

# EExd TCP/IP Network Camera

NCAM-8006



- **Internal web-server**
- **Connects directly to TCP/IP Ethernet**
- **Utilizes your existing IT infrastructure**
- **Live video stream to standard web browser**
- **No additional software required (eliminates licensing costs)**
- **No need for video monitors, quads, or switch boxes**
- **Multiple cameras and multiple viewers on one network**



The JCE Network camera system is designed for monitoring areas made potentially hazardous by the presence of flammable liquids, gases or vapours. The camera connects DIRECTLY to an Ethernet and allows any computer on the network to view the live video stream using a standard web browser. No additional software is required for the client machines, no server computers are required, the camera's internal web-server interacts directly with the pre-existing browser in client machines. Still images can be e-mailed or uploaded to a website automatically at regular intervals, or by connecting external sensors to the camera (e.g. motion sensors), the still images can be sent when an event is triggered.

## Installation

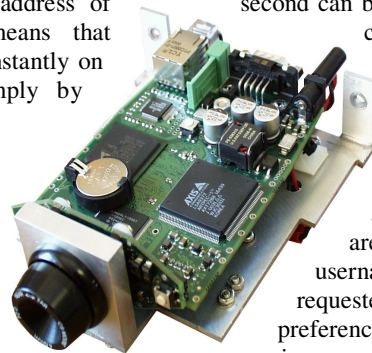
The Network Camera has a built in web-server, which is built on the Linux operating system. This means that no PC is required to support the camera, it is simply connected directly to an Ethernet hub. The camera comes pre-configured with an IP address of your choosing. This means that pictures can be viewed instantly on any web browser, simply by typing in the address of the camera.



**Linux Based**  
For Maximum Reliability

## Image Quality

The Image from the camera can either be a still Jpeg image or a motion Jpeg, up to resolutions as high as 1280 x 1024 (at various levels of compression). Dependant on the image size and compression, a frame rate of over 10 frames per second can be achieved. The brightness, white balance, and colour level can all be adjusted to suit the prevailing conditions.



## Power Supply

The camera has a galvanically isolated DC-DC converter, which provides a high level of immunity to fluctuating or unregulated power supplies. This also provides protection against the potentially damaging voltage transients that are frequently present in industrial installations.

## Administration and Security

To provide security the camera can be configured to only allow authorised users to access its images. When the security features are enabled the camera simply asks for a username and password when the web page is first requested by the user. The many options and preferences provided by the camera are also controlled using a web browser. This allows an organisations technical staff to effortlessly provide remote administration

of a camera installation. The administration menus allow many elements of the cameras functionality to be customized. These include:

- Image Size and Quality
- Network Settings
- Modem Settings
- System settings (date, time, etc.)
- Screen Layout and Colour Scheme

Two installation wizards are also built into the camera to allow quick and easy set-up.

### Sequential and Alarm Operation

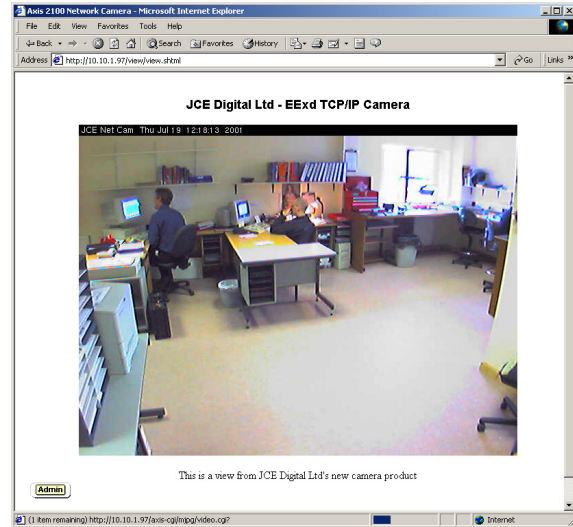
If a live feed is not necessary, or is impractical, then the camera can be set-up to deliver still images via e-mail or FTP protocols. In this mode the camera will automatically e-mail images to individuals, or send them to a website either on the Internet or an intranet. These images can be sent in either of the following modes: -

- Sequential mode is used to send pictures at regular intervals, these intervals can be varied from one tenth of a second all the way up to several hours. The unit can be configured to send pictures only during certain hours of the day. Outside this period either no pictures are sent, or a secondary timer can be enabled allowing less

frequent updates. This allows for more frequent updates at busy times, with less frequent updates at off peak times.

