AUTOMATIONDIRECT

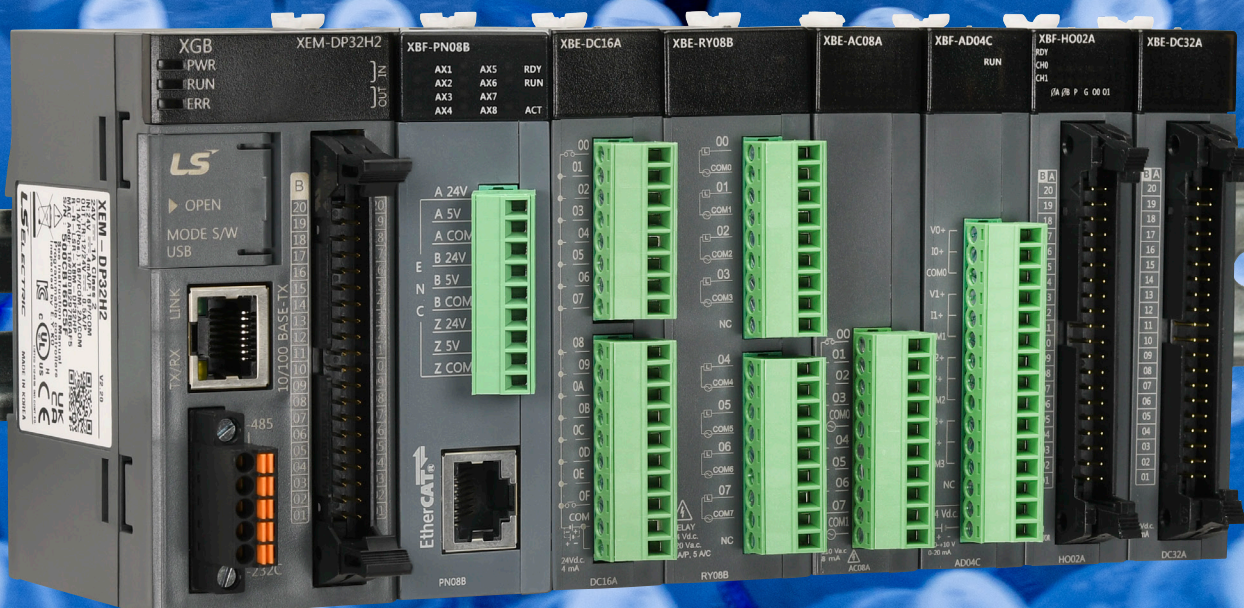# AUTOMATIONDIRECT.com

LS ELECTRIC
XGB
PLC

Up-to-date price list:
www.automationdirect.com/pricelist

FREE Technical Support:
www.automationdirect.com/support

FREE Videos:
www.automationdirect.com/videos

FREE Documentation:
www.automationdirect.com/documentation

FREE CAD drawings:
www.automationdirect.com/cad

AutomationDirect.com

The LS Electric XGB PLC makes advanced...affordable!

XGB PLC Family
LS Electric

MONDAY MINUTE ▾AutomationDirect!

Click for a short overview of this amazing controller

XGB
PWR
RUN
ERR

XEM-DN32HP

OPEN
MODE S/W
USB

LINK
TX/RX

LS
XGB
PLC

Starting at only:
$279.00
w/FREE Software

IEC
61131

EtherCAT®

The LS XGB PLC is a super-compact, advanced controller offering numerous state-of-the-art features, but two of the more popular are its motion control capabilities and its IEC programming environment.

Cutting-Edge Motion Control - Several LS Electric XGB PLCs offer high-level motion control with up to 22 axes (up to 6 axes embedded on CPU and up to 16 axes using EtherCAT® modules) and multiple positioning methods including linear, circular, helical, and ellipse interpolation. Seven homing routines are also available and the FREE software offers a graphical interface so you can see the motion in action!

The XGB series PLC offers a perfect control solution for:

- Palletizers
- Pick-and-place applications
- Rotary tables
- Flying cutoff systems
- Precision machining tools
- Automated welding systems
- and much more

Advanced IEC Programming - The FREE XG5000 programming software features several IEC standard PLC languages including structured text and ladder diagram with many useful function blocks available. User defined function blocks and data types and easy "Excel®-like" tag creation make this software extremely versatile.

AUTOMATIONDIRECT

Get ready to say "YES!" to LS

What do you get when you take a well-established, global PLC manufacturer and combine that with a customer-focused, value-centric online supplier? You get the best of both worlds, otherwise known as the LS Electric XGB PLC from AutomationDirect. The LS Electric controllers offer many great features including a robust hardware selection, **FREE** advanced IEC-based programming software, and many high-level motion specific capabilities. Add to that the customer satisfaction, the amazing $279.00 starting price, and the **FREE** tech support provided by AutomationDirect, and you'll definitely say "YES!" to LS!

IEC 61131

LS XGB PLC

EtherNet/IP Module
((2) RJ45)

Add 1 or 2 EtherNet/IP modules to provide separate and secure networking, featuring:

- Symbolic tag-based communication for easy connection with other PLCs
- Two RJ45 10/100MB Ethernet ports
- 16 client / 32 server EtherNet/IP encapsulation sessions
- 32 client / 64 server CIP connections
- Class 1 connected implicit (I/O) messaging (scanner and adapter)
- Class 3 connected explicit messaging (server only)
- Unconnected explicit messaging (client and server)

EtherNet/IP™

High-speed I/O Modules*
Two high-speed counter modules are available with (2) high-speed inputs and up to a 500kHz switching frequency (depending on model) for precise pulse tracking applications.

FREE SOFTWARE w/ multiple IEC languages

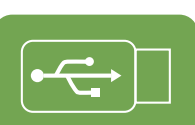**IEC**

EtherCAT® positioning

Advanced motion control

Pulse positioning

PID **PID Σ**

Built-in & expansion I/O **IN OUT**

High-speed I/O **HS I/O**

USB

Ethernet

RS-485/232

USB Port
(Mini-B)

Provides a quick connection with a PC for online monitoring and program control.

Ethernet
(RJ45)

10/100MB Auto-MDIX Ethernet port used for Modbus TCP/IP client and server, Email (SMTP client), XGT dedicated, user defined, and programming/online monitoring connections.

RS-485/RS-232C
(5-pin)

Combines a 2-pin RS-485 port and a 3-pin RS-232C port into one. Used for Modbus RTU/ASCII, XGT dedicated, and user-defined serial connections.

Built-in I/O*
(Up to 32 points)

Select PLC CPUs offer a high-density I/O port with 16 DC inputs and 16 DC outputs, featuring embedded high-speed I/O capable of pulses up to 200kHz and providing 2 or 6 axes of motion control (depending on model).

16-point 2-axis PLC CPUs and 14-point relay output PLC CPU are also available.

EtherCAT® Module
Add up to 2 EtherCAT modules for up to 16 axes of precise positioning.

- 4- or 8-axis positioning modules
- Differential and single-ended encoder input(s)
- RJ45 10/100MB Ethernet port

EtherCAT®

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Expandable I/O
For many applications, the built-in I/O provided by the CPU alone will suffice. For those systems with an abundance of I/O or specialty I/O needs, the PLC can be easily expanded with several analog/temperature, relay, discrete, load cell, or high-speed I/O expansion modules.

Additional racks of remote I/O can also be added using the XEL-BSSRT bus coupler.

32-point PLC CPUs, 32-point I/O modules, and high-speed modules require a Smart Link cable and terminal block for wiring.
Not required with 14- or 16-point PLC CPUs.

High-density I/O Modules*
(32 points)

As with select CPU modules, several expansion modules offer high-density I/O connections with up to 32 points in a single module, providing space and cost savings.

CPUs starting at only
$279.00

Module labels: XGB | PWR RUN ERR | XEM-DP32H2 | XBF-PN08B | XBL-EIPT | XBE-DC16A | XBE-RY08B | XBE-AC08A | XBF-HO02A | XBE-DC32A

AUTOMATIONDIRECT

"Are LS XGB PLCs a viable option for the long term?" L ...YES!

Here at AutomationDirect, we offer several LS Electric products including servo systems, gearboxes, and cables so we know first-hand the quality and reliability built into every one of their products. But for those who may be unfamiliar with LS Electric and are wondering if they will be around for the long-term, here is a little about them and their accomplishments.

Since its foundation in 1974 as Lucky Packing Co., LS Electric has been a leader in the Korean electric industry on mission to deliver safe, effective energy solutions all over the world. With headquarters in South Korea, LS Electric quickly grew across Asia and into overseas markets including the United States and Europe. As the company expanded production in the 1980s, its focus was on automation products, specifically PLCs and AC and servo drives. The 1990s brought continued growth and innovation confirming LS Electric as an expert in the automation industry and it quickly became a leader in global energy. In 2017, the company was nominated as one of the world's top 100 businesses in patent applications in Europe. 2018 was another year of great success, as LS Electric sold 3 million units of a single drive model.

Starting 2020 with the new name LS Electric Automation CIC., the company aims to lay the foundation for sustainability and provide customers with total solutions for the automation industry based on leading technology. Today, after nearly 40 years of experience in the electric power industry, LS Electric develops, manufactures, and distributes a wide range of power, automation, and railway solutions to both Korean and overseas markets. The company is recognized as one of the Top 10 Korean Enterprises with production facilities and offices around the globe.

LS Electric has been a leading player in the automation industry in South Korea and its products are used by some of the largest brand names. Process automation is something that has only recently become a standard part of many companies' operations, yet LS Electric has been manufacturing automation for decades. From production facilities to information systems, LS Electric is creating core automation solutions across many industries. For example, LS Electric automation products run one of the largest water facilities in the world. Located in Seoul; the system is composed of LS Electric motion controllers, servo drives, and modules.

LS Electric products are also well-suited for the automotive industry with Hyundai Motors and Kia Motors being their main customers. LS Electric offers key automation solutions for the manufacturing process in these plants by increasing efficiency, stability, and durability. Other globally recognized brands who utilize LS Electric products include Samsung, LG Electronics, LE Energy Solution, and LG Display.
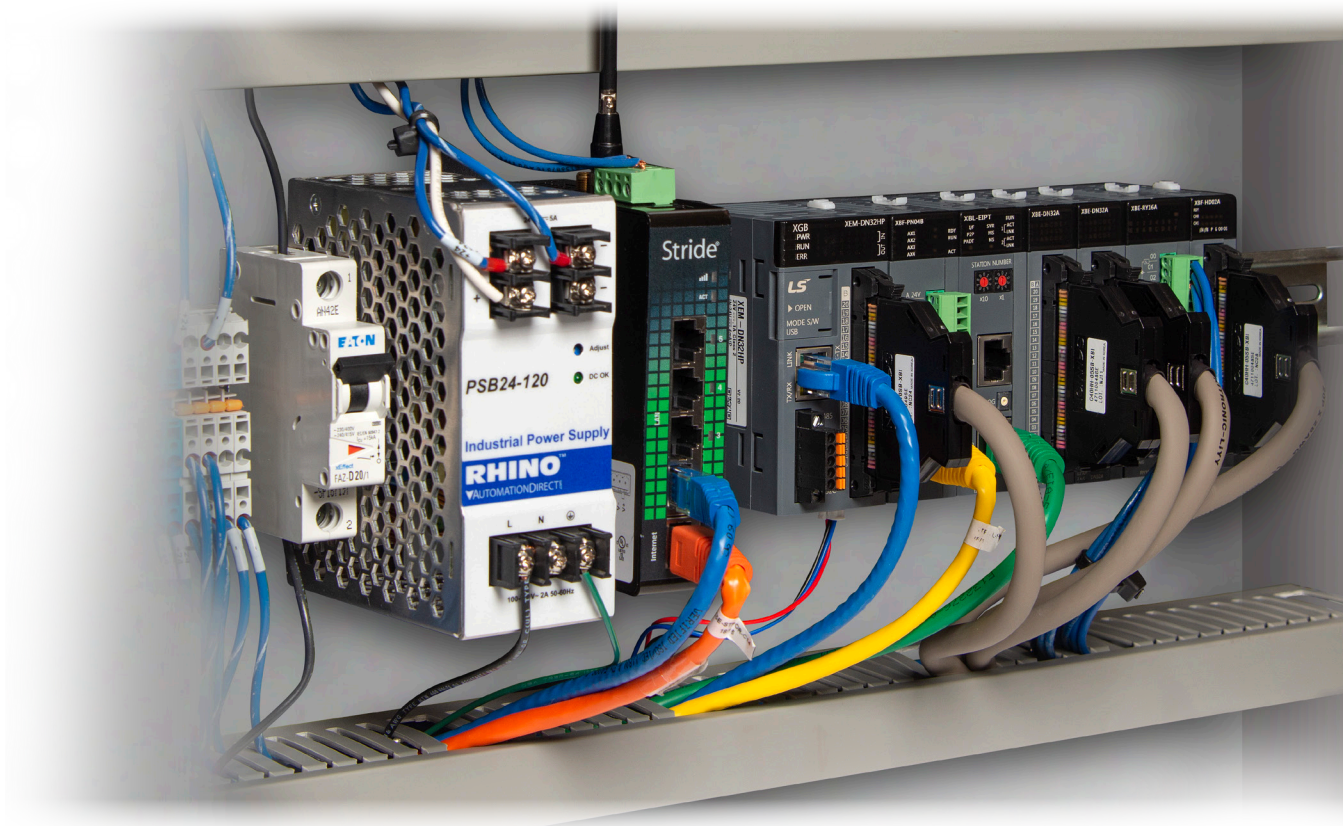
"Is the LS XGB PLC hardware versatile enough?" L ...YES!

