



Data Sheet

CCTV Cameras

Introduction

When considering which camera to select for a given task the first question must be whether to use black and white or colour. If the camera is to be used in low light situations (e.g. night time surveillance) then black and white has the edge being able to operate at much lower light levels and with discrete infra-red illumination where necessary. However colour is an added dimension and can assist in identification of both objects and people and would be the preferred choice all else being equal. The following technical specifications should also be considered:-

- Signal to noise ratio
- Image resolution
- Light sensitivity

Considering these in turn:

Signal to noise ratio

This is a measure of the ratio of the actual video signal to the electrical background noise (i.e. unwanted signals caused by the heating of electronic components) expressed in decibels. This is given by :-

$$\text{Signal to noise ratio} = 20 \text{ Log}^{10} \frac{\text{Video signal}}{\text{Noise signal}} \text{ dB}$$

The higher this number is the better the performance of the camera (see Table 1 below).

Table 1

S/N ratio dB	S/N ratio:1	Picture quality
60	1000	Excellent, no noise apparent.
50	316	Good, a small amount of noise but picture quality good.
40	100	Reasonable, fine grain or snow in the picture, fine detail lost.
30	32	Poor picture with a great deal of noise.
20	10	Unuseable picture.

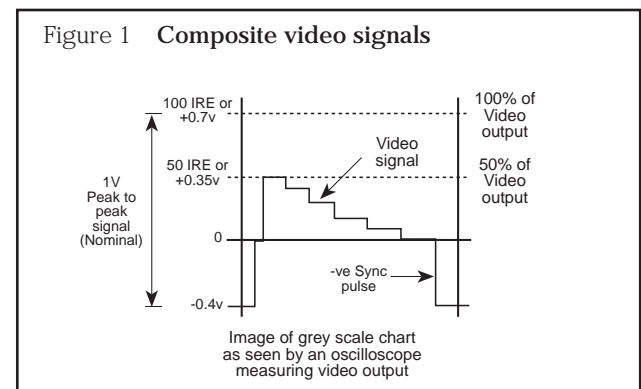
Image resolution

This is a measure of the cameras ability to reproduce detail, the higher the resolution the more accurate the image. Resolution is usually quoted in horizontal TV Lines (TVL), and can be measured using a resolution chart. This chart contains black lines on a white background of varying degrees of thickness relating to different resolutions. The cameras ability to resolve these bars enable the resolution to be measured. When quoting colour camera resolution the user should bear in mind that due to bandwidth limitations the maximum theoretical resolution of a composite video signal is approximately 330TVL. To obtain higher colour resolution the signal must be either split into luminaire, (Y), the black and white component and chrominance, (C), the colour component or red, green and blue, (RGB), separate signals.

For most applications the composite signal is sufficient, however for image processing and microscopy, where very accurate colour reproduction at high resolution is required, then Y/C or RGB must be used.

Light sensitivity

The sensitivity of the camera denotes the minimum light level that the camera will output 50% of the video signal. This is best illustrated in Figure 1.



This level is usually measured with a lens fitted to the camera at a given 'F' number. This number is an indicator to the lenses ability to pass light to the CCD sensor. Hence a camera with a sensitivity of 0.3Lux with a F1.4 lens fitted is more sensitive than a camera with a sensitivity of 0.3Lux with a F1.2 lens fitted as the lower the 'F' number the more light is passed by the lens. Another consideration is the fact that most cameras have an automatic gain control (AGC) that cuts in at low light levels (if enabled) to boost the signal, however the noise is also boosted and this can reduce the signal to noise ratio by approximately 20/30dB dependant on the AGC gain. Hence if you refer back to Table 1 it is possible that the picture may be either poor or unuseable at the stated minimum illumination. When measuring the light level at the installation site the actual reflected light from the target object should be used not the incidence light as the reflective index of the object to be viewed would not be taken into account.

Summary

Black and white cameras operate better at low light levels, can resolve higher resolution images as a composite signal, can use discrete infra-red lighting and are generally less expensive.

Colour cameras provide an additional dimension information, they must have Y/C or RGB outputs for resolutions higher than 330TVL. They require white light illumination and tend to be more expensive than black and white.

It should also be noted that the system is as good as its lowest resolution component hence a 460TVL black and white camera used with a 330TVL monitor will resolve 330TVL.

Note: Under no circumstances should RS cameras be mounted in outdoor locations without the use of RS camera housings.

All camera options available, interface directly to the other components of the CCTV system, i.e. camera switchers, video amplifiers and monitors.

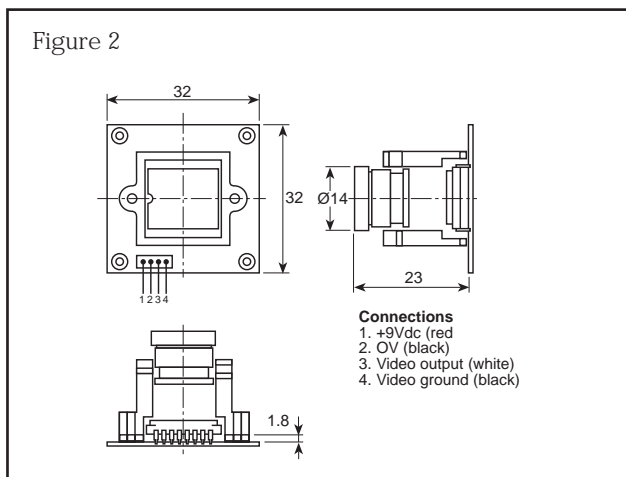
Monochrome cameras

Board cameras

The RS monochrome board cameras are designed to quickly enable inclusion of a camera into OEM equipment or for covert situations where size enables concealment or inspection in confined spaces.

1/3in. CCD miniature board camera (RS stock no. 846-238, 185-3158 and 208-0200)

The miniature board cameras are available with either an F23 3.8mm lens, an F4.5 3.7mm pin hole lens or a CS mount to enable you to fit a manual iris lens. The units are simple to use: applying 9Vdc power to the camera (suitable power supply RS stock no. 208-0222) and the output is 1V peak to peak composite video. The output leads can be connected to a 75Ω BNC socket enabling simple connection to the other elements of the RS CCTV system.



