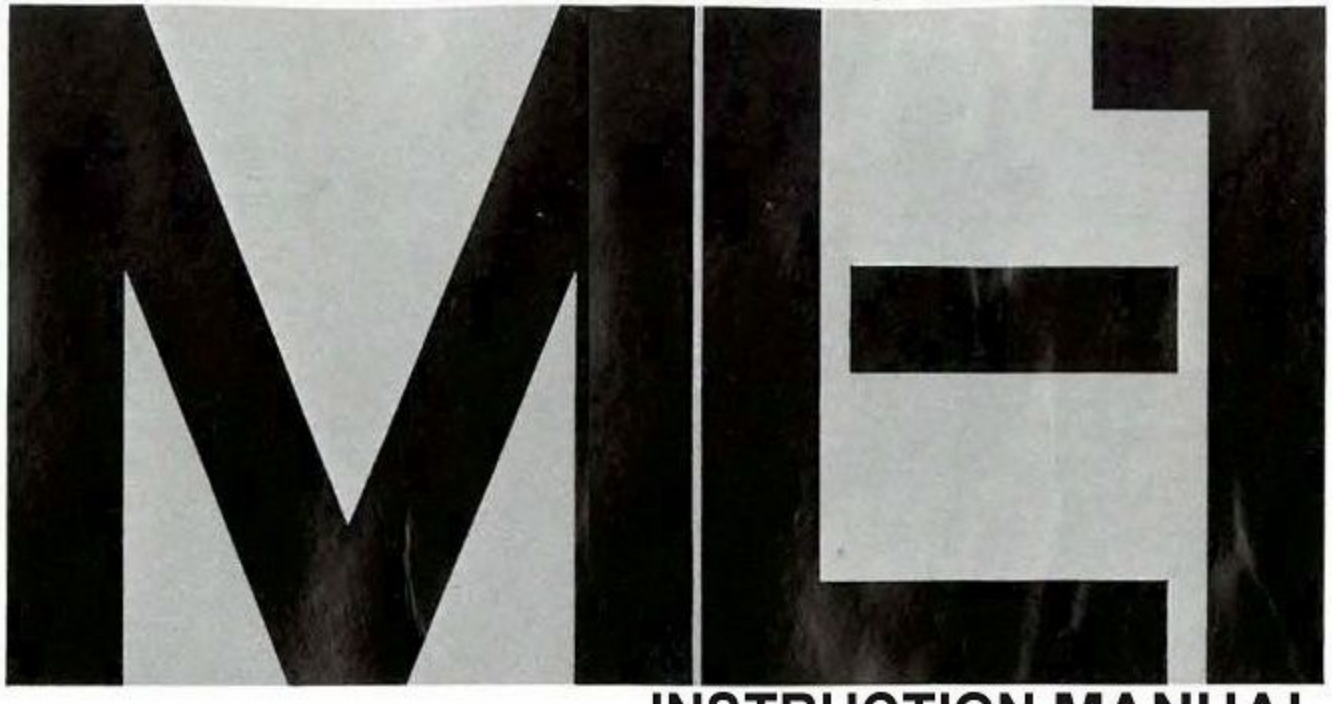
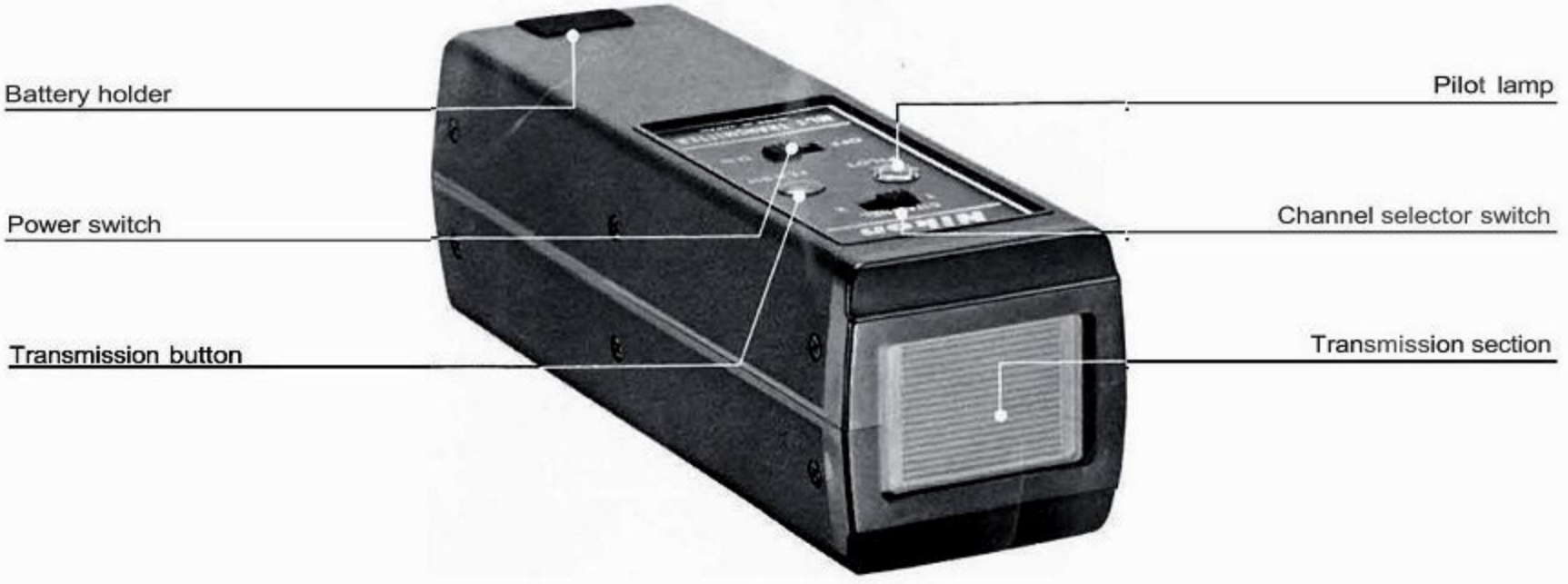
*Nikon*Modulite Remote Control Set



