COGNEX

Cognex CFG-8734

Hardware Manual

2025 June 05
Revision: 9.24.0.14

Table of Contents

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.

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: 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, BGAII, CheckPoint, Cognex VSoC, CVC-1000, FFD, iLearn, In-Sight (design insignia with cross-hairs), In-Sight 2000, InspectEdge, Inspection Designer, MVS, NotchMax, OCRMax, PatMax RedLine, 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-8734 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-8734 Frame Grabber

The CFG-8734 frame grabber is a PCI Express x4 lane, Power over Ethernet (PoE) frame grabber. The frame grabber supports four independent Gigabit Ethernet (GigE) ports for multiple GigE Vision device connections. The frame grabber has the following features:

- Compliance with PCI Express® x4
- Support for four independent GigE Vision ports
- LED indicating connectivity status
- Up to 20 W PoE power supply from PCIe bus
- Compliance with IEEE 802.3at for PoE+ (Power over Ethernet Plus)
- Support for jumbo frames (9.5 KB) and IEEE 1588
- Security device for Cognex software license
- Windows® 10/11 (64 bit) OS compatible
- Compatible with C#, VB.NET/VC++
- CE/FCC/KCC Certifications

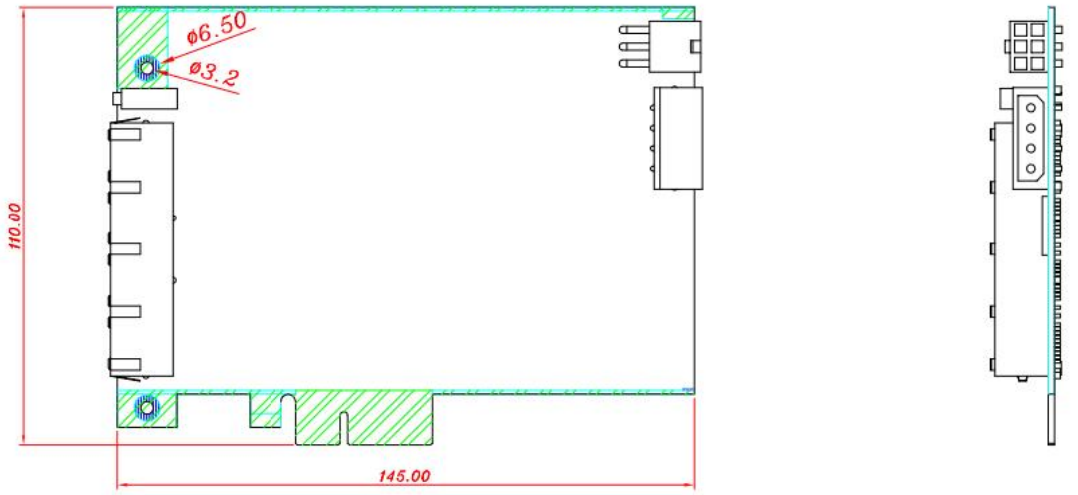
Specifications

Physical	
Dimensions	145 mm (5.71 in) x 110 mm (4.33 in)
Operating Temperature	0 °C to 60 °C (32 °F to 140 °C) with air flow
Storage	-20 °C to 80 °C (-4 °F to 176 °F)
Operating Humidity	10% to 95% non-condensing
Safety Compliance	CE compliance
Ethernet Communications	
Ethernet Port	Intel® Ethernet Controller I210-AT, supports 9.5 KB jumbo frame and IEEE 1588
Power over Ethernet (PoE) Capability	EEE 802.3at compliant, each port delivers up to 30 W at 54 V DC
Speed	All LAN support 10/100/1000 Mbps
Port Connector	8-pin RJ45
Power Requirements	
Input Voltage	3.3 V DC and 12 V DC, (with PC system power)
Overload Protection	Yes
Connection	4-pin Molex power connector 6-pin ATX power connector
Input from Power Connector (4-pin) (max 120 W PoE power output)	10 A at 12 V DC 1.2 A at 3.3 V DC (from PCIe slot) **Note**: Power input auto detection function for power budget control protection.

