



[pro]master®

200ST-R

Sony  
*Speedlight*

*TTL Speedlight for Sony*



# Contents

Precautions	2
Foreword	3
Protection film	5
Parts Identification	6
Inserting the Batteries	7
Attaching and Detaching	8
Turning On the Power	9
Home Screen and Key Lock	10
Setting Custom Functions	11
TTL Mode	12
M: Manual Mode	13
Repeating Flash Mode	14
Slave Mode F1 (Optical)	15
Slave Mode F2 (Optical)	16
2.4 GHz Slave Mode (Radio)	17
Slow Sync	18
Flash Bracketing	18
Rear Curtain Sync	19
Power Zoom Function	20
AF Assist Beam Emitter	21
Bounce Flash Operation	22
Using the Bounce Card	23
Using the Wide Panel	24
Diffusion Dome	25
Color Filters	26
Additional Interfaces	27
Appendix	28
Specifications	29

# Precautions

1. Do not disassemble, open, or repair this speedlight by yourself.
2. Always use batteries of the same type, brand, and age. Always replace all 4 batteries at the same time. Do not combine different types, brands, old, or new batteries. This could cause the batteries to overheat, leak, or explode.
3. This product is not water-resistant. Keep it away from rain, snow, and high humidity areas.
4. Install the batteries in proper orientation as indicated in the battery chamber. Installing the batteries incorrectly could cause them to overheat, leak, or explode.
5. If you change the batteries after a period of sustained continuous firing of the speedlight, the batteries may become warm or hot. This is normal, however you should be careful when handling these batteries.
6. Always switch the speedlight off before changing batteries.
7. Do not fire the speedlight from a short distance directly into the eyes of people or animals. This can cause damage to the retina and may even lead to blindness.
8. Avoid corrosive or flammable substances when cleaning this speedlight.
9. To prevent overheating and damage to the flash head, do not fire more than 10 continuous flashes in rapid sequence at full power(1/1 level). After 10 continuous flashes, please allow the speedlight to cool down for 5 to 10 minutes.
10. Do not touch the speedlight with wet hands. This could cause an electrical shock.
11. Remove batteries from the unit before storing.

# Foreword

Thank you for purchasing the [pro]master 200ST-R.

The ProMaster 200ST-R speedlight is a high performance, feature-rich unit designed to work with your camera's automatic and advanced functions. It can work as your primary on-camera flash or slave unit in a wireless, multiple flash setup (ProMaster SM1S required as master).

## **Here are some of the 200ST-R's features:**

### **■ TTL Mode**

In a Sony TTL flash system, monitor pre-flashes are fired at all times, the subject is correctly exposed, and the overall exposure is less affected by challenging ambient light conditions.

### **■ Manual Mode**

By setting the aperture and the flash output level, you can manually control exposure. 22 levels of light control are available in manual mode.

### **■ RPT Mode**

The 200ST-R fires repeatedly to create stroboscopic multiple-exposure effects in RPT Mode . This is useful when shooting a fast-moving subject for a creative effect.

### **■ Advanced Optical Slave**

This fires the 200ST-R using a flash from another speedlight or strobe. Two modes, F1 and F1 are available, based on the use of a pre-flash by the master.

### **■ 2.4G Wireless Slave**

The 200ST-R uses a 2.4G wireless slave system. It can receive signals from an SM1S (sold separately). You can use up to 3 groups with a wireless range of 325' /100 meters.

### **■ High-Speed Sync**

High-Speed flash synchronization at the compatible camera's highest shutter speed is possible. This is useful when you want to use a wider aperture to achieve shallow depth of field to blur the background or create a "stop-motion" effect in your photograph.

# Foreword (continued)

## ■ **Slow Sync.**

Uses a slow shutter speed in conjunction with the flash to shoot scenes in low light where the light from the flash cannot illuminate the background of the picture. The slow shutter speed allows ambient light to brighten the background. Slow sync. is accessed from the camera's controls.

## ■ **Rear Sync.**

Rear sync. creates a picture in which blur of a moving subject appears behind and not in front. In this mode, the speedlight fires just before the rear shutter curtain starts to close. Rear sync. is accessed from the camera's controls.

## ■ **Flash Exposure Compensation.**

Flash output level compensation is performed by modifying the flash output level for the flash illuminated subject.

