

◆ 0.4 Super LoLux
lux

TK-C1480E

1/2" HIGH RESOLUTION COLOUR VIDEO CAMERA



Product Guide

JVC
PROFESSIONAL

CONCEPT

New TK-C1480E series

When JVC introduced its TK-1280E series and TK-C1380E series to the 1/2" camera market, they are widely accepted and recognized as standard-setting cameras.

The new TK-C1480E series, which is to maintain market leadership, adopts newly developed DSP and CCDs, which feature much higher sensitivity, as well as more functions than its predecessor, the TK-C1380E series. Added functions include: backlighting and remote surveillance with RS-422A/RS-485 communications.

Features

Using the 1/2-inch EXVIEW CCD permits sensitivities of 0.8 lux (F 1.2, 50%) and 0.4 lux (F 1.2, 25%). When combined with the slow shutter function, these are increased to 0.025 lux (F 1.2, 50%) and 0.0125 lux (F 1.2, 25%), respectively.

Until now it has been difficult to clearly distinguish between bright and dark subjects in the same view. With the introduction of JVC's newly developed DSP this shortcoming no longer exists, making 24-hour surveillance possible.

For remote camera parameter setting in repeat surveillance communication, RS-422A/RS-485 standards are provided. An easy-to-use parameter setup menu and high-quality shooting with no backlight, both of which are popular functions of the TK-C1380E, are also adopted by the new series.

- 1/2" IT 440,000-Pixel CCD
- Super LoLux
- 480 TV Lines
- S/N 50dB
- ExDr (Extended Dynamic Range function)
- Motion Detection
- RS-422A/RS-485 Communication
- Auto Black ON/OFF
- Slow Shutter for High Sensitivity
- It's Able to Control by RM-P2580



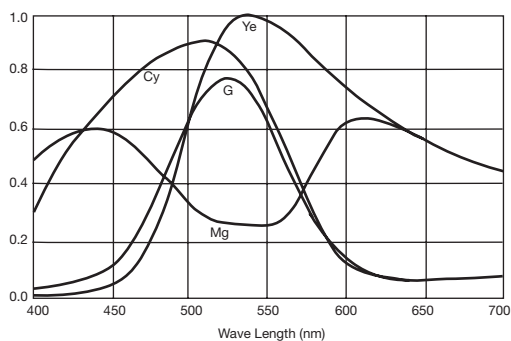
DETAILED FEATURES

Super LoLux Sensitivity

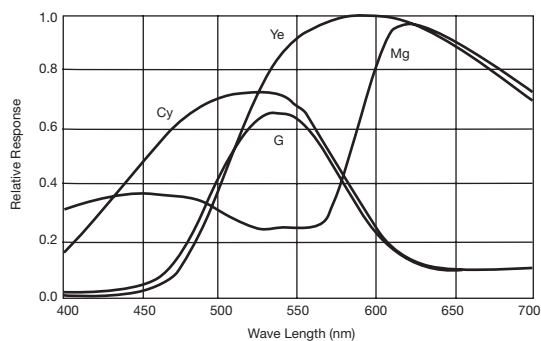
Using a new high-sensitivity CCD permits Super LoLux photography.	
TK-C1380E	TK-C1480E
0.95 lux, 25%	0.4 lux, 25%
2.0 lux, 50%	0.8 lux, 50%
	0.025 lux (50% at slow shutter x32)
	0.0125 lux (25% at slow shutter x32)

Spectral Response

TK-C1380E (Conventional CCD)



TK-C1480E (EXVIEW CCD)



Because there is a difference in the spectral response of the CCD between TK-C1380E and TK-C1480E, the same color reproduction is difficult to obtain. (Of course, we have tried to adjust the color matrix of the TK-C1480E so that it is as close as possible to that of TK-C1380E.)

DETAILED FEATURES

ExDr

ExDr mode: This is the shutter mode for a subject for which strong light and normal (or low) light conditions coexist.

The ExDr mode is divided into two further modes:
Manual ExDr mode and Auto ExDr mode.

❶ Manual ExDr mode:

Selectable high speed shutter

★ 1/500 to 1/20,000

Other Competitors style: Fixed

Variable contrast level

★ +5 to -5

★ Minus (-) direction: The iris is set at strong light.

★ Plus (+) direction: The iris is set at low light.

Other Competitors style: Auto only

❷ Auto ExDr mode:

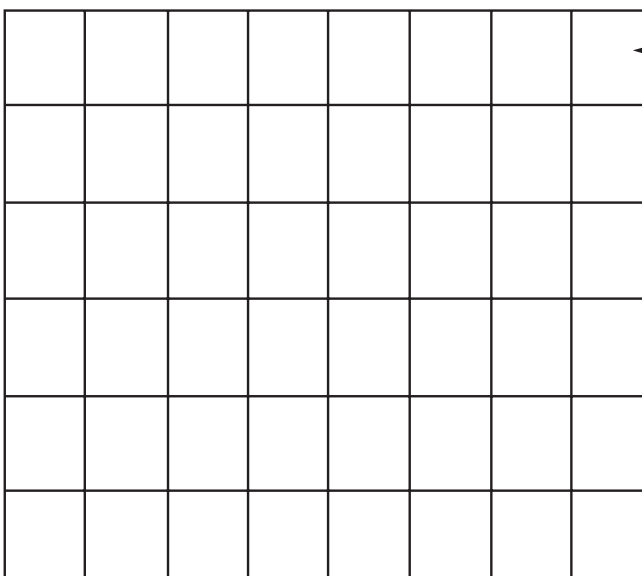
The iris at the strong light portion and at the low light portion can be automatically detected and the results are combined to determine the required shutter speed.

Variable contrast level

★ +5 to -5

★ Minus (-) direction: Adjusted for strong light

★ Plus (+) direction: Adjusted for low light



48 area

Auto peak detect → auto shutter



JVC's positioning compared to competing companies

JVC TYPE (ExDr)