INSTRUCTION MANUAL

NOMENCLATURE

Transmitter



Receiver

Accessory shoe

Reception section

Battery chamber

Battery power check button

Sync socket

Pilot lamp

Output terminal

Hood

S/C knob

Power switch

Channel selector switch

Tripod mount

Accessory adapter

CONTENTS

FOREWORD

The Nikon ML-1 Modulite Remote Control Set is designed for the remote control triggering of all current Nikon motor-driven cameras, including the Nikon FM, FE, and all Nikon F2 cameras, plus the Nikon R10/R 8 Super Zoom cine cameras. The set consists of a transmitter and receiver, both of which have two operation channels for camera triggering; the use of two ML-1 receivers will thus allow the triggering of two cameras in the same area.

Due to its employment of a unique modulated light system, it is also possible to use the M L-1 receiver for remote control of multipie flash operation in combination with the Nikon SB-5 Speedlight Unit and the Nikon SU-1 Sensor Unit.

To obtain the best results, read the instructions in this manual carefully. Keep the manual on hand until you have thoroughly mastered the operation of the M L-1. Since the ML-1 is designed to operate with other Nikon photogaphic euqipment, it is advisable to review, too, the instructions detailed in the individual manuals for these other products. A few minutes of preparation will help you avoid costly mistakes and assure you success.