## ■ **Bounce Flash**

By tilting or rotating the flash head, you can bounce the light off a ceiling or wall to make use of reflected light to create a large, soft illumination.

## ■ **Key Lock**

The speedlight's control buttons can be locked to prevent them from being pressed accidentally

## ■ **AF-Assist Illuminator**

The 200ST-R emits an AF beam to help the camera properly auto focus in low light situations (this function is dependent on the particular camera model).

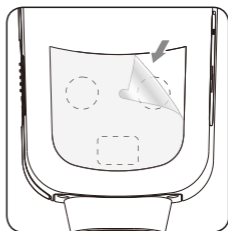
## ■ **LCD Panel Backlight**

This function sets the LCD backlight to on or off.

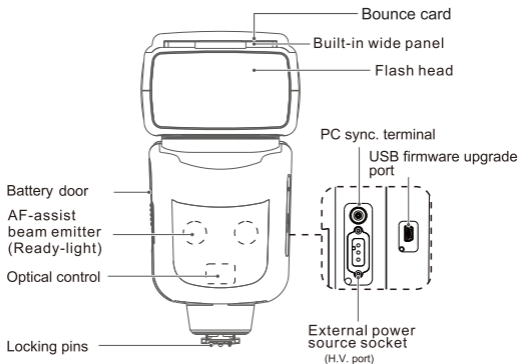
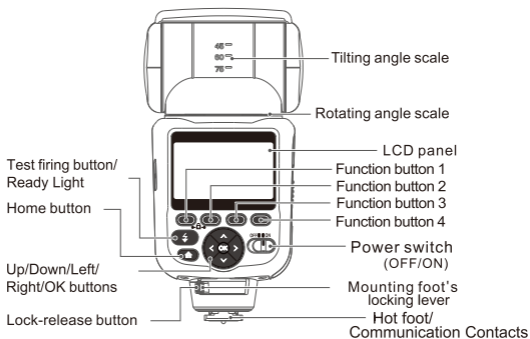
- Read this instruction manual while also referring to your camera's instruction manual.
- The 200ST-R's features rely on having a compatible camera.

# Protection Film

200ST-R has a protection film over the LCD screen and red lens (front cover). It can protect the LCD screen and front cover from scratches and damage. You may move the protection film or leave it in place if you wish.



# Parts Identification



Speedlight stand



Hot Foot protective cap

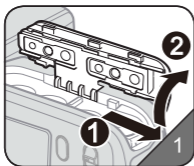


Protective storage case

# Inserting the Batteries

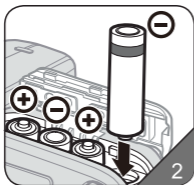
Use any of the following three types of AA batteries.

- Alkaline batteries
- Ni-MH batteries
- Lithium-metal batteries



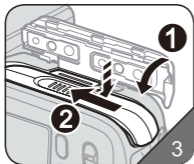
## Open the cover.

Slide the cover in the direction of the arrow and flip it open.



## Install the batteries.

Make sure the ⊕ and ⊖ battery contacts are properly oriented as shown inside the battery compartment.



## Close the cover.

Close the battery compartment cover by flipping it down, pressing, and sliding closed.

- Do not use the Lithium iron phosphate batteries and Carbon zinc batteries.
- If you change the batteries after firing many continuous flashes, be aware that the batteries might be hot.
- Before changing the batteries, be sure to turn off the speedlight.
- When you change the batteries, be sure to use the same type and with full power.
- Remove batteries from the speedlight before storing.

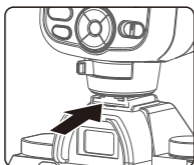


# Attaching and Detaching



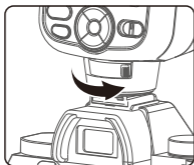
## Prepare to attach the Speedlight

Slide the locking lever to the left if the lever is in the locked position (to the right). Push its button to release it before sliding left.



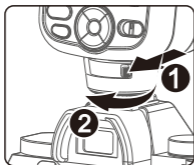
## Attaching the speedlight

Mount the speedlight into the camera's hot shoe all the way.



## Securing the speedlight

On the mounting foot, slide the locking lever to the right until it locks in place.



## Detaching the speedlight

While pressing the lock-release button, slide the lock lever to the left and detach the speedlight by sliding it out of the camera's shoe.

