

GE
Power Conversion

LCI Drive Modernization

Engineered drive solutions for complex
drive and control applications



So Many Reasons to Upgrade Now

If you are currently relying on vintage LCI controls, obsolescence is a risk that cannot be ignored. You can avoid obsolescence, and save the time and expense of a complete systems replacement with a reliable and cost-effective upgrade by GE Power Conversion experts.

This simple upgrade will modernize your controls and data interfaces and substantially improve control capabilities and performance. Extensive diagnostics and self-test capability can make your system easier to maintain, and GE's outstanding drive services can help you get the most value possible out of your LCI controls.

The external control interface—GE's P80i Control System Toolbox—is widely considered one of the best tools for configuring, troubleshooting, and maintaining legacy LCI drives and controls.

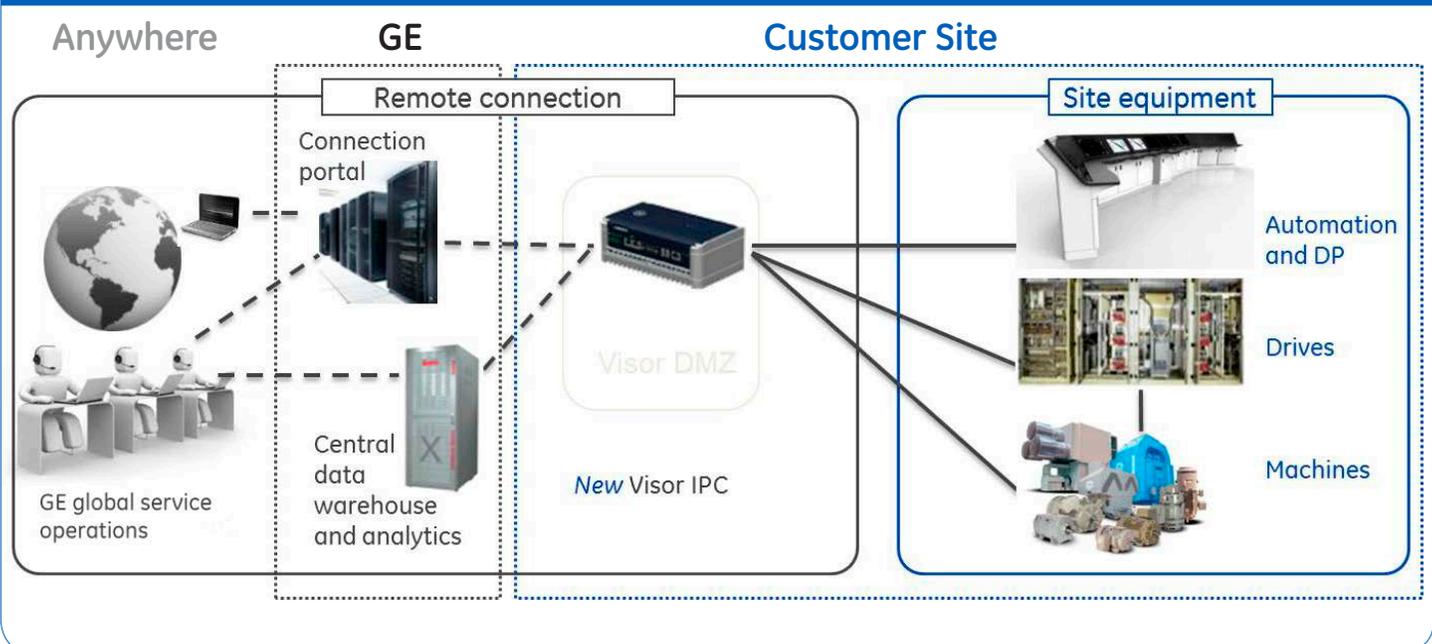
Vintage LCI Control	Upgrade Advantages
Obsolete Control Hardware <ul style="list-style-type: none"> Limited parts and service Decreasing reliability Active devices not available 	Industrial PC based control <ul style="list-style-type: none"> Improved reliability Reduced parts count Modular power interface Improved diagnostics
Limited Control Functionality <ul style="list-style-type: none"> Fixed regulator and I/O configuration Serial data interface Limited software tools 	Enhanced Control Performance <ul style="list-style-type: none"> Inherent control flexibility Multiple data LANs Enhanced drive performance Advanced configuration and diagnostic software