Versatile hardware for any application

The LS Electric XGB PLC has numerous hardware options to exactly match the job at hand. Use any one of the 7 PLC CPUs as a stand-alone controller with up to 32 built-in I/O or add up to 7 expansion modules for up to 224 additional I/O points. From the smallest machine to larger systems, the LS PLC has the hardware you need.

- 6 stackable micro PLC processors with up to 16 inputs and 16 outputs that include motion capability; 14-point discrete input/relay output PLC CPU also available.
- Motion capable units offered in 2-axis and 6-axis versions
- NPN, PNP, and relay output versions
- 4 high-speed counter inputs, 4 preset inputs
- Ethernet, serial, and USB ports
- Supports up to 7 expansion modules including analog, temperature, load cell, discrete/relay, high-speed counter, EtherCAT, and EtherNet/IP modules

Super compact design

LS XGB PLCs feature one of the smallest footprints available, with the 32-point LS PLCs taking up less space than the 14-point compact CLICK PLCs. With the advanced capabilities of the LS controller and its super compact design, you can pack a lot of power in a little space!
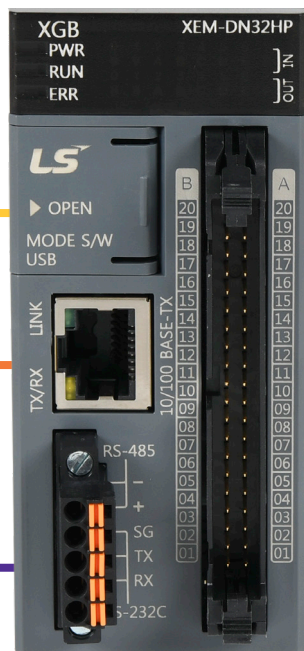
1.63"   2.26"

3.54"   3.35"
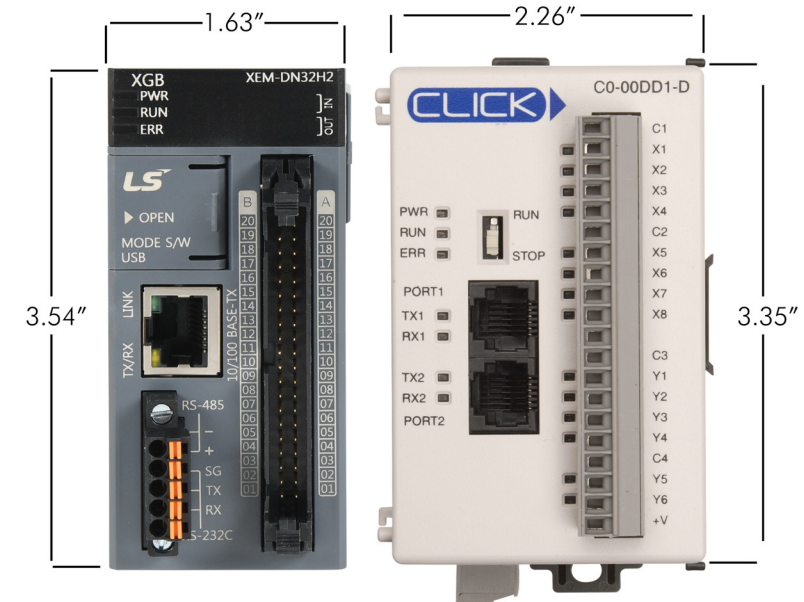
Expandable control

A variety of expansion modules are available to provide the analog, high-speed, motion control, communication, and additional discrete I/O needed for larger or more complex systems.

- 35 expansion modules available including cost-effective high-density 32-point I/O modules
- Discrete (16) - in, out, combo in/out, and relay
- Analog (11) - current/voltage in, out, and combo in/out; RTD and thermocouple input; load cell input
- Motion/Specialty (4) - EtherCAT 4- and 8-axis positioning modules; high-speed counters 200kHz or 500kHz
- Communication (4) — EtherNet/IP, Modbus TCP, Modbus RTU (RS-232), Modbus RTU (RS-422/RS-485)
- A bus coupler is also available to add remote I/O to the XGB PLC using EtherNet/IP or Modbus TCP (8 I/O modules per coupler)

XGB PLC

EtherCAT   **EtherNet/IP**

| 32-point, 6-axis PLC CPU | 8-axis EtherCAT Module | 2-port EtherNet/IP Module | 32-point Discrete Module | 4-channel Temperature Module | 500kHz High-speed Counter Module | 2-channel Load Cell Module |
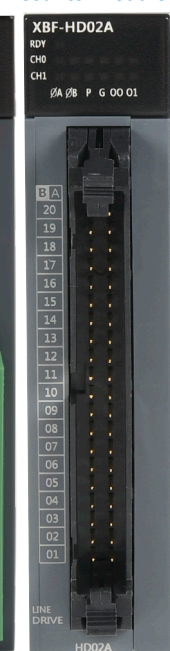
XEM-DN32HP | XBF-PN08B | XBL-EIPT | XBE-DC32A | XBF-TC04S | XBF-HD02A | XBF-LD02S

PLC CPU

CPUs starting at $279.00   I/O modules starting at $59.00
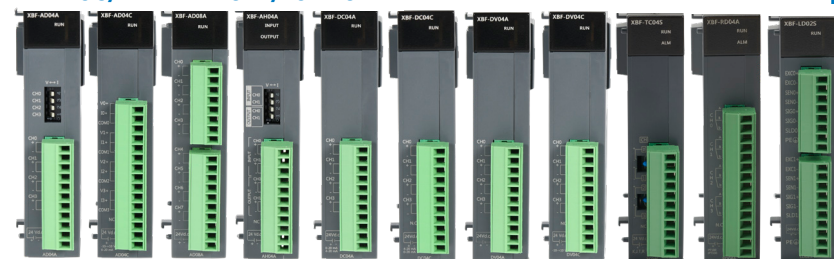
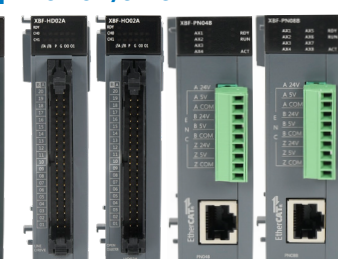**DISCRETE/RELAY   BUS COUPLER**

ANALOG/TEMPERATURE/LOAD CELL   MOTION/SPECIALTY   COMMUNICATION

USB

Ethernet

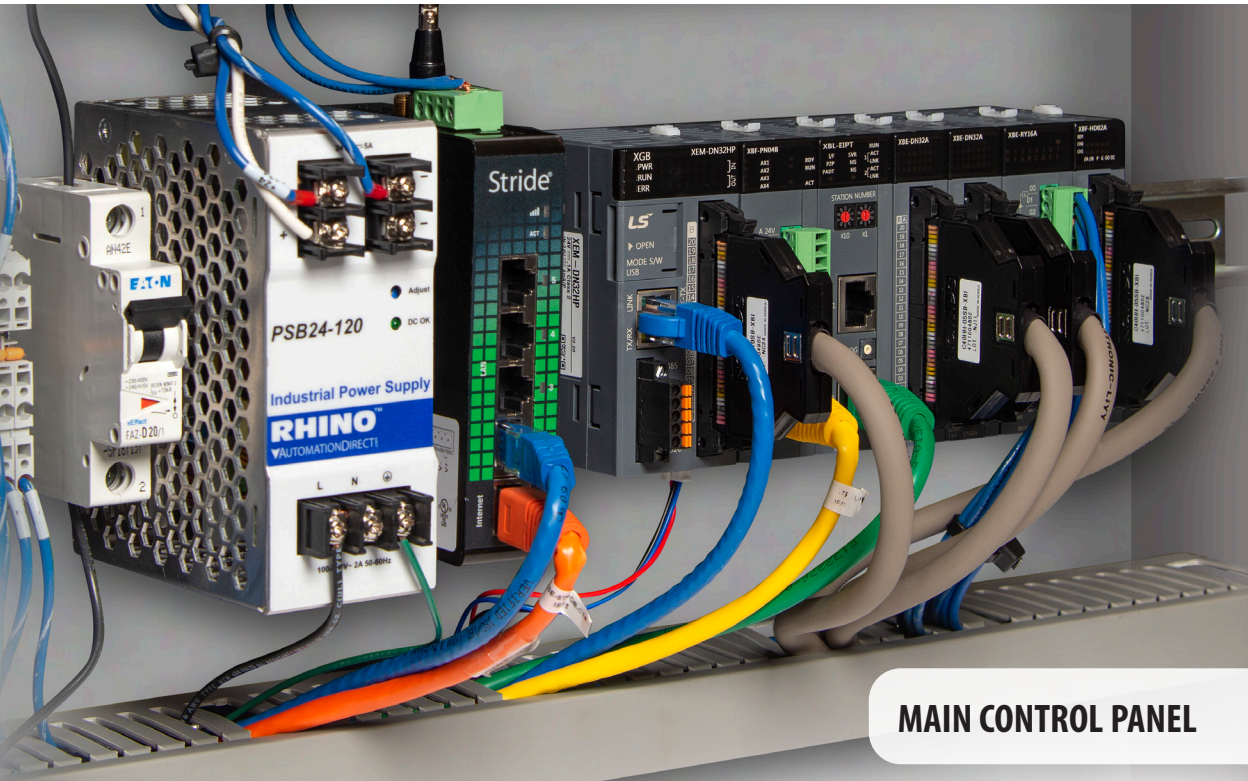Serial

mLSE-8   LS Electric PLC   **AUTOMATIONDIRECT**   1-800-633-0405   www.automationdirect.com/LS-PLC   LS Electric PLC   mLSE-9

"Does the LS XGB PLC support remote I/O?" L̲ ...YE S̲!

Add up to 32 remote I/O racks to your system!
(for over 8,000 additional discrete I/O points)

PROCESSING CONTROL PANEL

DISTRIBUTED I/O NETWORK

MAIN CONTROL PANEL

EtherNet/IP™

Modbus®

XEL-BSSRT Bus Coupler
$233.00

FILLING STATION CONTROL PANEL

Distribute your I/O for even more savings!

The XGB bus coupler I/O system allows you to install remote field I/O devices without having to invest in another controller. The compact design and low cost of the XEL-BSSRT bus coupler make it a great choice for versatile field I/O. Expanding your PLC's I/O with an XEL-BSSRT rack will save time and money associated with excess field wiring and speed up troubleshooting.