EXPANDABILITY SYSTEMS

CCD: SELECT ANY CHIP FROM MARKET

DSP & SOFTWARE: JVC EXCLUSIVE DSP & SOFTWARE



OTHER MANUFACTURERS' TYPE

CLOSED CIRCUIT SYSTEMS

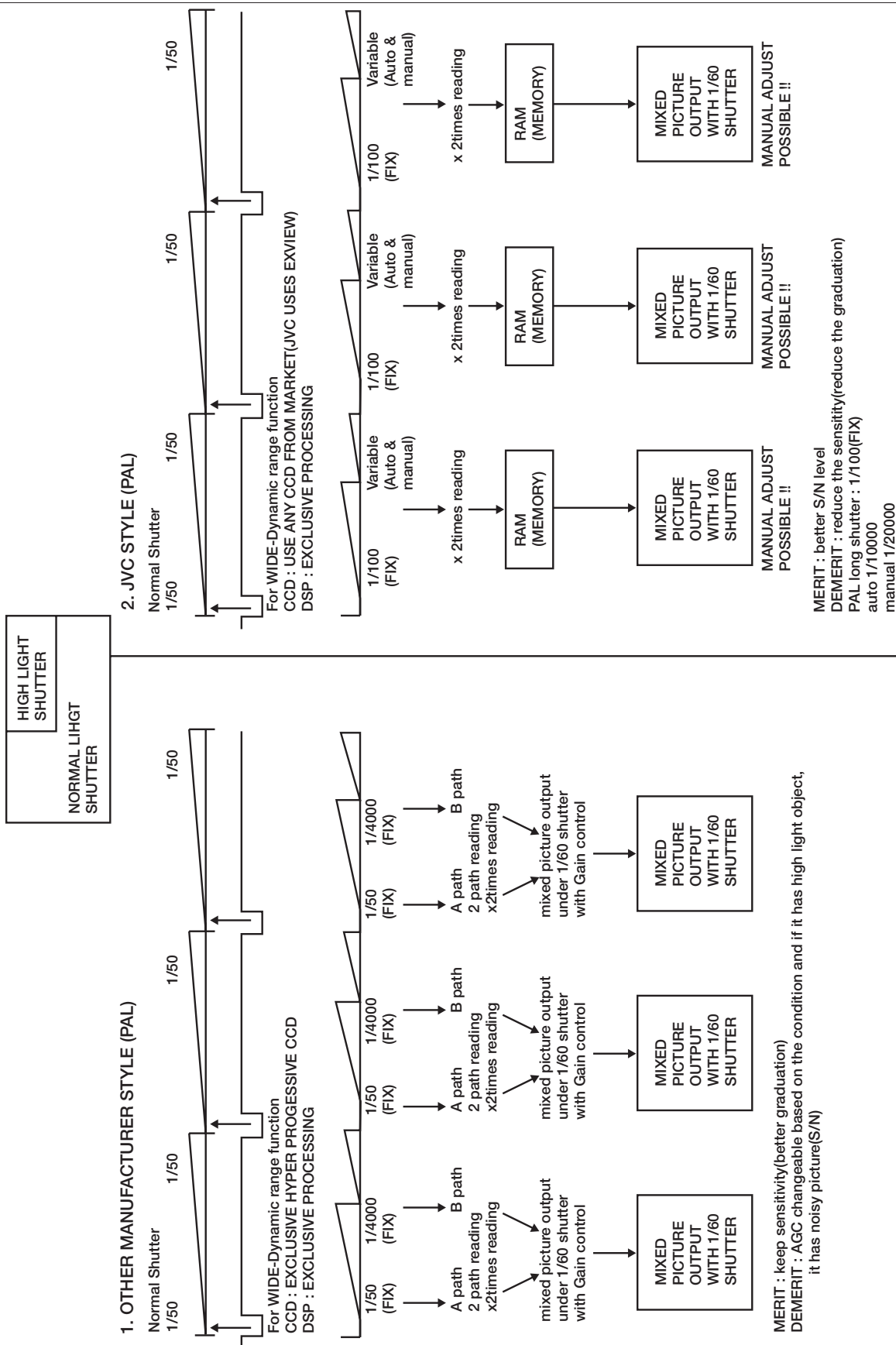
CCD: EXCLUSIVE CCD

DSP & SOFTWARE: EXCLUSIVE DSP & SOFTWARE

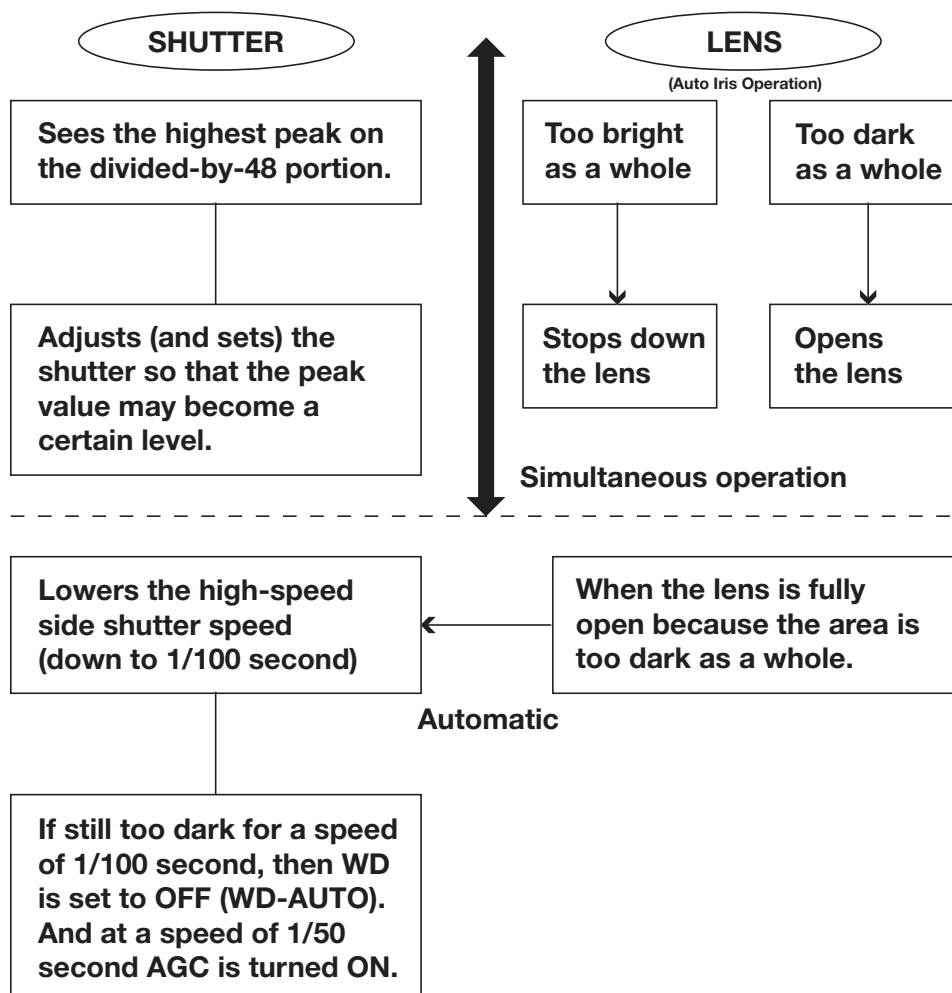


DETAILED FEATURES

DIFFERENCE BETWEEN OTHER MANUFACTURER AND JVC TYPE FOR WIDE-DYNAMIC RANGE



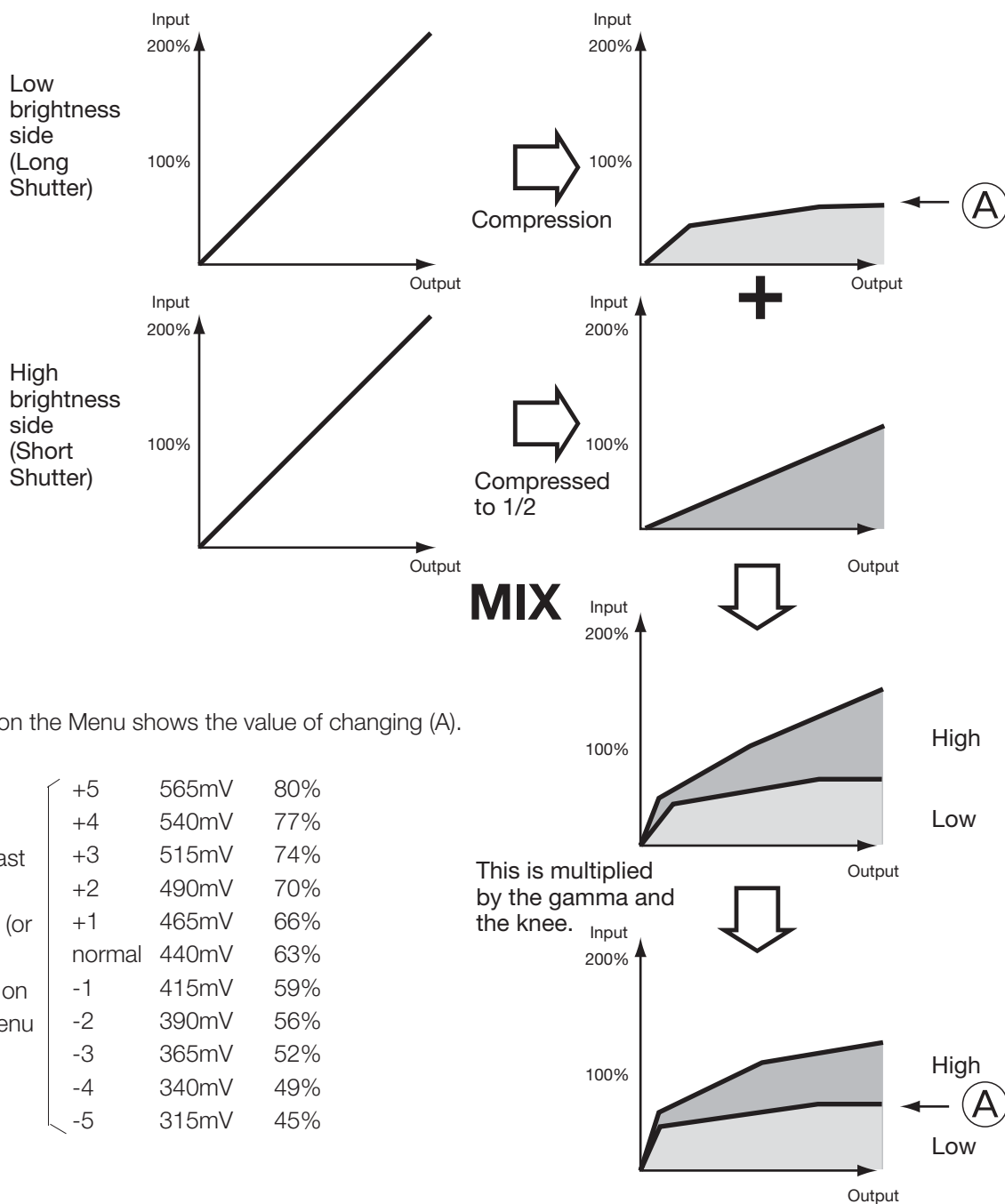
High-speed side shutter operation for ExDr-AUTO



(Note) Slow shutter mode is not available for WD-ON and manual operation.
 Auto Exdr, Auto and Normal modes are available for Sense Up operation.
 Manual Exdr and Manual modes are not available for Sense Up operation.