Technical specification

- Image sensor _____ 1/3in. CCD
- Signal system _____ CCIR
- Picture elements _____ 512(h) 3 582(v)
- Synchronisation system _____ Internal
- Resolution _____ 380 TV lines (h)
- Signal/noise ratio _____ 47dB
- Minimum illumination _____ 0.36 Lux @ F2.8
 _____ 3.0 lux @ F4.5
- Power voltage _____ 9Vdc ±1V
- Power current _____ 120 mA
- Operating temperature _____ -10°C + 50°C
- Lens mount _____ 3.8mm F2.8
 _____ 3.7mm F4.5 (pin hole lens)
- Connections _____ Mini 4-pin

Discrete surveillance cameras

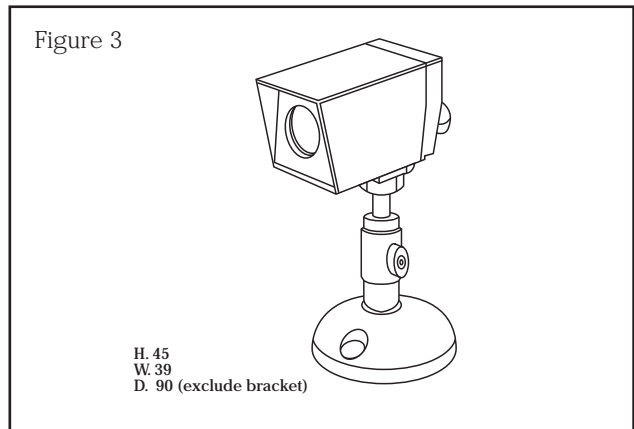
A selection of small cameras incorporating the miniature board camera, ideal for use in discrete applications. All cameras have the technical specifications of the board mounting camera (RS stock no. 846-238). For suitable power supplies (RS stock no. 208-0238) for 12Vdc and (RS stock no. 208-0222) for 9Vdc.

Bracket mounted (RS stock no. 198-1275)

Simple for both electrical and mechanical installation, the camera can be either wall or ceiling mounted and is ideal for applications where appearance is critical. This unit comes complete with 75Ω BNC socket at the rear.

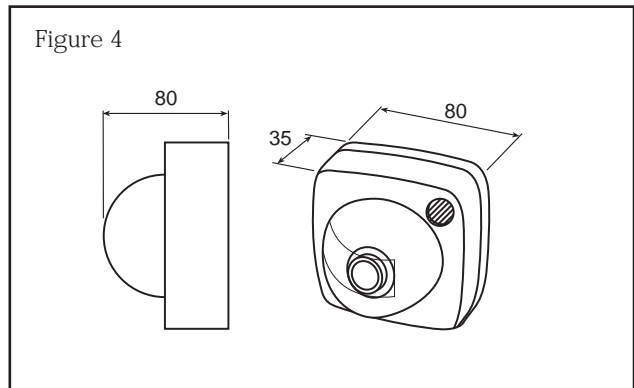
IP66 (RS stock no. 208-6034)

A matt black weatherproof cased camera complete with mounting bracket and connection block. The mounting jacket is adjustable and locked using the key supplied.



Mini dome (RS stock no. 198-1281)

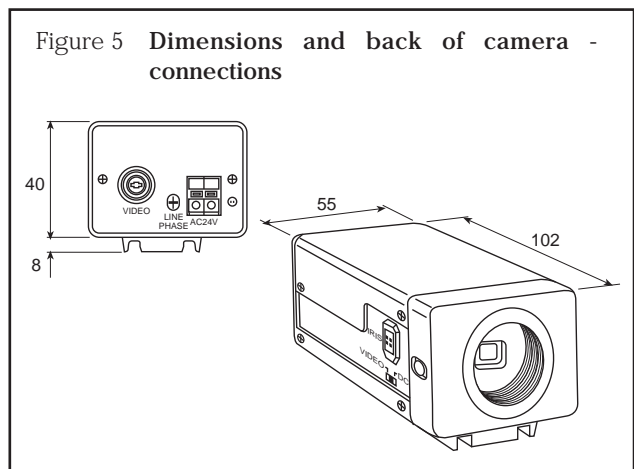
A low cost dome cased camera, ideal for applications where appearance is a critical factor. The camera is compact in size and provides a high picture quality.



1/3in. electronic iris camera (RS stock no. 185-3091)

A very compact and multipurpose CCD camera suitable for most general surveillance applications. The camera output is direct drive or auto iris compatible with C or CS mount compatibility. Due to the very low light response the camera can be used in marginal lighting conditions. The 24Vac supply allows line lock of cameras to avoid rolling or jumping pictures without additional equipment.

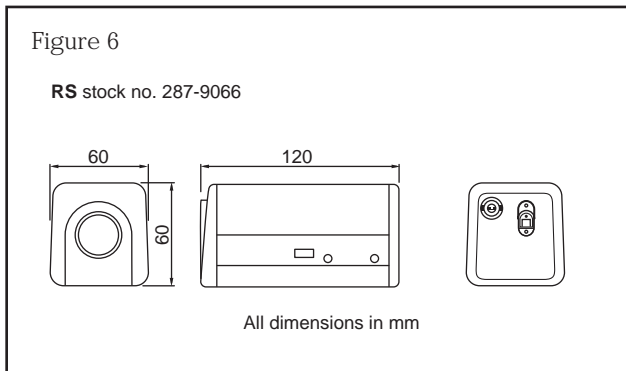
Other features include quick 'push-in' supply connections and standard tripod mount (1/4in. UNC).