- Up to 32 XEL-BSSRT bus couplers per CPU (when used with EtherNet/IP modules) gives you the flexibility to expand your I/O system as needed (up to 8 I/O modules per coupler).
- Use any of the XGB 8-, 16-, and high-density 32-point discrete I/O modules, 4- and 8-channel analog I/O terminals (including thermo-
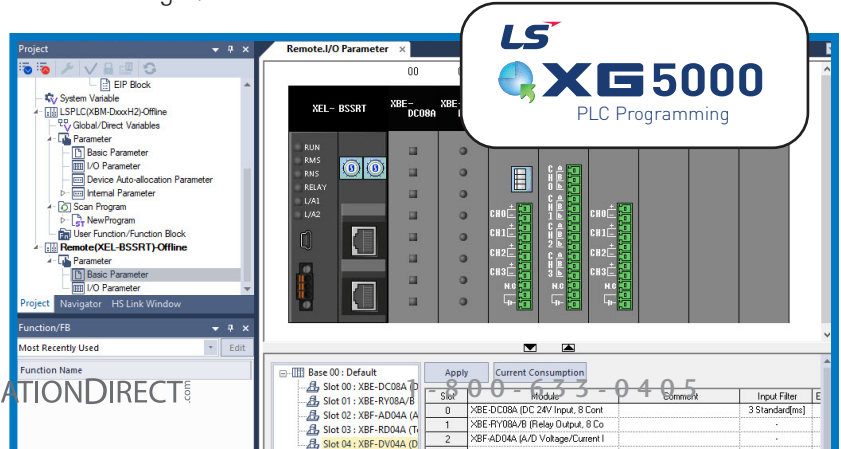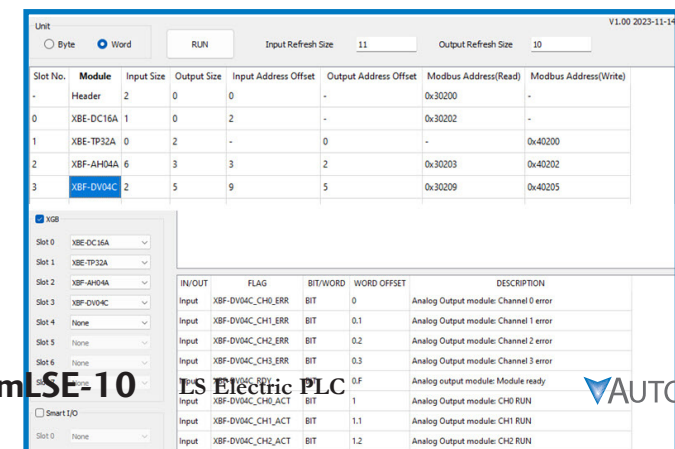
couple and RTD temperature modules), or load cell modules.
- Supports EtherNet/IP or ModbusTCP communication protocols.
- Standard protocols allow communication with any PLC brand.
- The bus coupler's dual Ethernet ports allow Ethernet daisy chaining between bus couplers and ring topology to be used for extra redundancy.

Easy I/O configuration

Take the guesswork out of programming with the XEL-BSSRT Addressing tool. This tool allows selection of I/O modules and quickly shows address registers and offsets for each I/O point.

Easily add the XEL-BSSRT remote I/O rack to your XG5000 PLC project using the simple embedded I/O configuration tool. This tool can help speed project development as it allows you to deploy the same I/O rack over and over with minimal changes.

LS XG5000 PLC Programming

PACKAGING CONTROL PANEL

mLSE-10   **LS Electric PLC**   ▼AUTOMATIONDIRECT   1-800-633-0405   www.automationdirect.com/LS-PLC   **LS Electric PLC**   mLSE-11

"Do LS XGB PLCs offer FREE programming software?" L ...YES!
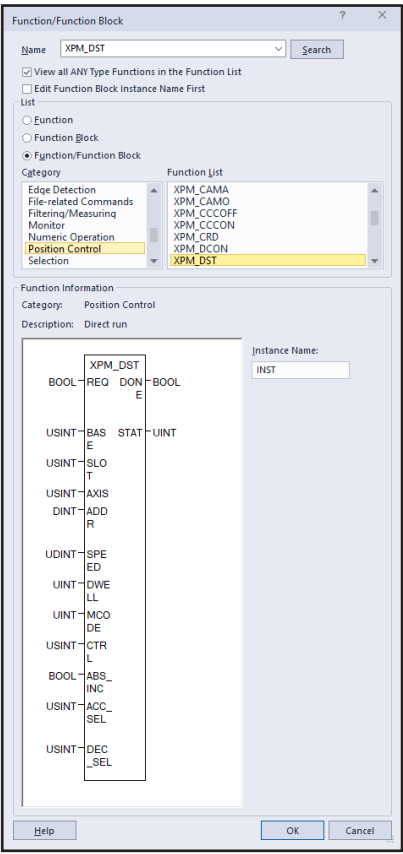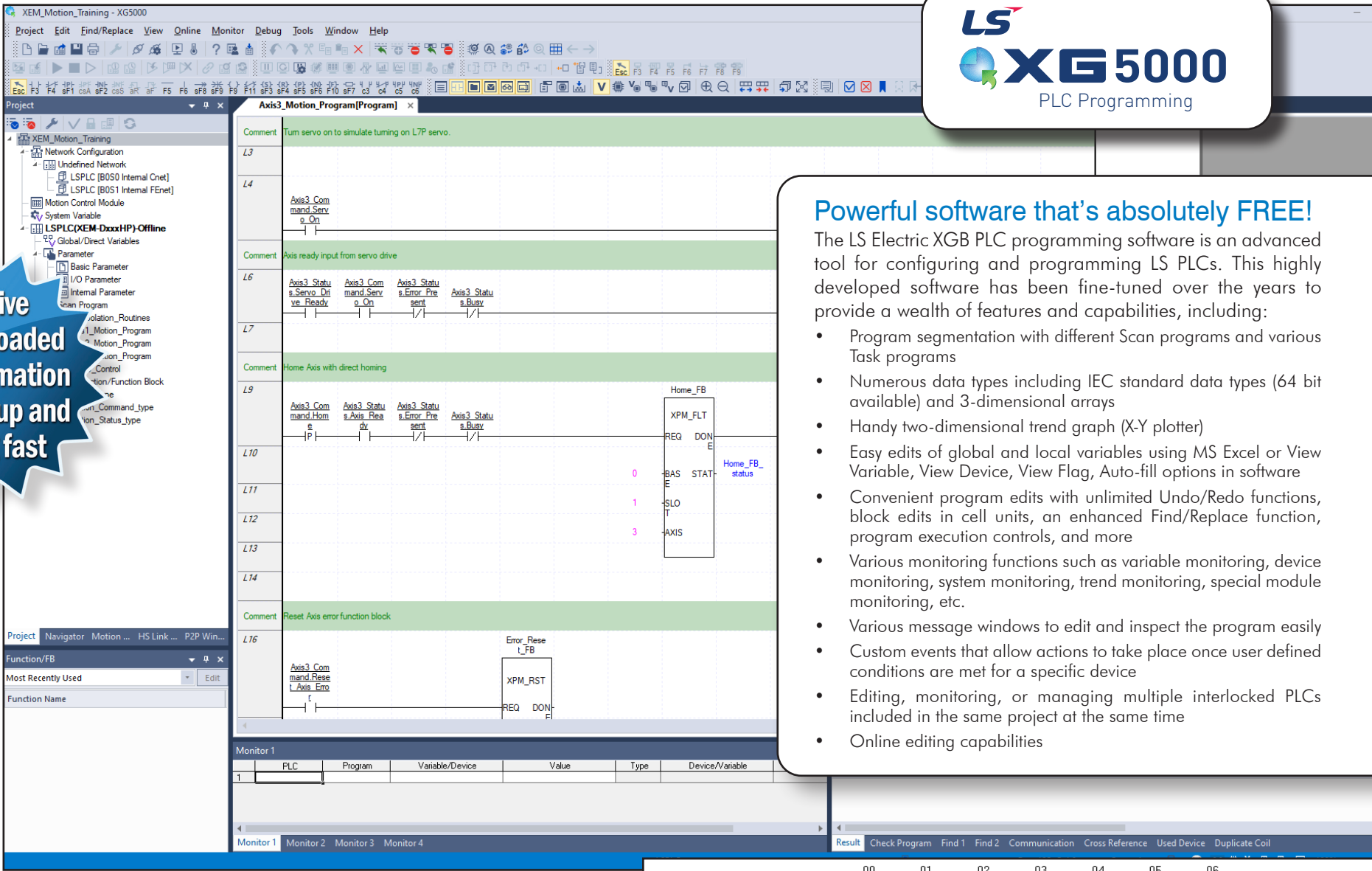
State-of-the-art instructions

The XG5000 programming software has all the usual commands you would expect from a PLC software instruction set including timer, counter, compare, etc., but it also features a wide variety of specialized and state-of-the-art instructions for efficient code development including:

- Data processing
- High-level math
- Advanced motion control
- Multiple data and code conversion

Extensive help site loaded with information to get you up and running fast

Click here for the LS Electric Interactive PLC Guide

Built-in project simulator provides huge time savings

The XG-SIM is a Windows-based virtual PLC that allows an operator to execute and debug a program without a physical PLC present. With the simulator, you can validate your control logic as it is created instead of in the field for much easier startups.

- Simulate a program created with ladder, structured text, or sequential function charts
- Use functions such as system monitor, device monitor, trend monitor, data trace, and user events as if online with a real PLC
- Simulate I/O as if field devices are connected to ensure proper system-wide control
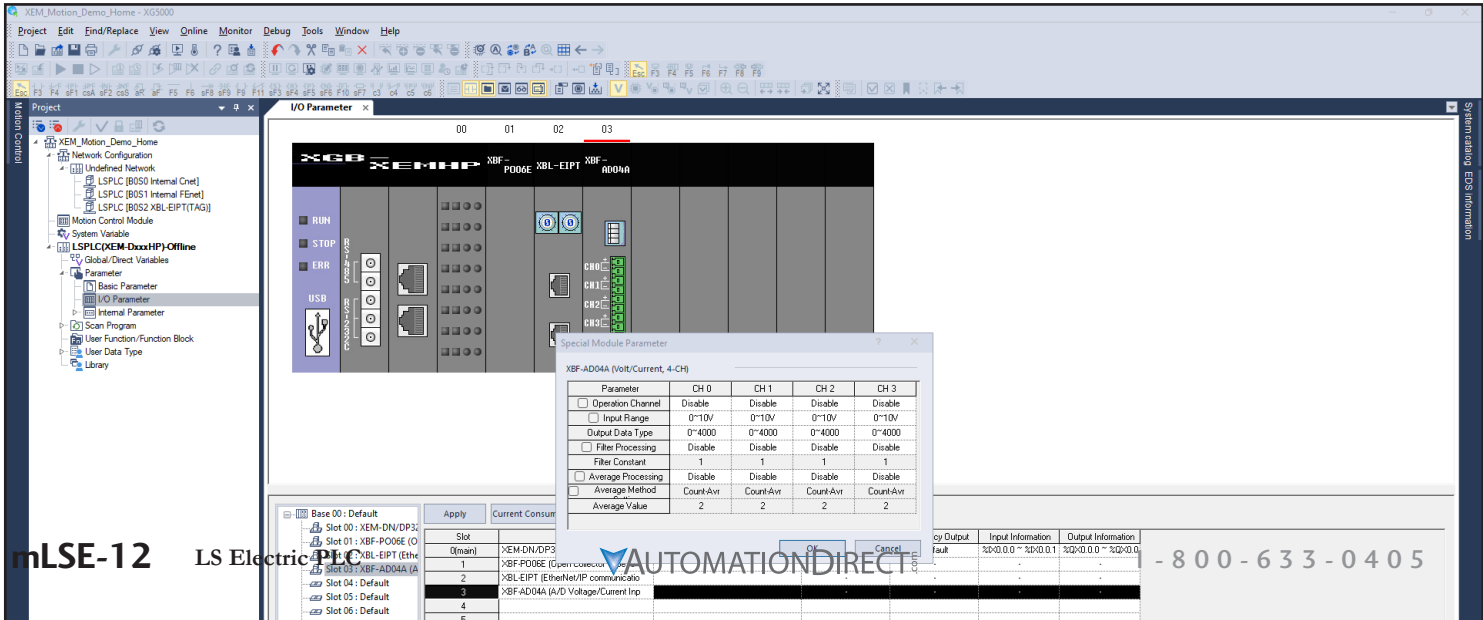
Powerful software that's absolutely FREE!