DETAILED FEATURES

Contrast MIX method (or Contrast Mixing)



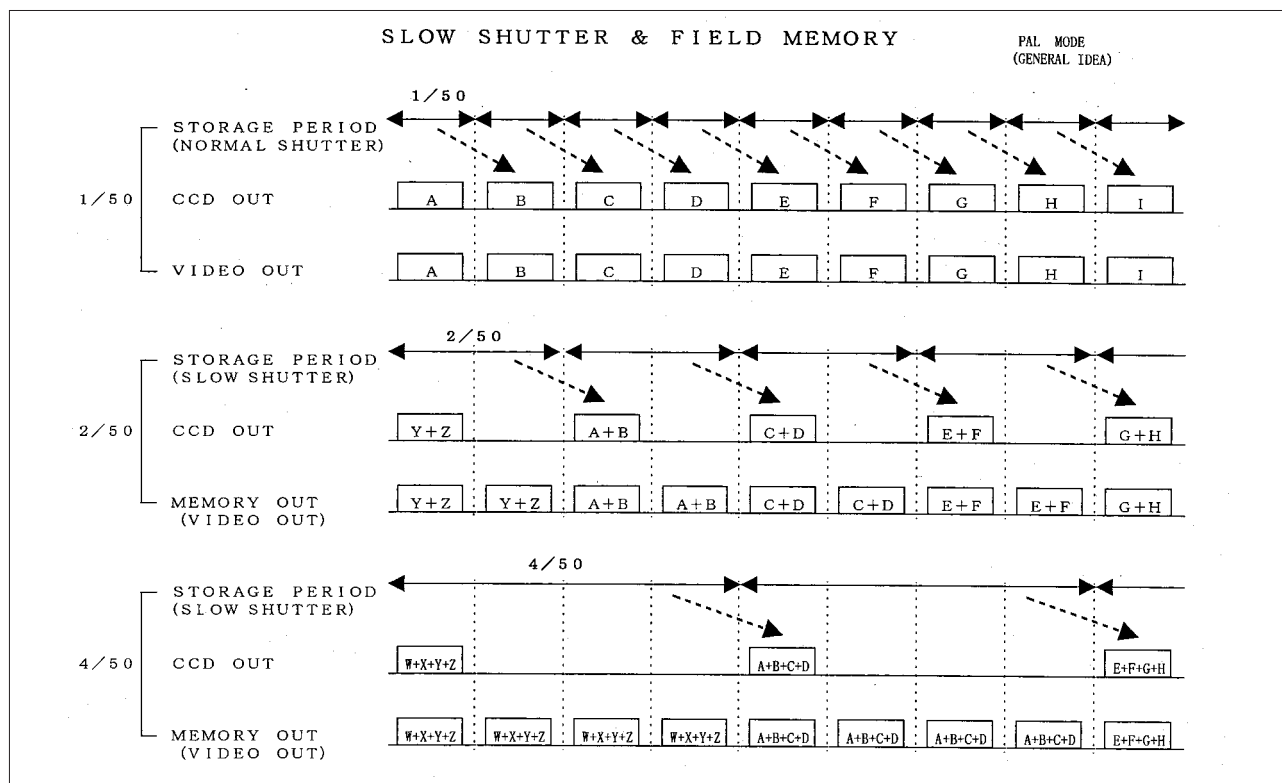
Level on the Menu shows the value of changing (A).

Contrast level adjust (or adj.) menu on the Menu	+5	565mV	80%
	+4	540mV	77%
	+3	515mV	74%
	+2	490mV	70%
	+1	465mV	66%
	normal	440mV	63%
	-1	415mV	59%
	-2	390mV	56%
	-3	365mV	52%
	-4	340mV	49%
	-5	315mV	45%

*A place where low brightness is detected

Slow Shutter

Available (selectable) modes are: Off, x2, x4, x8, x16, x24 and x32. The same picture is stored in multiple fields to obtain increased sensitivity.



In this case a decrease of resolution of 50% results when only even fields are used (odd fields are not used).

P.S. Priority Mode

The slow shutter speed can be used when AGC is ON.

① Motion

AGC is turned ON first, followed by slow shutter-ON.

(Motion picture priority mode)

② Picture

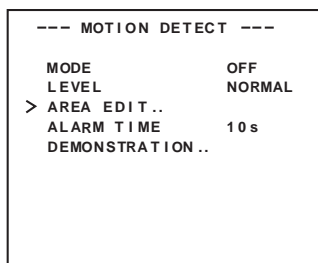
If AGC is turned ON first, noise tends to be introduced.

To prevent noise slow shutter is turned ON prior to turning AGC ON. If, however, the prime requirement is sensitivity, AGC is turned ON first (with no consideration given to increased noise).

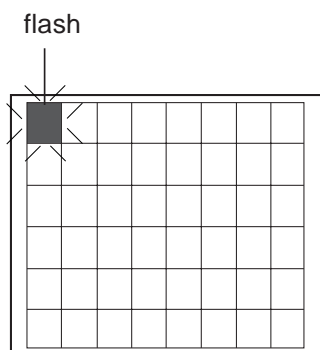
DETAILED FEATURES

Motion Detect

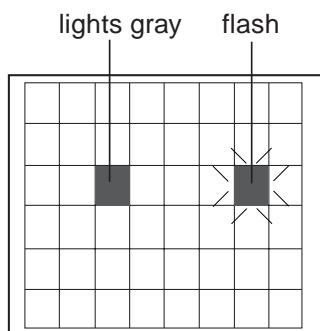
It is possible to set freely the area where MOTION DETECTING functions.



MOTION DETECT screen



Setting screen



1. Select the item AREA EDIT on the MOTION DETECT screen.
2. Press the SET button.
The setting screen is brought up.
3. Select the area not subject to detection using the button.
The area flashing ON and OFF in black and white moves.
4. Press the SET button.
The area not subject to detection is set, and it turns gray (lights up).
To cancel the set area, press the SET button again.
5. Repeat items 3 and 4 above.
6. Upon completion of setting, press the MENU button.
The screen returns to the MOTION DETECT menu.

MEMO

Indicated positions on the screen are rough guides.

Be sure to check and conform the positions on the actual screen.

* It is possible to check and confirm the set areas on the DEMONSTRATION screen.
The detection area is shown in gray.

