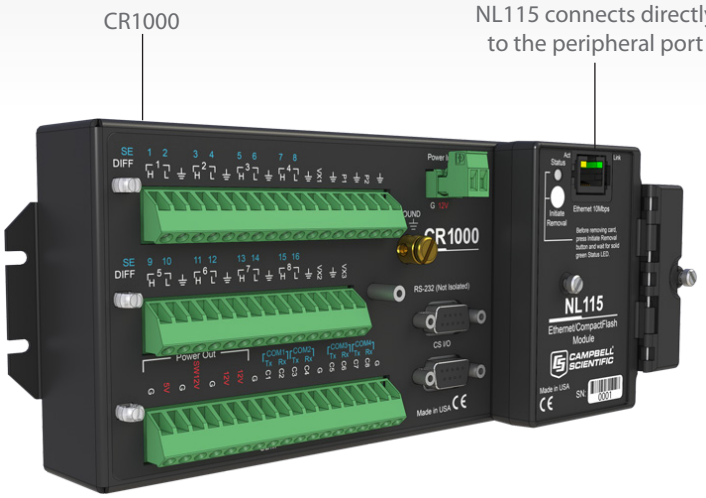
CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

NL115

Ethernet Interface and CompactFlash® Module



Connectivity and Data Storage

Ethernet and memory card connections

Overview

Campbell Scientific's NL115 enables 10baseT Ethernet communications and stores data on a removable CompactFlash® (CF) card. This small, rugged communication device connects to the 40-pin peripheral port on a CR1000 or CR3000 datalogger.

Benefits and Features

- Provides Ethernet communications and additional data storage for a CR1000 or CR3000 dataloggers
- Ethernet connection allows for datalogger communications over a local area network or the Internet via TCP/IP
- Removable CompactFlash cards for long-term data storage
- Small, light-weight CF cards fit in your pocket for easy transport between the datalogger and PC

Ethernet Communications

The NL115 allows the datalogger to communicate over a local network or a dedicated Internet connection via TCP/IP. A straight through cable is used when the cable is run from a hub to the NL115. A 10baseT Ethernet crossover cable is used if the cable is run directly from the computer to the NL115.

The NL115 is set up using the Device Configuration utility (DevConfig). DevConfig is bundled with our PC400, RTDAQ, and LoggerNet software. DevConfig can also be downloaded, at no charge, from our website (www.campbellsci.com/downloads).

Data Storage on CompactFlash Cards

CF Cards

One Type I or Type II (CF) card fits into the NL115's card slot. Campbell Scientific offers and recommends the CFMC256M, CFMC2G, and CFMC16G CF cards (see Ordering Information). To use the CFMC16G, the datalogger operating system must be OS 25 or later.

Only industrial-grade CF cards should be used with our products. Although consumer-grade cards cost less than industrial-grade cards, the consumer-grade cards are more susceptible to failure resulting in both the loss of the card and its stored data. Industrial-grade cards also function over wider temperature ranges and have longer life spans than consumer-grade cards.

Data Retrieval

The NL115/CF card combination can be used to expand the datalogger's memory, transport data/programs from the field site(s) to the office, and upload power up functions. The computer can read the CF card either with the computer's PCMCIA slot and the CF1 adapter or with the computer's USB port and the 17752 Reader/Writer.

Ordering Information

Ethernet Interface and CompactFlash® Module

NL115 Ethernet Interface and CompactFlash Module for CR1000 or CR3000 dataloggers.

Temperature Range Options (choose one)

-ST Tested -25° to +50°C

-XT Tested -40° to +85°C

Ethernet Cables

28900 CAT5e, unshielded straight through cable (10 ft). Recommended if the cable is run from a hub.

13659 CAT5e, 10baseT crossover cable (7 ft). Recommended if the cable is run directly from the computer.

28898 CAT5e, unshielded straight through cable (6 in). This cable is often used with the 28033 Surge Protector

28899 CAT5e, unshielded straight through cable (2 ft). This cable is often used with the 28033 Surge Protector

Surge Protector

28033 Ethernet Surge Protector helps protect the NL115 from electrical surges. A straight-through Ethernet cable is used to connect the 28033 to the NL115. Another Ethernet cable such as the 28898 or 28899 is used to connect the 28033 to the computer or hub.