The LS Electric XGB PLC programming software is an advanced tool for configuring and programming LS PLCs. This highly developed software has been fine-tuned over the years to provide a wealth of features and capabilities, including:

- Program segmentation with different Scan programs and various Task programs
- Numerous data types including IEC standard data types (64 bit available) and 3-dimensional arrays
- Handy two-dimensional trend graph (X-Y plotter)
- Easy edits of global and local variables using MS Excel or View Variable, View Device, View Flag, Auto-fill options in software
- Convenient program edits with unlimited Undo/Redo functions, block edits in cell units, an enhanced Find/Replace function, program execution controls, and more
- Various monitoring functions such as variable monitoring, device monitoring, system monitoring, trend monitoring, special module monitoring, etc.
- Various message windows to edit and inspect the program easily
- Custom events that allow actions to take place once user defined conditions are met for a specific device
- Editing, monitoring, or managing multiple interlocked PLCs included in the same project at the same time
- Online editing capabilities

Convenient I/O configuration

The I/O Parameters dialog allows you to visualize and configure the connected I/O modules. You can easily edit I/O data points, add filtering, choose an emergency output setting, and configure interrupts. If you prefer, an auto-allocation feature is available to automatically populate the I/O points or you can simply import your configuration from a previous project.
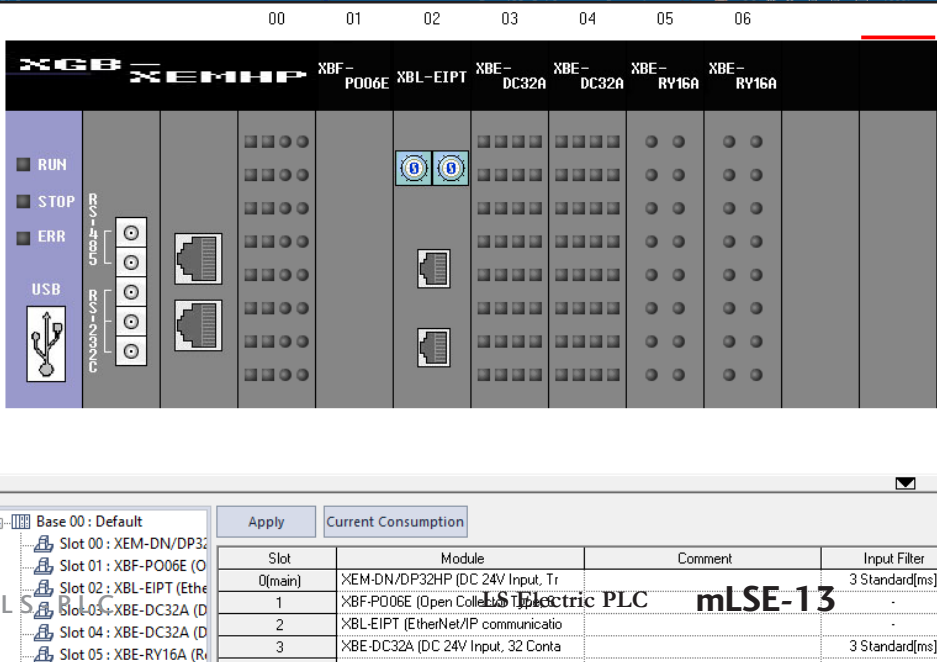
"Do LS XGB PLCs use IEC programming languages?" L ...YES!

IEC 61131
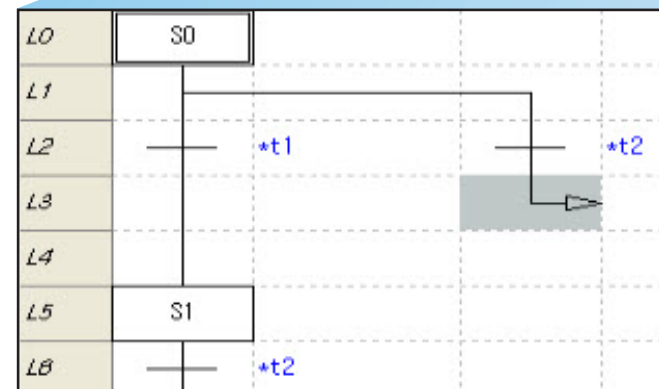
2. Structured Text (ST)

```
22    // SETTING ERROR FLAG!
23    IF LWORD_TMP <> LINT_VAL THEN ERROR := TRUE;
24    ELSE ERROR := FALSE;
25    END_IF;
26
27    DWORD_LOWER := LWORD_TO_DWORD(LWORD_TMP AND 16#00000000FFFFFFFF);
28    DWORD_HIGHER := LWORD_TO_DWORD(SHR(LWORD_TMP AND 16#FFFFFFFF00000000, 32));
29    LWORD_TO_DWORD
30    END_IF;
```
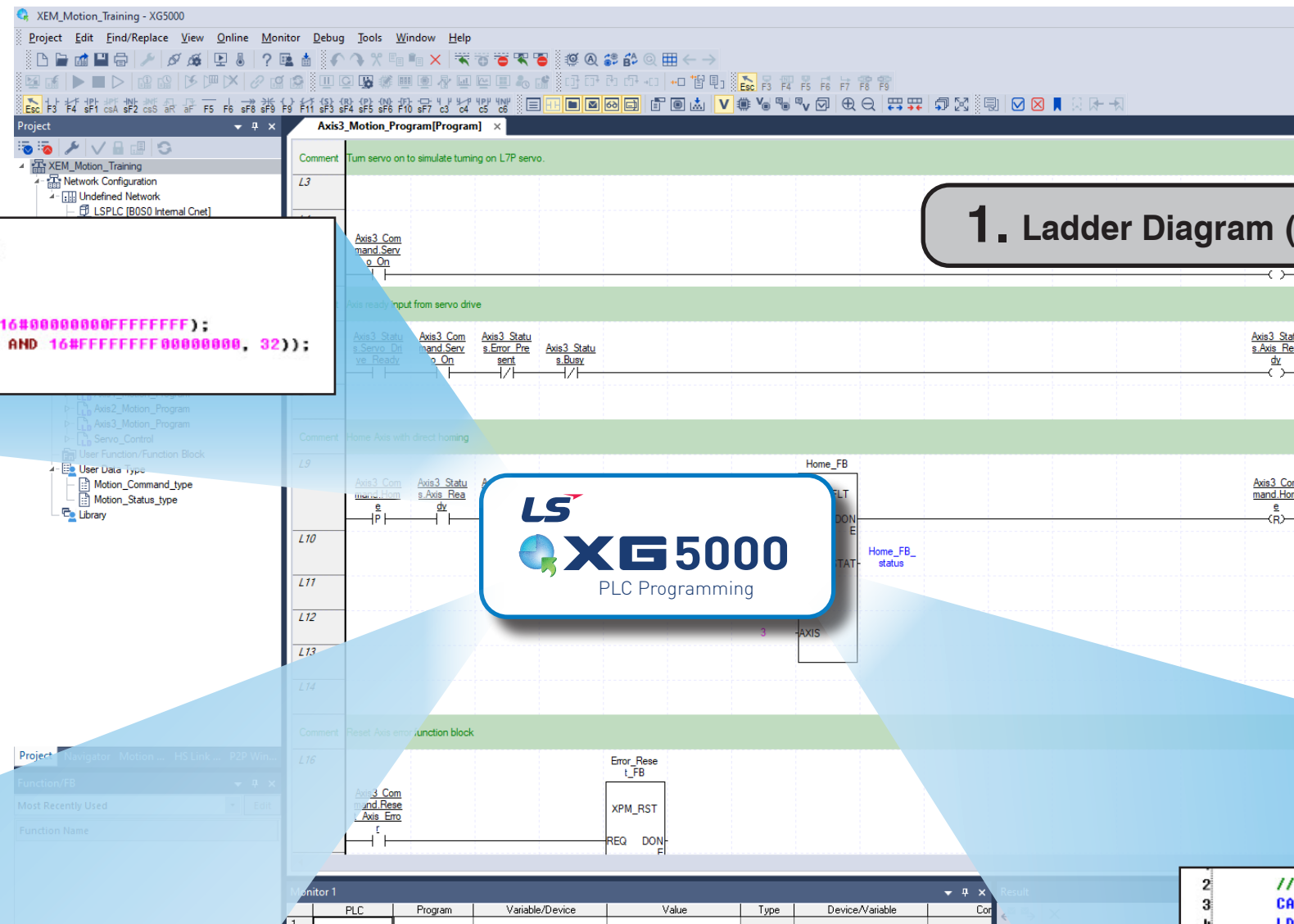
1. Ladder Diagram (LD)

LS XG 5000 PLC Programming

700+ Function Blocks for advanced programming

SAVE THOUSANDS IN SOFTWARE COSTS!

LS PLC XG5000 software is 100% FREE
Download as often as you need.
No license or key needed.
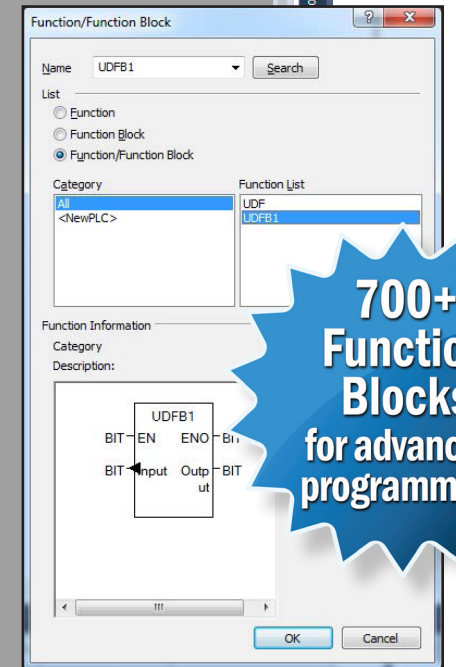<u>Click here to download</u>.

IEC for FREE!

The LS Electric XGB PLC can be programmed using four of the five languages included in the IEC 61131 standard for industrial controllers:

1. Ladder Diagram (LD)
2. Structured Text (ST)
3. Sequential Function Chart (SFC)
4. Instruction List (IL)

```
2
3    // USER FUNCTION BLOCK example
     CAL INST_CMD_TMR(IN:=%IX5.0.0, PT:=T#300ms)
4    LD  INST_CMD_TMR.Q
5    ST  BOOL1
6
7    // Arithmetic statement example((1.000e+3*1.000e+3)-(4*1.0*2.0))
8    LD  1.000e+3
9    ST  REAL1
10   MUL REAL1
11   SUB( 4
12       MUL( 1.0
13           MUL2_REAL((*IN1:=CR(REAL),*) IN2:=(2.0))
14       )
15   )
16   ST REAL2
17
```

4. Instruction List (IL)

3. Sequential Function Chart (SFC)

You can decide whether to utilize well-established Ladder Logic or go with the text-based Structured Text language. Maybe you prefer graphical Sequential Function Charts to organize your program. With the LS XGB PLC you can pick the language you or your customers prefer and run with it. With Ladder or Structured Text, the XG5000 software has many versatile function blocks available, including advanced motion control specific blocks, for convenience when programming complex systems.

And don't forget, this advanced software is 100% free and can be downloaded anytime from our webstore. Typically, to get the IEC functionality you would be overcharged thousands just to purchase the software, not to mention any additional licensing fees. So don't miss out on these cost savings, give the XG5000 software a test drive and see for yourself how powerful this FREE software really is.

"Are there any benefits to using Structured Text?" L ...YES!

Structured Text vs Ladder Diagram

A popular alternative to ladder logic programming is Structured Text (ST). If you have never used Structured Text to program a PLC, here is a quick rundown of the benefits. The same functionality can be accomplished with Ladder (LD) or Structured Text, and the user can use LD and ST programs in the same project. For example, use ladder for control of the discrete signals and use ST for data transfer logic. The choice is yours! ST or LD usage should be determined by what is easiest for you to develop and the simplest method for you, or the person who comes after you, to maintain.
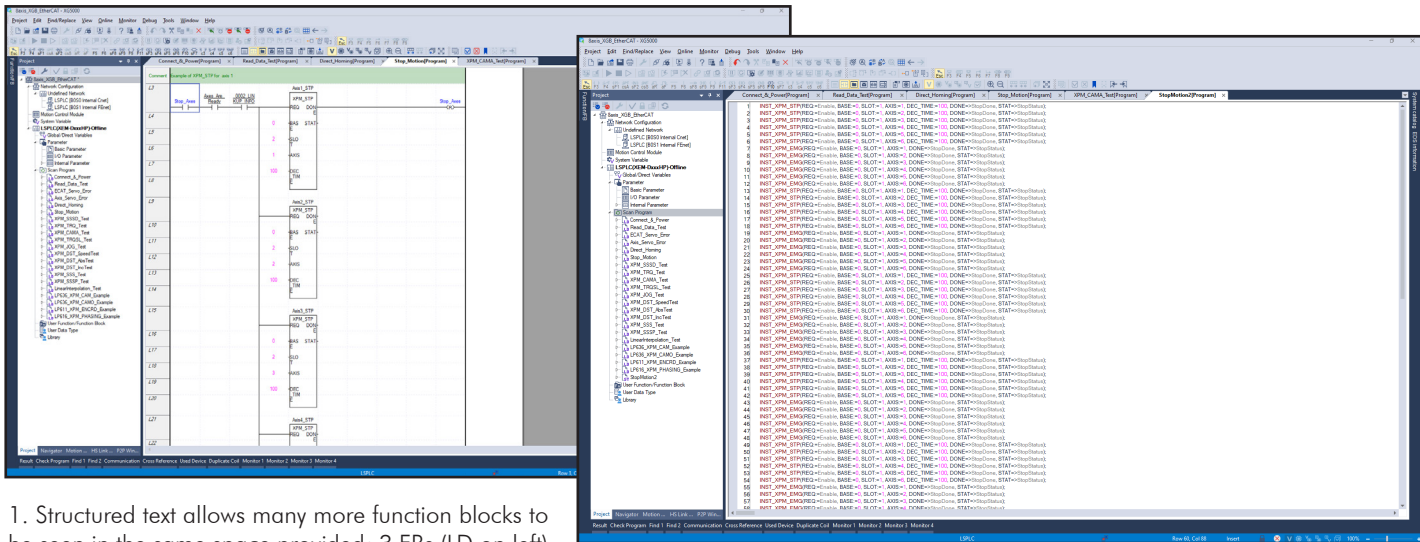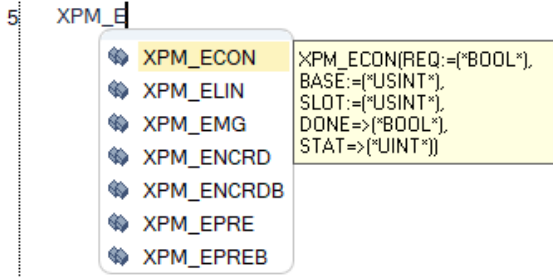
1. Structured text allows many more function blocks to be seen in the same space provided; 3 FBs (LD on left) versus 57 FBs (ST on right) in this case.