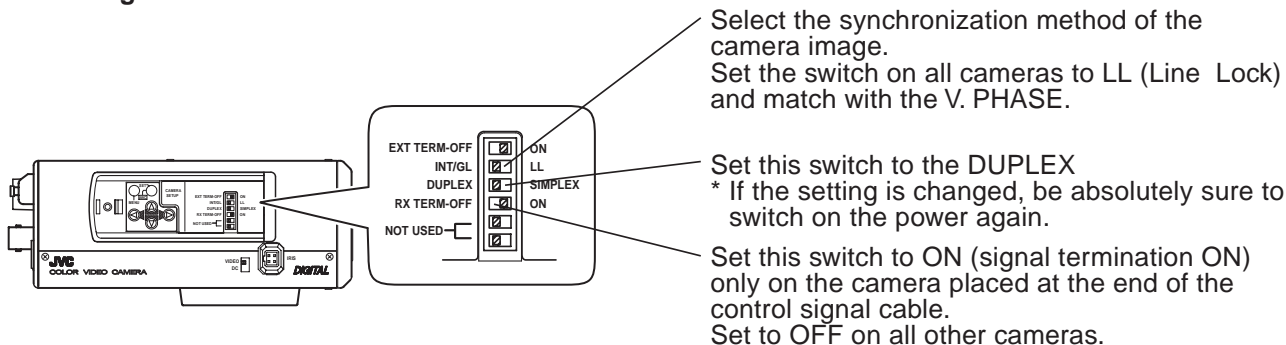
Be sure to make the necessary settings prior to connection.



DETAILED FEATURES

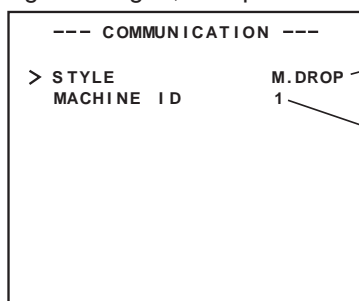
Connect cables as shown below.

■ Setting the switches



■ Setting on the MENU screen

* If the setting is changed, escape from the menu screen once, and definitely switch on the power again.



Set to M.DROP

Set to M.DROP when the RM-P2580E is used as a remote control unit. When controlling from another machine, make sure that it matches the communication system used.

MACHINE ID setting switches

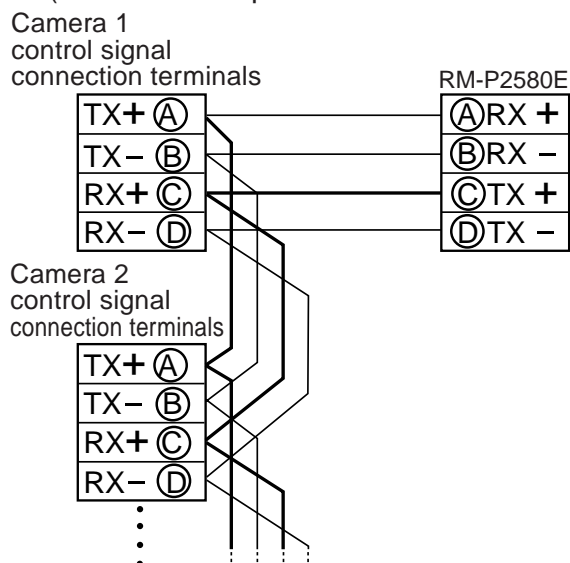
Set this item to match the RM-P2580E VIDEO INPUT terminal number for each camera.

When connecting

- Turn OFF the power supply to all equipment to be used before making connections.
- Carefully read the Instructions for each piece of equipment to be used before making connections.
- For the appropriate connection cables and the length of these, carefully read "Connections on the back" on page 16 of Instruction Manual.
- The control signal cable cannot be used for loop connection.

■ Connecting the control signal cable

(Use a twisted-pair cable for connection.)



Connect:

Camera TX+ to RM-P2580E RX+
Camera TX- to RM-P2580E RX-
Camera RX+ to RM-P2580E TX+
Camera RX- to RM-P2580E TX-
The (A) (B) (C) (D) marks indicated on both the camera terminals and the RM-P2580E terminals facilitate correct connections. Connect the terminals with identical marks.

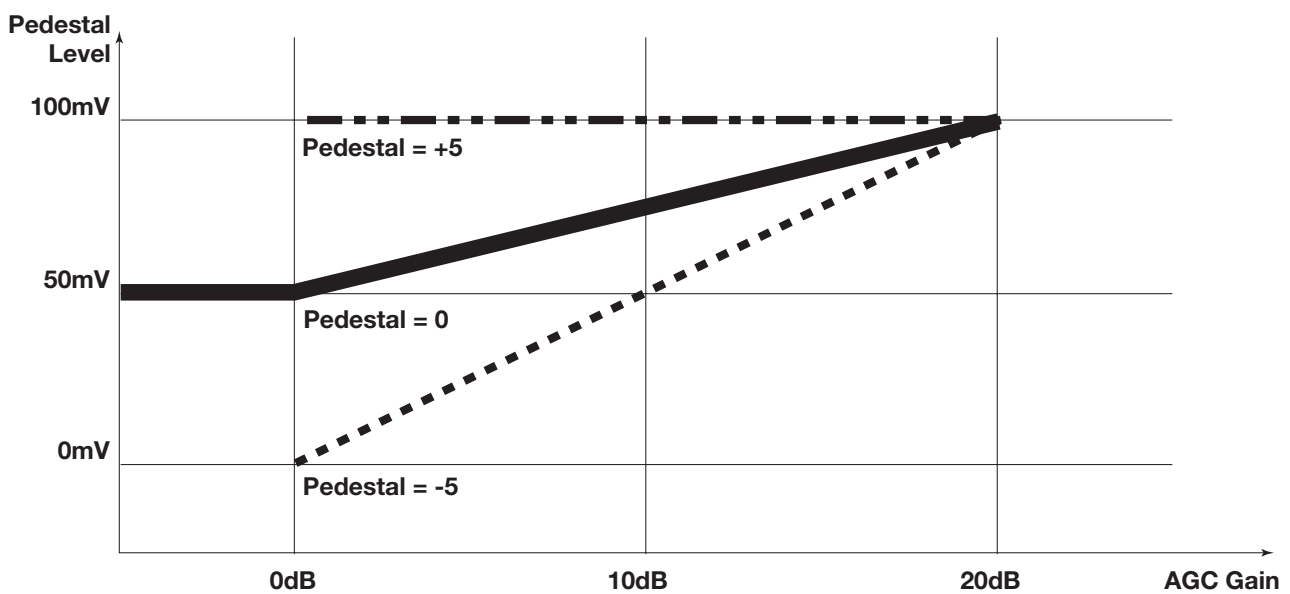
Auto Black

Using the Auto Black function the pedestal level can be controlled automatically when AGC is turned ON.

Auto Black Operation (or Control) (ON)

Changes the SET UP (default of pedestal) position in accordance with the AGC gain.

The SET UP position stays at +5 (100 mV approx.) for a PEDESTAL-on-the-MENU of +5 (Max.) irrespective of the AGC, while it varies from -5 (0 mV) to +5 (100 mV) in accordance with the AGC gain for a PEDESTAL-on-the-MENU of -5.



The thick line indicates the default (set at factory)
Pedestal Setting (Pedestal = 0) + AGC ON (GAIN = 20dB).

DETAILED FEATURES

White Balance Adjustment

Two white balance modes available to use by TK-C1480.

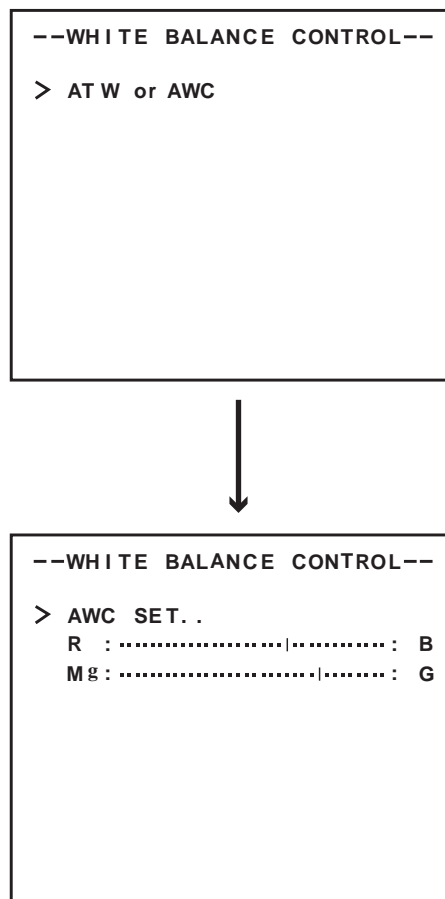
1. ATW - Automatic White Balance (Auto mode)

Always white balance traced depending on the colour temperature

2. AWC - Automatic White Balance control (one push mode)

It's able to have white balance each object scene. Also sometimes there might be not able to have white balance with ATW. Such case, please use AWC.