- Alarm mode is used in conjunction with an external sensor, or volt-free contact. In this mode the camera sends picture via e-mail or FTP only when the external event is triggered.

### Typical Web Browser Screen Shot



### Network Connection

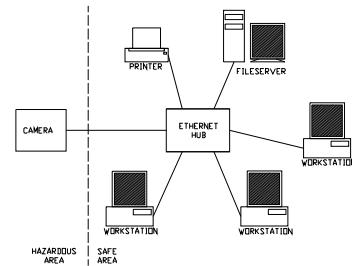
The camera is connected to a network using standard CAT5e UTP cable. For installations where mechanical protection of the cabling is required, a Low Smoke Zero Halogen, Galvanised Steel Wire Braid (LSZH-GSWB) version of CAT5e cable can be supplied on request. The camera is designed to interface with a 10baseT or 100baseTX network. The maximum bandwidth the camera uses is fully configurable to limit any network congestion and can be restricted to a little as 0.1Mbit/s.

### Network Configuration Examples

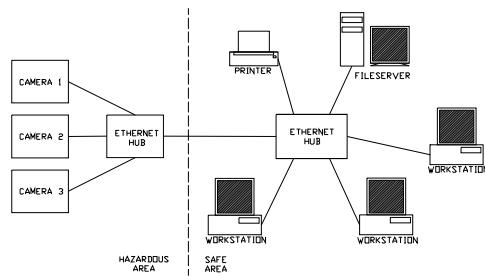
There is an almost infinite number of possible IT configurations into which the camera may be integrated. The following limited selection of examples is intended only to convey the most fundamental connectivity options.

The simplest example installation is where a single camera is connected to a single isolated LAN (as shown in Fig. 1). The camera then transmits a live video stream directly over the local network to any computer that requests it. In this way any authorised user can view the images.

**LIVE VIDEO STREAM** OR **STILL IMAGES**



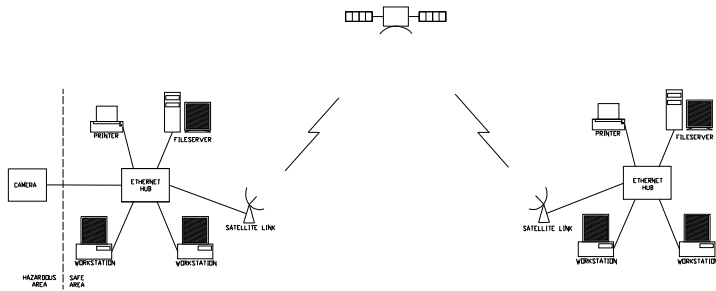
*Fig.1 Camera attached to existing network*



*Fig.2 Multiple cameras attached to existing network using an additional hub.*

Many cameras can be installed on a single network. They can then be positioned at various places around the hazardous area, and to reduce the number of cables running back to the safe area, a hub can be installed in the hazardous area. This configuration illustrates a situation that would require a great deal more cable and equipment if implemented using a conventional composite video system. In addition to the cost savings that come from the fact that there is no requirement for a dedicated means of distributing the images, there are considerable cost savings in the simplicity of the camera installation itself.

**LIVE VIDEO STREAM** OR **STILL IMAGES**



**Fig.3 Camera attached to local network, and remote network connected via satellite link**

Access to the camera video stream need not be limited to a local area network. With the appropriate technology the images can be viewed on a computer screen on the other side of the world. This can easily be achieved with a very high level of security. Typically, organisations will have a pre-existing IT infrastructure for the digital communication of computer data, and the overwhelming trend is for that infrastructure to be based on the TCP/IP standard. The network camera uses TCP/IP as it's primary means of communication, and is therefore instantly able to provide image distribution limited only by the

extent of an organisations IT system. Another factor is that organisations with this type of communications infrastructure will inevitably have significant investment in the IT support staff necessary to keep it operational. This type of support staff is ideally suited to the administration of a network camera installation.