- Before attaching or detaching the speedlight, be sure to turn off the speedlight.

# Turning On the Power



- Slide the power switch to [ON].
- It is recommended to turn on the camera power first.



- The test firing button / ready light will glow red while the 200ST-R is charging. It will turn green when the speedlight is ready to flash.

★ Please note the test firing button requires more pressure to operate than the other buttons on the 200ST-R. This is intentionally designed to prevent accidental firing.

- If the test firing button remains red over 20 seconds, or the low power icon is displayed, please replace the batteries with new ones.
- The 200ST-R will enter sleep/standby mode after 30 seconds of non-use. You can press the test firing button to wake it up.

# Home Screen and Key Lock



The home screen can be reached by pressing the home button. From here you can change the 200ST-R's mode. Notice the icons on the home screen visually identify which buttons you should press to access each mode. From the home screen you can quickly access TTL, Manual, Repeat, Custom Functions (Utility menu), Flash OFF, or any of 3 types of wireless slave modes with the press of a button.

## Key Lock



Using the 200ST-R's Key Lock function allows you to prevent accidental changes to the settings. It locks all buttons from functioning except the test firing button.

Press function buttons 1 and 2 between which a lock icon is printed, simultaneously for 2 seconds. The key lock icon [LOCKED] will appear on the LCD and the buttons are locked. To cancel key lock, press function buttons 1 and 2 again, simultaneously for 2 seconds.

- The test button is not limited by the lock function.

# Setting Custom Functions

NO.	Functional description	
Fn:1	<b>TEMP</b>	Temperature monitor
	▶ 0:ON	ON/ Enabled
	1:OFF	OFF/ Disabled

NO.	Functional description	
Fn:2	<b>AF</b>	AF-assist beam
	▶ 0:ON	ON/ Enabled
	1:OFF	OFF/ Disabled

NO.	Functional description	
Fn:3	<b>BEEP</b>	Sound monitor
	▶ 0:ON	ON/ Enabled
	1:OFF	OFF/ Disabled

NO.	Functional description	
Fn:4	<b>SLEEP</b>	Auto power off (90 seconds)
	▶ 0:ON	ON/ Enabled
	1:OFF	OFF/ Disabled

NO.	Functional description	
Fn:5	<b>BKLIGHT</b>	LCD backlight
	0:OFF	OFF/ Disabled
	▶ 1:12S	On for 12 seconds
	2:ON	ON/ Enabled

NO.	Functional description	
Fn:6	<b>CHARGE</b>	Flash recycle with external power
	▶ 0: [ ] + [ ]	External & internal power
	1: [ ]	External power only

NO.	Functional description	
Fn:7	<b>CONTRAST</b>	LCD Display contrast
	HIGH	High level
	▶ MID	Middle level
	LOW	Low level

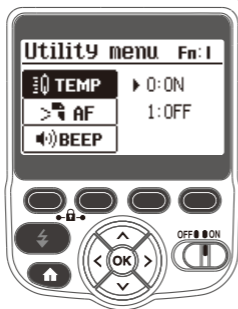
NO.	Functional description	
Fn:8	<b>RESET</b>	Reset all custom function settings
	▶ 0:NO	Not reset
	1:YES	Reset

NO.	Functional description	
Fn:9	<b>VERSION</b>	Version of firmware
	<b>VER X.X</b>	Version



If you turn off the Temperature monitor, flash recycle time will be extended to prevent overheating and you may shorten the life of the flash tube.

## Custom Function Setting Procedure



Use these buttons in this order:

- Home button
- ↓
- Fn. Fn 4 Button (to enter the Utility Menu)
- ↓
- Choose Custom Fn:1~9
- ↓
- Enter the Fn:1~9
- ↓
- Select the setting
- ↓
- Confirm the setting
- ↓
- Return to the Home screen


screen

# TTL Mode

In TTL mode information obtained by monitor pre-flashes and exposure control information are integrated by the camera to automatically adjust flash output levels for proper exposure



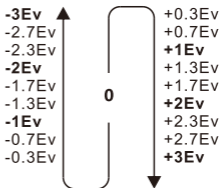
## Enter TTL mode

- 1) Press the home button 
- 2) Press the [Function 1] button to choose [TTL]



## Set the exposure compensation amount

While in TTL mode, use the Left/Right buttons to adjust exposure compensation



EV compensation scale shown for your reference. Adjustments are made in 1/3 stops.

