

COGNEX

Cognex CFG-8700 Series

Hardware Manual

Legal Notices

The software described in this document is furnished under license, and may be used or copied only in accordance with the terms of such license and with the inclusion of the copyright notice shown on this page. Neither the software, this document, nor any copies thereof may be provided to, or otherwise made available to, anyone other than the licensee. Title to, and ownership of, this software remains with Cognex Corporation or its licensor. Cognex Corporation assumes no responsibility for the use or reliability of its software on equipment that is not supplied by Cognex Corporation. Cognex Corporation makes no warranties, either express or implied, regarding the described software, its merchantability, non-infringement or its fitness for any particular purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by Cognex Corporation. Cognex Corporation is not responsible for any errors that may be present in either this document or the associated software.

Companies, names, and data used in examples herein are fictitious unless otherwise noted. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, nor transferred to any other media or language without the written permission of Cognex Corporation.

© 2014. Cognex Corporation. All Rights Reserved.

Portions of the hardware and software provided by Cognex may be covered by one or more U.S. and foreign patents, as well as pending U.S. and foreign patents listed on the Cognex web site at: <http://www.cognex.com/patents>.

The following are registered trademarks of Cognex Corporation:

Cognex, 2DMAX, Advantage, Alignplus, Assemblyplus, Check it with Checker, Checker, Cognex Vision for Industry, Cognex VSOC, CVL, DataMan, DisplayInspect, DVT, EasyBuilder, Hotbars, IDMax, In-Sight, Laser Killer, MVS-8000, OmniView, PatFind, PatFlex, PatInspect, PatMax, PatQuick, SensorView, SmartView, SmartAdvisor, SmartLearn, UltraLight, Vision Solutions, VisionPro, VisionView

The following are trademarks of Cognex Corporation:

The Cognex logo, 1DMax, 3D-Locate, 3DMax, BGAll, CheckPoint, Cognex VSoC, CVC-1000, FFD, iLearn, In-Sight (design insignia with cross-hairs), In-Sight 2000, InspectEdge, Inspection Designer, MVS, NotchMax, OCRMax, ProofRead, SmartSync, ProfilePlus, SmartDisplay, SmartSystem, SMD4, VisiFlex, Xpand


Other product and company trademarks identified herein are the trademarks of their respective owners.


Preface


This document describes the Cognex CFG-8700 series frame grabbers.


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-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 be at least six inches from the connector.
- Class A Equipment (broadcasting and communication equipment for office work): Seller and user shall be notified that this equipment is suitable for electromagnetic equipment for office work (Class A) and can be used outside the home.
- 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.

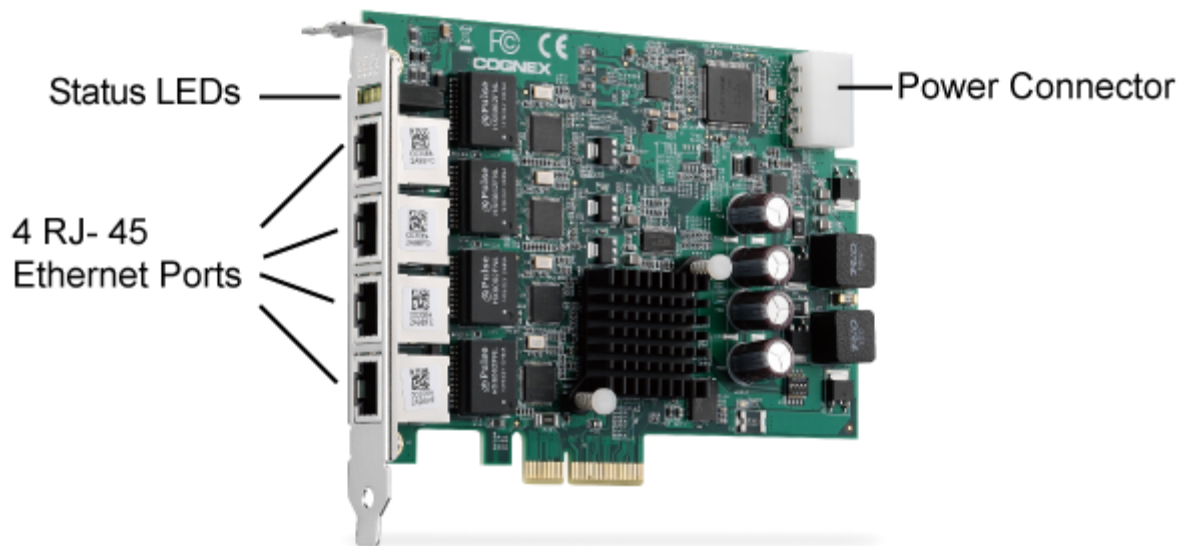
The CFG-8704e Frame Grabber

The CFG-8704e frame grabber is a PCI Express x4 compliant device for GigE Vision image acquisition. An CFG-8704e offers the following features:

