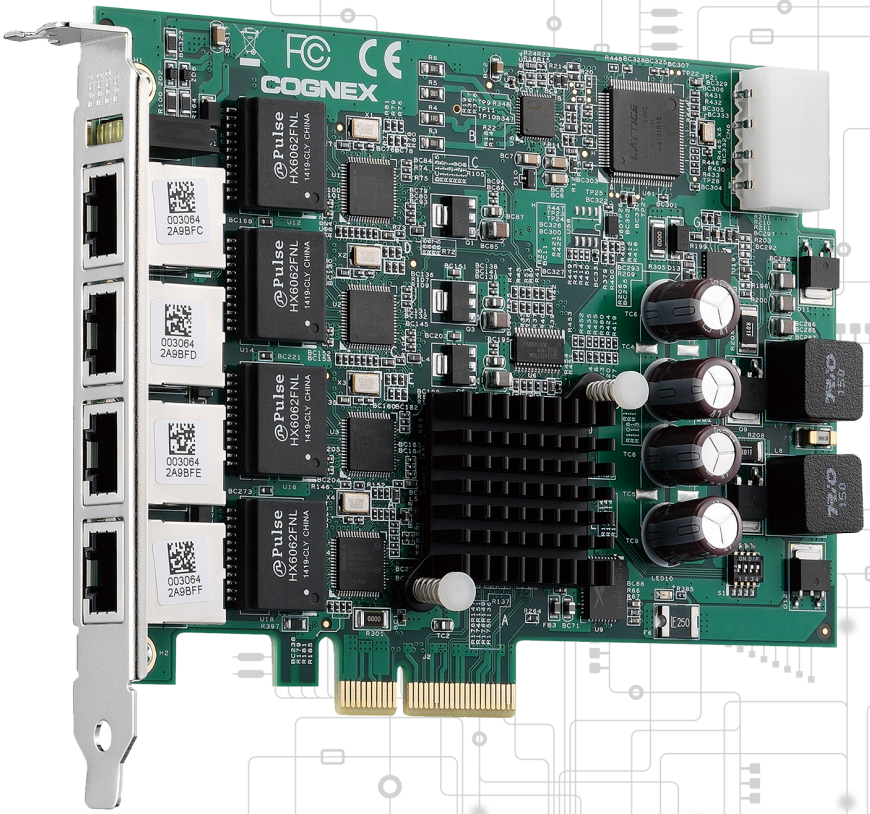
COGNEX

Cognex CFG-8714e

Hardware Manual



2018 May 01

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Preface

This document describes the Cognex CFG-8714e frame grabber.

Symbols

The following symbols indicate safety precautions and supplemental information.

WARNING: This symbol indicates the presence of a hazard that could result in death, serious personal injury or electrical shock.

CAUTION: This symbol indicates the presence of a hazard that could result in property damage.

Note: Notes provide supplemental information about a subject.

Tip: Tips provide helpful suggestions and shortcuts that may not otherwise be apparent.

Precautions

Observe these precautions when installing the Cognex product, to reduce the risk of injury or equipment damage:

- To reduce the risk of damage or malfunction due to over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply, route all cables and wires away from high current wiring or high-voltage power sources.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Cable shielding can be degraded or cables can be damaged or wear out more quickly if a service loop or bend radius is tighter than 10X the cable diameter. The bend radius must begin at least six inches from the connector.
- This device is certified for office use only and if used at home, there can be frequency interference problems.
- This device should be used in accordance with the instructions in this manual.
- All specifications are for reference purpose only and may be changed without notice.

