GuardPLC™ Safety Control Systems

Overview

System Overview

The GuardPLC system is a state-of-the-art safety system offering fast safety PLCs, optimum controller throughput, and a reliable safety network.

The GuardPLC system meets the worldwide standard for programmable controls, complying with many of the latest global safety standards and the worldwide standard for functional safety in programmable electronic systems. The GuardPLC system can be used without restriction in applications up to Safety Integrity Level 3 (SIL 3) according to IEC 61508 and PLe/Category 4, according to ISO 13849-1.

The GuardPLC system consists of four main components:

- Packaged controller and associated integrated I/O
- Safety Communication via GuardPLC Ethernet networks
- Distributed I/O modules for GuardPLC Ethernet networks
- Programming and configuration software

Benefits

Benefits resulting from the use of safety PLCs and safety networks include:

- Greater integration and flexibility of machine controls.
- Capability for better and easier diagnostics when intelligence is provided to the standard control level
- Faster and easier maintenance
- Reduction in the cost of installation, commissioning, and reconfiguring
- Reduction in design and hardware costs, compared to using safety relays alone for logic
- Potential for throughput performance improvement in more complex systems

GuardPLC Safety Control Systems

	 GuardPLC 1600 5-125	 GuardPLC 1800 5-127	 GuardPLC Distributed I/O 5-129
Description	A cost-effective safety PLC offering a built-in 4-port Ethernet switch, digital I/O, and flexible communication options for connecting devices.	Analog inputs and high-speed counters allow the GuardPLC 1800 to sense temperature, pressure, speed, and motion.	Distributed safety I/O blocks provide exceptional flexibility in configuring the right mix of I/O in the right place.
Memory	• 250kB user program • 250kB application data	• 250kB user program • 250kB application data	—
Digital I/O	• 20 inputs • 8 outputs	• 24 inputs • 8 outputs	• 16 inputs only • 16 outputs only • 8 inputs and 8 outputs • 16 inputs and 8 outputs • 20 inputs and 8 outputs
Other I/O	—	• 8 analog inputs • 2 high-speed counters	• 8 analog inputs • 8 relay outputs
Embedded Ethernet	4-port switch	4-port switch	2-port switch
Other Communications	• EtherNet/IP • GuardPLC Ethernet • Modbus RTU Slave or PROFIBUS DP Slave • ASCII (RS-485)	• EtherNet/IP • GuardPLC Ethernet • Modbus RTU Slave or PROFIBUS DP Slave • ASCII (RS-485)	• GuardPLC Ethernet
Programming Software	All GuardPLC controllers are programmed with RSLogix Guard PLUS! programming software.		

GuardPLC™ Safety Control Systems

Overview

Communication

GuardPLC safety controllers communicate on a Safe Ethernet communications network called GuardPLC Ethernet. The network is certified by TÜV for use in safety applications up to SIL 3 and PLe/Category 4, and can be used for distributed safety I/O and peer-to-peer communications between GuardPLC controllers, as well as programming using RSLogix Guard PLUS! software. And because it's Ethernet, you use standard category 5 cables, switches and routers.

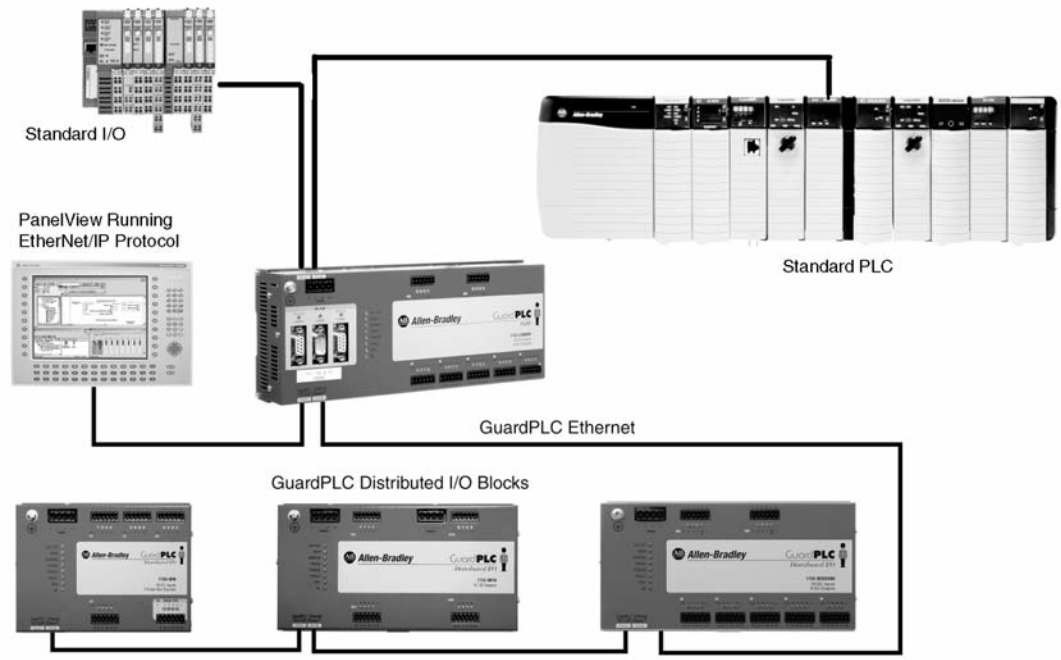
Using GuardPLC distributed I/O, you can place your safety I/O where your safety field devices are located, reducing wiring costs. Peer-to-peer communications allow GuardPLC controllers running their own programs to interlock with each other for applications that need to link one manufacturing cell to others.

