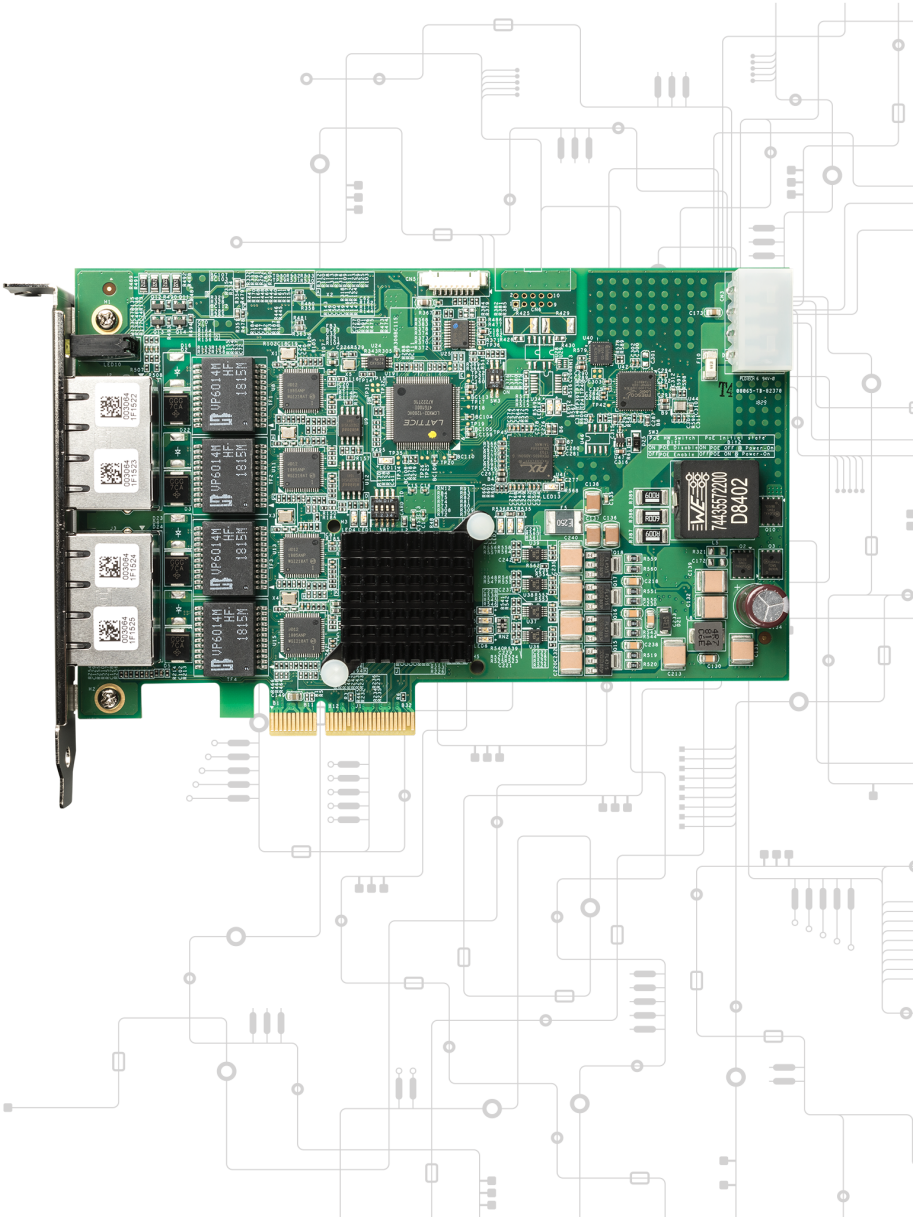
COGNEX

Cognex CFG-8724

Hardware Manual



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Preface

This document describes the Cognex CFG-8724 frame grabber.

Precautions

To reduce the risk of injury or equipment damage, observe the following precautions when you install the Cognex product:

- Route cables and wires away from high-current wiring or high-voltage power sources to reduce the risk of damage or malfunction from the following causes: over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
- Do not install Cognex products where they are exposed to environmental hazards such as excessive heat, dust, moisture, humidity, impact, vibration, corrosive substances, flammable substances, or static electricity.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Include service loops with cable connections.
- Ensure that the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.
- This device should be used in accordance with the instructions in this manual.
- All specifications are for reference purposes only and can change without notice.