After that, manual painting possible (2Axis) with set up by user.



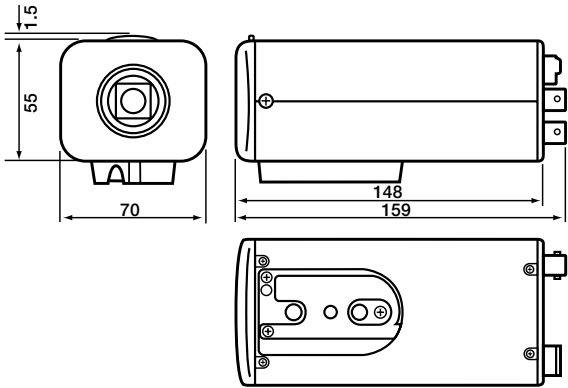
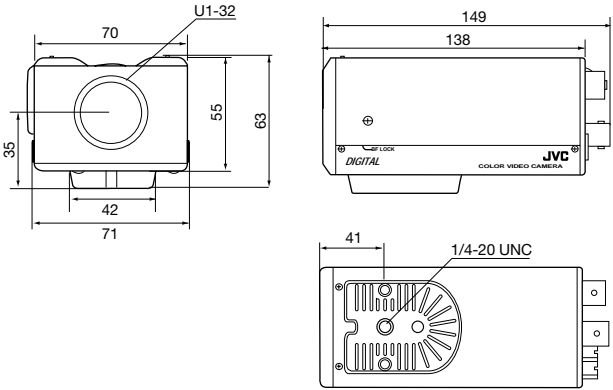
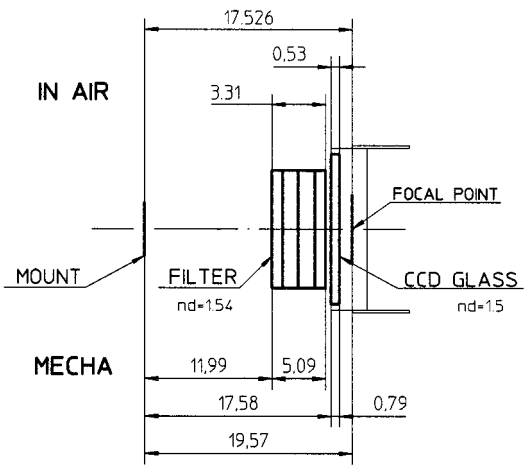
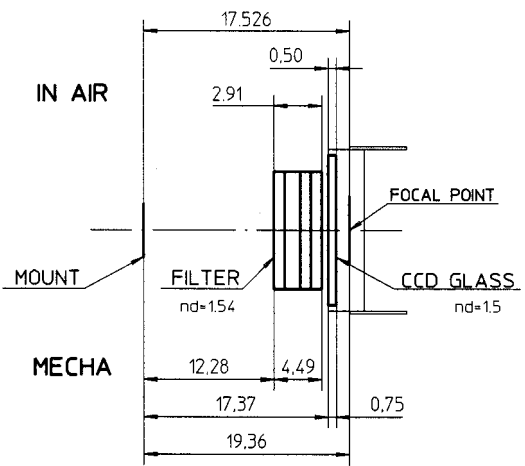
In addition, AWC is possible by pushing set button (apx.2sec) on the side switches of camera.

COMPARISON

SPECIFICATION	TK-C1380E	TK-C1480E/1481EG
Image Sensor	1/2"	1/2" Super LoLux Type
Number of Pixels	752 (H) x 582 (V)	752 (H) x 582 (V)
Video S/N Ratio	48dB (AGC OFF)	50dB (50%, AGC OFF)
Minimum Illuminations	2.0 lux (50% F1.2 AGC ON) 0.95 lux (25% F1.2 AGC ON)	0.8 lux (50% F1.2 AGC ON) 0.4 lux (25% F1.2 AGC ON)
Sync Method	Internal Line-Lock Full Genlock	Internal Line-Lock Full Genlock
L.Lock Phase Adjust	YES	YES
H Phase Adjust	YES	YES
SC Phase Adjust	YES	YES
Horizontal Resolution	470 TV Lines	480 TV Lines
Video Output	Composite video signal	Composite video signal
Y/C Output	YES	YES
White Balance	ATW MANUAL	ATW AWC (Paint possible)
AGC	OFF/9dB/18dB/Super AGC	OFF/10dB/20dB/Super AGC
BLC	ON/OFF 6 patterns (2 edits)	ON/OFF 6 patterns (2 edits)
AES	1/50 — 1/100,000 sec. (ON/OFF switchable)	1/50 — 1/100,000 sec. (ON/OFF switchable)
Electronic Shutter	1/100, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000 sec.	1/100, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000 sec.
Camera ID	24 characters	24 characters
Set-Up Menu	ENHANCE, IRIS, COLOUR, HUE, PEDESTAL, Av:Pk Levels	ENHANCE, IRIS, COLOUR, PEDESTAL, Av:Pk Levels
Wide Dynamic	NO	YES
Dynamic Range		200X (Max. at Auto) 400X (Max. at Manual)
Digital Zoom	NO	NO
Slow Shutter	NO	YES (Max.: X32)
IR ON/OFF	NO	NO
Communication	NO	YES (RS-422A/RS-485 by menu)
Lens	Video iris (rear) DC iris (side)	Video iris (side 4-pin switch) DC iris (side 4-pin switch)
Lens Mount	C/CS mount	C/CS mount
Ambient Temperature	-10°C to 50°C (operation) 0°C to 40°C (recommend)	-10°C to 50°C (operation) 0°C to 40°C (recommend)
Ambient Humidity	Less than 90%	Less than 90%
Weight	640g	580g
Power Requirement	DC12V/AC24V/AC230V	DC12V/AC24V/AC230V (1481EG)
Dimensions (H x W x L)	67 x 70 x 148 mm	63 x 70 x 138 mm

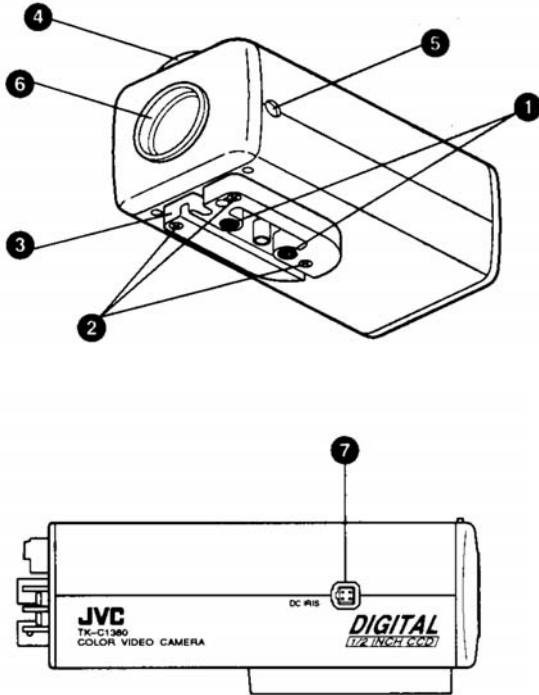
COMPARISON

Dimensions (Unit: mm)

TK-C1380E	TK-C1480E
 <p>Front view dimensions: 55 (height), 70 (width), 1.5 (top flange thickness).</p> <p>Side view dimensions: 148 (body length), 159 (total length including mounting bracket).</p> <p>Bottom view shows mounting holes and connector pins.</p>	 <p>Front view dimensions: 70 (width), 55 (height), 63 (total height including mounting bracket), 42 (base width), 71 (base length), 35 (bottom flange thickness). Mounting hole: U1-32.</p> <p>Top view dimensions: 149 (width), 138 (length).</p> <p>Bottom view dimensions: 41 (width), 1/4-20 UNC (mounting hole).</p>
 <p>IN AIR</p> <p>MOUNT</p> <p>MECHA</p> <p>FILTER (nd=1.54)</p> <p>FOCAL POINT</p> <p>CCD GLASS (nd=1.5)</p> <p>Dimensions (mm): 17.526 (total length), 0.53 (glass thickness), 3.31 (mounting offset), 11.99 (filter to focal point), 5.09 (focal point to glass), 17.58 (mount to glass), 19.57 (mount to focal point), 0.79 (glass to focal point).</p>	 <p>IN AIR</p> <p>MOUNT</p> <p>MECHA</p> <p>FILTER (nd=1.54)</p> <p>FOCAL POINT</p> <p>CCD GLASS (nd=1.5)</p> <p>Dimensions (mm): 17.526 (total length), 0.50 (glass thickness), 2.91 (mounting offset), 12.28 (filter to focal point), 4.49 (focal point to glass), 17.37 (mount to glass), 19.36 (mount to focal point), 0.75 (glass to focal point).</p>

CONTROLS, CONNECTORS AND INDICATORS

TK-C1380E



1 Camera Mounting Holes (1/4-inch)

Use one of these threaded holes when mounting the camera on a mount or turret. Two threaded holes are provided on the front and rear and can be selected according to the circumstance.