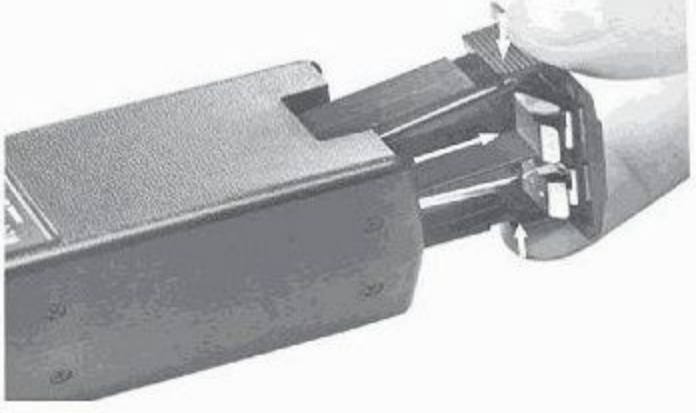
Installing the batteries

Transmitter: Depress the knurled, grip-surfaces on either side of the battery holder; then pull the holder out completely. Insert four 1.SV AA-type penlight batteries, making sure their positive and negative termi- nals are aligned with the corresponding plus and minus marks in the holder. Then, slip the holder back into its compartment until it clicks into place.

Receiver: Press, then slide the cover of the battery chamber in the direction of the engraved arrow to un- hinge it; lift it up to swing it open. Insert one 9V laminated dry battery, making sure its positive and negative terminals are aligned with the corresponding marks in the chamber. Close the cover, then lock it into place by first sliding it forward in the direction of the arrow as far as it will go, then sliding it back again.

Important!

- **If the terminals of the batteries are improperly aligned, the equipment will not function correctly; also, the batteries may leak, causing damage.**
- **Switch off the power of the transmitter and the receiver when they are not in use to prevent battery leakage or power drainage; it is advisable to remove the batteries when the transmitter and the receiver are not to be used for a pro- longed period.**



Checking battery power

Transmitter: Switch power on. The pilot lamp will light up. Push the transmission button, and the lamp will quickly extinguish itself. If the pilot lamp (which doubles as a battery power check lamp) takes more than five seconds to light up again, power is insufficient. Replace all four batteries at the same time.

Receiver: Switch power on, then push the battery power check button. If the pilot lamp does not light up, battery power is not enough. Replace the battery.

Important!

Note that even if the pilot lamp stays lit when the switch is turned off, the transmitter will not fire; always make sure the switch is on.

Connecting the receiver to motor-driven Nikon FM, FE, and F2 cameras

First, slide the mounting foot of the receiver into the camera's accessory shoe. (With F2 Nikons, you must attach the optional AS-1 Flash Unit Coupler.) Next, insert the 8-pin plug of the MC-8 connecting cord (which comes with the ML-1) into the receiver's output terminal. Then, insert the 3-pin plug of the cord into the 3-pin socket on the motor drive; tighten the cord's screw to secure the assembly.

When using a tripod, be sure to remove the accessory adapter from the receiver.

with F2 & MD-2

with FM & MD-11

Connecting the receiver to Nikon R1O/R8 Super Zoom cine cameras

First, slide the mounting foot of the receiver directly onto the cine camera's accessory shoe. Then, insert the 8-pin plug of the EA-4 connecting cord (which comes with the ML-1) into the receiver's output terminal, and its 6-pin plug into the camera's remote control socket. When using a tripod, be sure to remove the accessory adapter from the receiver.

with RlO

Setting the channel selector switch

The channel selector switch of the transmitter and the receiver should be set to the same channel-i.e., if the transmitter is set to Channel 1, the receiver should also be set to Channel 1.

Note that when two cameras are connected to two receivers, and the receivers are respectively set to Channel 1 and Channel 2, only one transmitter is required to control the two cameras; all you have to do is set the channel selector switch accordingly.

Positioning the transmitter and the receiver

When positioning the receiver in an area where there are no obstacles, make sure its receiving section is able to face the transmitting section of the transmitter directly; rotate the receiver's accessory shoe, if neces- sary, in order to achieve this. Remote control triggering will then be possible within a range of approximately 60 meters. Note, however, that this range may be shortened by atmospheric conditions, such as sunlight falling directly on the receiver's receiving section. In this case, either change the direction of the receiving section or screw the hood (which comes with the ML-1 set) onto the receiver.