Symbols

The following symbols indicate safety precautions and supplemental information:

WARNING: This symbol indicates a hazard that could cause death, serious personal injury or electrical shock.

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

Note: This symbol indicates additional information about a subject.

Tip: This symbol indicates suggestions and shortcuts that might not otherwise be apparent.

The CFG-8724 Frame Grabber

The CFG-8724 frame grabber is a PCI Express x4 compliant device for GigE Vision image acquisition. A CFG-8724 offers the following features:

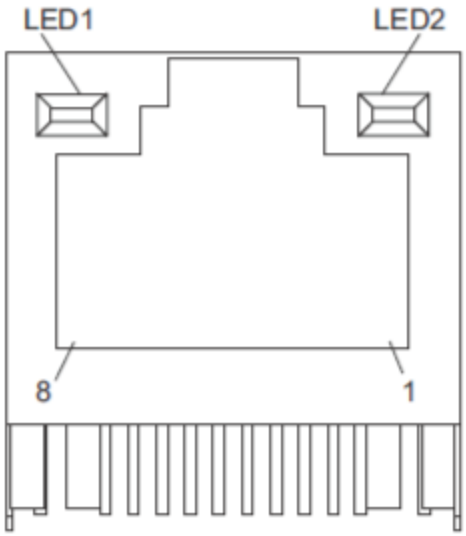
- PCI Express® x4 compliant
- Support for 4 independent Gigabit Ethernet ports
- PoE protection and automated power budget control for enhanced asset protection
- Wide operating temperature range from 0°C to +70°C , supporting non-drop frame capture in extreme environments
- Up to 20/60W PoE power from PCIe bus/4-pin Molex connector
- Multiple card and camera support
- IEEE 802.3at for PoE+ (Power over Ethernet Plus) 50 to 57V, 30W per port
- Non-volatile memory for storing Cognex security license information.
- Windows® 7/8.1/10 OS compatible
- C#, VB.NET/VC++ compatible
- CE/FCC/KCC Certifications

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
Storage	-40°C to 85°C
Safety Compliance	CE/FCC Class B; RoHS
Other	
PCIe Specification	PCIe v2.1
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-8724 supports 4 GigE Vision Ethernet ports.



Refer to the following table for Ethernet port connector signals:

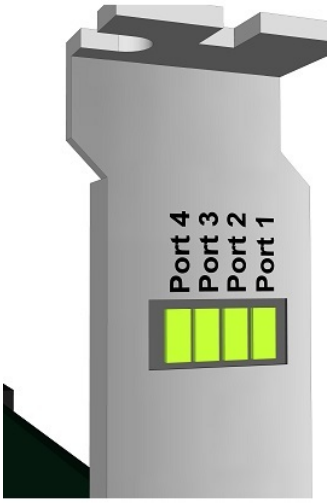
Pin	Signal
1	MDI0+ (PoE_DCV+)
2	MDI0- (PoE_DCV+)
3	MDI1+ (PoE_DCV-)
4	MDI2+ (PoE_DCV+)
5	MDI2- (PoE_DCV+)
6	MDI1- (PoE_DCV-)
7	MDI3+ (PoE_DCV-)
8	MDI3- (PoE_DCV-)

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

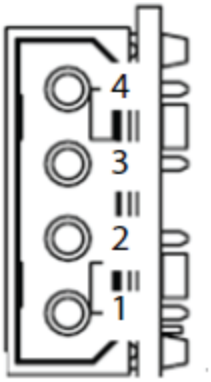
The CFG-8724 provides four LEDs to indicate current operating conditions of the four PoE ports:



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-8724 supports a 4-pin 12V power connector:



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

Security Licenses

The CFG-8724 supports non-volatile memory for storing security license information. Your CFG-8724 arrives with particular security licenses enabled, but can be reprogrammed to allow additional license 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-8724

The CFG-8724 frame grabber requires a vacant PCI express slot. Perform the following steps to install a CFG-8724:

1. Turn off your computer and unplug it from AC power.
2. Remove the computer cover according to the computer manual.
3. Remove the PCE express slot cover (if any).
4. Carefully position CFG-8724 in the selected PCI express slot. If installing in a tower computer, align the board with the board slots.
5. Press the board firmly but carefully into the connector.
6. Anchor the board with the screw.
7. Plug the cable into the PoE power connector.
8. Connect the device via a Gigabit Ethernet connector.
9. Power up the computer.