Technical specification

Image sensor _____ 1/3in. CCD
 Picture elements _____ 500(h) x 582(v)
 Resolution _____ >380TV lines
 Min. illumination _____ <0.3 lux @F1.4
 Signal/noise ratio _____ >48dB
 Sync. system _____ line-lock/internal
 Electronic shutter _____ 1/50 fixed (AES off)
 Iris control _____ dc iris/video
 Power source _____ 24Vac ± 10%
 Power consumption _____ <3W
 Operating temperature _____ -5°C to 40°C
 Weight _____ 500g

**1/3 Medium resolution
 (RS stock nos 287-9066)**



Cost effective cameras offering a medium resolution for a wide range of applications from security surveillance to inspection. All adjustable controls are located on the side of the product for simplicity and installation.

Features

- CS mount
- Suitable for bracket mounting on top or bottom
- Backlight compensation
- Direct Drive or Electronic iris lens compatible

Supplied complete with instructions

Technical specifications

	287-9066
Image sensor	1/3" CCD
Picture element	753(H)x582(V)
Resolution	580TVL
Video output	1 Vp-p CCIR Compatible
Synchronisation method	Internal
Scanning frequency	15.625 50Hz
Video S/N ratio	>46dB
Min Illumination required	0.3 lux
Power supply	12Vdc +/-10%
Operating temperature	10°C to +50°C
Weight	300g

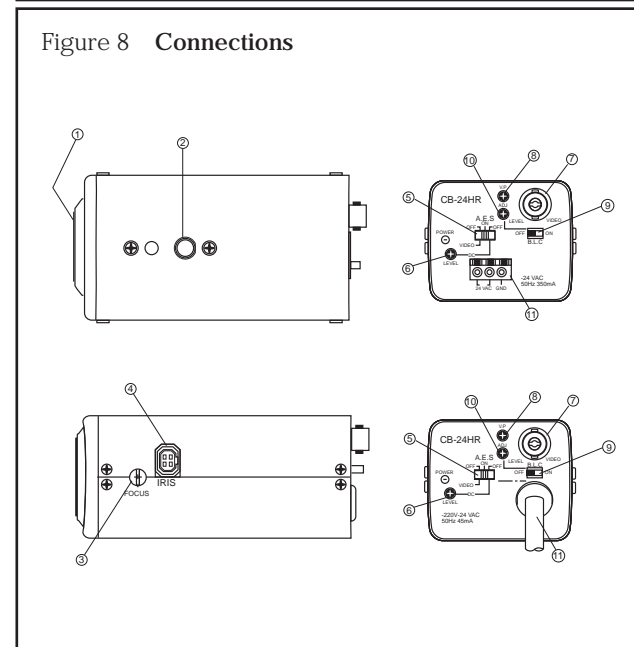
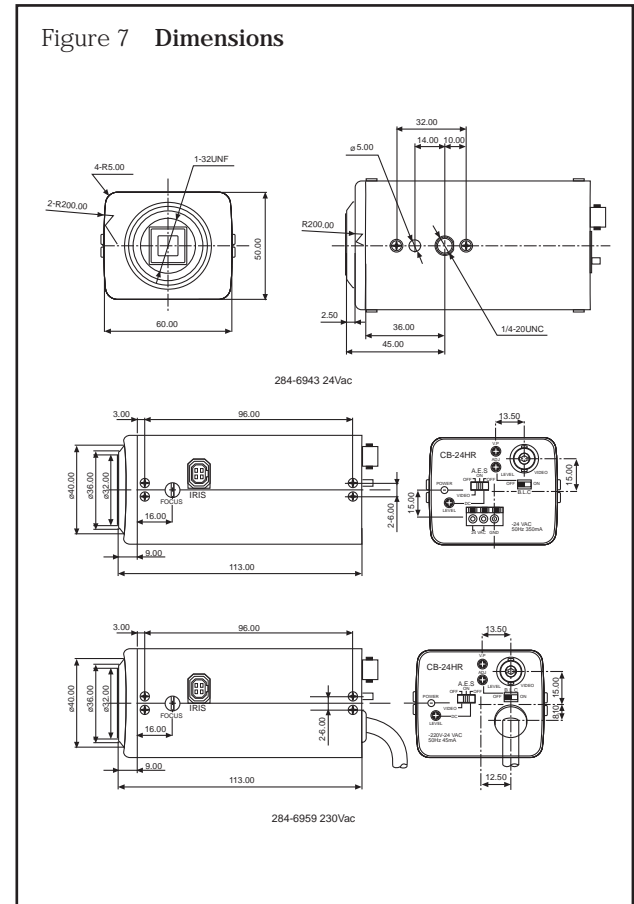
**1/3in 24Vac and 230Vac
 (RS stock nos. 284-6943 & 284-6959)**

Ideal for security and inspection applications where a compact and lightweight high resolution black and white camera is required. These CCD cameras offer excellent sensitivity and picture quality.

Features

- Backlight compensation via a switch with adjustable level
- Accepts all CS mount manual iris and auto iris (video and direct drive) lenses
- High speed electronic shutter
- Built-in auto iris function to cover a wide range of lighting conditions.
- Video output to connect directly to a monitor
- Mechanical focus adjustment
- Vertical phase adjustment to stop rolling when several cameras are used in sequence

Supplied with comprehensive instructions.



1. Lens mount
2. Camera mounting screw holes
3. Mechanical focus adjuster
4. Auto iris connector
5. A.E.S. and auto-iris lens switch
6. DC iris level volume
7. VIDEO terminal
8. V.P. (Vertical phase) adjuster
9. B.L.C. (backlight compensation) switch
10. B.L.C. level volume
11. Power input terminal/Power cord.