- 4 independent GigE Vision Ethernet ports
- Non-volatile memory for storing Cognex security key information.
- Jumbo frames
- Power over Ethernet (PoE), IEEE 802.3af (48V, 15.4 W per channel) compliance
- LAN chip: Intel® 82574L, PCIe v1.1 (2.5GT/s)

Layout

The following image highlights several features of the CFG-8704e:



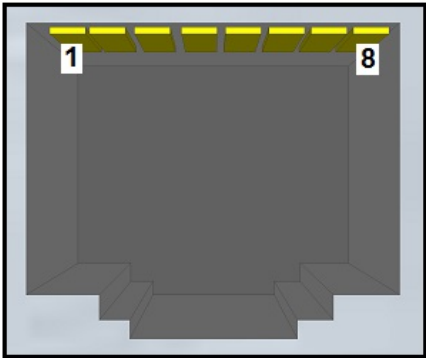
Specifications

General Specifications	
Dimensions	145 wide x 111.12 length (mm); 5.71 x 4.38 (in)
Operating Temperature	0° C to 55° C
Storage	-40° C to 85° C
Power	
Input voltage	3.3VDC and 12VDC from PCIe slot, 12VDC from power connector
Input from power connector	Max 7A @ 12VDC (supporting up to 4 ports at 15.4W per PoE port)
Input from PCIe slot	Max 2.1A @ 12VDC (compatible to PCIe spec), with connection cut off by fuse when exceeded
PoE Signal	
Max Output Power	15.4 W per channel, IEEE 802.3af compliant
PoE Output Voltage	44 to 48 V, PoE port positive voltage feed

General Specifications	
PCI Express	
PCIe x4 ports	1 port PCIe x4, for GigE Vision
GigE Vision	
GigE Vision Ports	4

RJ-45 Port

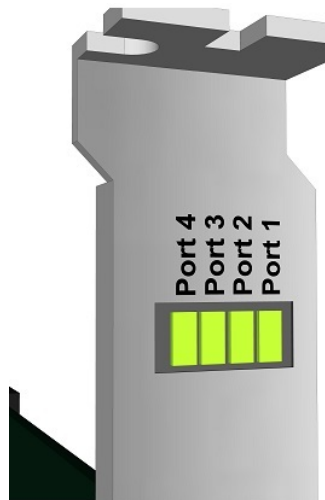
The CFG-8704e supports 4 GigE Vision Ethernet ports.



Pin	Signal
1	MD10+ (PoE_DC48V)
2	MD10- (PoE_DC48V)
3	MDI1+ (PoE_DC0V)
4	MDI2+ (PoE_DC48V)
5	MDI2- (PoE_DC48V)
6	MDI1- (PoE_DC0V)
7	MDI3+ (PoE_DC0V)
8	MDI3- (PoE_DC0V)

Status LEDs

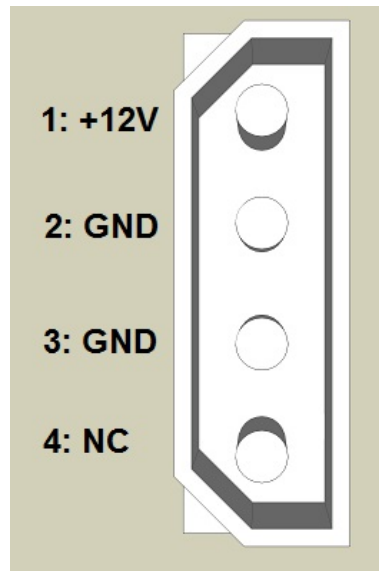
The CFG-8704e provides four LEDs to indicate current operating conditions of the four PoE ports:



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-8704e supports a 4-pin power connector that can be optionally used to supply power to GigE Vision cameras.