2 Camera Mounting Bracket Locking Screws (x3: M2.6x5mm)

Do not use any screw longer than 5 mm.

3 Camera Mounting Bracket

The bracket has been attached on the bottom of the cameras before shipment. It can also be attached on the top according to the circumstance.

To re-attach the bracket use the threaded holes at the top, with the 3 camera mounting bracket locking screw 2.

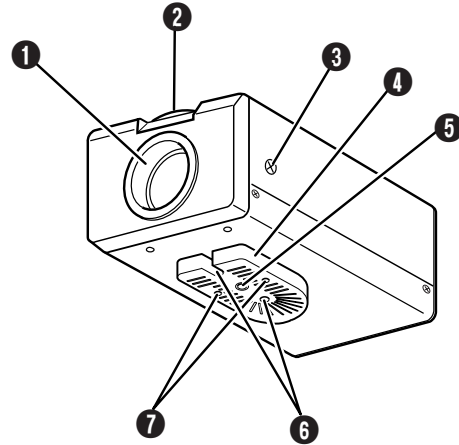
4 Backfocus Adjustment Ring

This ring both allows the adjustment of the backfocus to and switch as the lens mounting method C and CS. Loosen the BF LOCK screw 5 by turning it counterclockwise before turning this ring, and be sure to secure screw 5 by turning it clockwise after turning this ring. The TK-C1380/TK-C1381 has been adjusted to the optimum position for the C mount before shipment.

5 [BF LOCK] Backfocus Locking Screw

This screw locks the backfocus adjustment mechanism.

TK-C1480E



1 Lens Mount

This means to attach the lens.

This is applicable to both the C-mount lenses (1/2 inch) and CS-mount lenses (1/2 inch).

2 Backfocus Adjustment Ring

Adjusting the back focus during lens installation.

When readjustment is required, loosen the locking screw 3 by turning it counterclockwise and turn the back focus adjustment ring 2.

After the adjustment, tighten the locking screw 3 again.

The TK-C1480 has been adjusted to the optimum position for the C-mount system before shipment.

3 [BF LOCK] Back Focus Locking Screw

This serves to fix the back focus-adjusting ring.

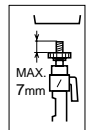
4 Camera-Mounting Bracket

The bracket has been attached on the bottom of the camera before shipment. It can also be attached on the top according to the circumstance.

To re-attach the bracket use the threaded holes at the top, with the camera mounting bracket locking screws 2.

5 Camera-Mounting Screw Hole (1/4 inch)

Use this hole when mounting the camera onto a fixer, pan/tilt unit, and the like. (Use a screw shorter than 7 mm.)



6 Rotation-Preventive Hole

Make use of this rotation-preventive hole to prevent any fall when mounting the camera. Make sure that the camera is securely mounted.

7 Camera Mounting Bracket Fixing Screws (x2: M2.6 x 5 mm)

Do not use any screws longer than 5 mm.

CONTROLS, CONNECTORS AND INDICATORS

TK-C1380E

6 Lens Mount

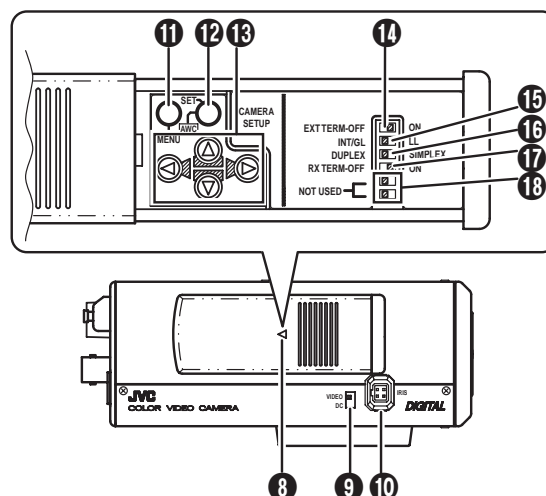
The lens mount is compatible with C-mount lenses (1/2 and 2/3 inches) and CS-mount lenses (1/2-inch).

7 [DC IRIS] DC Iris Connector

Connect to an auto-iris lens which does not incorporate an EE amplifier.

These functions such as 11 – 14 of TK-C1480E are not available on TK-C1380E.

TK-C1480E



8 Cover

The cover opens if it is pulled to the left while being pushed.

9 [VIDEO/DC] Iris Selector Switch

This is set according to the type of lens when an automatic iris control lens is used.

VIDEO: In case of lens with EE amp built-in.

DC: In case of lens without EE amp built-in.
(VIDEO: At time of factory shipment)

10 [IRIS] Iris Terminal

This is connected to an automatic iris control lens.

11 [MENU] Menu Button

When the button is pressed, a menu screen is brought up.

12 [SET/AWC] Set. Auto White Control Button

SET: Press this button to display a sub-menu.

AWC: If this button is kept pressed for more than 1 second, a one-push-auto-white-balance function works and sets the white balance. Once it is set, even if colour temperature changes, white balance does not change. It is also possible to make fine adjustments on the set white balance.

13 [▲, ▼, ◀, ▶] Up-and-Down, Left-and-Right Button

These buttons select items on the menu screen and change a set value.

14 [EXT.TERM-ON/OFF] Terminal On/Off Switch of External Synchronization Signal

This is a terminating ON/OFF switch for the external synchronization input signal.

When this is switched ON, termination is executed via a 75 Ω resistor.

ON: terminates at 75Ω.

OFF: does not terminate at 75Ω.

(ON: At time of factory shipment)

TK-C1380E

8 [SYNC IN] Sync Signal Input Connector

This BNC connector accepts the input of an external sync signal such as a composite video (VBS) or black burst (BB) signal. When a sync signal is input into this connector, the camera operation is automatically synchronized with the external sync signal.

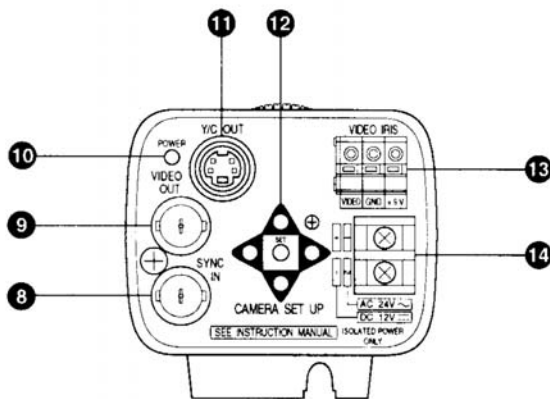
The 75-ohm termination of this connector can be switched on/off on the menu screen as required.

9 [VIDEO OUT] Video Signal Output Connector

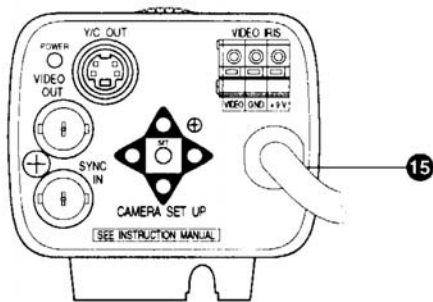
This BNC connector outputs a composite video signal. Connect this to the video input connector of a video monitor, switcher, etc.