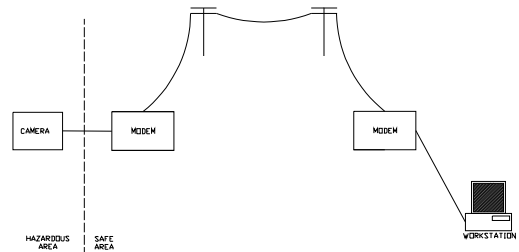
**LIVE VIDEO STREAM** OR **STILL IMAGES**

### Modem Configuration Examples

The network camera also has a 9-pin RS232 serial port, and can be connected to a standard analogue modem. This option allows the camera to 'dial-out' either to a remote web-server on a private LAN, or to the Internet. In addition to this the camera supports 'dial-in', allowing remote viewers to initiate data transfer over a modem.

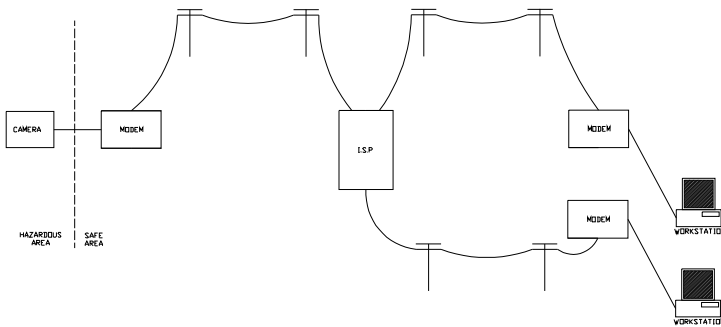
The most basic form of connection to the camera using the modem is the direct 'dial-up' configuration (shown in fig. 4). The camera is simply configured to accept a dial in, and when a user wants to view the images they simply initiate a connection.

**LIVE VIDEO STREAM** OR **STILL IMAGES**



**Fig.4 Camera attached to modem, and accessed by a remote computer with a modem, over a standard telephone line.**

(Note: this configuration limits access to a single computer)



**Fig.5 Camera uses a modem to upload images to a web-server. Any computer with a modem and an Internet account can then access them.**

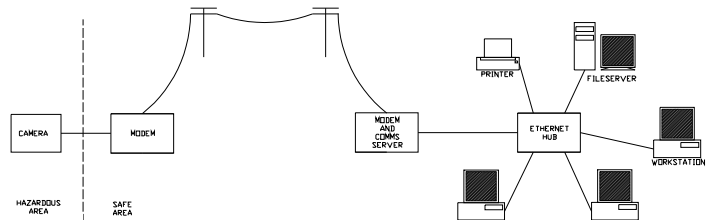
Another way to connect the camera is to have it dial out to an Internet Service Provider and upload still images to a website using standard FTP. This has the advantage of placing the images directly on the public Internet, allowing potentially millions of people to view them (see fig. 5).

Note: This transfer of still images to a web-server on the Internet can also be achieved using the camera's Ethernet connection.