The 8704e can provide up to 24W of power (total) through the four Power over Ethernet (PoE) connectors when installed in a PC. If your cameras require more power, you should attach the connector to a separate power source.

Security Bits

The CFG-8704e supports non-volatile memory for storing security bit information. Your CFG-8704e 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-8704e

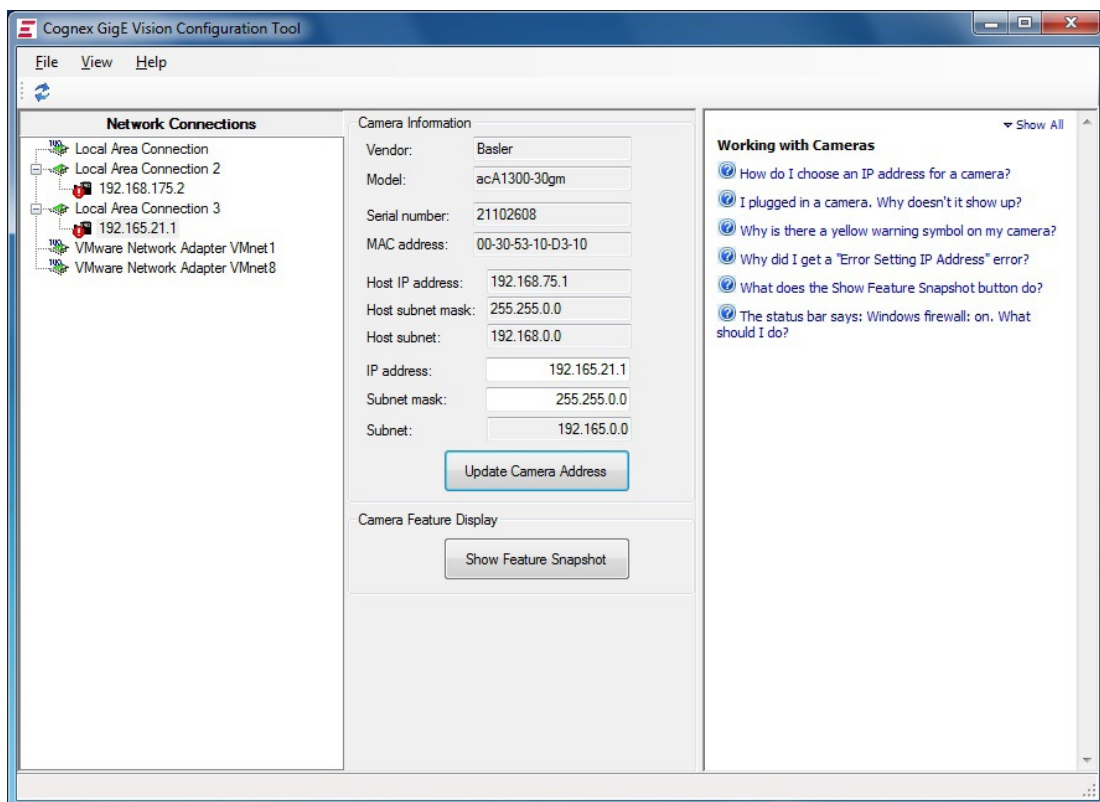
Perform the following steps to install a CFG-8704e frame grabber:

1. Wear a grounded, static-dissipating wrist strap for ESD protection.
2. Power off the PC and remove its cover.
3. Select a PCIe expansion slot. Remove the slot cover and store it for future use.
4. Press the frame grabber into the slot until it is firmly seated.
5. (Optional) Connect a power supply from the PC to the power connector on the frame grabber.
6. If your PC uses faceplate screws, replace the screw to anchor the frame grabber to the PC.
7. Replace the cover of the PC and turn the PC on.

GigE Vision Configuration

After you install the CFG-8704e 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 set the IP address for each frame grabber port and each GigE Vision camera using the GigE Vision Configurator utility, also available from the **Start** menu. The GigE Vision Configurator displays all network connections that correspond to ports on the frame grabber as well as 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 regulations and conformity information, please refer to the Cognex online support site: <http://www.cognex.com/Support>.

Safety and Regulatory	
CE	CFG-8704e: Regulatory Model 207-1031R
KCC 	Regulatory Model MSIP-REM-CGX-207-1031R
RoHS	Compliant to the latest applicable Directive.