Technical specifications

	284-6943	284-6959
Image sensor	1/3in format CCD	
Picture element	753(H)x582(V)	
Scanning system	2.1 interlace	
Synchronising system	Line locked	
Resolution	580TVL	
Video output	1 Vp-p composite/75ohm (BNC connector)	
AES	1/50-1/100,000 SEC (1:1600)	
Min illumination	0.08 lux F1.2 0.04lux at F0.8	
S/N ratio	50dB typ.	
Lens mount	CS mount	
Camera mount	1/4" - 20UNC	
Auto-iris control (switchable)	VIDEO iris /DC iris	
Backlight compensation	ON/OFF switch and level adjuster	
Flange-back adjuster	Equipped (both sides)	
Ambient temperature	10°C to +50°C	
Power source	24Vac +-10%, 50Hz	220-240Vac, 50Hz
Power consumption	350mA approx	45mA
Weight	550g	720g

Colour cameras

The RS range of colour cameras covers from basic low cost RS branded product suitable for medium resolution surveillance and inspection to top of the range high resolution, low distortion product with many control features suitable for high quality image surveillance, security, inspection and image processing purposes.

1/2in. High resolution colour camera (RS stock no. 237-0862)

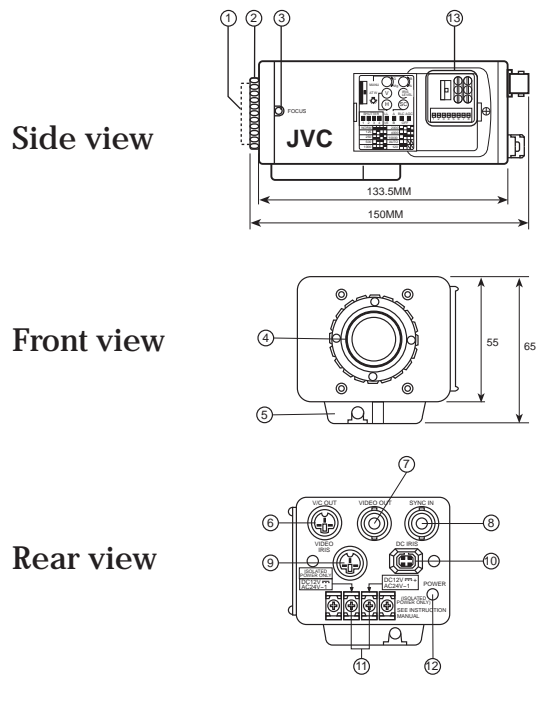
This high resolution 1/2in. colour camera, supplied by JVC, provides low distortion, accurate colour performance under widely varying lighting conditions. The camera includes a picture adjustment facility to enable the camera to be set up for the ambient lighting conditions. The Y/C output ensures colour accuracy and flexibility in a variety of applications. Where a high quality image is required this camera provides the solution in surveillance inspection and image processing.

Features

- 1/2in. approx. 470,000-pixel (approx. 440,000 pixels effective) CCD (Charge Coupled Device) solid-state pickup element for clear pictures without image lag, burn or geometrical distortion
- High-resolution, high-sensitivity design for a horizontal resolution of 460 TV lines and a low-light sensitivity of 3 lux (F1.2)
- TTL (Through-The-Lens) auto tracking white balance adjustment with preset luminous intensity and manual override (2 axes; G-Mg and R-B)

- Changeable C/CS lens mount allows selection from a wide range of lenses
- Built-in electronic shutter to allow switching to 9 shutter speeds
- CCD IRIS function to automatically set the brightness of the picture by changing the shutter speed of the camera according to the light incident when using a manual iris lens
- AGC (Automatic Gain Control) function to automatically increase camera's sensitivity when the level of ambient light drops
- Built-in back-light compensation function
- Convenient external flange-back adjustment function allows adjustment using a screwdriver
- Compact, light-weight design greatly reduces the space required for installation
- Gen-lock and line-lock functions are provided
- Separated Y/C video signal output connector
- Galvanometric auto-iris lens output
- Video-level sensing auto-iris lens output
- ac or dc operation.

Figure 9



- 1 Lens mount cap**
- 2 C-mount adaptor**
To mount a C-mount lens (for 1/2in., 2/3in. or 1in. video camera). Remove to mount a CS-mount lens (for 1/2in. video camera). Turn counterclockwise to remove it.
- 3 FOCUS screw**
A screw is provided to adjust and fix the flange-back (the distance from the lens mounting to the focal point).
- 4 Lens mount**
This is the mount for installing the lens: C-mount lenses can be used when C-mount adaptor is attached and CS-mount lenses can be used when it is removed.
C mount: For 1/2in., 2/3in. or 1in. video camera
C-mount lenses
CS mount: For 1/2in video camera CS-mount lenses
- 5 Tripod mounting base**
This is the mounting base for installing the camera.
- 6 Y/C OUT connector**
Output connector for separated Y/C video signals. Connect to the S-VIDEO input connector of a video monitor, etc.

7 VIDEO OUT connector

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

8 SYNC IN connector

BNC connector for external sync reference signal input such as composite video signal (VBS) or black burst signal (BB).

9 VIDEO IRIS connector

Connect the iris cable of an video-iris lens. If the plug on the cable is of a different type, replace it with the provided 3 pin iris plug.

10 DC IRIS connector

Connect the iris cable of the galvanometric-iris lens. If the plug on the cable is of a different type, replace it with the provided 4-pin iris plug.

11 Power input terminal (12Vdc/24Vac)

Connect to a dc 12V (**RS** stock no. 208-0238) or ac 24V (**RS** stock no. 443-312) power source.

12 Power indicator

Lights when the camera is powered.

13 Picture adjustment section

AGC, BLC, shutter speed, IRIS LEVEL, sync mode, H/V phase, SC phase and white balance controls are provided. Perform the following adjustments and settings according to the shooting (or lighting) conditions.