3. Functions are easily entered using ST. Start typing the name of the function or function block, and the XG5000 software displays a list of functions that match.
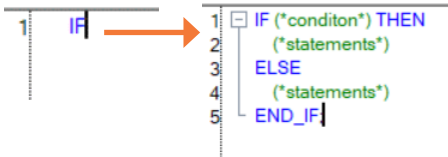
You can also include several functions in a single line of text to save lots of programming space.

```
5   XPM_E|
        XPM_ECON      XPM_ECON(REQ:=(*BOOL*),
        XPM_ELIN      BASE:=(*USINT*),
        XPM_EMG       SLOT:=(*USINT*),
        XPM_ENCRD     DONE=>(*BOOL*),
        XPM_ENCRDB    STAT=>(*UINT*))
        XPM_EPRE
        XPM_EPREB
```

5. ST allows you to copy values from one function to the next, reducing the amount of typing and typos. Also, since ST is a text based language, you can copy a sample program from a user manual, forum, help file, or other source and paste it directly into the XG5000 ST editor. With LD, you would have to reenter the program row by row.

```
INST_XPM_STP(REQ:=Enable, BASE:=0, SLOT:=1, AXIS:=1 DEC_TIME:=100, DONE=>StopDone, STAT=>StopStatus);
                          COPY/PASTE
INST_XPM_EMG(REQ:=Enable, BASE:=0, SLOT:=1, AXIS:=1 DONE=>StopDone, STAT=>StopStatus);
```

2. Comments are super easy to add with ST, just start with '//' and type your comment wherever it is needed.

```
1   // Number of burgers to eat
2   Cheese_burger := 3; // I'm hungry,
```

4. ST provides a wider assortment of conditional statements that are easy to use.
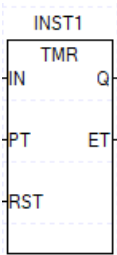
- *Structured Text: IF/CASE/FOR/WHILE/REPEAT*
- *Ladder Diagram: FOR*

Type "IF" only and the XG5000 will populate the other required statements.

```
1   IF          1   IF ("conditon") THEN
                2       ("statements")
                3   ELSE
                4       ("statements")
                5   END_IF|
```
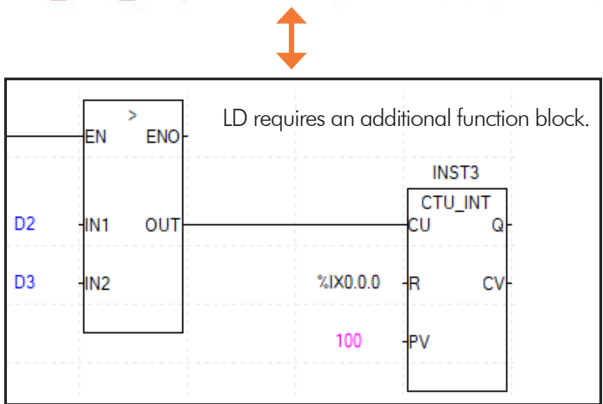
6. With a TMR function block entered in LD (left), it is more difficult to decipher the required data types for the inputs/outputs.

However, ST displays the data types clearly (in green below).

```
INST_TMR(IN:=(*BOOL*), PT:=(*TIME*), RST:=(*BOOL*), Q=>(*BOOL*), ET=>(*TIME*))
```

```
INST1
 TMR
IN      Q
PT      ET
RST
```

7. Data types can be converted directly without using another function, LD requires a function block for conversion.

```
D1 := SIN_REAL(IN:=INT_TO_REAL(Cheese_burger));
```

8. With ST, logical expressions can be embedded in a line of text.
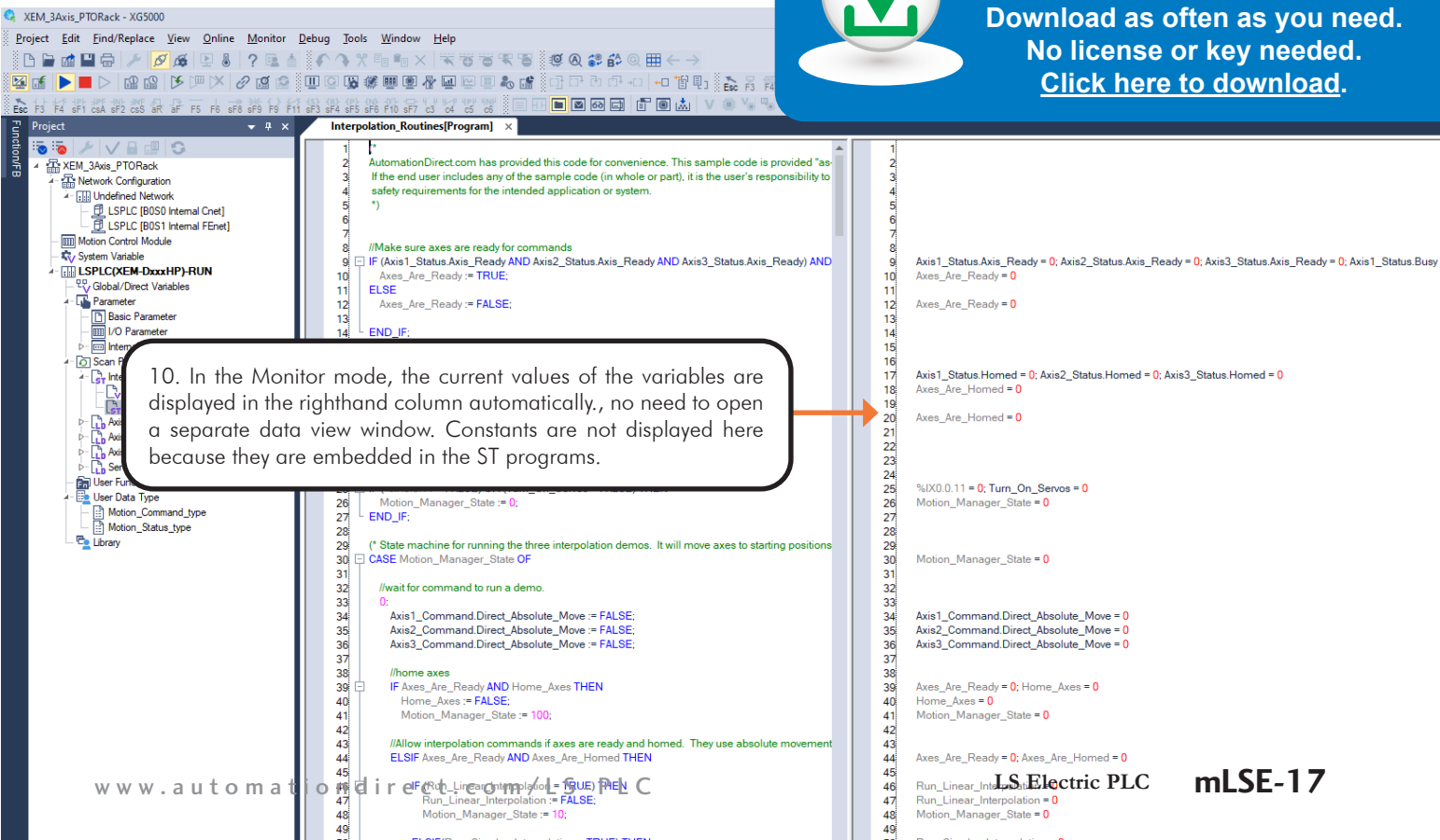
```
INST_CTU_INT(CU:=D2>D3, R:=%IX0.0.0, PV:=100);
```

LD requires an additional function block.

9. LD uses math blocks to build an equation.
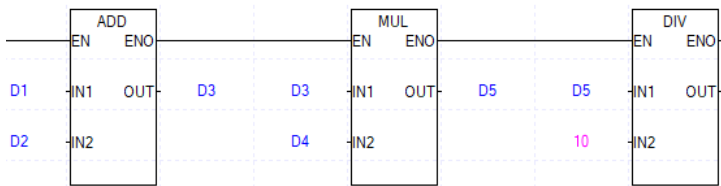
ST allows you to type the equation in using common operator symbols.

```
D6:=(D1+D2)*D4/10;
```

10. In the Monitor mode, the current values of the variables are displayed in the righthand column automatically., no need to open a separate data view window. Constants are not displayed here because they are embedded in the ST programs.

"Can the LS XGB PLC handle a variety of applications?" L̲ ...YE S̲!

Monitor and control numerous applications with one XGB PLC

Besides the 32 points of embedded I/O on select LS Electric XGB PLC CPUs, these PLCs have a host of I/O option modules available. With them, you can configure the XGB controller to handle numerous automated tasks around your plant/facility. For instance, with just one XGB PLC, you could tackle product conveying and sorting, object positioning, batch process control, end product packaging, and more. And don't forget, with the XEL-BSSRT bus coupler, you can install much more of these I/O modules and locate them in the vacinity of the process they are controlling.

Processing and production

A variety of analog and temperature I/O modules are available for process control functions. With these modules, you can monitor and/or control the production side of your system. Whether it's the temperature of an oven, the level of raw material in a feed hopper, or the amount of pressure being used at your filling stations, adding these modules to your control system will allow the XGB PLC to take care of it all.

FREE Downloadable Software for many products *see website for details*

FREE Technical Support Located in USA

High-speed conveying, tracking, and sorting

The XGB PLC offers several discrete I/O modules that can work hand in hand with industrial object detection devices including proximity switches, photoelectric sensors, and limit switches. These devices are used extensively in product conveying and sorting applications. High-density (32 point) I/O modules allow for over 250 local I/O points or with XEL-BSSRT bus couplers, over 8,000 ON/OFF control devices can be added to the XGB control system (when using EtherNet/IP communication).