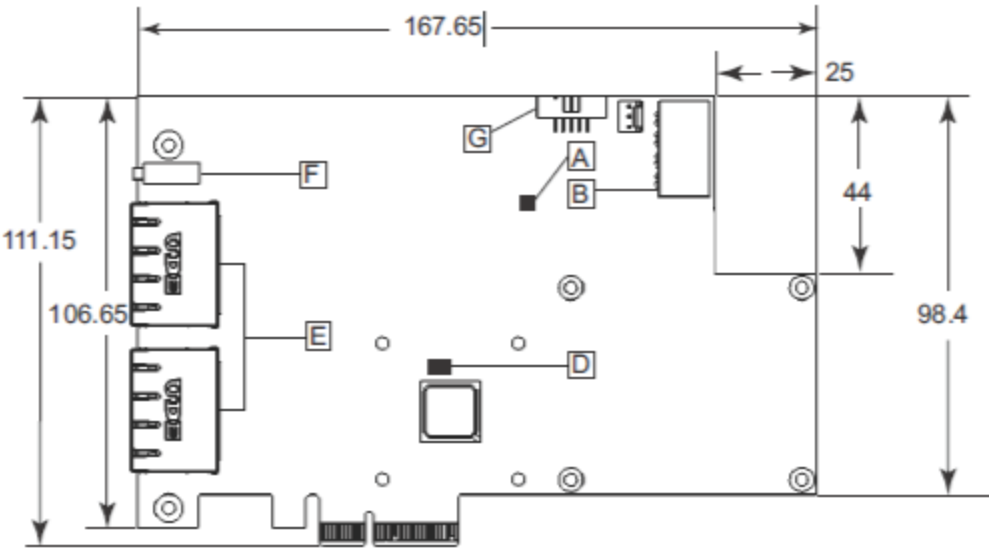
The CFG-8714e Frame Grabber

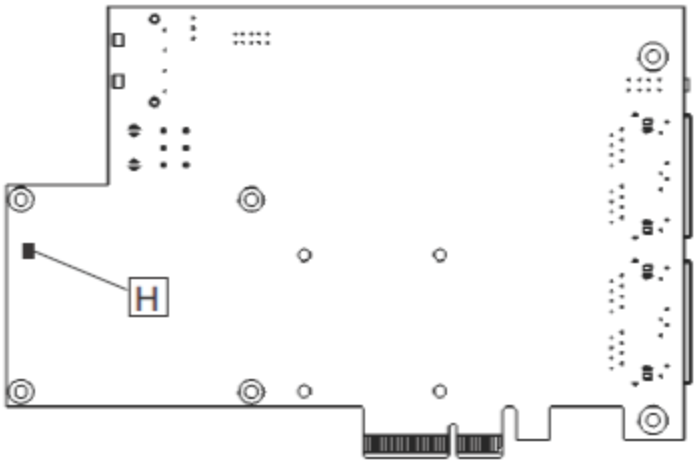
The CFG-8714e frame grabber is a PCI Express x4 compliant device for GigE Vision image acquisition. A CFG-8714e offers the following features:

- PCI Express® x4 compliant
- Supports 4 independent Gigabit Ethernet ports
- IEEE 802.3at for PoE+ (Power over Ethernet Plus) 50 to 57V, 30W per port
- Up to 20/61.6 PoE power supply from PCIe bus
- Link Aggregation/jumbo frame (9 Kb)
- LED connectivity indicators
- Multiple card and camera support
- PoE Protection from protect against undervoltage, overvoltage, overcurrent, and overheating
- Non-volatile memory for storing Cognex security key information.
- Windows® 7/8.1/10 OS compatible
- C#, VB.NET/VC++ compatible

Layout, I/O and Indicators

The following images highlight the layout of the CFG-8714e:

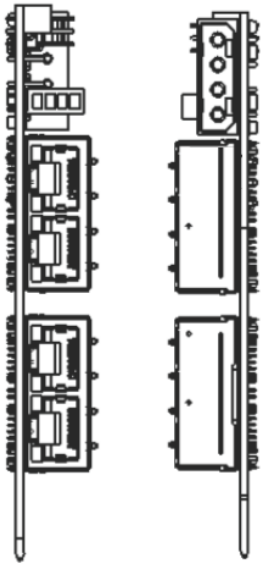




Refer to the following legend for reference:

A	POE switch (SW3)
B	4-pin 12V connector
D	Card ID switch (SW1)
E	RJ45 connectors x2
F	POE LED
G	Trigger In connector
H	Temperature sensor

The following diagrams present side and front views:

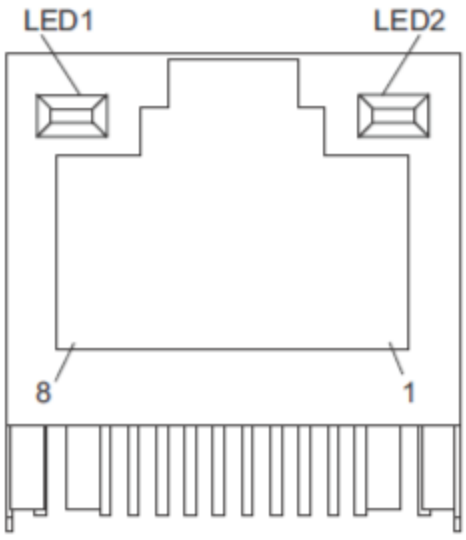


Specifications

Physical	
Dimensions	167.6 W x 106.6 H mm (6.6 x 4.2 in.)
Operating Temperature	0°C to 70°C when PoE power is 20W and 61.6W 0°C to 40°C when PoE power is 120W
Storage	-40°C to 85°C
Safety Compliance	CE/FCC Class B; RoHS
Advanced	
Jumbo Frame	9 KB
IEEE 1588 (Hardware Only)	Yes
Link Aggregation	Yes
Multiple cards	Yes
PoE+, Power over Ethernet Plus, IEEE 802.3at	Yes
PoE Protection	Yes
PoE Power Management	Yes
License Management	Yes
ToE, Trigger over Ethernet	No
Power Requirements	
Input Voltage	3.3VDC and 12VDC, (w/ PC system power)
PoE Power w/ PCIe Slot	Max. 20W

RJ-45 Port

The CFG-8714e supports 4 GigE Vision Ethernet ports.