In areas where there are reflective surfaces, such as buildings or walls, operation may be possible even if the transmitting and receiving sections do not face each other directly owing to the reflectivity of such surfaces. Inside a room, for instance, operation is possible with the transmitting and receiving sections facing utterly opposite directions.

In all cases, confirm both the transmitter and the re- ceiver's correct functioning before actual shooting.

Switch power on. The ML-1 set is now ready for operation.

You have a choice of two shooting modes: continuous or single-frame. For either mode, be sure you perform the adjustments that have to be made on the motor
drive or on the cine camera itself, as the case may be; these adjustments are given in Tables 1 ~4. Regardless of the shooting mode, confirm that the following takes place:

1. The pilot lamp of the transmitter lights up when power is switched on.
2. The pilot lamp of the receiver lights up to indicate operation is in progress.
3. The pilot lamp of the receiver turns off to indicate stop of operation.

For continuous or single-frame shooting with a motor-
driven F2 refer to Tables 7 and 2 on the next page; for an FM or' FE, see Table 3; for Nikon Super Zoom cine cameras, use Table 4.

With Motor-Driven F2 Nikons

Table 1 Settings and Operation for Motor-Driven F2 Nikons (with MD-1/2)

Shooting mode	Settings				Operation
	All F2 Nikons	MD-1/2 Motor Drives		ML-1 Receiver	MI-I Tunsmitter
	Shutter speed dlal	S/C knob	Firing spe:ed selector knob	S/C switch	Transmission button
Continuous	I/125-1/2000 „:c {mirror up) I/125-1/2000 sc, I/60-1/2000 Set. 1/8-1/2000 sec. 1/4-1/2000 .. „	C	H Ml M2 Ml L	C	Push 10 start shooting; push once more to stop
Smglr--framc	1-1/2000 sec. and 8	S	As desfrcd	C	•Push to tdgger shuner; push once more to advance film.
	I/125-1/2000 scc.	S	As desired	S	Push to trigger shutter and advance film.
	I/125-1/2000 sec. (mirror up) 1/125-1/2000 sec. I/60-1/2000 sec. I/8-1/2000 sec. 1/4-1/2000 scc.	C	H Ml M2 Ml L		

Table 2 (with MD-3)

Shooting mode	Settings			Operltion
	All F2 Nikons	MD-3 Motor Drive	M L-1 Receiver	ML-1 Transmitter
	Shutter speed dial	S/C knob	S/C switch	Transmission button
Continuous	1/BO- I /2000 sec.	C	C	Push to start shooting; push onc.e more to stop
Single-frame	1-1/2000 sec. and B	S	C	·Push to trigger 5hucter; push once more to advance film
	1/80-1/2000.. „	S	S	Push to trigger shurter and advance film
	1/80-1/2000 sec.	C		

*** Note: When using a slow shutter speed, don't push the transmission button the second time until the shutter closes completely.**

With B setting, second push also completes exposure of film.

With Motor-Driven FM and FE Nikons

Table 3 Settings and Operation for Motor-Driven FM and FE Nikons

Shooting mode	Settings				Operation
	FM	FE	MD-11 Motor Drive	ML•I Receiver	ML-1 Transmitter
	Shutter speed dial	Shutter speed dial	S/C ring	S/C swuch	Trvismission button
Continuous	1/2-1/l0OOsec.; 8 and 1 sec. can't be used.	AUTO, 8-1/1000 scc., M 90; B can't be used.	C	C	Push to start shooting; push once more to s:top.
Single-frame	1-1/1000 sec.; B un't be used.		S	C	·Push to trigger shutler; push once more 10 advance mm.
			S	S	Push *to* uiu;er shutter and 1dvance film.
			C	S	

*Note: When using a slow shutter speed, 1f you push the transm1ss1on button the second time before the exposure 1s completed, the film will not advance until the shutter closes.