**STILL IMAGES**

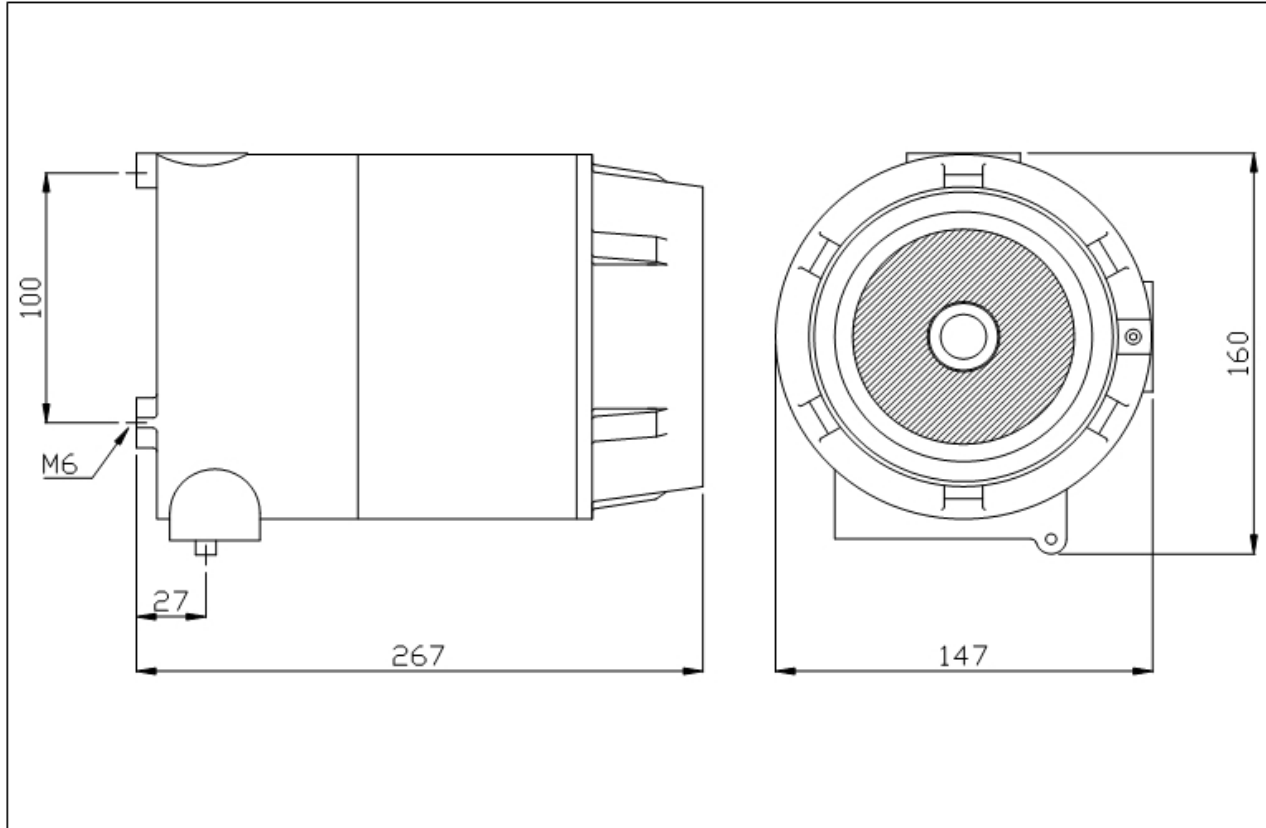
A third possibility for the connection of a remote camera involves it being connected to an entire LAN using a communications server. The camera can be dialled into by the communications server (or IP router hardware), which then routes the video feed to any computer on the network (see fig. 6).

**LIVE VIDEO STREAM** OR **STILL IMAGES**



**Fig.6 Camera attached to modem, with a direct dial in to an existing network.**

## Dimensions



## Materials and Finish

Body & Cover - Copper free aluminium alloy LM25  
(BS1490) with less than 0.2% copper content.  
Colour - White as standard.

## Approvals

Enclosure is CSA approved.

## Certification

ISSeP Certificate. No. ISSeP03ATEX012X

EExd IIC T6

## Specifications

Ingress protection:	IP66
Coating:	Polyester powder
Supply voltage:	8.4 Vdc to 36 Vdc
Load:	7 W (max)
Lens:	Fixed lens, CS mount 4mm focal length
Photo sensor:	1/4" Charge Coupled Device
Min. Light Level:	3.0 Lux
Output signal:	Ethernet / RS232 TCP/IP
Cable entries:	2 x M20 entries
Weight:	3.5 Kg
Camera Temp. Range:	-5 to 40 °C
Accessories:	Adjustable mounting bracket (Available separately on request).

Ordering Code: NCAM-8006

## Earthing

All enclosures are supplied with a 6mm stainless steel  
(18/8) internal and external earth stud as standard.

## Entries and Thread Standards

Standard thread forms are ISO Metric to BS 3643, NPT or GAS  
can be supplied on request.

- The manufacturer reserves the right to change the above data without notification.
- Details of certification and conformity can be provided on request.
- All products sold subject to our terms and conditions of business.
- Health and Safety at Work Act 1974. In the UK all equipment must be installed and disposed of (as required) within the legislative requirements of the Health & Safety at Work Act 1974.

Please note that the CCD chip in this camera is susceptible to damage from direct exposure to very bright light for long periods of time.



**JCE Digital Ltd.**  
Industrial Control, Systems Integration,  
Software and Electronic Engineering