Refer to the following table for Ethernet port connector signals:

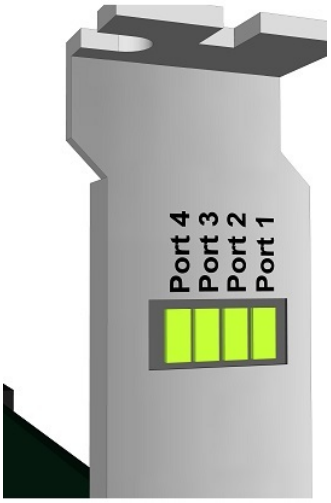
Pin	Signal
1	MDI0+ (PoE_DCV+)
2	MDI0- (PoE_DCV+)
3	MDI1+ (PoE_DCV-)
4	MDI2+ (PoE_DCV+)
5	MDI2- (PoE_DCV+)
6	MDI1- (PoE_DCV-)
7	MDI3+ (PoE_DCV-)
8	MDI3- (PoE_DCV-)

Refer to the following table for LED1 and LED2:

	Activity	Status
LED1 10/100/1000	Off	10 Mbps
	Green	100 Mpbs
	Yellow	1000 Mbps
LED2 ACT/LINK	Off	No link
	Green	Linked
	Flashing green	Data activity

Status LEDs

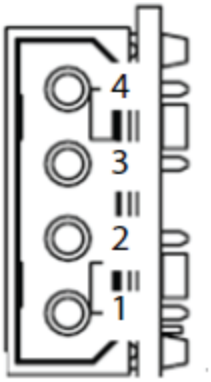
The CFG-8714e provides four LEDs to indicate current operating conditions of the four PoE ports:



A lit LED indicates a port is supplying power over PoE. If you connect a GigE Vision camera that does not use Power over Ethernet, the LED does not light.

Power Connector

The CFG-8714e supports a 4-pin 12V power connector:



Pin	Signals
1	+12V
2	GND
3	GND
4	+5

Security Bits

The CFG-8714e supports non-volatile memory for storing security bit information. Your CFG-8714e arrives with particular security bits enabled, but can be reprogrammed to allow additional security bits later. Contact your Cognex sales representative for details.

See your software product documentation for more information on how your Cognex software uses a security system to ensure that the software is properly licensed.

Installing the CFG-8714e

A vacant PCI express slot is required for installation. Perform the following steps to install a CFG-8714e frame grabber:

1. Remove the computer cover according to the computer manual.
2. Remove the PCE express slot cover (if any).
3. Carefully position CFG-8714e in the selected PCI express slot. If installing in a tower computer, align the board with the board slots.
4. Press the board firmly but carefully into the connector.
5. Anchor the board with the screw.
6. Plug the cable into the PoE power connector.
7. Connect the device via a Gigabit Ethernet connector.
8. Power up the computer.

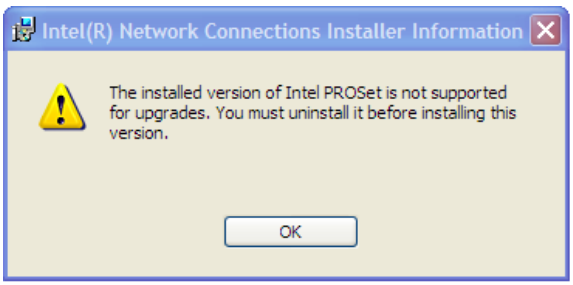
If you are using the Windows 7 SP1 operating system, the CFG-8714e frame grabber requires additional device drivers not included with your VisionPro installer. Specifically, the 8714e requires device drivers for Intel® Ethernet Controller I210 Series adapters.

1. Open a browser and navigate to the following URL to download the appropriate drivers:

   https://downloadcenter.intel.com/product/64399/Intel-Ethernet-Controller-I210-Series

2. Install the **Intel Network Adapter Driver for Windows 7**.

   Be aware that based on the current configuration of your PC, the driver installer might display an error message stating that the installation cannot continue:

   If this occurs, navigate to the following URL and run the **Program Install and Uninstall Troubleshooter**:

   https://support.microsoft.com/en-us/help/17588/fix-problems-that-block-programs-from-being-installed-or-removed

   Once the **Program Install and Uninstall Troubleshooter** completes, return to step 1 and install the Intel® Ethernet Controller I210 Series adapters.