Technical specification

Type _____ Colour video camera head
 Signal system _____ Based on PAL standard
 Pickup element _____ Interline-transfer system CCD
 solid state image sensor
 (with complementary colour filter)
 Pickup colour system _____ Single CCD complementary colour
 system
 No. of effective pixels _____ 752 (H) 3 582 (V)
 Pickup area _____ 6.4 (H) 3 4.8 (V) mm
 Scanning lines _____ 625 lines, 2:1 interlaced
 Scanning frequency _____ (H) 15.625kHz (V) 50Hz
 Sync system _____ Internal, external, line lock,
 H/V lock
 Sync input _____ Composite video signal (VBS)/
 1 Vp-p, 75Ω terminated
 (or black burst signal BB)
 Video output _____ Composite video signal:
 1 Vp-p, 75Ω, unbalanced
 Separated Y/C video signals:
 Y/1 Vp-p, 75Ω, unbalanced
 C/0.3 Vp-p (burst), 75Ω,
 unbalanced
 Video S/N ratio _____ 50dB (2000 lux, AGC switch
 set to "OFF", at weighting)
 Resolution _____ 470 TV lines (horizontal)
 Min. required illumination _____ 1.5 lux (f/1.2, AGC
 switch set to "ON")
 Rec. subject illumination _____ 2000 lux
 Switching functions AGC (ON, OFF), Shutter mode (NORM,
 $\frac{1}{120}$, $\frac{1}{125}$, $\frac{1}{250}$, $\frac{1}{500}$,
 $\frac{1}{1000}$, $\frac{1}{2000}$, $\frac{1}{4000}$, $\frac{1}{10000}$, CCD/I),
 White balance mode (MANU,
 Automatic, halogen lamp),
 BLC mode (ON, OFF), sync
 mode (LL, (H/V), I/E)

Adjusting functions _____ Flange-back, manual white
 balance (2 axes; G-Mg, R-B),
 V-phase, H phase, SC phase,
 IRIS LEVEL control

Lens mount _____ C mount (with C-mount adaptor)
 /CS mount (without
 C-mount adaptor)

Power requirement _____ 11 to 30Vdc, 50Hz

Power consumption (max.) _____ 7.2 VA (dc 12V)
 7 W (ac 24V)

Operating temp. range _____ -10°C to +50°C

Operating humidity _____ Less than 90% Rh
 non-condensing

Max. external dimensions _____ Approx. 69(W) 3 65(H)
 3 150(D) mm
 (without lens mount cap)

Weight _____ Approx. 500g

1/2. High Resolution Digital Signal Processing Colour Camera (RS stock no. 260-4654)

Designed for CCTV and video-capture, this camera features Digital Signal Processing (DSP) which ensures high resolution, high sensitivity pictures and accurate colour reproduction even at low light levels. The camera includes menu driven setting of adjustable parameters to ensure optimum set up for a variety of operating conditions.

Features

- $\frac{1}{2}$ in approx. 470,000-pixel (approx. 440,000 pixels effective) CCD (Charge Coupled Device) solid-state pickup element for clear pictures without image lag, burn or geometrical distortion
- High-resolution, high-sensitivity design for a horizontal resolution of 470 TV lines and a low-light sensitivity of 0.95 lux (F1.2)
- Three-dimensional Detect Auto-Tracking White Balance (ATW) dynamically optimises white balance, responding in real-time to changing light conditions
- Wide range Automatic Electronic Shutter (AES) continuously adjusts speed to ensure correct exposures under any lighting conditions - 1/50 to 1/100,000 sec
- Digital Signal Processor (DSP) automatically adjusts the camera parameters to ensure sharp, natural pictures even in near total darkness
- Built-in back light compensation function
- High-light inverter function maintains overall image quality when part of a subject is under strong illumination
- Changeable C/CS lens mount allow selection from a wide range of lenses
- Compact, light-weight design greatly reduces the space required for installation
- Gen-lock and line-lock functions are provided
- Separated Y/C video signal output connector

Figure 10

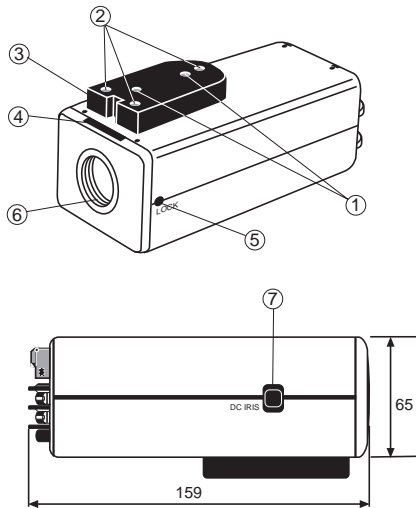
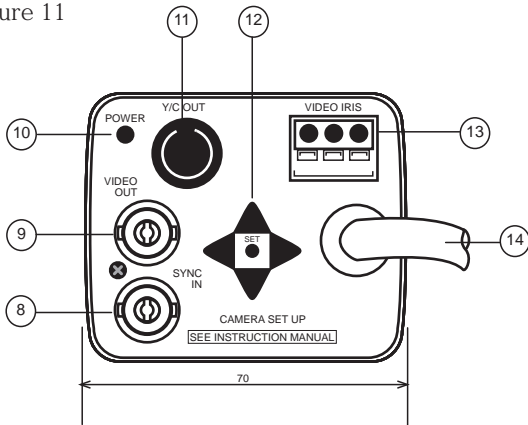


Figure 11



1. Camera mounting screw holes (1/4in)

These screw holes are used to install the camera on a mount or PAN/TILT UNIT. Use either of the two holes according to the situation.

2. Camera mounting bracket fixing screws (three)

3. Camera mounting bracket

The camera mounting bracket is mounted on the top of the camera at the factory. It can be installed on the bottom of the camera if necessary. Fit the mounting bracket on the bottom of the camera head with the three screws(2).

4. Back focus adjustment ring

This ring is used to adjust the back focus and change the lens mount method. Loosen screw (5) to turn the ring and tighten the screw after adjustment.

5. [BF LOCK] back focus locking screw

This screw locks the back focus adjustment mechanism.

6. Lens mount

This mount is used to install a C-mount lens (1/3, 1/2, 2/3, 1 inch.) or CS-mount lens (1/2, 1/3in.)

7. [DC IRIS] DC iris connector

Connect a direct drive lens.

8. [SYNC IN] Sync signal input connector

Connector for external sync signal input. Input SYNC (composite sync signal) or VS (video signal with sync signal). If the sync mode select switch (14) is set to INT/TEXT, the camera synchronises with the external sync signal.