Physical	
Input from PCIe Slot (max 20 W PoE power output)	2.1 A at 12 V DC 1.2 A at 3.3 V DC
Max Power	Max 20 W PoE power with PCIe slot Max 120 W PoE power with 4-pin Molex or 6-pin ATX power connector
Output PoE Power	Max 20 W with PCIe slot Max 120 W with 4-pin Molex or 6-pin ATX power connector
Other Specifications	
Bus Type	PCI Express x4
OS Support	Windows® 10/11 (64 bit) OS compatible
License Management	Yes

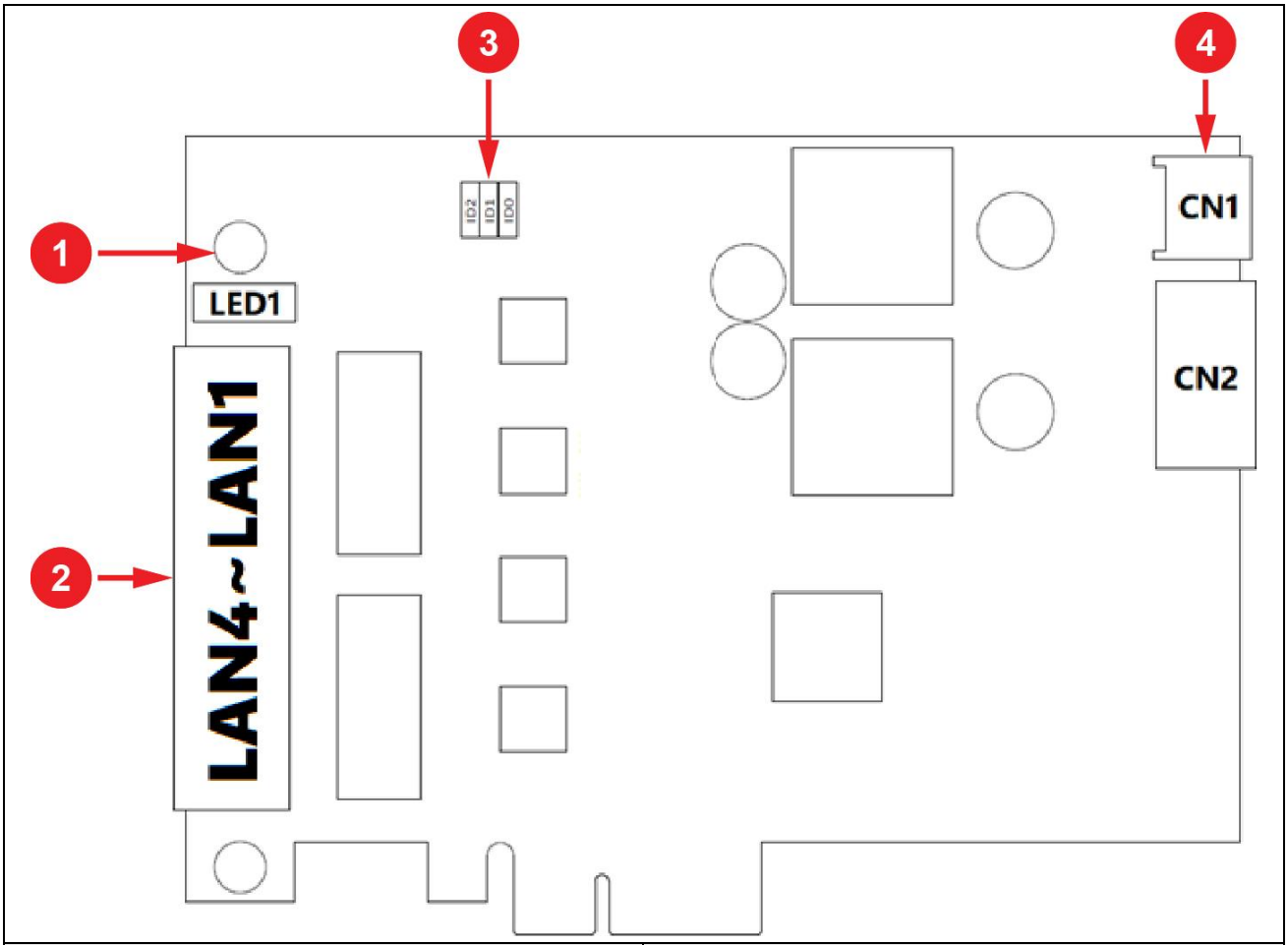
Dimensions

The following image shows the dimensions of the CFG-8734 frame grabber:



Connectors

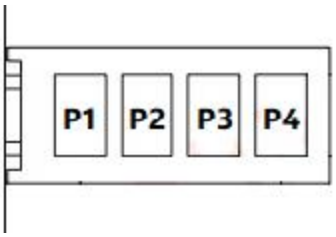
Connectors connect the board with other parts of the system. Loose or improper connection might cause malfunctions. Ensure that all connectors are properly and firmly connected. The CFG-8734 frame grabber has the following connectors:



Number	Connector
1	LED1
2	LAN1-4
3	ID0-ID2 (jumper for board ID)
4	CN1-2

PD Power Indicator

When a LAN port is currently active, its corresponding PD (power delivery) power indicator (LED1) lights up.



Pin	Signal
P1	LAN port 1 Power over Ethernet (PoE) active
P2	LAN port 2 PoE active

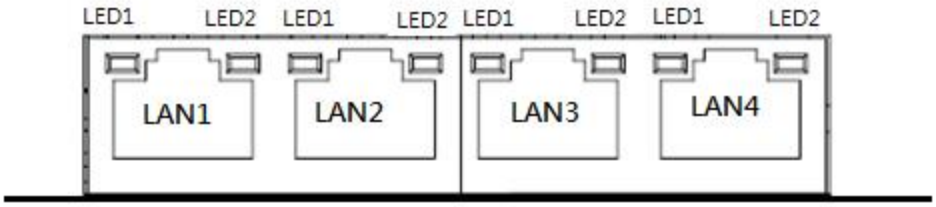
P3	LAN port 3 PoE active
P4	LAN port 4 PoE active

The following table describes the LED statuses:

LED	Status
on	PoE power on
blink	PoE power error
off	PoE power off

LAN1-LAN4 Connectors

The following image shows the LAN connectors of the CFG-8734 frame grabber:



Pin	Description
LED1	Active LED (amber)
LED2	Link LED (10/100-green; 1000-amber)

Jumper for Board ID

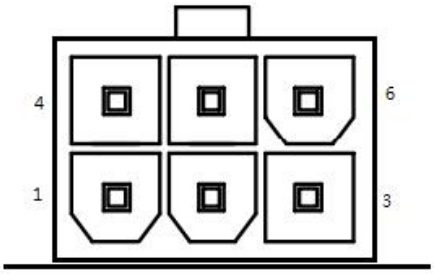
The board ID of the Power over Ethernet (PoE) card maps to physical SMBus address.

Multiple SMBus addresses on the same bus cause communication collision. To solve board ID collision, run the *AXPoEDiagnosis.exe* tool to show the available board IDs in the current system and change the board ID to an available board ID.

Function	ID2	ID1	ID0
Board ID=1	1-2 close (L)	1-2 close (L)	1-2 close (L)
Board ID=2	1-2 close (L)	1-2 close (L)	2-3 close (H)
Board ID=3	1-2 close (L)	2-3 close (H)	1-2 close (L)
Board ID=4	1-2 close (L)	2-3 close (H)	2-3 close (H)
Board ID=5	2-3 close (H)	1-2 close (L)	1-2 close (L)
Board ID=6	2-3 close (H)	1-2 close (L)	2-3 close (H)
Board ID=7	2-3 close (H)	2-3 close (H)	1-2 close (L)
Board ID=8	2-3 close (H)	2-3 close (H)	2-3 close (H)

6-Pin ATX Power Connector (CN1)

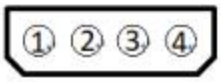
The following table describes the 6-pin ATX power connector:



Pin	Signal
1	12 V
2	12 V
3	12 V
4	Ground (GND)
5	Ground (GND)
6	Ground (GND)

4-Pin Molex Power Connector (CN2)

The following table describes the 4-pin Molex power connector:



Pin	Signal
1	12 V
2	Ground (GND)
3	Ground (GND)
4	NC

Security Licenses

The CFG-8734 frame grabber supports a non-volatile memory for storing security license information. Your frame grabber 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-8734 Frame Grabber

The CFG-8734 frame grabber requires an empty PCI express slot. Perform the following steps to install the frame grabber:

1. Turn off your computer and unplug it from AC power.
2. Remove the computer cover according to the computer manual.
3. Remove the PCI Express slot cover (if any).
4. Carefully position the frame grabber 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 Power over Ethernet (PoE) power connector.
8. Connect the device with a Gigabit Ethernet connector.
9. Reinstall the computer cover according to the computer manual.
10. Power up the computer.