Vintage LCI Control	Upgrade Advantages
Antiquated control and data <ul style="list-style-type: none"> Local push buttons Meters Serial interface 	Modern controls, HMIs <ul style="list-style-type: none"> Touchscreens Multiple networks ... Profibus, EGD
Waning services <ul style="list-style-type: none"> Limited service capability Limited parts and repair capability Local diagnostic tools 	Extended Services <ul style="list-style-type: none"> Local service support Parts and repairs support Remote support via GE Visor (illustrated in the figure below)

Benefits and Features

- **Experts that fully understand your industry** match our drive features to meet your specific requirements
- **Consistent and cost-effective** project execution from start to finish
- **Phased upgrades and updates** that fit your operating budget
- **Improved process control** resulting in lower operating expenses
- **Extend the life cycle of your existing DC Drive systems** and defer moving to AC drive technology until the time is right

Remote Monitoring - Visor Connect



Proven LCI Control Technology

Power Electronics Controller (PECe)

- Standard industrial PC
- Intel based chipset
- VXWorks operating system
- IEC1131 Compliant Function Block
- Deterministic Ethernet
- 5 x 10/100 Ethernet ports
- 1.2 to 2.5 GHz
- 60°C Ambient
- Fanless operation
- 2 or 4 PCI slots allows Profibus, Profinet, Reflective Memory, CANbus, Modbus, EGD, etc.



Power Interface Board (PIBe)

- 24 copper or 32 fiber optic outputs to power devices
 - 8 Digital inputs
 - 4 Digital outputs
 - 8 Analog inputs
 - 4 Analog outputs
 - 2 Current transformer inputs
- Capable of 60 V, 10 amp outputs to power devices
- 1 Encoder input



Field I/O

- Modular construction
- Digital inputs/outputs ... 24 VDC
- Analog inputs/outputs ... +/- 10 VDC
- Fast deterministic EtherCat interface from PECE



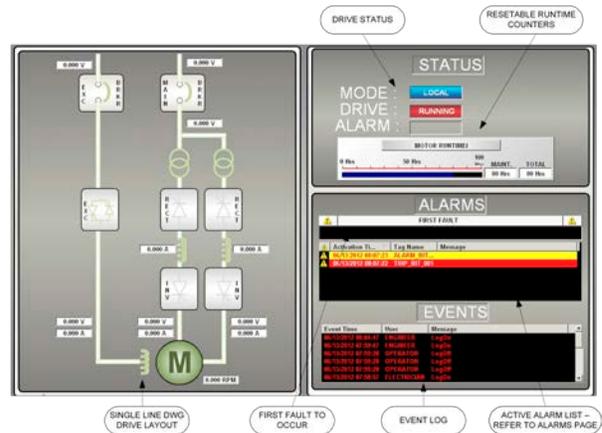
Touchscreen for operator control and maintenance

Replacing antiquated meters and pushbuttons with modern touchscreen controls will immediately improve your ability to operate and maintain your LCI controls.



Typical HMI Operator Screen

Provides overview of drive for operation, status and alarms.



Typical HMI Alarm Screen

Provides listing of active alarms and alarm history.

The screenshot shows two tables: 'ACTIVE' and 'HISTORY'. The 'ACTIVE' table lists current alarms with columns for Tag Name, Activation TL, Alarm Time, Ack Time, Message, and User. The 'HISTORY' table lists past alarms with columns for Tag Name, Activation TL, Alarm Time, Ack Time, Message, and Comment. Both tables have a 'ACK ALL' button on the right side.

Tag Name	Activation TL	Alarm Time	Ack Time	Message	User
11.0000.001	00.00.00	00.00.00		11.0000.001 - Fault	Control
11.0000.002	00.00.00	00.00.00		11.0000.002 - Fault	Control
11.0000.003	00.00.00	00.00.00		11.0000.003 - Fault	Control
11.0000.004	00.00.00	00.00.00		11.0000.004 - Fault	Control
11.0000.005	00.00.00	00.00.00		11.0000.005 - Fault	Control
11.0000.006	00.00.00	00.00.00		11.0000.006 - Fault	Control
11.0000.007	00.00.00	00.00.00		11.0000.007 - Fault	Control
11.0000.008	00.00.00	00.00.00		11.0000.008 - Fault	Control
11.0000.009	00.00.00	00.00.00		11.0000.009 - Fault	Control
11.0000.010	00.00.00	00.00.00		11.0000.010 - Fault	Control