10 [POWER] Power Indicator Lamp

This lights when power is supplied to the camera.



TK-C1380



TK-C1381

TK-C1480E

15 [INT/GL, LL] Selector Switch for Synchronizing System

This switch can set a synchronizing system of the camera.

INT/GL:

This is set for internal synchronization (INT) or external synchronization (GL).

LL (Line Lock):

The camera's vertical synchronization is locked to the AC 24V power line frequency.

When switching between multiple cameras using a switcher, selecting this mode and adjusting the vertical phase can reduce the monitor sync disturbances occurring when the camera image is switched. (This cannot be used in regions where the power frequency is 50 Hz.) (INT/GL: At time of factory shipment)

16 [DUPLEX, SIMPLEX] Selector Switch for Transmission System

If the setting is changed, be absolutely sure to switch on the power again.

DUPLEX:

This switch sets to DUPLEX when the transmission between the camera and a remote control unit is in a duplex system (two-way).

SIMPLEX:

This switch sets to SIMPLEX when the transmission between the camera and a remote control unit is in a simplex system (one-way).

(DUPLEX: At time of factory shipment)

17 [RX.TERM-ON/OFF] RX Signal Terminal ON/OFF Switch

This sets whether or not the signal between RX + and RX – on the back 20 should be terminated at the value of 110Ω resistance.

ON: terminates.

OFF: does not terminate.

If the system including the camera is the M.DROP (Multi-drop, RS-485) system, only the camera mounted at the terminal of control signal cable is set to "ON" and the other camera is set to "OFF". In case of the M.DROP system, it becomes necessary to set the Machine ID.

If the system including the camera is the P TO P (Point to Point, RS-422A) system, set this switch of all the cameras to "ON".

The item STYLE on the COMMUNICA-TION screen sets M.DROP or P TO P

(ON: At time of factory shipment)

18 NOT USED

This cannot be used. Do not switch.

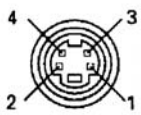
CONTROLS, CONNECTORS AND INDICATORS

TK-C1380E

11 [Y/C OUT] Y/C Output Connector

This 4-pin connector outputs the luminance and chrominance signal.

Pin configuration of Y/C OUT connector



Pin No.	Signal
1	GND
2	GND
3	Luminance (Y, 1 V(p-p), 75-ohm)
4	Chrominance (C, 0.286 V(p-p), 75-ohm), NTSC Chrominance (C, 0.3 V(p-p), 75-ohm), PAL

12 [CAMERA SET UP] Camera Set-up Screen Operation buttons

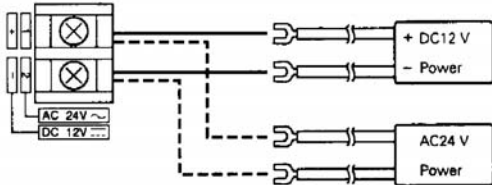
These buttons are used in the set-up operations.

13 [VIDEO IRIS] Video Iris Connector

Connect to an auto-iris lens incorporating an EE amplifier.

14 [DC12V/AC24V] Power Input Connector (TK-C1380E only)

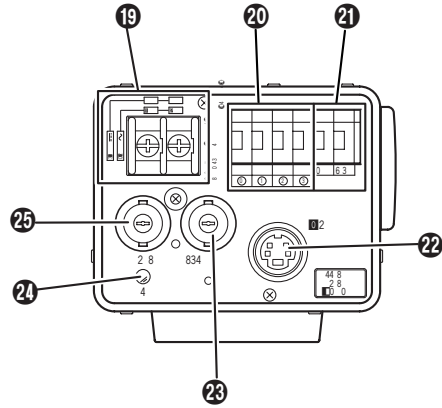
Connect a DC 12 V \pm 10% or AC 24 V \pm 10%, 50/60 Hz power supply.



15 Power Cable (for TK-C1381EG only)

Connect to the commercial AC 230V outlet

TK-C1480E



19 [DC 12V, AC 24V] Power Input Terminals

To input DC 12V or AC 24V power.

20 [TX+ (A), TX- (B), RX+ (C), RX- (D)] Control Signal Connection Terminals

Terminals for inputting signals with electrical characteristics conforming to the EIA/TIA RS-422A or RS-485 standard.

☞ 17 RX.TERM switch

21 [AUX, GND] Auxiliary Output Terminals

If any change occurs in the area that was set on the MOTION DETECT screen, these terminals output signals. Open collector output of a LOW pulse for between 500 ms and 1,000 ms. Max voltage 30V, current 30 mA.

22 [Y/C OUT] Y/C Output Connector

This 4-pin connector outputs the luminance and chrominance signal.

• Pin configuration of Y/C OUT connector



Pin No.	Signal
1	GND
2	GND
3	Luminance (Y, 1 V(p-p), 75Ω)
4	Chrominance (C, 0.3 V(p-p), 75Ω)

23 [VIDEO OUT] Video Signal Output Connector

This BNC connector outputs a composite video signal. Connect this to the video input connector of a video monitor, switcher, etc.

24 [POWER] Power Indicator Lamp

This lamp lights when power is supplied to the camera.

25 [SYNC IN] Sync Signal Input Connector

This BNC connector accepts the input of an external sync signal such as a composite video (VBS) or black burst (BB) signal.

When a sync signal is input into this connector, the camera operation is automatically synchronized with the external sync signal.

To terminate this connector at 75Ω, turn ON the EXT.TERM switch 14.

SPECIAL SETTINGS BY JVC SERVICE CENTER

Special Settings by JVC Service Center

It is able to have the following settings by JVC service center absolutely.

1. CCD SPOT Compensation

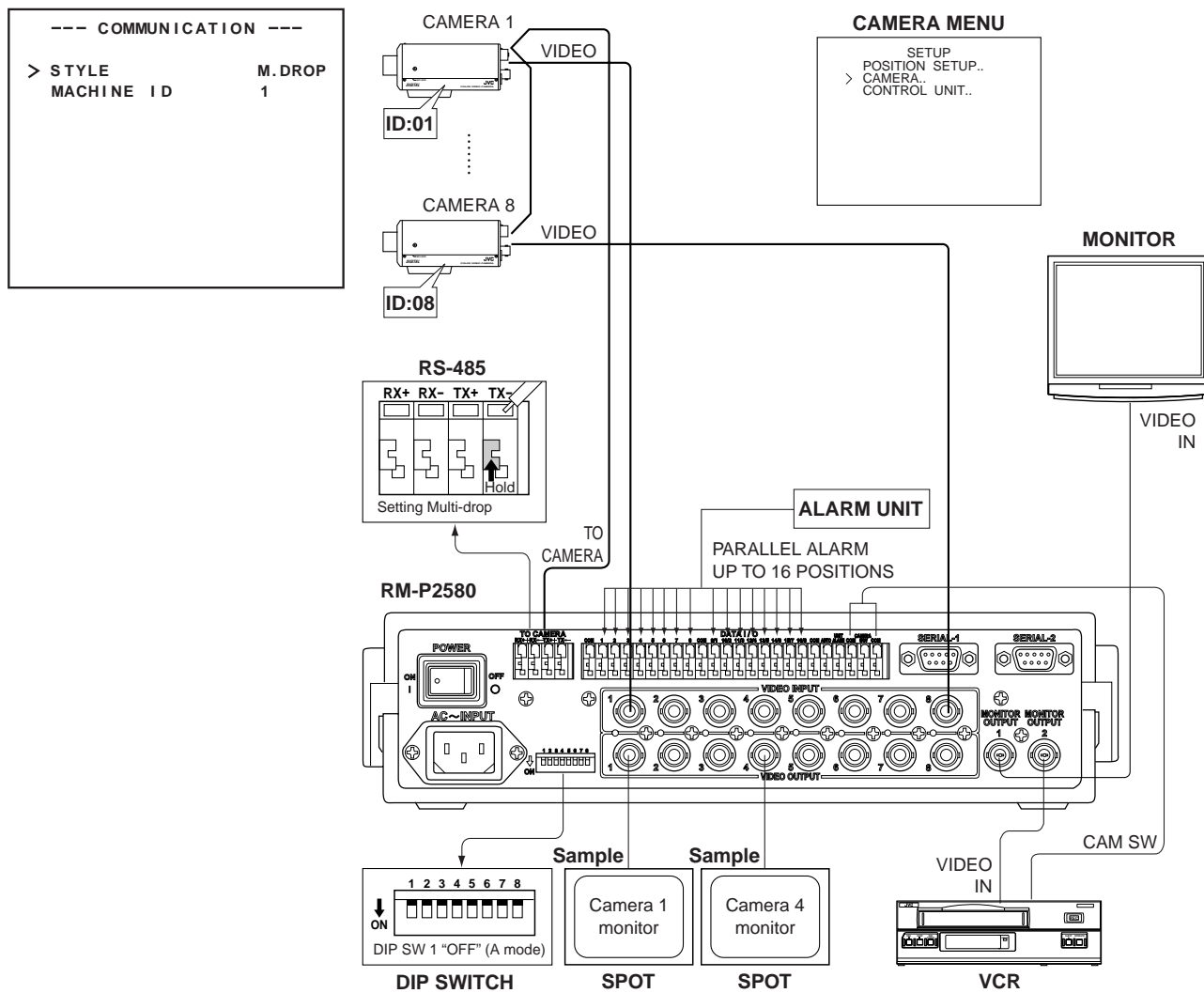
It is possible to compensate the CCD spot up to 3 blemish under ExDr off mode.