Installing Your Cognex Vision Software

Ask your Cognex sales representative about Cognex vision software compatible with the CFG-8724. Cognex recommends you completely uninstall any vision software from your computer before installing the vision software you want to use with the CFG-8724.

If you install your Cognex vision software after installing the CFG-8724, be aware you must turn off the power to your computer after the software has been installed. A warm reboot can prevent your computer from recognizing the correct device drivers if you used an earlier 8700 series frame grabber.

Installing Additional Device Drivers

Depending on your Windows operating system, you might need to install additional device drivers from 3rd party websites

Ethernet Controller 1210 Series Adapters

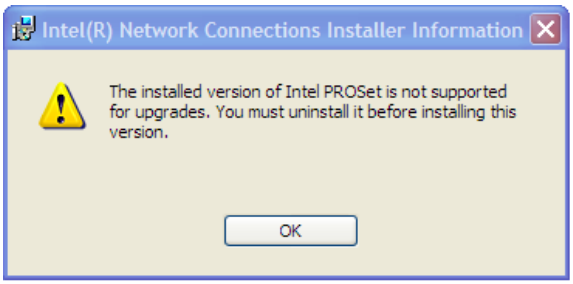
If you are using the Windows 7 SP1 operating system, the CFG-8724 frame grabber requires additional device drivers that might not be included with your Cognex software installer. Specifically, it requires device drivers for Intel® Ethernet Controller I210 Series adapters.

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 Cognex 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 installer and install Windows Updates for your PC.

   Try installing your Cognex software again after the Windows Updates complete.

USB 3.0 Host Controller

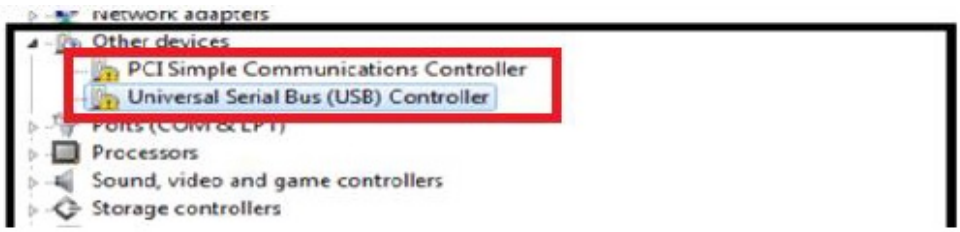
An additional 3rd party USB driver might be required on older computers using the Windows 7 x64 operating system if you observe the following behaviors:

- The Cogtool utility does not recognize the CFG-8724 as a security device when you enter the following command from a command prompt window:

  cogtool --print | more

  See your installed Cognex product documentation for more information on the Cogtool utility.

- The **Universal Serial Bus (USB) Controller** listing in Windows Device Manager displays a yellow and black exclamation mark:



If you experience these behaviors, your computer requires a valid USB 3.0 host controller driver.