- Please note, many Sony cameras allow you set exposure compensation in their Menu. It is often referred to as Flash Comp. You may choose to set the compensation amount on the 200ST-R or in the camera's menu. Either method will result in which the flash will emit more or less light according to your selection.

# M: Manual Mode

In manual mode you can set the flash output from 1/128 power to 1/1 full output in 1/3 stop increments. The 200ST-R will flash at your manually set power level without any TTL, automatic exposure control.



## Enter M Mode

Press the home button



Press the [Function 2] button to choose [M]



## Set the flash output

While in M mode, use the Left/Right buttons to set the flash output between 1/128 and 1/1 power in 1/3 stop increments.

### Minimum power flash

← 1/128 •• 1/64 •• 1/32 •• 1/16

1/8 •• 1/4 •• 1/2 •• 1/1

→ Full power flash

Manual adjustment scale shown for your reference. 22 levels of light output control are possible.

# Repeating Flash Mode

In RPT mode, the 200ST-R fires repeatedly during a single exposure, creating a stroboscopic multiple-exposure effect.



## Enter to RPT Mode

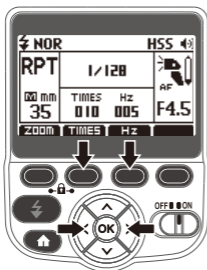
Press the home button



Press the [Function 3] button to choose [RPT]

## Set the flash output

Use the Left/Right buttons to set the light output amount



## Set the number of flashes (times)

Press the [Function 2] button to choose [TIMES]

Use the Left/Right buttons to set the number of flashes (hold either button down for a faster selection)

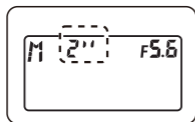
Press either the [Function 2] or [OK] button to confirm your selection

## Set the flash frequency

Press the [Function 3] button to choose [Hz]

Use the Left/Right buttons to set the frequency (hold either button down for a faster selection)

Press either the [Function 3] or [OK] button to confirm your selection



## Set the camera's shutter speed

- Shutter speed = Number of flashes + flash frequency.  
For example, if the number of flashes is set 10 (times) and the flash frequency to 5(HZ), set the shutter speed to 2 sec. or longer.
  - "Bulb" mode can also be used for the shutter speed
- The maximum number of flash firings differs depending on flash output level and flash firing frequency. See the table in the Appendix. The 200ST-R will not allow you to set an unachievable combination of these settings.
  - To avoid overheating and damaging the flash head, do not use RPT flash more than 10 times in succession. After shooting 10 times, allow a rest time of 5-10 minutes to prolong the life of the flash tube.

# Slave Mode F1 (Optical)

The F1 slave mode is used in a manual flash environment. The 200ST-R is triggered optically by another flash (non-radio) by the first burst of light it sees. It will not ignore a pre-flash (if one exists) from the master.



## Enter F1 slave mode

Press the home button



Press the Left button to choose [F1] mode



## Set the flash output

Use the Left/Right buttons to set the flash output between 1/128 and 1/1 in 1/3 stop increments. Hold either button for faster changes.

Please note. A red, circular light known as the Ready-Light will slowly flash on the front of the 200ST-R to show it is set to one of its slave modes and is awaiting a signal to fire.

- When the speedlight is in F1 slave mode, it will fire in-sync. with the master flash. To use this mode correctly, the master speedlight should be set as a manual flash and the TTL flash mode with pre-flash and red-eye reduction modes should not be used so as to avoid firing the 200ST-R out of sync. The master should be aimed at the front of the 200ST-R so its optical slave can see the master's flash.



# Slave Mode F2 (Optical)

The F2 slave mode is normally used when the master flash is in TTL mode. F2 works as an optical slave and ignores the first burst of light it sees, thereby ignoring the master's pre-flash monitor and firing in-sync. with the master's true flash. The 200ST-R in F2 mode emits its beam at a manually-set output level.



## Enter F2 slave mode

Press the home button



Press the Right button to choose [F2] mode



## Set the flash output

Use the Left/Right buttons to set the flash output between 1/128 and 1/1 in 1/3 stop increments. Hold either button for faster changes.

Please note. A red, circular light known as the Ready-Light will slowly flash on the front of the 200ST-R to show it is set to one of its slave modes and is awaiting a signal to fire.