9. [VIDEO OUT] Video signal output connector

Outputs the video signal from the camera. Connect to a video monitor, etc (75Ω).

10. [POWER] Power lamp

Lights when the power is on.

11. Y/C OUT connector

Output connector for separated Y/C video signals. Connect to the S-VIDEO input connector of a video monitor etc.

12. Camera setup display operation button

Press to enter set-up menus and adjust parameters.

13. VIDEO IRIS connector

Connect the iris cable of a video-iris lens. If the plug on the cable is of a different type, replace it with the provided 3 pin iris plug.

14. AC Power cable

Technical Specification

Signal system _____Based on PAL standard
 Image device _____1/2" single CCD
 Pickup element _____IT (Interline-Transfer) system CCD
 _____solid-state image sensor
 (with complementary colour filter: Ye-Cy-Mg-Gr)
 Effective picture elements _____752 (H) x 582 (V)
 Video process circuit _____Built-in DSP (9 bits)
 Sync system _____Internal, External (Full genlock), Line lock
 Sync input _____BB or VBS (BNC)
 Video output _____VBS (BNC), Y/C (S terminal, 4-pin)
 Video S/N _____More than 48 dB
 Horizontal resolution _____470 TV lines
 Minimum required illumination _____0.95 lux (F1.2)
 Electronic shutter _____Normal, 1/120, 1/250, 1/500, 1/1000,
 _____1/2000, 1/4000, 1/10000 sec., or
 _____or automatic electronic shutter iris mode
 Automatic electronic shutter _____1/50 - 1/100000 sec.
 White balance _____3 dimension detect ATW,
 _____Manual (Biaxial)
 BLC _____ON/OFF, multi-data detect BLC (6 patterns)
 Lens mount _____C/CS mount
 AGC _____ON/OFF (9 dB/ 18dB)
 Special set up menu _____CONTOUR level, ENHANCE level,
 _____PED level, HUE and IRIS level
 Power requirement _____230Vac 50/60 Hz
 Power consumption _____5.6W
 Operating temperature range _____-10°C to 50°C
 Weight _____880g

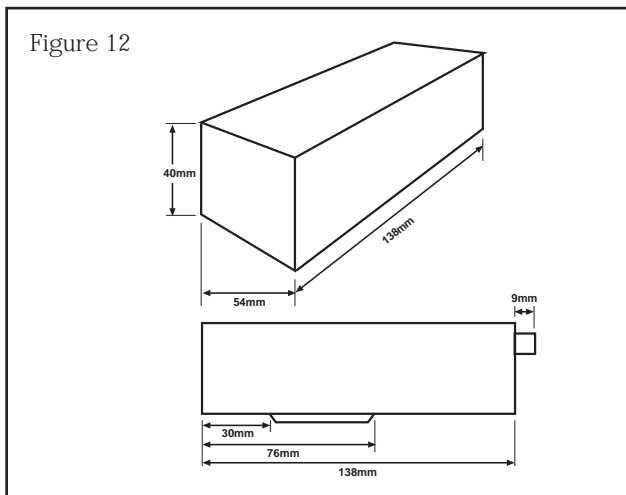
1/3in. Digital colour camera (RS stock no. 224-2773)

A 230Vac camera with a less than 1.0lux sensitivity, comprehensive digital functions, superb colour rendition and a range of features designed to simplify installation.

Features

- The 1/3in. interline transfer CCD produces more than 330 TV lines of resolution
- Will work down to 1.0lux at F1.4

- Back-lit subjects can be clearly identified using the digital Back Light Compensation
- Built-in auto iris amplifier
- Electronic iris function
- Lens mount is CS and can be converted to C by adding a 5mm ring, therefore any lens will work.



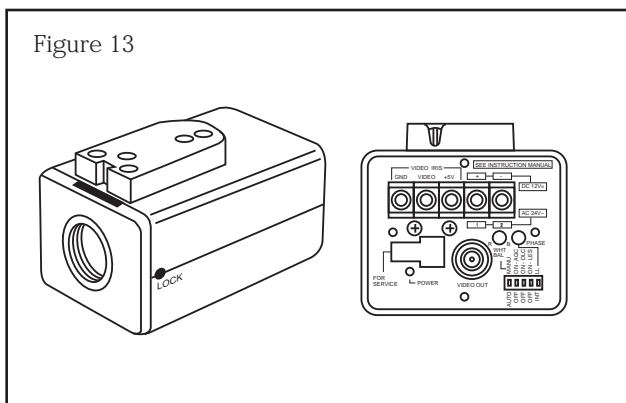
Technical specification

Image sensor _____ 1/3in. interline transfer CCD
 Colour system _____ 512(h) x 582(v)
 Resolution _____ >330 TV lines
 Min. illumination _____ <1.0 lux @F1.4
 Lens mount _____ CS mount
 Power voltage _____ 230Vac, 50Hz
 Power consumption _____ <9W
 Operating temperature _____ -10°C to +50°C

1/3in. electronic iris colour camera (RS stock no. 196-7623 and 260-4648)

Supplied to RS by JVC, a camera which operates in a variety of lighting conditions to produce crisp images. The camera is suitable for a variety of applications including surveillance, security and inspection.

This colour reproduction is supported by auto white balance and back light compensation hence, producing high resolution images. The unit is either C or CS lens mount compatible and has both auto iris and direct drive iris output available. Both 24Vac/12Vdc and 230Vac versions for flexibility of installation into various systems.



Technical specification

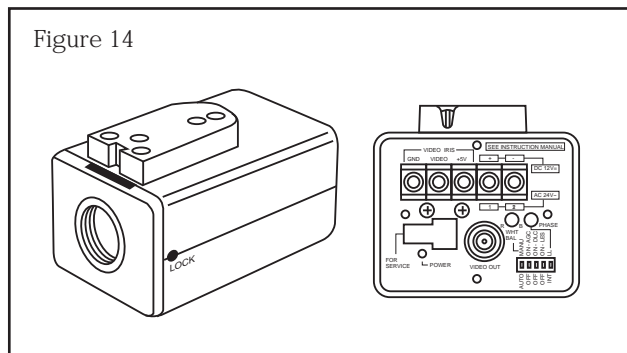
Resolution _____ Based on PAL system
 330 horizontal TV lines
 Image sensor _____ Interline transfer system CCD
 (with complementary colour filter)
 Effective pixels _____ 300,000(512(h) x 582(v))
 Pick-up area _____ 4.8(h) x 3.6(v) max.

