# CC640

## Digital Camera for Harsh Environments

The CC640 Digital Camera, manufactured by Campbell Scientific Canada, works in harsh, remote locations. It operates at temperatures as low as -40°C, while using minimal power. Three communications ports (RS-232, RS-485, CS I/O) facilitate transfer of images to a datalogger.

Our dataloggers trigger image acquisitions by applying a 5 to 12 V signal. The CC640 also has a stand-alone mode that allows the camera to store images on a CompactFlash® card—without the use of a datalogger. In this mode, image acquisitions are triggered by the camera's precision real-time clock.

The CC640 can store JPEG images on a CompactFlash card or in the datalogger's memory. To send images to the datalogger's memory, the datalogger must have the PAKBUS® communication protocol and at least 2 Mbytes of memory. Compatible dataloggers include our CR800, CR850, CR10X-2M-PB, CR1000, and CR3000.

### Datalogger Connection

If the distance between the camera and datalogger is less than 25 feet, the CC640 typically connects to the datalogger via the COMCBL1-L cable. When Campbell Scientific's MD485 Multidrop Interface is used, the camera and datalogger can be at a distance of up to 4000 feet. Our MD485 interface connects to the camera via the CABLE5CBL-L cable. The CABLE3CBL-L cable is used for the power and pulse connections.



Flawless operation in extreme cold sets this camera apart, from other digital cameras.



The 18543 camera enclosure completely encloses the camera and has a window through which images are acquired. A defrost kit is available for the window.



SKYLINE          NOV 17, 2008 12:30 281K

A CC640 stationed atop the University of Alberta's Tory Building took this photograph of North Saskatchenwan River Valley.



CC640_IMAGE          JAN 08, 2006 17:10 265K

The CC640 operated in extreme temperatures to provide this photograph of a mountain pass in Alaska.

# Ordering Information

## Digital Camera

**CC640**   CSC Digital Camera for harsh environments

## Camera Enclosure and Enclosure Accessories

**18543**   Enclosure that houses and protects the CC640; the enclosure's window allows the CC640 to take photographs while the camera is inside the enclosure.

**26140**   12 Vdc Heater Kit that can help prevent the enclosure's window from frosting over..

**18549**   Mounting kit for attaching the enclosure to a tripod or tower crossarm.

## RS-485 Interface and Surge Protectors

**MD485**   RS-485 Multidrop Interface used to extend the distance allowed between the CC640 and the datalogger.  Requires the CABLE5CBL-L (see below).

**5563**   Surge Protector Kit used with MD485.  Helps suppress electrical transients that may be carried along the transmission line.

**6536**   Surge Protector Kit that includes a Joslyn box to cover the connections.  The 6536 is used with the MD485 to help suppress electrical transients that may be carried along the transmission line.

## Cables, Converter Kits, and Cable Options

**COMCBL1-L**   RS-232 cable that terminates in pigtails for connection to the COM ports on a CR800, CR850, CR1000, or CR3000 datalogger.  Enter cable length, in feet, after the -L.

**19504**   Pigtail-to-9pin Connector Converter Kit allows the COMCBL1 to be connected to the RS-232 or CS I/O port on a datalogger.

**CABLE3CBL-L**   3-Conductor 22-AWG Cable for the power and pulse connections.  Enter cable length, in feet, after the -L. Must choose a cable termination option (see below).

**CABLE5CBL-L**   5-Conductor 24-AWG Cable that connects the MD485 to the CC640.  Enter cable length, in feet, after the -L.  Must choose a cable termination option (see below).

### Cable Termination Options for the CABLE3CBL-L and CABLE5CBL-L (choose one)

**-PT**   Cable terminates in stripped and tinned leads for connection to screw terminals.

**-PW**   Cable terminates in a connector for attachment to a prewired enclosure.

The communication ports, video output, Compact-Flash card slot, and power switch are located on the back of the camera.  The video output connector provides an analog video signal for the purpose of focusing and targeting the camera.

# Specifications

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|---|---|
| **Lens Description:** | F1.4 3.5 to 8 mm Varifocal Lens with Electronic Iris |
| **Image Type:** | JPEG |
| **Resolution:** | 640 x 480 (307,200 pixels); 604 x 504 (with time stamp) |
| **Current Drain** | |
| Operating: | 250 mA maximum |
| Quiescent: | 250 µA typical |
| **Communication Ports:** | RS-232, CS I/O, RS-485 (labeled external I/O), |
| **Maximum Baud Rate** | |
| RS-232, RS-485: | 230 kbps |
| CS I/O: | 76.8 kbps |
| **CS I/O CSDC Addresses:** | 7 or 8 |
| **Power:** | 9 to 15 Vdc |
| **Video Output:** | NTSC, PAL |
| **Operating Temperature:** | -40° to +70°C |
| **External Input Signal** | |
| Logic Low Level: | 0 to 0.7 Vdc (-12 Vdc absolute minimum) |
| Logic High Level: | 4 to 15 Vdc (15 Vdc absolute maximum) |
| **Memory Card** | |
| Type: | CompactFlash |
| File System: | FAT16 |
| Storage: | 2 Gigabytes or less |
| **Clock Accuracy:** | ±1 minute/year (0° to 40°C); ±4 minute/year (-40° to 70°C) |
| **Time to Take Image:** | ~10 seconds |
| **Dimensions:** | 8.5 x 2.6 x 4.3 in (21.5 x 6.5 x 11.0 cm) |
| **Weight:** | 1.1 lbs (500 g) |