- When the speedlight is in F2 mode it can support the master speedlight in TTL mode.
- As a basic guide, the effective shooting distance between the master and slave units in F1 or F2 is approx. 10M (33 ft.). The range vary slightly depending on the ambient light. Don't place any obstacles between the master and slave units (F1/F2).
- The optic sensor of slave unit should to face the light source of the master unit.

## 2.4 GHz (Radio) Slave Mode

When set as a radio slave unit, the 200ST-R can receive signals from a ProMaster SM1S Speedlight Master (sold separately). The SM1S can control up to 3 groups using one of 15 channels or auto channel for its slave units, reliably over a long distance (325'/100m) with TTL exposure and ratio control.

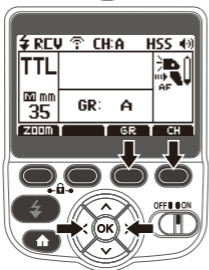


### Enter 2.4 GHz Slave Mode

Press the home button



Press the Down button to choose radio slave mode



### Set the Group (GR)

Press the [Function 3] button to choose [GR]



Press the Left/Right buttons to select group A or B or C



Press either the Function 3 [GR] or [OK] button to confirm your selection

### Set the channel (CH)

Press the [Function 4] button to choose [CH]



Press the Left/Right buttons to select a channel. Hold either button for faster changes (the channel range is 1-15 + A)



Press the [Function 4] button or [OK] button to confirm your selection

- If another photographer uses the same type and same channel of the transmitter nearby, your speedlight may accidentally fire in-sync. with that photographer's transmitter. Please change to a different channel number.
- Be sure the 200ST-R is set to the same channel as the master.

# Functions to Be Set on the Camera

The following functions are available when used with cameras so equipped. Set these functions on the camera. They cannot be set on the 200ST-R directly. The availability of these functions may vary by camera model.

- For detailed information regarding camera functions and settings, refer to the camera user's manual.

## Slow Sync

Slow sync uses a slow shutter speed in conjunction with the flash and is designed for shooting scenes in low light where the light from the flash cannot illuminate the background of the picture. The slower shutter speed allows ambient light to brighten the background.

- Slow Sync is typically set in the Flash Mode menu on most Sony cameras.
- Because Slow sync relies on ambient light, your ISO selection will have an influence on its effectiveness.

## Flash Bracketing

This allows you to shoot a series of photographs for which the 200ST-R's light output is adjusted up and down from shot to shot, thereby creating a bracket of images at different exposures.

- Flash bracketing is typically achieved through the Drive Mode menu on most Sony cameras.
- Read your camera's instructions carefully to understand how the various drive modes may or may not change the camera's ambient light exposure vs the output of the speedlight.

# Functions to be set on the Camera

## Rear-curtain Sync

In normal flash photography (front curtain sync.), when photographing fast-moving subjects at low shutter speeds, pictures can appear unnatural because the subject frozen by the flash appears behind or within the blurred movement. Rear-curtain sync flash creates a picture in which the blur of a moving subject appears behind the subject and not in front.

- In front-curtain sync. the flash fires immediately after the front curtain is fully open; in rear-curtain sync, the flash fires just before the rear curtain starts to close.
- Since low shutter speeds are normally used, use of a tripod is recommended to prevent camera shake.
- Rear-curtain sync does not operate in wireless slave modes.
- Rear-curtain sync does not operate in repeating flash mode.



Front-curtain sync



Rear-curtain sync

# Power Zoom Function

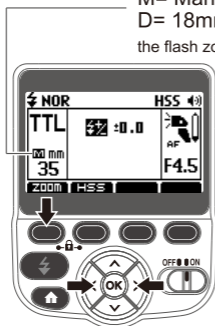
The power zoom function automatically adjusts the flash zoom head positioning to match the lens focal length. Zoom positions can be adjusted between 24mm and 200mm (plus an 18mm wide position when the wide panel is used). You can also adjust the flash zoom head position manually.

**A**= Automatic

(The flash zooms in sync with the camera lens)

**M**= Manual zoom

**D**= 18mm When using the wide panel, the flash zoom is automatically set to 18mm



## Setting Auto zoom

Press the [Function 1] button to choose [ZOOM]

Press the [◀] button until **A** is displayed

Press the [Function 1] button or the [OK] button to confirm the setting.