High-speed counter modules (up to 500 kHz) are also available to handle the rapid pulse trains produced by belt- or shaft- mounted encoders, often used to track belt speeds and object positions.
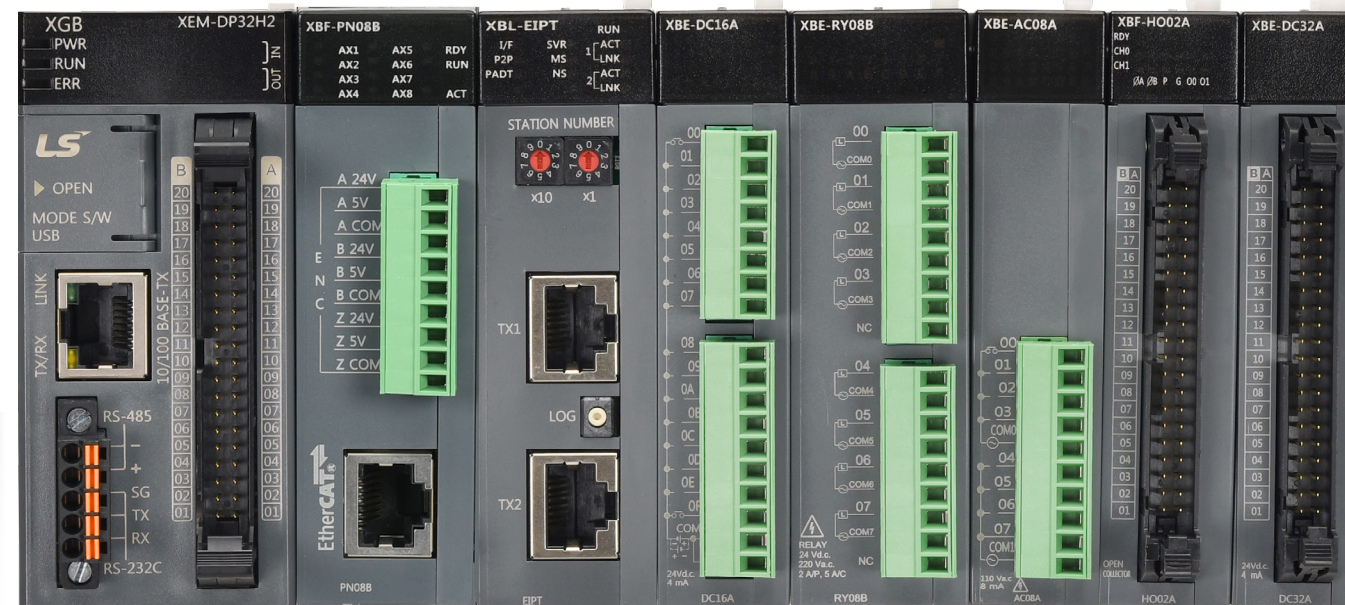
Weighing systems

Weighing systems are important for many production facilities as they can be used to determine if the right amount of product has been placed in a container, if the feed tank is running out of supply, or help determine the amount of shipping cost the packaged product will incur. The XGB load cell module can be used with 3rd party load cells to get accurate weight measurements. Up to 4 load cells can be wired to a single channel with up to 2 channels total.

For the latest prices, please check AutomationDirect.com. For the latest prices, please check AutomationDirect.com.

AUTOMATIONDIRECT

"Do LS XGB PLCs have advanced motion control?" L ...YES!

Motion configuration software for accurate positioning

XG-PM software is provided free of charge in the same download as the XG5000 programming software. This software provides table-based position configurations of up to 400 moves per axis and a run command tool for easy position testing. The XG-PM software also has a System View feature that allows all 6 axes to be seen at once and any modifications needed to the motion profiles can be made without touching the user program.

To aid with validation, convenient 2D dimensional trend graphs of position configurations are provided and the XG-PM software utilizes an intuitive error code system for easy troubleshooting.

FREE XG-PM Software for motion axis setup and testing

Advanced motion control is the XGB PLC's specialty!
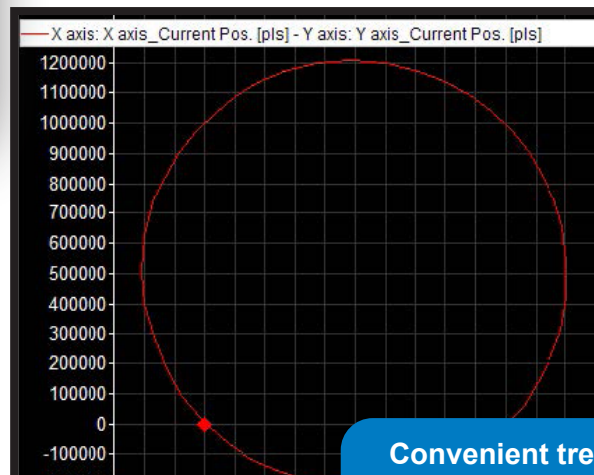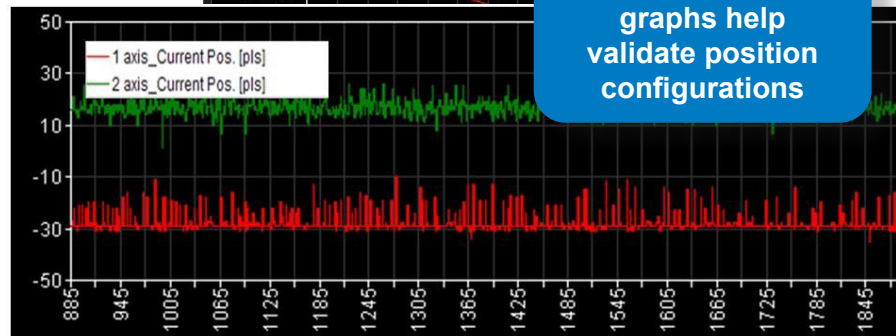
For only **$289.00** (2-axis model) you get:

- Position control
- Speed control
- Feed control
- Circular arc interpolation
- Linear interpolation
- Helical interpolation
- Ellipse interpolation
- CAM control
- Homing
- and much more

LS XG-PM Position Control

FREE Downloadable Software for many products see website for details

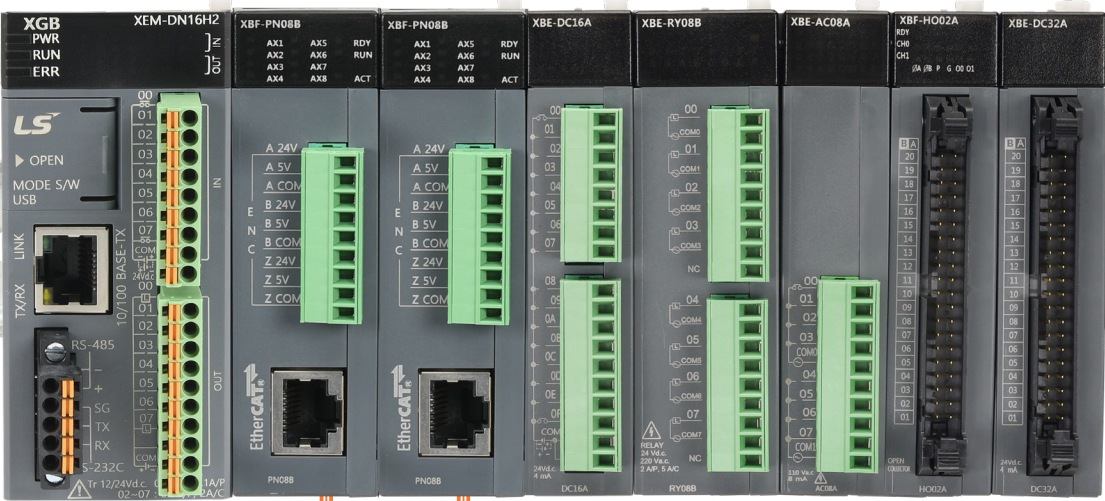**FREE Technical Support** Located in USA

LS XGB PLC

Motion-capable LS Electric XGB series controllers are motion control powerhouses. These PLCs provide numerous motion control capabilities using the integrated 2- or 6-axis pulse/direction motion inputs/outputs (up to 200kHz) on the CPU modules, plus up to 4 channels of high-speed inputs at up to 500kHz on each high-speed counter module, and up to 16 axes of motion control utilizing EtherCAT modules. With LS XGB PLC's advanced motion you get:

- Precision moves that can be executed from the position table or within the program code
- Various single-axis operations: position control, speed control, feed control, multi-axis simultaneous start, and point operation
- Single-axis torque control supported with EtherCAT (XBF-PN0xB) modules
- Various multi-axis operations: circular arc interpolation, linear interpolation, helical interpolation, ellipse interpolation
- Switching control during operation: position/speed control switching, speed/position control switching, position/torque control switching
- CAM control: 8 types
- Seven homing methods: in positioning control, use Homing method supported by each servo driver (17 types); set the origin of machine without homing by setting the floating origin
- Acceleration/deceleration methods of Trapezoid or S-type
- High-speed start process: 1ms (1~2 axes), 2ms (3~5 axes), 3ms (6 axes); no delay time between axes in simultaneous start and interpolation start

Convenient trend graphs help validate position configurations

For the latest prices, please check AutomationDirect.com.   For the latest prices, please check AutomationDirect.com.

AUTOMATIONDIRECT

"Do LS XGB PLCs offer EtherCAT® motion for precise, real-time control?" L ...YES!

The EtherCAT protocol (Ethernet for Control Automation Technology) is an Ethernet fieldbus that provides industry leading performance, flexibility, and cost advantages. The functional principle - processing data on the fly - makes the EtherCAT network extremely fast and capable of real-time, deterministic communication with virtually unlimited nodes that can be synchronized for the highest precision. Other advantages include:

- Less wiring for complex motion applications, send signals over network instead of hardwired
- Extremely fast cycle times
- Provides virtual axes for more motion program flexibility
- Built in redundancy – network can detect a break
- Unlocks easy-to-use position registration capabilities
- CANopen over EtherCAT (CoE) device profiles allow easy addition of 3rd party devices

With the EtherCAT positioning modules, easily add up to 16 axes of EtherCAT controlled motion to your XGB PLC. Modules starting at only $199.00.

FREE XG-PM Software for quick EtherCAT motion setup

LS XGB PLC
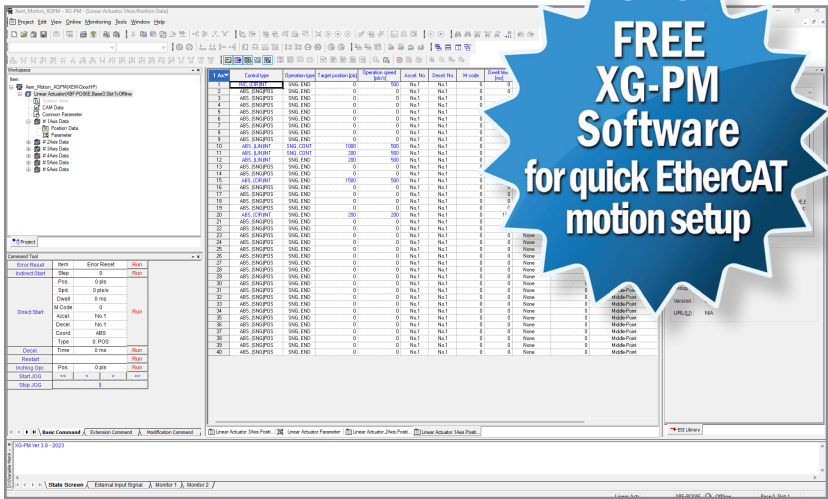
EtherCAT®

## iX7 EtherCAT® Servo System
Drives starting at $510.00

The compact iX7 servo system provides advanced EtherCAT functionality with a minimum communication cycle time of 0.125ms. This servo system provides high-efficiency servo motors combined with an advanced servo amplifier (drive) for supreme positioning control accuracy. The iX7 servo system offers:

- 5 sizes from 400W to 3.5kW
- 230 VAC single- and three-phase input power
- 120 VAC in 400W model
- Numerous encoder types supported in addition to embedded high-resolution encoder
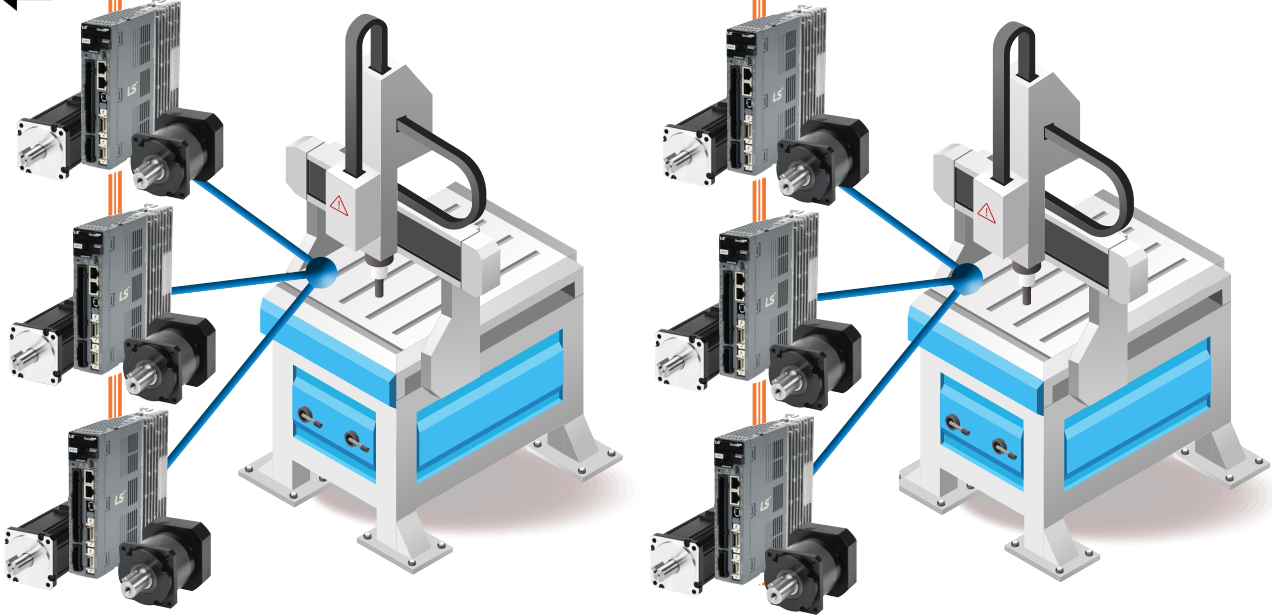
EtherCAT®
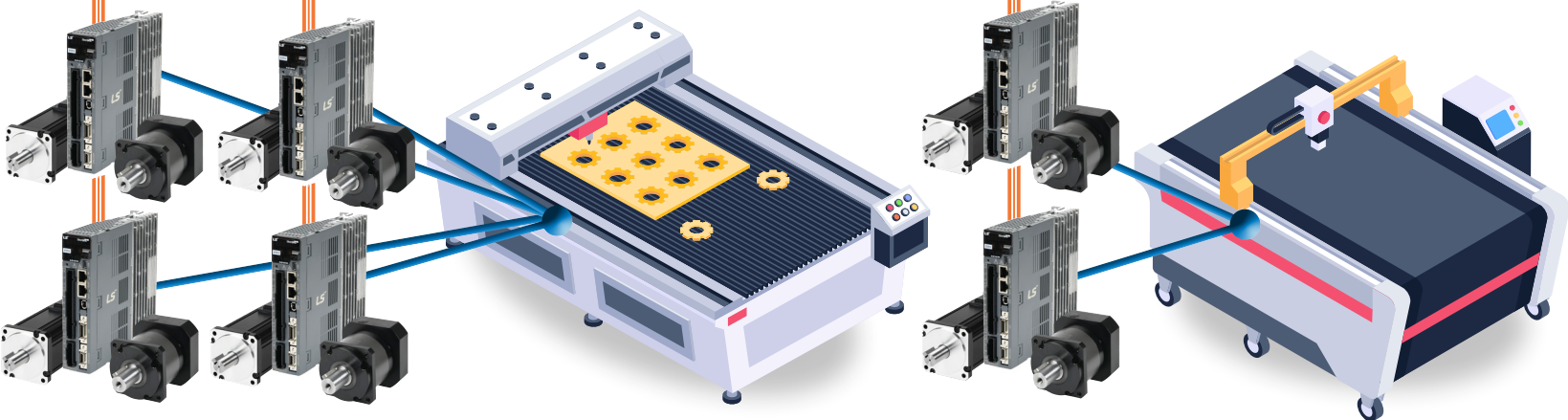
Feature (Instruction)	XEM CPU (Pulse/Direction)	XBF-PN04B/ XBF-PN08B (EtherCAT)
Home (XPM_ORG)	✓	✓
Servo On (XPM_SVON)	X	✓
Reset Axis Error (XPM_RST)	✓	✓
Reset Servo Error (XPM_SRST)	X	✓
Stop Motion (XPM_STP)	✓	✓
Direct Start Movement (XPM_DST)	✓	✓
Position Table Movement (XPM_IST)	✓	✓
Speed Synchronization (XPM_SSS)	✓	✓
Position Synchronization (XPM_SSP)	✓	✓
Camming (XPM_CAM)	✓	✓
Torque Control (XPM_TRQ)	X	✓
Speed Limited Torque Control (XPM_TRQSL)	X	✓
Position Latching (XPM_TPROBE)	X	✓

For even more EtherCAT powered motion control, check out the LS XMC motion controller.

The LS Electric XMC controllers are optimized for advanced motion control and offer full EtherCAT capability. They are available in 8- or 16-axis models with a variety of high-tech functionality for a price that can't be beat!

LS XMC MOTION CONTROLLER

STARTING AT $779.00

*Supports EtherCAT, G-code, Delta3, Delta3R, Linear Delta, and more with all configuration in XG5000 software.

CLICK HERE to learn more

AUTOMATIONDIRECT

"Can other LS Electric motion products be easily integrated?" L ...YES!

Completely Integrated Solution

LS Electric has several other motion control products that can work together seamlessly to provide accurate positioning and precision movements. Build a complete LS Electric position control solution using LS XGB PLCs, multiple servo drives, and low inertia AC brushless servo motors perfect for pick-and-place systems, flying cutoffs, rotary tables, or any other motion control application.

One software package does it all!

Included in the FREE XG5000 software package is the Drive CM utility which allows you to easily configure any LS servo drive. Once configured, the file can be uploaded directly to the drive and can be edited, saved, and downloaded as needed. Drive CM can operate the servo system from a PC allowing the servo to perform basic motion and to check the I/O. A powerful scope function is also provided that allows the user to have as many as four channels of data displayed simultaneously.

Drive CM — Servo Configuration

LS ELECTRIC

EtherCAT
Drives starting at $405.00
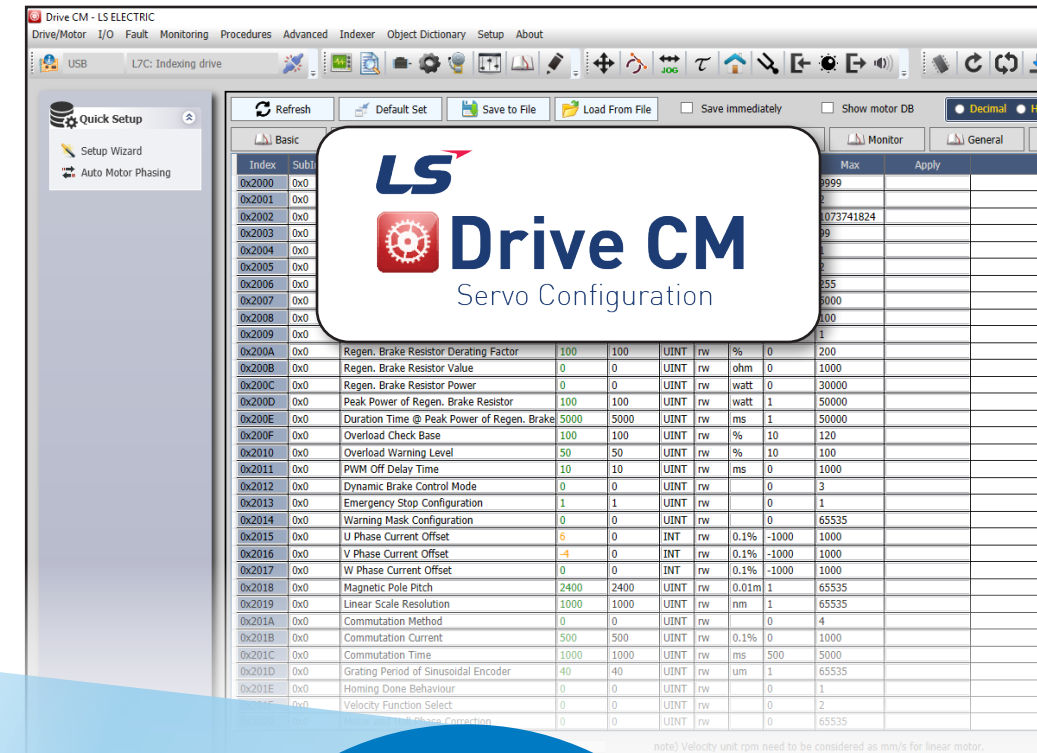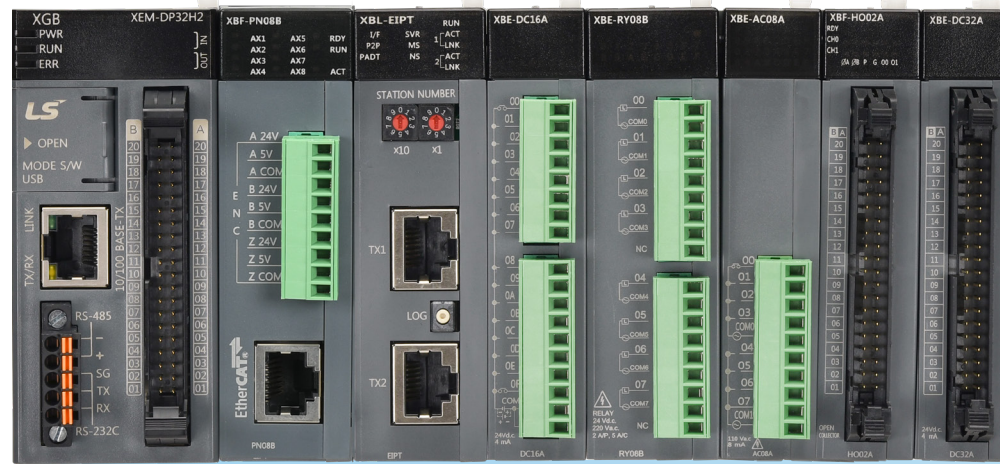
L7C Servo System
Drives starting at $295.00

L7P Servo System
Drives starting at $393.00

L7C Basic Servo System

L7C servo systems combine a high-performance servo motor with a servo amplifier (drive) to achieve accurate position, velocity, or torque control.
- 5 sizes from 100W to 1kW
- Low inertia models
- 230 VAC single-phase input power
- 17-bit incremental encoders

Learn more about the L7C Servos

iX7 EtherCAT® Servo System

The iX7 servo system utilizes the advanced EtherCAT fieldbus for reliable, high-speed transmission of motion control signals. Paired with a high-efficiency LS Electric motor, this drive provides the utmost positioning control accuracy.
- 5 sizes from 400W to 3.5kW
- 230 VAC single- and three-phase input power
- 120 VAC in 400W model
- Numerous encoder types supported in addition to embedded high-resolution encoder

**Learn more about the iX7 Servos**

L7P Intermediate Servo System

The L7P servo system has all the great features of the L7C series but with more sizes and higher accuracy.
- 12 sizes from 100W to 7.5kW
- Low and medium inertia models
- 230 VAC and 460 VAC three-phase input power
- 19-bit absolute encoders for improved accuracy

Learn more about the L7P Servos

AUTOMATIONDIRECT

"Do LS XGB PLCs offer reliable PID control?" L ...YES!