CompactFlash Cards

CFMC256M 256 MB Industrial-grade CompactFlash Memory Card.

CFMC2G 2 GB Industrial-grade CompactFlash Memory Card.

CFMC16G 16 GB Industrial-grade CompactFlash Memory Card. The datalogger operating system must be OS 25 or later to read this card.

Reader/Writer or Adapter

17752 USB Memory Card Reader

CF1 SanDisk® CompactFlash Adapter for PCMCIA Slots

Specifications

- CE Compliant Devices: NL115, 17752 USB Reader/Writer

NL115

- Typical Access Speed: 200 to 400 kbits s^{-1}
- Memory Configuration: User selectable; ring (default) or fill-and-stop
- Power Requirements: 12 V supplied through the datalogger's peripheral port
- CF Card Requirements: Industrial grade
- Datalogger Operating System (OS): The CR1000 OS must be OS 9 or later. Both the CR1000 and CR3000 need OS 25 or later to read cards with more than 2 GB of storage.
- Dimensions: 10.2 x 8.9 x 6.4 cm (4.0 x 3.5 x 2.5 in)
- Weight: 154 g (5.4 oz)

Software Requirements

- LoggerNet: Version 3.2 or later
- PC400: Version 1.3 or later
- DevConfig: Version 1.5 or later

Typical Current Drain

- CR1000 w/ NL115, no Ethernet cable attached, not actively communicating over Ethernet nor accessing the CF card: 19 mA
- CR1000 w/ NL115, Ethernet cable attached: 20 mA
- CR1000 w/NL115, Ethernet cable attached and communicating over Ethernet: 20 mA
- CR1000 w/NL115 communicating over Ethernet and accessing CF card: 43 mA
- CR1000 w/ NL115, Ethernet port has been put to sleep using the IPNetPower() CRBasic Instruction: 2 mA
- Add 1 mA to current drain if red or green Status LED is continuously on
- Add 2 mA to current drain if orange Status LED is continuously on

EMI and ESD Protection

- Meets requirements for a class A device under European Standards
- Application of Council Directive(s): 89/336/EEC as amended by 89/336/EEC and 93/68/EEC
- Standards to which Conformity is Declared: EN55022-1; 1995 and EN50082-1: 1992

CFMC256M, CFMC2G, and CFMC16G

- Manufacturer: FMJ
- Card Description: Industry standard Type I
- Storage Capacity: 256 MB, 2 GB, or 16 GB
- Operating Temperature: -40° to +85°C
- Storage Temperature:
  -55° to +125°C (CFMC256M, CFMC2G)
  -50° to +100°C (CFMC16G)
- Compliancy: RoHS
- Card Format: FAT32
- Dimensions: 4.28 x 3.64 x 0.33 cm (1.69 x 1.43 x 0.13 in)
- Weight: 10 g (0.35 oz)

17752 USB Reader/Writer

- Dimensions: 8.9 x 6.9 x 1.9 cm (3.5 x 2.7 x 0.75 in)
- Operating Temperature: 0° to 60°C
- Storage Temperature: -20° to 85°C

Minimum Computer Requirements

- Windows 8, 7, Vista (SP1, SP2), XP (SP3), 2000 (SP4); MAC OS X v. 10.6.x+; or Linux v. 2.6.x+
- USB Port: USB 2.0 or 3.0

CF1 Adapter

- Manufacturer: SanDisk
- Dimensions: 8.6 x 5.4 x 0.5 cm (3.4 x 2.1 x 0.2 in)