Now gently press the camera's shutter button half way and zoom the lens. Watch as the number on the 200ST-R changes as the zoom head moves to match the lens focal length.

## Setting Manual zoom

Press the [Function 1] button to choose [ZOOM]

Use the Left/Right arrow buttons to take the 200ST-R out of **A** mode and into **M** mode. Continue using these buttons to adjust the zoom of the flash head and notice the equivalent focal length, in mm, changes on the 200ST-R's screen. Continue pushing the Left arrow until **A** appears to return to Auto Zoom mode.

Press the [Function 1] button or the [OK] button to confirm the setting.

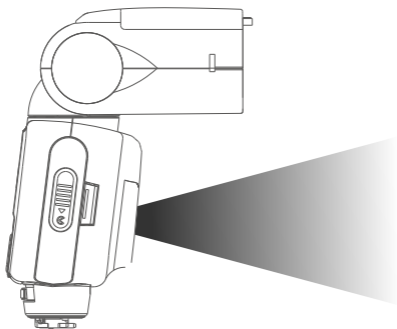
## The 200ST-R's zoom range scale

24--28--35--50--70--105--135--180--200mm

- If you set the flash zoom manually, make sure it covers the lens focal length so that the picture will not have a dark periphery. If you
- use a PC sync cord to connect your camera to the speedlight's PC terminal, set the flash zoom manually.
- If you use the wide panel, the flash zoom will lock in 18mm.

# AF Assist Beam Emitter

In low light conditions the AF assist light will automatically emit a red colored beam and illuminate the subject so the camera can easily focus.



## Turning the AF Assist Beam On or Off

Press the home button 



Press the [Function 4] button to choose Fn (Utility Menu)



Press the [ $\wedge$ ] or [ $\vee$ ] buttons to display (Fn2) [AF]



Press [>] button or the [OK] button to enter Fn2 [AF]



Press the [ $\wedge$ ] or [ $\vee$ ] button to choose <ON> or <OFF>



Press the [OK] button to confirm your selection

Please note, many Sony cameras will not activate an infrared focusing sensor on a speedlight (regardless of brand) if this type of beam is incompatible with the camera's AF system. This is typical of many mirrorless cameras. The camera may elect to use its own on-board AF illuminator, or none at all. So, even if you have selected [ON] for the AF assist beam, the camera may not activate it while focusing. Refer to your camera's instructions for more information.

# Bounce Flash Operation

Tilt or rotate the 200ST-R's flash head to bounce the light off a ceiling or wall, providing more natural-looking pictures of people with softer shadows.



## Vertical angle adjustment:

-7°--0°--45°--60°--75°--90°

## Rotation adjustment:

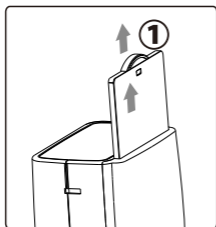
Left: 0°--30°--60°--90°

Right: 0°--30°--60°--90°--120°--135°--180°

- If the wall or ceiling is too far away, the bounced flash might be too weak and can result in under exposure.
- Be sure to select a white/neutral surface to bounce the light off of. Otherwise your pictures will have an unnatural looking color cast similar to that of the reflecting surface.

# Using the Bounce Card

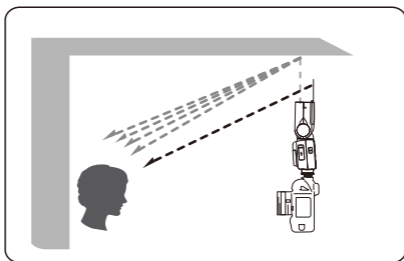
You can use the 200ST-R's built-in bounce card to create a highlight in the subject's eyes, soften the light output, and reduce the chance of red-eye (by creating more distance between the light and the lens).



- 1** Pull the round tab. The bounce panel will slide out at the same time as the wide panel.



- 2** Push in only the wide panel leaving the bounce panel exposed.



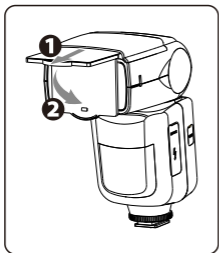
- Point the flash head straight ahead and then upward by 90°. The bounce card will not work properly if you swing the flash head left or right.
- For maximum effect, stay within 1.5m (4.9ft) of the subject.