Installing Your Cognex Vision Software

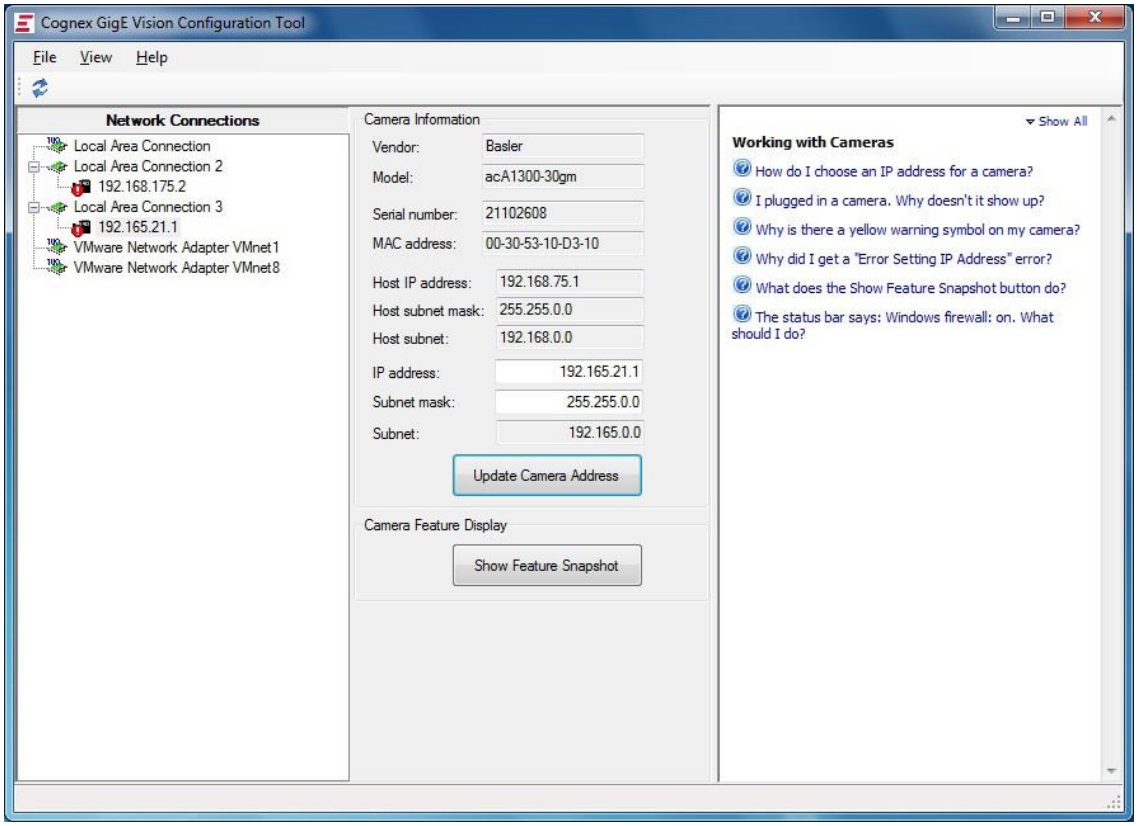
Ask your Cognex sales representative about Cognex vision software compatible with the CFG-8734 frame grabber. Cognex recommends you completely uninstall any vision software from your computer before installing the vision software you want to use with the frame grabber.

If you install your Cognex vision software after installing the frame grabber, 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.

GigE Vision Camera Configuration

After you install the CFG-8734 frame grabber, 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 and UKCA 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-8734: 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.
REACH	EC 1907/2006 compliant to the most Recent version of Annex XVII.
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-8734: 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 207-GIEWIBU	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.