Tag Name	Activation TL	Alarm Time	Ack Time	Message	Comment
11.0000.001	00.00.00	00.00.00	00.00.00	11.0000.001 - Fault	
11.0000.002	00.00.00	00.00.00	00.00.00	11.0000.002 - Fault	
11.0000.003	00.00.00	00.00.00	00.00.00	11.0000.003 - Fault	
11.0000.004	00.00.00	00.00.00	00.00.00	11.0000.004 - Fault	
11.0000.005	00.00.00	00.00.00	00.00.00	11.0000.005 - Fault	
11.0000.006	00.00.00	00.00.00	00.00.00	11.0000.006 - Fault	
11.0000.007	00.00.00	00.00.00	00.00.00	11.0000.007 - Fault	
11.0000.008	00.00.00	00.00.00	00.00.00	11.0000.008 - Fault	
11.0000.009	00.00.00	00.00.00	00.00.00	11.0000.009 - Fault	
11.0000.010	00.00.00	00.00.00	00.00.00	11.0000.010 - Fault	

P80i Toolbox – Drive Commissioning and Maintenance

High speed trending

- Unlimited signals per trending
- Up to 3000 samples per signal
- Limited only by PECE Memory capacity

Tool capabilities

- Configure trend (trigger, period, variables to be recorded)
- Trend can be set to be uploaded to a compact flash drive
- Upload records from the drive
- Display records in a trend
- Display "live" or "logged" data

Why GE Services?

Most production processes must run continuously without interruptions 24 hours a day, 7 days a week. We're there when and where you need us with:

- OEM expertise
- A local presence globally
- 24/7 Availability
- Installation and commissioning services
- Field engineering services
- Performance auditing
- Spare parts/exchange units/life-cycle services

OEM Advantages

You can expect reliability from your drive application when you put your trust in GE as the original equipment manufacturer. As the OEM, we provide:

- **In-depth product knowledge.** We've been there at every step of the process from design to manufacturing to installation, commissioning and continued maintenance. We have an in-depth understanding of our drive products, not only as an individual component, but as part of a coordinated system.
- **OEM data.** We have exclusive access to invaluable information including engineering drawings, operational performance data and a vast repairs database.
- **Field and factory engineering resources.** We can create proactive solutions to maintain, enhance, and extend key infrastructure assets.
- **Genuine GE parts and repair services.** We also provide factory approved testing—unlike non-GE providers

Local Presence Backed by a Global GE Organization

Our advanced technology Global Customer Service and Support Center is available 24/7 for 365 days a year. We have strategic distribution centers and authorized distributors that carry extensive inventory for GE Drives. We support your genuine replacement part needs any time or any place.

With over 1,300 service engineers and technicians globally, GE is uniquely positioned to provide you with the knowledge, experience, and skills for the full range of your industrial service needs. From system design to maintenance and outage support, GE has the resources and capabilities to assure that you are enhancing your equipment's performance and reliability.

Single-Source Provider for Start-Up and Commissioning of Your GE Equipment

Proper start-up and commissioning of power distribution and control equipment is vital to the long term health of an electrical system. Our Start-up and Commissioning Services provide the people and knowledge to complete the job right and on schedule. With GE Industrial Solutions Start-up and Commissioning Services, your equipment will be installed properly and meet the factory standards for operation.

Field Engineering Services

We offer a complete line of engineering services for:

- Planned and on-demand engineering
- Modifications and upgrades
- Appraisals and studies (see Performance Auditing below)
- Project engineering

Performance Auditing

Understanding the health of your drive system lets you plan maintenance, and equipment upgrades to meet productivity objectives. A GE Drives Performance Audit is a comprehensive review of the system and its ability to maintain performance levels. Benefits include:

- Improving system operation and reliability
- Enhancing equipment capacity
- Prolonging equipment life
- Identifying opportunities to improve equipment performance and spare parts inventory

Parts Repair/Replacement

Our flexible program lets you choose the solution that best fits your schedule and budget:

- **Test and certification** – Affordable option to verify inventory
- **Repair/return** – Most cost effective
- **Exchange** – Fastest method to receive reconditioned parts
- **Remanufactured** – Lower cost alternative to new parts
- **New** – Genuine OEM parts
- **Life-cycle solutions** – To extend the life of your GE drives with:
 - Scheduled GE Drive Part/Service Reviews
 - Proactive refurbishment programs
 - Whole drive services

For OEM reliability, you can always count on GE.

For more information, contact your local GE office, call 1-888-GE4-SERV, 540-378-3280 or 800-533-5885 or visit www.gepowerconversion.com