- Before pushing in bounce panel, you should slide out the wide panel, and push both in together. This is easier and will protect the bounce panel from damage.



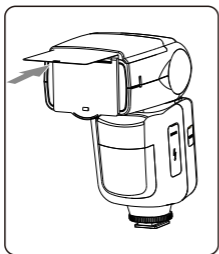
# Using the Wide Panel

When the distance between the camera and subject is less than approx. 6 1/2' / 2m, you can take more natural-looking close-up pictures using the wide panel. The zoom position will automatically set itself to 18mm when the built-in wide panel is used.



## 1 Pull out the wide panel.

Slowly pull out the wide panel all the way, and position it over the flash head.



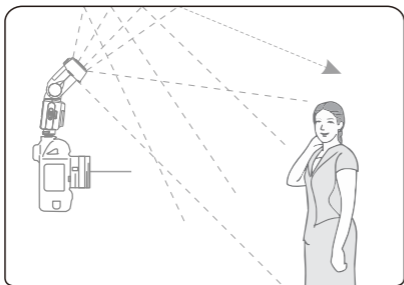
## 2 Push the bounce card back in.

Push in only the bounce card. Leave the wide panel out.

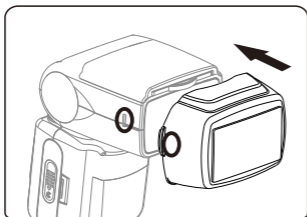
- The wide panel softens and widens the 200ST-R's light beam to approximately 18mm while reducing the maximum distance the light can travel. Do not use this feature when your subject is far away or the flash may become too weak for proper exposure.

# Diffusion Dome

- By attaching the included ProMaster Diffusion Dome over the flash head, light can be further diffused during bounce flash photography to create extremely soft light with virtually no shadow.
- The same effect can be achieved with the camera in either a horizontal or vertical position so long as the speedlight is oriented properly.
- Light is more effectively diffused when the built-in wide panel is used in addition to the diffusion dome.



## Attaching the ProMaster Diffusion Dome



Attach the ProMaster Diffusion Dome as shown in the diagram.

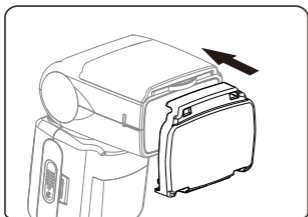
# Color Filters

Color compensation filters (fluorescent filter and an incandescent filter) are included with the 200ST-R for use with flash photography under incandescent/tungsten and fluorescent lighting.

## ■ Using color compensation filters and color filters

Filters	Purpose
Fluorescent filter(Green) included	Balance the color of light from the flash to match that of fluorescent lighting
Fluorescent filter(Orange) included	Balance the color of light from the flash to match that of incandescent or tungsten lighting

## ■ How to attach color compensation filters. (included)

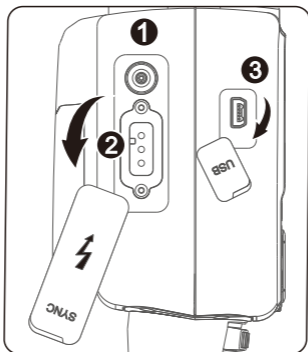


**Place the filter on the flash head and push to ensure a solid fit.**

Place the filter as the shown in the diagram.

# Additional Interfaces

The 200ST-R has external connections for use of an external power source (High Voltage battery pack) and PC sync. It also has a USB port for upgrading the unit's firmware. This port is compatible with a USB mini-B 5-pin connection.



## ❶ Accessing the external power connector and PC sync.

Pull open the soft cover on the side of the 200ST-R and rotate it out of the way.

## ❷ Usage.

1. PC Sync terminal: The speedlight can fire in sync. with a camera using this socket and a compatible PC sync. cord.
2. External power connector: The H.V. (high voltage) port provides a stable power supply using an external battery and compatible power cable. You can choose to draw power from only the H.V. port or from the H.V. port + AA batteries with Fn 6 in the Utility Menu.

## ❸ USB upgrade port

The 200ST-R has a USB upgrade port. You can update the firmware with a newer version, when available. Refer to [www.promaster.com](http://www.promaster.com).