With Nikon R10/RS Super Zoom cine cameras

Table 4 Settings and Operation for Nikon R10/R8 Super Zoom cine cameras

Shooting mode	Sewngs				Operation
	RS		RIO	ML-1 Receiver	ML-1 Tunsmiuer
	Running speed control diaf	S/C switch	Running speed conttol dial	S/C switch	Transmission button
Continuous	18,24,54	C	18,24,54	C	Push to start shooting; push once more lo stop (allow 1 sec. time las)
Singlc•frame	18	S	SF	S	Push to trigger shutter .1nd .tdvance film.

Note: The cine camera's automatic exposure control works only 1n continuous shooting; 1n single-frame shooting, set the camera at manual control.

MULTIPLE FLASH OPERATION

The ML-1 transmitter is not used in multiple flash photography; in this case, the Nikon SB-5 Speedlight Unit with Nikon SU-1 Sensor Unit mounted functions as the transmitter. You can use any number of speedlight units provided that the camera-connected unit is an SB-5 and that you have the corresponding number of receivers.

Setting up

Using the required sync cords, connect the speedlight units to the sync terminals of the ML-1 receivers.

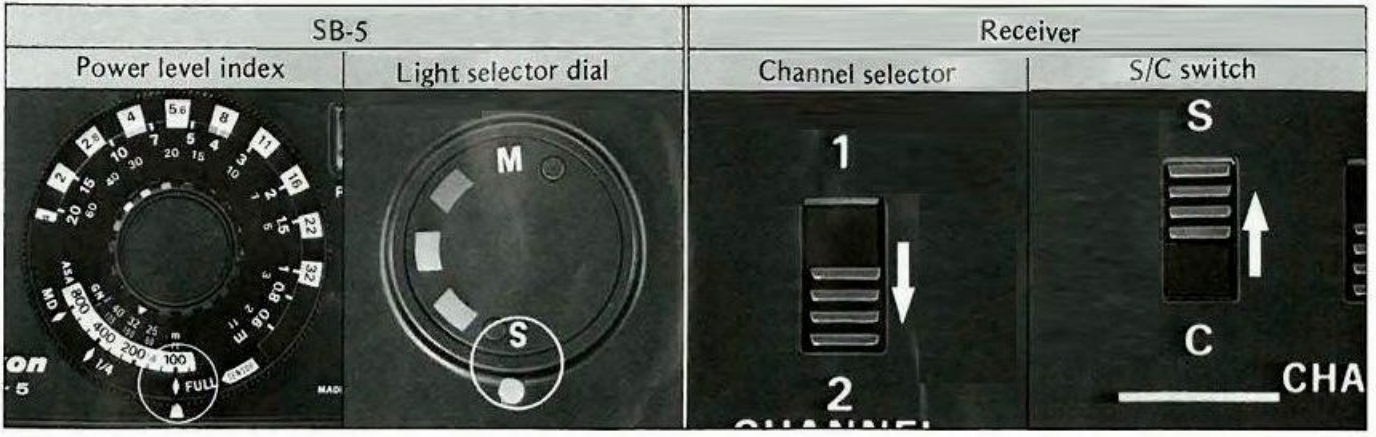
When mounting the receivers on tripods, make sure you remove the receivers' accessory adapters; in this case, set up the receivers and speedlight units as shown in the photos.

Operation

The receivers' channel selectors are all set to Channel 2 (Channel 1 is not usable). The S/C switches of the receiver are set to "S" ("C" is usable but more power is consumed at this setting). The Nikon SU-1 Sensor Unit is mounted on the SB-5-with the light selector dial of the SU-1 set to "S" and the power level index of the SB-5 to "FULL."

Exposure control

Since exposure is determined by various factors such as the number of speedlight units used, their directions and working distances, it is advisable to either use a flash meter or make your calculation using the guide numbers of the specific speedlights used and control exposure manually.