3. Install your VisionPro software.

   The Program Compatibility Assistant might display a warning about Windows not being able to verify the digital signature for the 8700 series device drivers. If this occurs, exit the VisionPro installer and install Windows Updates for your PC.

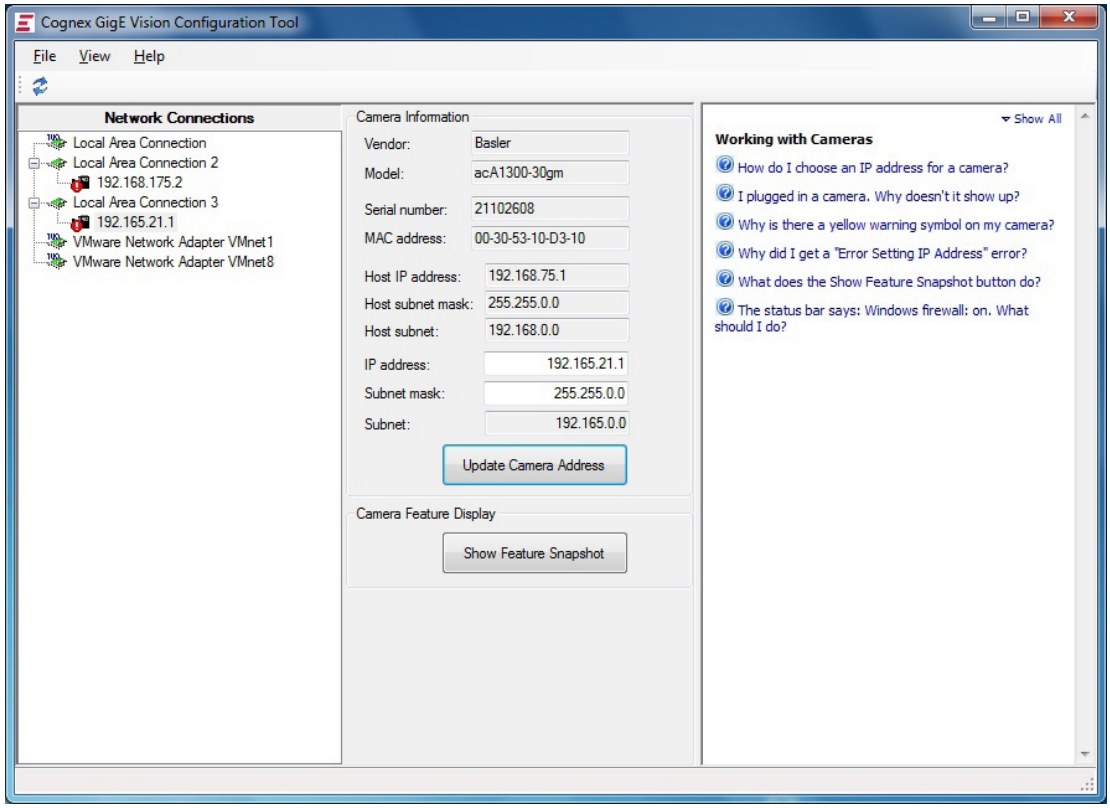
   Try installing VisionPro again after the Windows Updates complete.

GigE Vision Configuration

After you install the CFG-8714e you can attach up to four GigE Vision cameras. See the *GigE Vision Cameras User's Guide*, available from the **Start** menu, for more details on connecting and using GigE Vision cameras with your Cognex

software.

Once the cameras are connected, you must use the GigE Vision Configuration Utility, available from the **Start** menu, to set the IP address for each frame grabber port and each GigE Vision camera. The GigE Vision Configurator displays all network connections that correspond to ports on the frame grabber as well as any GigE Vision cameras connected to them:



For additional information on using a GigE Vision camera with your Cognex vision software, see your software product documentation. In addition, the Cognex technical support site may contain additional documentation about using GigE vision for your machine vision application.

Regulations/Conformity

Note: For the most up-to-date CE declaration and regulatory conformity information, please refer to the Cognex online support site: http://www.cognex.com/Support.

Safety and Regulatory	
CE	CFG-8714e: Regulatory Model 207-10006R
KCC	Regulatory Model MSIP-REM-CGX-207-1031R
RoHS	Compliant to the latest applicable Directive.

October 2017