# Appendix

## Maximum number of flash firings in RPT mode

Frequency	Flash Output				
	M1/8	M1/16	M1/32	M1/64	M1/128
1Hz	100	100	100	100	100
2Hz	100	100	100	100	100
3Hz	100	100	100	100	100
4Hz	15	100	100	100	100
5Hz	10	100	100	100	100
6Hz	10	100	100	100	100
7Hz	7	40	100	100	100
8Hz	7	35	100	100	100
9Hz	7	20	100	100	100
10Hz	7	20	100	100	100
20Hz	5	10	25	100	100
30Hz	5	10	20	60	100
40Hz	5	10	20	45	100
50Hz	4	9	18	40	100
60Hz	4	9	18	32	100
70Hz	4	9	17	32	100
80Hz	4	8	17	32	100
90Hz	4	8	17	30	60
100Hz	4	8	17	30	60

The maximum number of flashes may be limited by the type and condition of the batteries.

## Guide No.: (ISO 100, in meters )

Flash Output	Flash Coverage (mm)								
	24	28	35	50	70	105	135	180	200
1/1	26.6	30.5	33.5	37.7	43.0	50.0	56.3	57.6	60.0
1/2	18.8	21.6	23.7	26.7	30.4	35.4	39.8	40.8	42.0
1/4	13.3	15.3	16.8	18.9	21.5	25.0	28.2	28.8	30.0
1/8	9.4	10.8	11.9	13.4	15.2	17.7	19.9	20.4	21.0
1/16	6.7	7.7	8.4	9.5	10.8	12.5	14.1	14.4	15.0
1/32	4.7	5.4	6.0	6.7	7.6	8.9	10.0	10.2	10.5
1/64	3.4	3.9	4.2	4.8	5.4	6.3	7.1	7.2	7.5
1/128	2.4	2.7	3.0	3.4	3.8	4.5	5.0	5.1	5.2

# Specifications

<b>Type</b>	On-camera, TTL speedlight
<b>Guide No.</b>	Approximately 60m/200' (at 200mm zoom / ISO100)
<b>Flash coverage</b>	24 to 200mm (18mm when using wide panel ) ● Manual zoom ● Automatic
<b>Max. Bounce Angel</b>	90°Up, 7°Down, 90°Right, 180°Left
<b>Flash modes</b>	TTL/M/RPT
<b>Optic Slave Modes</b>	F1 / F2
<b>Radio wireless slave mode</b>	System type: Digital FSK 2.4GHz wireless Distance: 100 m / 325' Channels: Auto + CH 1-15 Groups: 3 groups (A/B/C), up to 15 units in a group
<b>Display type</b>	LCD display
<b>Button backlight</b>	White
<b>Color temperature</b>	5600K
<b>Flash exposure compensation</b>	-3.0 EV to +3.0 EV in increments of 1/3 EV steps
<b>Manual flash</b>	1/128 to 1/1 power (1/3 steps increments)
<b>AF assist beam emitter</b>	Raster pattern
<b>Recycle time</b>	Alkaline Cells: Approx. 0.27~5.2 sec. NiMH Cells: Approx. 0.15~3 sec.
<b>Firmware update</b>	via USB mini-B 5-pin connection
<b>Custom functions</b>	Supports Custom menu in-camera and via speedlight Utility menu
<b>Standby function</b>	Supports on-camera mode (auto standby after 90 sec. nonuse)
<b>Repeating Flash</b>	1-100Hz
<b>Flash duration range</b>	1/800~1/20,000 sec.
<b>Camera's sync modes</b>	Front-curtain sync, Rear-curtain sync, HSS High-Speed Sync, and Slow sync.
<b>FE lock</b>	Support
<b>External power</b>	Support via H.V. port
<b>PC terminal</b>	Support
<b>Dimensions</b>	Approx. 7 3/4" × 3 1/16" × 2 5/16" / 196.8 mm x 77.8 mm × 58.7 mm
<b>Weight</b>	Approx. 15 oz / 425 g (speedlight only)

# *One Year Unconditional Warranty*

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If for any reason, this ProMaster product fails within ONE YEAR of the date of purchase, return this product to your ProMaster dealer and it will be exchanged for you at no charge. ProMaster products are guaranteed for ONE FULL YEAR against defects in workmanship and materials. If at any time after one year, your ProMaster product fails under normal use, we invite you to return it to ProMaster for evaluation.

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