Min. illumination _____ 1.5 lux (F/1.2 AGC switch set to 'ON')
 Signal noise ratio _____ >46dB (F/1.2AGC switch set to 'OFF' at weighing)
 Scanning frequency _____ 15.625kHz (H) 50Hz (V)
 Scanning lines _____ 625 lines, 2:1 interlaced
 Video output _____ Composite video signal:
 1V peak to peak
 Power supply: **RS** stock no. 196-7623 24Vac 50/60Hz, 12Vdc
RS stock no. 260-4648 _____ 230Vac 50/60Hz
 Power consumption: **RS** stock no.196-7623 _____ 4W
RS stock no. 260-4648 _____ 4.5W
 Operating temperature _____ -10°C to +50°C
 (Recommended temp. range: 0°C to +40°C)
 Operating humidity _____ >90% Rh (non-condensing)
 Weight: **RS** stock no. 196-7623 _____ 470g
RS stock no. 260-4648 _____ 800g

1/3in.High Resolution colour camera (RS stock no. 260-4660)

Supplied to RS by JVC, a camera which operates in a variety of lighting conditions to produce crisp images. The camera is suitable for a variety of applications including surveillance, security and inspection, delivering 470 lines of horizontal resolution.

This colour reproduction is supported by auto white balance and back light compensation hence, producing high resolution images. The unit is either C or CS lens mount compatible and has both auto iris and direct drive iris output available.



Technical specification

Resolution _____ Based on PAL system
 470 horizontal TV lines
 Image sensor _____ Interline transfer system CCD
 (with complementary colour filter)
 Effective pixels _____ 753(h) x 582(v)
 Pick-up area _____ 4.8(h) x 3.6(v) max.
 Min. illumination _____ 2.5 lux (F/1.2 AGC switch set to 'ON')
 Signal noise ratio _____ >46dB (F/1.2AGC switch set to 'OFF' at weighing)
 Scanning frequency _____ 15.625kHz (H) 50Hz (V)
 Scanning lines _____ 652 lines, 2:1 interlaced
 Video output _____ Composite video signal:
 1V peak to peak
 Supply voltage _____ 12Vdc or 24Vac 50Hz
 Power consumption: _____ 4.2W
 Operating temperature _____ -10°C to +50°C
 Weight _____ 470g

Colour

**1/3in. High performance
(RS stock nos 284-6943 & 284-6959)**

High quality colour images are produced using a variety of input voltages making these cameras ideal for many applications where the voltage will be variable.

Features

- Auto white balance ensuring sharp and clear images
- backlight compensation function improves the image quality for backlighting subjects
- 470,000 pixels for clear pictures without image lag or geometrical distortion
- high sensitivity design for low light conditions of 2.5lux (F1.2)
- C or CS mount lenses can be attached to the camera by using the lens mount adjustable function

Figure 16 Connections

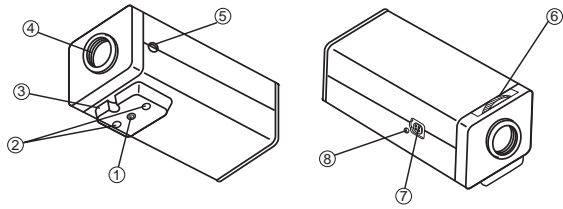


Figure 15 Dimensions

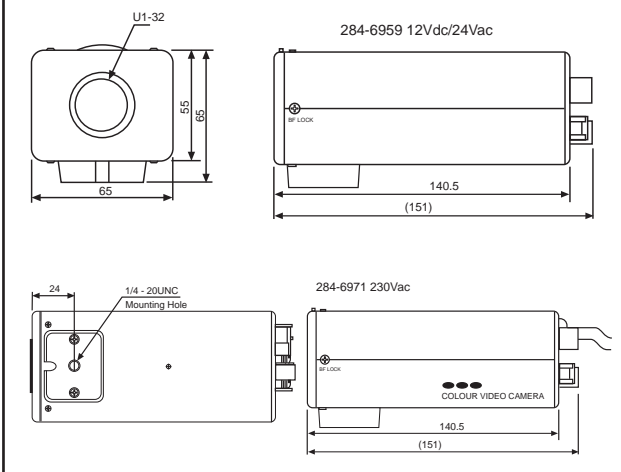
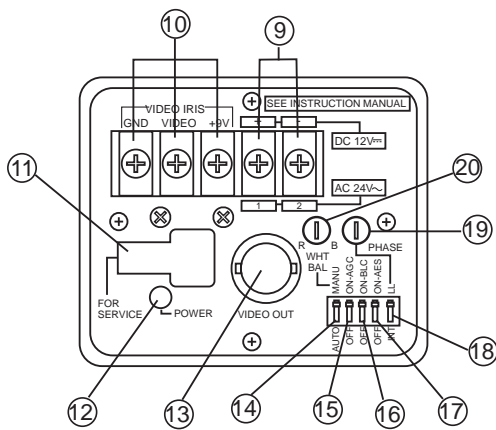
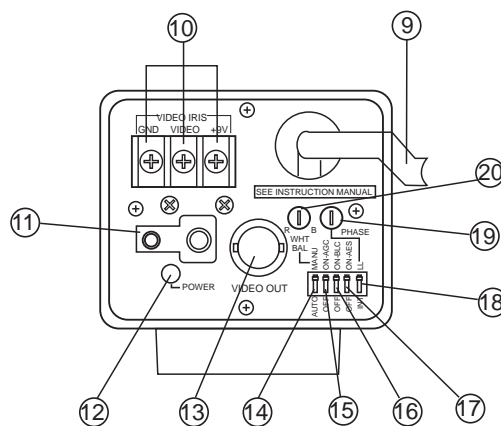


Figure 17

284-6943 12Vdc/24 Vac



284-6959 230 Vac



1. Camera mounting screw hole (1/4")

This screw hole is used to install the camera on a mount or PAN/TILT UNIT.