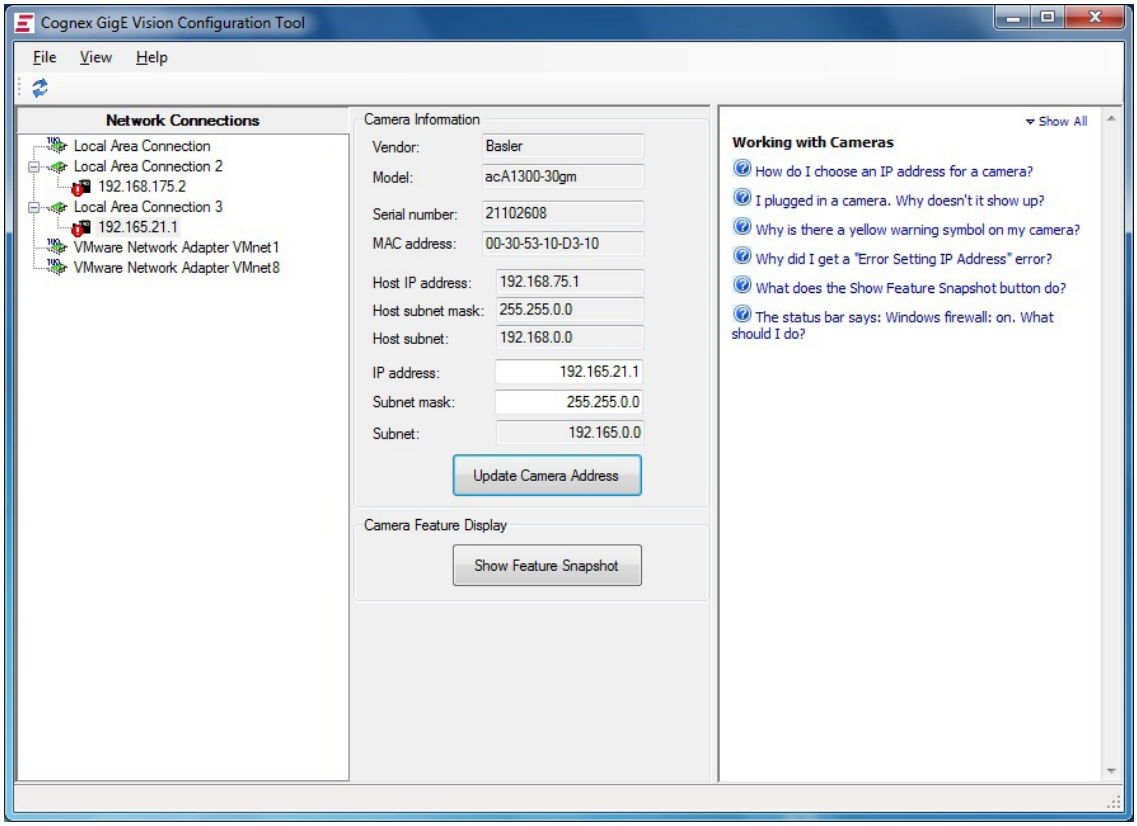
Cognex has successfully tested the CFG-8724 with the Fresco Logic FL1100EX USB 3.0 driver FLUSB3.0-3.8.34556.0.

Navigate your browser to https://support.frescologic.com/portal/home and download the FL1100 drivers. If the driver installer generates an error, apply Windows Security Update KB3033929 and then reinstall the USB 3.0 driver.

GigE Vision Camera Configuration

After you install the CFG-8724 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 current CE declaration and regulatory conformity information, see the Cognex support site: cognex.com/support.

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
CE	CFG-8724: Regulatory Model 207-GIEWIBU This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the EU Directive 2014/30/EU. Declarations are available from your local representative.
EU RoHS	Compliant to the most recent applicable directive.
FCC	FCC Part 15, Class A This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Korea	CFG-8724: Regulatory Model 207-GIEWIBU This device is certified for office use only and if used at home, there can be frequency interference problems.
NRTL	TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1.
CB	TÜV SÜD, IEC/EN 61010-1. CB report available upon request.

China RoHS

	Hazardous Substances 有害物质					
Part Name 部件名称	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴二苯醚
Regulatory Model **xxxx**	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.
这个标签是根据SJ / T 11364 的规定准备的。

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB / T26572 - 2011.
表示本部件所有均质材料中含有的有害物质低于GB / T26572 - 2011 的限量要求。

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB / T26572 - 2011.
表示用于本部件的至少一种均质材料中所含的危害物质超过GB / T26572 - 2011 的限制要求。

For European Community Users

Cognex complies with Directive 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.

The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You may also contact your supplier for more information on the environmental performance of this product.