2. Level of Auto ExDr

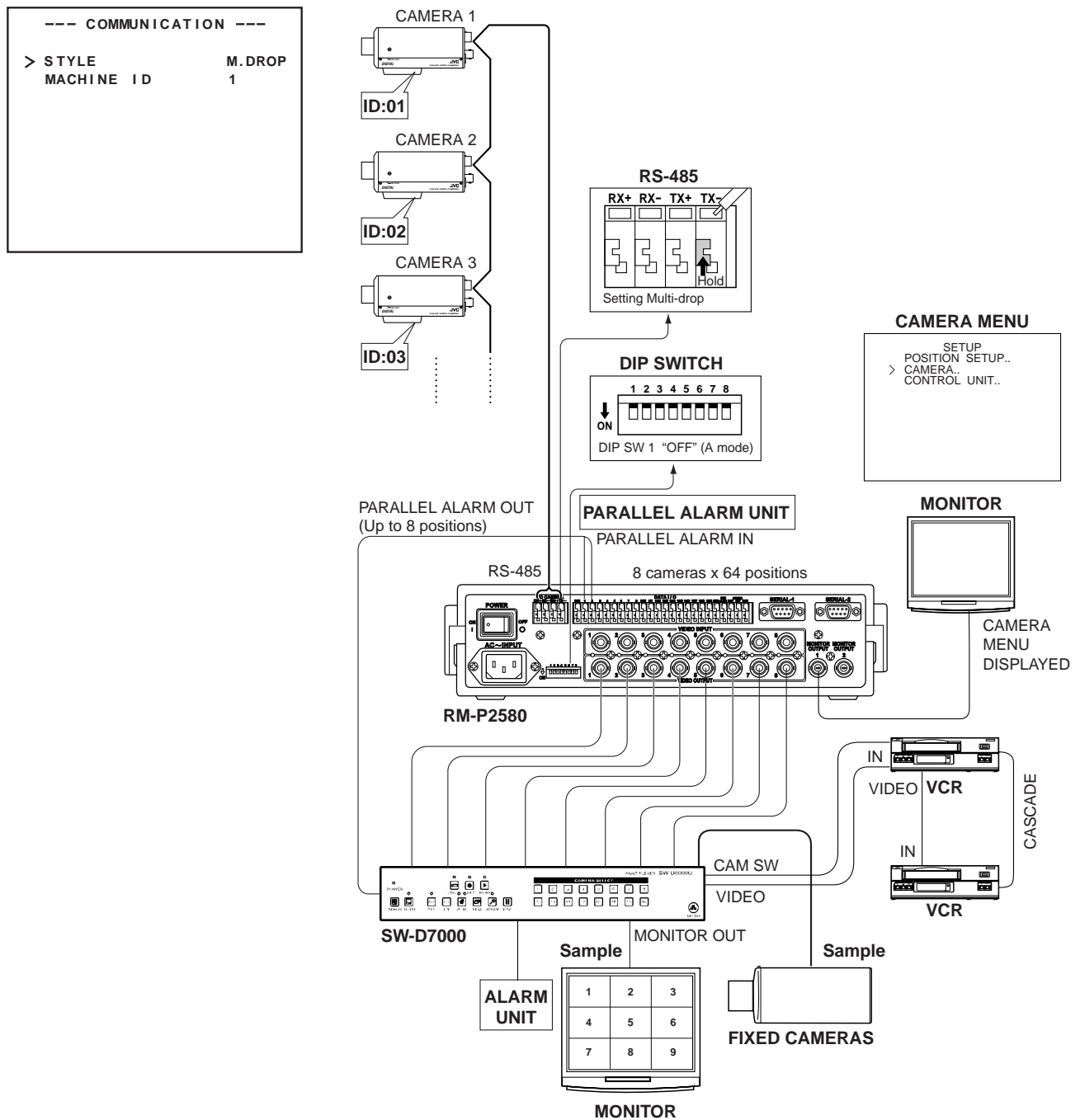
Normally it is not able to change the shutter speed for Auto ExDr mode. However, it is able to have a little change from default under small tolerance.

For further information, please call to JVC service center.

MINI SYSTEM



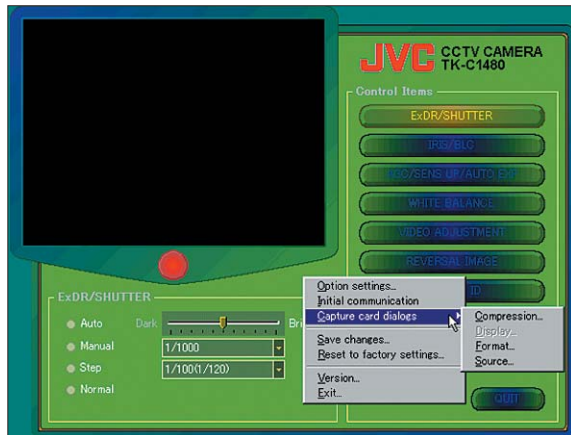
MINI SYSTEM



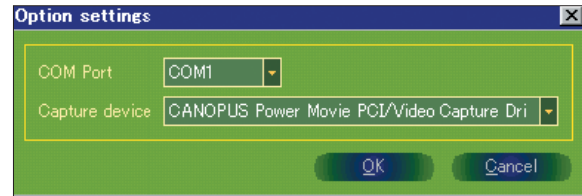
REMOTE CONTROL SOFTWARE

JVC Remote Control Software

Remote control software (RS422A type) is available by JVC as a purpose of demonstration at free.(The performance is not guaranteed by JVC due to demonstration purpose. Also not able to open source code.)
The following is GUI image



Menu



Option Dialog

Features

1. Camera control possible by RS422A interface
2. Video image output available on the GUI using video card or it is able to connect from camera to video monitor with BNC.

Connections

1. Remote control ----- Please prepare locally converter from RS422A to RS232C.
After execute JVC software, please have right click and select options settings. Kindly check COM port setting.
The below is just example.

CAM	Converter	PC
	RS422A	RS232C
TX+ -----RX+		
TX-----RX-	TX-----RX	
RX+ -----TX+	RX -----TX	
RX- -----TX-	GND -----GND	

Refer to Converter, please kindly check with instruction manual of conveter because depending on the converter, the connection between PC and converter is different.

2. Video card ----- Please arrange locally video card(PCI bus or PCMCIA type) and install the driver into PC.
After execute JVC software, please have right click and select options settings. Then kindly select driver in capture device.

Camera Controls

By GUI of this software, it's able to set up ExDr/shutter, Iris/BLC, AGC/SENS UP (slow shutter), Auto EXP, white balance, video adjustment, reverse image, camera ID. However, it is not possible full set up. So to have full set up, please use camera menu in GUI and select&set parameters by cursor.



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