SB-5
Receiver
Power level index
Light selector dial
Channel selector
S/C switch
M
S
1
2
S
C
FULL
CHA

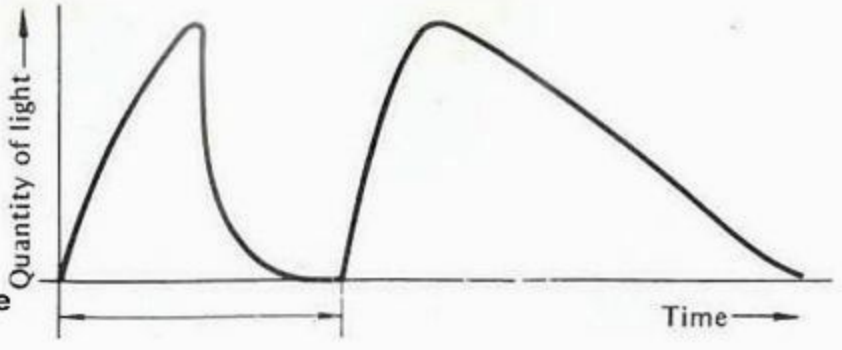
MULTIPLE FLASH OPERATION -continued

Flash synchronization

The ML-1's adoption of a unique modulated light sys- tem (see comparative chart below) assures that its oper- ation is not affected by the flash output of the other speedlight units in use. For flash synchronization with Nikon and Nikkormat cameras, refer to the table.

Important!

Nikon speedlight units perfectly match the electric voltage, current and sync circuit polarity of the ML-1 receiver; use of speedlight units of other make may cause the receiver to mal- function.



Type of camera	Shutter dial	Sync-contact
All Nikon F2's	1/60 sec. or slower	Built-In selector controls speedlight sync adjustment automatically as shutter speeds change.
Nikon FM		
Nikon FE	1/60 sec. or slower, M 90 {manual)	
Nikon El2	1/60 sec. or slower	
Nikkormat FT2 and FT3		
Nikon F Photomic FTN	1/30 sec. or slower	**lift** knurled sync selector ring and turn shutter-speed dial until FX mark appears in selector window. {Photomic FTN finder must be remove t:>reachync selector ring.)
Nikkormat EL, ELW	1/60 sec. or slower (manual)	**lift** milled ' .ctor ring and turn sh, ·ed dial until lighting syml .) appears in selector wincto.v.
Nikkormat FTN	1/60 sec. or slower	Connect sync socket of speedlight 10 X terminal on camera body with accessory cord.

Note: No adjustment is necessary for Nikon R1O/R8 Super Zoom cine cameras.

FEATURES/SPECIFICATIONS

Maximum working distance: 60m (196.8 ft) along the optical axis
Number of operation channels: 2
Transmission interval: Variable from 1 to 5 sec.
Number of flashes
(When fired every five seconds)
High-rate manganese battery: Approx. 300
Alkaline manganese battery: Approx. 750
Flash angle: 30° x 40°
Light reception angle: Approx. 60° (diagonally) with hood mounted or approx. 100° (diagonally) without hood mounted (subject to variation, depending on the surrounding conditions)
Continuous standby time of receiver: Approx. 9 hours Power source
Transmitter: Four 1.5V AA-type penlight batteries Receiver: One 9V laminated dry battery
Dimensions
Transmitter: 40 x 40 x 130mm (1.5 x 1.5 x 5.1 in.)
Receiver: 50 x 62 x 80mm (1.9 x 2.4 x 3.1 in.)
Weight
Transmitter: Approx. 130g (with'out battery)
Receiver: Approx. 170g (wi• nut battery; with hood and accessory adapter