2. Camera mounting bracket fixing screws (two)

3. Camera mounting bracket

The camera mounting bracket is mounted on the bottom of the camera at the factory. It can be installed on the top of the camera if necessary. Fit the mounting bracket on the top of the camera head with the two screws (2).

4. Lens mount

This mount is used to install a C-mount lens (1/3, 1/2, 2/3, 1 inch) or CS-mount lens (1/2, 1/3 inch).

5. [BF LOCK] Back focus locking screw

This screw locks the back focus adjustment mechanism.

6. Back focus adjustment ring

This ring is used to adjust the back focus and change the lens mount method. Loosen screw (5) to turn the ring, and tighten the screw after adjustment.

7. [DC IRIS] DC iris connector

Connect an auto-iris lens that does not contain an EE amplifier. If the lens cable has a different type of plug, use the supplied 4-pin plug.

8. [LEVEL] Sensitivity adjustment volume

Adjust the brightness of the image when the DC iris connector (7) is used.

Monitor screen	LEVEL turning direction
Too bright	Counterclockwise (Towards L)
Too dark	Clockwise (Towards H)

9a. Power cable - 230Vac model

Connect to the commercial ac 230V outlet.

CAUTION: When you use this camera, the socket-outlet shall be installed near the equipment so as to disconnect easily.

9b. [DC12V == /AC24V ~] Power input terminal

Connect the DC12V or AC24V power supply.

10. [VIDEO IRIS] Video iris terminal

Connected to an auto-iris lens containing an EE amplifier.

11. Interface connector

This connector is used for service.

12. [POWER] Power lamp

Lights when the power is on.

13. [VIDEO OUT] Video signal output connector

Connect to a video monitor, etc. (75Ω)

14. [WHT.BAL] White balance select switch

This is used for changing the setting of the white balance. MANU: Manual adjustment is possible.

AUTO: Accepts different types of lighting (2,850K-7,000K) using an automatic tracking system.

15. [AGC] Automatic gain control switch

This automatically increases the camera's sensitivity when the level of ambient light drops.

ON: AGC is activated.

OFF: AGC is not activated.

16. [BLC] Backlight compensation switch

This switch improves an image that is darkened because of backlighting.

Set this switch to ON for backlight subjects.

17. [AES] Automatic electronic shutter switch

If this switch is set to 'ON' when the manual iris lens is used, the shutter speed varies according to the brightness of the object, and the brightness of the image is automatically adjusted. If the aperture is fixed or if an EE lens is used, set this switch to OFF.

Note: Hunting may occur at a certain object brightness due to the mechanism of the AES circuit, but this is not a failure.

18. Synchronisation select switch

INT: Set the switch to this position to use the internal sync signal.

LL: Set the switch to this position to use the frequency of the AC power supply for synchronisation (50Hz power regions only).

19. [PHASE] Line lock synchronisation phase adjustment

Used to adjust the phase when the synchronisation select switch (18) is set to 'LL'.

Adjust this volume so that the vertical phase of the camera matches the vertical phase of another camera (or system) with a multi-channel oscilloscope. (If the phases do not match using this method, reverse the polarities of the AC power to the camera and then adjust again.)

20. White balance adjustment controls

When the white balance select switch (14) is set to 'MANU' the white balance can be adjusted manually.

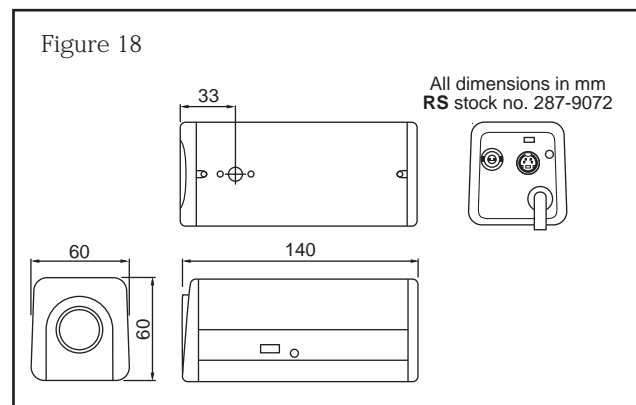
Turn to the 'B' side to decrease the amount of blue.

Turn to the 'R' side to decrease the amount of red.

Technical specification

	284-6943	284-6959
Image sensor CCD	1/3" interline - transfer	
No. of effective pixels	440,000 (753 (H)x582 (V))	
Resolution	470TVL	
Video output 1Vp-p	Composite video signal	
Synchronisation method	75ohms, unbalanced Internal and line lock	
Scanning frequency	15.625KHz x 50Hz	
Video S/N ratio	46dB	
Min illumination required	2.5 lux (F1.2)	
Power supply	12Vdc or 24Vac 50/60 Hz 230Vac50/60 Hz	
S/N ratio	50dB typ.	
Lens mount	CS mount	

1/3in. 12Vdc and 230Vac (RS stock no. 287-9072)



Cost effective colour cameras with medium resolution for a variety of general applications including surveillance.

Features


- Auto iris, direct drive or electronic iris compatible
- Mounting from both top and bottom of camera
- Good picture quality in low lighting conditions to 1.5lux
- Adjustable controls on the side of the camera for easier installation

Technical specification

Image sensor	1/3" CCD
Picture element	500(H)x582(V)
Resolution	330TVL
Video output	1Vp-p PAL Compatible
Synchronisation method	Line Lock (phase adjustable)
Scanning frequency	15.625kHz 50Hz
Video S/N ratio	>48dB(AGC off)
Min illumination required	1.5lux
Power supply	230Vac
Operating temperature	10° to +50°C
Iris	AI/DD/EI

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