PID Σ BIAS
SP
PV
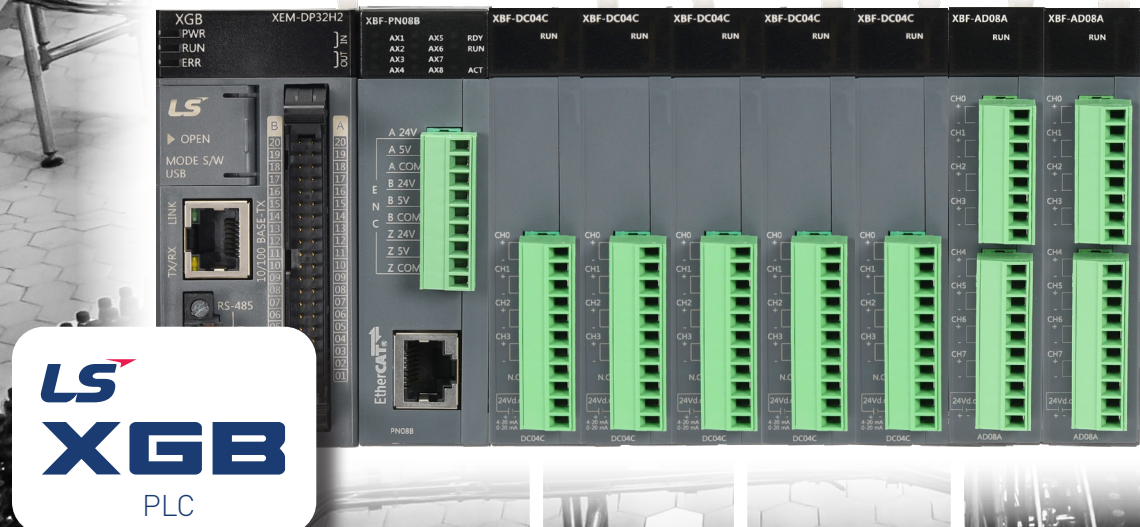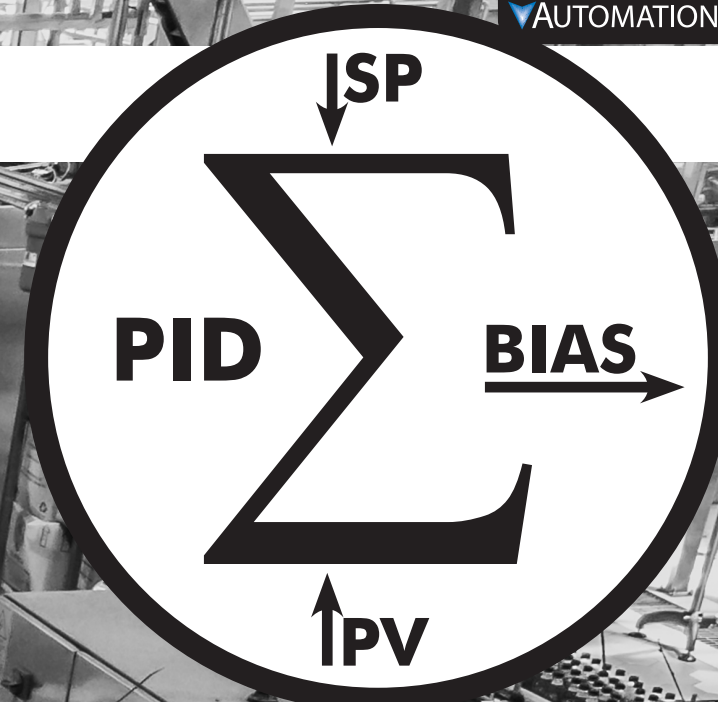
LS XGB PLC

The LS Electric XGB PLC comes equipped to tackle numerous industrial processes not just advanced motion control. With high-density 32-point discrete I/O modules, a wide variety of "on/off" control is possible or add XGB analog modules to your controller for up to 16 PID loops. XGB PID control is extremely capable and offers several features, including:

- Easy auto-tune function
- Cascade control with a master loop and slave loop
- PWM capability
- Pause capability
- Forward/reverse output
- Helpful trending capabilities for PID values

Up to 16 PID loops with easy auto tuning!

With LS XGB PLC analog modules you can monitor and control various processes around your facility, including those involving:
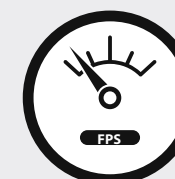
SPEED   PRESSURE   LEVEL   FLOW

"Are there licensing fees or service contracts with LS XGB PLCs?" A-Bsolutely not!

Just pay once because once is enough!

An important consideration with any PLC purchase is not only, "What will this cost me today?" but more importantly, "What will this cost me over time?" Some "big name" PLC suppliers may offer attractive hardware costs, but then hit you with software licencing fees, service contracts, subscriptions, etc. They try to squeeze every dollar they can out of every PLC they sell. After all, they have huge networks of distributors they have to keep employed.
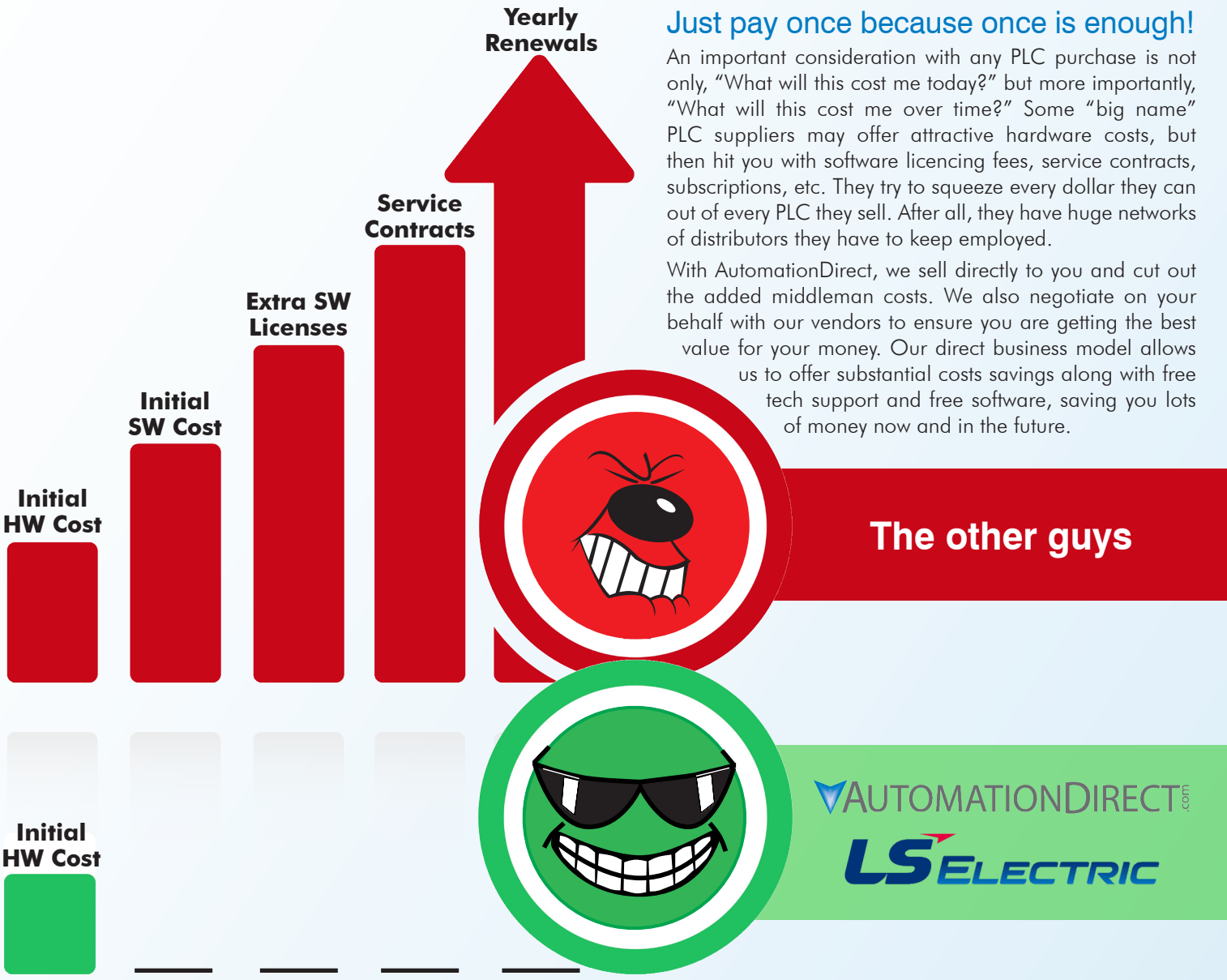
With AutomationDirect, we sell directly to you and cut out the added middleman costs. We also negotiate on your behalf with our vendors to ensure you are getting the best value for your money. Our direct business model allows us to offer substantial costs savings along with free tech support and free software, saving you lots of money now and in the future.

Yearly Renewals

Service Contracts

Extra SW Licenses

Initial SW Cost

Initial HW Cost

The other guys

AutomationDirect.com
LS ELECTRIC

Initial HW Cost

FREE Tech Support

Are you tired of calling a local distributor to discover their "product expert" is not in? How about waiting hours for technical service to return a message? Or paying for phone support service and then having to be on hold waiting for it?

It's no accident that our Tech Team routinely demonstrates the best attitude and manners in the industry!

We send our customers surveys to score our attitude, accuracy, and timeliness, then take these scores and use them as part of the Tech Team's report card. The bottom line is that you get great service by design.

Over 85% of customers who have used our service and responded to surveys say it's better than what they have been getting from other automation suppliers. 91% say we are above average to excellent in accuracy, 90% say we are above average to excellent in thoroughness, 91% say we are above average in response time, and 96% rate us above average in courtesy.
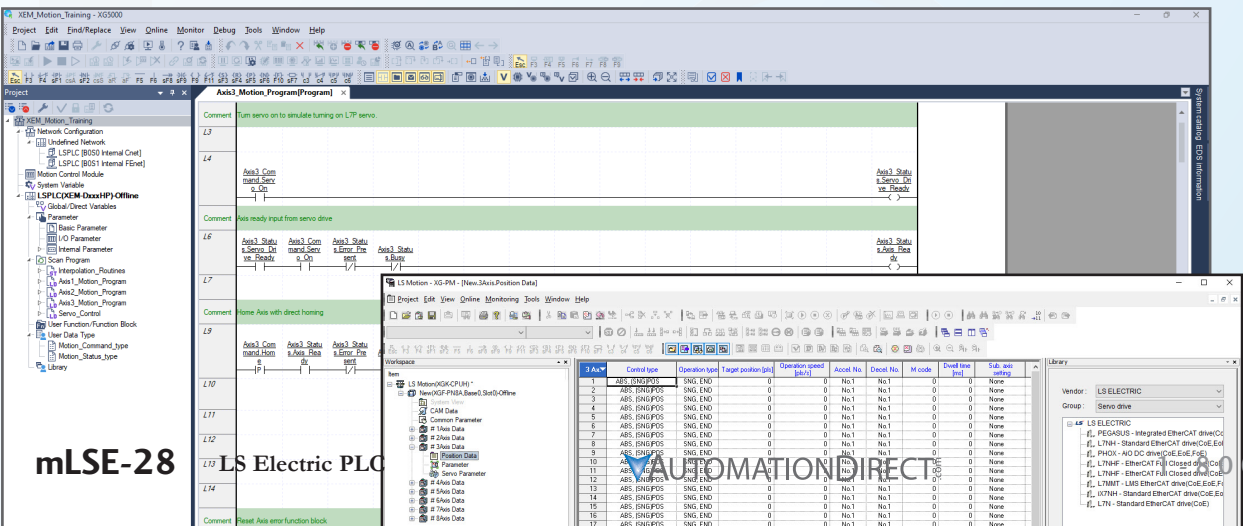
Isn't it time you got better service AND a better price? We definitely think so!

FREE Technical Support .com

Located in USA

Own it, don't owe on it!

How much should a PLC cost? Does a higher cost indicate greater functionality, better quality, or does it indicate more overhead, more expenses being off-loaded to you? Buying direct with us saves you money and cuts out the unnecessary costs that are incorporated into more traditional PLC sales. If you need a PLC, then buy a PLC, not the overhead!

With LS XGB PLCs from AutomationDirect, you get many great features that you would pay way too much for elsewhere. The robust LS PLC CPUs start at only $279.00 and I/O modules start at just $59.00. So when you see the other guys' prices, you have to wonder, what exactly are you paying for?

FREE Software!
Download as often as you need.
No license or key needed.
Click here to download.

CPU and I/O Comparison	AutomationDirect LS Electric PLC	VS.	Allen-Bradley Micro870
Power Supply	$66.00 PSE24-115		$72.32 2080-PS120-240VAC
CPU w/Ethernet and Serial ports	$299.00 XEM-DN32H2		$1,158.23 2080-LC70-24QBB
16 24VDC Inputs	$0.00 Included on CPU		$72.72 14 on CPU + 2080-IQ4 plug-in module
16 24VDC Outputs	$0.00 Included on CPU		$145.44 10 on CPU + 2) 2080-OV4 plug-in modules
# Motion Control Axes	2		2
# High-speed Counters	4		4
# Expansion Modules	7		8
EtherNet/IP Protocol	$99.00 XBL-EIPT expansion module		$0.00 Included with CPU
4 Analog Input Channels (mA)	$160.00 XBF-AD04A expansion module		$328.14 2085-IF4 expansion module
4 Analog Output Channels (mA)	$162.00 XBF-DC04A expansion module		$321.86 2085-OF4 expansion module
Hardware Cost	$786.00		$2,098.71
Programming Software	FREE XG5000		$471.30* 9328-CCWDEVENE

*Standard edition of CCW software is available to download for free but subscription to Developer edition is required for run-time editing, full simulator, and other features.

All prices are U.S. published estimated retail prices. AutomationDirect prices as of 05/2025. Allen-Bradley hardware prices taken from www.needco.com as of 05/2023. Allen-Bradley software price taken from www.needco.com as of 05/2023.

TOP RATED ★★★★★ **BY CUSTOMERS**

45-day Money-Back Guarantee
45 day

FREE Shipping - Orders over $49
2-day Shipping