Optimum battery performance

1) Buying batteries: Between the ime of their manufacture and the time they are first used, all batteries are subject to some degree of drain. Always purchase the newest-and freshest-units. Make sure you check the date of manufacture usually stamped by battery manu- facturers on the bottom of each unit;if this is done in codes, ask your camera dealer to interpret the codes for you.
2) Battery life: Ratings are based on operation at 20°C (68°F);at other temperatures, battery life is shortened. This is especially true of extremely low temperatures- e.g., at 0°C (32°F) a battery's life is shortened to 1/3 of its rating. At low temperatures, spare batteries should thus be available, or corrective action should be taken to warm the batteries.
3) Continuous use: Batteries recover some charge in-between use. Battery life can thus be increased by using the batteries intermittently rather than continuously.
4) Storage: Make it a point to remove batteries when they are not in use to minimize drain or prevent damage to equipment due to leakage. Store batteries not in use in a cool, dry place; this will further help minimize drain.
5) "Mixing" batteries: Never use different brands of batteries together, batteries with different model numbers, or old batteries with new ones. Otherwise, equipment-damaging leakage may result.
6) Polarity: When installing batteries, observe voltage polarity; reversal of positive (+) and negative (-) terminals in installation will result in leakage. In case of leakage, it is advisable to take the equipment to your dealer.

(Nikon)

NIPPON KOGAKU K.K.

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Nikon ルミコントロール

ML-1

カメラの種類	シャッターダイヤル
すべてのニコンF2	1/60 sec. or slower
ニコンFM	
ニコンFE	1/60 sec. or slower, M 90 (manual)
ニコンEL2	1/60 sec. or slower
ニコマートFT2およびFT3	
ニコンFフォトミック FTN	1/30 sec. or slower
ニコマートEL、ELW	1/60 sec. or slower (manual)
ニコマートFTN	1/60 sec. or slower

注:Nikon R1O / R8スーパーズームシネカメラは調整の必要はありません。

はじめに

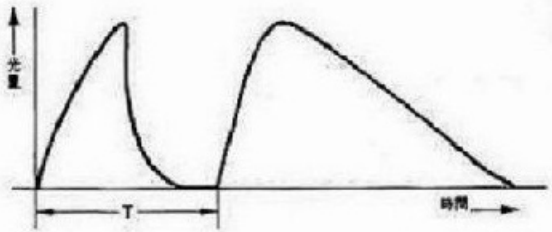
このたびは、ニコンルミコントロールML-1をお買い上げいただき、ありがとうございました。

この製品は、送信機と受信機で1組になっており、送信機の変調発光を利用し、受信機に接続したモータードライブ付ニコンF2シリーズカメラ、あるいはR8/R10スーパーズームをワイヤレスで遠隔操作するものです。また、センサーユニットSU-1を取りつけたニコンスピードライトSB-5を変調発光させ、受信機に接続した他のスピードライトをワイヤレスで増灯発光させることもできます。

変調発光とは短時間に発光を2度行なわせるもので、一般のスピードライトとは発光波形の異なるものです。(下図参照)

ML-1の受信機は変調発光にのみ、しかも、送信機のT時間と受信機のT時間が合った時にのみ作動するようになっていますので、一般のスピードライト光による誤作動の心配はほとんどありません。ML-1はT時間が2種類(2チャンネル)選択できるので、2組のML-1を使用して2台のカメラを、他方の変調発光の影響をほとんど受けることなく、1台ずつ遠隔操作をすることができます。

操作法を十分に理解してからお使いくださるようお願い申しげます。



各部の名称

カセット式電池ケース

送信ボタン

アクセサリーシュー

電池蓋ふた

シンクロソケット

出力端子

S-C切替えスイッチ　S:1コマ撮影　C:連続撮影

チャンネル切替えスイッチ

三脚ねじ穴

電源スイッチ

ネオンランプ

チャンネル切替えスイッチ

送信部

受信表示ランプ

電池チェックボタン

電源スイッチ

ラード(着脱式)

受信部

受信機用アダプター

送信機には単三電池4個、受信機には9Vの006P電池1個を使用