NetLinx Integration

The ever-increasing demand for both enhanced plant productivity and improved workplace safety has fueled a trend toward integrated safety control and standard control systems. Control system users now expect their safety systems to possess all of the efficiencies and conveniences of their standard controls. Today's modern manufacturing plants will not accept safety systems that compromise productivity. Both machine builders and end users expect that the cost of implementing and maintaining a safety system will continue to drop without reducing the level of protection to the user.

The first level of integrating your GuardPLC controller into your standard control system is at the information network level. The GuardPLC 1600 and 1800 controllers let you to accomplish this easily with embedded EtherNet/IP protocol. Able to run EtherNet/IP protocol at the same time as safety-rated GuardPLC Ethernet protocol, the GuardPLC controller uses EtherNet/IP protocol to communicate status about the safety control system to other standard devices such as PLCs (ControlLogix®, FlexLogix™, CompactLogix™, SLC™ 500 or PLC-5®), HMIs (PanelView™, PanelView Plus, VersaView®) and others. The GuardPLC controller can even control standard I/O, like Flex I/O and Point I/O, on an EtherNet/IP network. This capability lets you integrate your GuardPLC on the EtherNet/IP network already running in your plant.

GuardPLC Typical Configuration



GuardPLC 1600 Controller

The GuardPLC 1600 controller is a mainstream, cost-effective safety PLC that provides onboard digital I/O, a built-in 4-port Ethernet switch, and flexible communication options for connection to HMIs and to standard PLCs.

Benefits

- 28 safety digital I/O points – designed specifically for interfacing with safety components such as e-stops, light curtains, etc.
- Embedded 4-port Ethernet switch – eliminates the need for external networking hardware, reducing system cost.
- EtherNet/IP for easy integration with standard PLCs and HMIs.
- Modbus RTU slave and PROFIBUS DP slave communication options – allow the controller to connect to standard PLCs and HMI devices, and an RS-485 port is available for ASCII communication (read only).
- Expandability – use GuardPLC Distributed I/O to cost-effectively expand your safety system.
- Removable terminal blocks – make swapping controllers an efficient task so operations can be up and running again quickly in the event of a failure.

Typical Applications

- Perimeter guarding for robot / weld cells
- Perimeter guarding for packaging machines
- Press controls
- Semiconductor tools
- Material handling systems

Product Design

The GuardPLC 1600 controller features a built-in four-port Ethernet switch and digital I/O (20 safety rated inputs and eight safety rated outputs). 100M GuardPLC Ethernet comes standard, plus for flexibility in connecting to HMI devices and standard PLCs, the controller includes EtherNet/IP, Modbus RTU Slave or PROFIBUS DP Slave, an RS-485 port for ASCII communications.

At 10 ms throughput, this controller is one of the fastest safety PLCs in the industry. Its exceptionally high mean time between failures helps increase the safety and reliability of your system. Removable terminal blocks make swapping controllers a quick task so operations can be up and running again quickly in the event of failure.

Features

- 28 digital I/O points: 20 inputs, 8 outputs
- Use GuardPLC Distributed I/O to expand safety system
- EtherNet/IP, RS-485 port for ASCII communication (read only)
- Embedded 4-port Ethernet switch eliminates the need for external networking hardware
- Modbus RTU slave and PROFIBUS DP slave communication options to connect to standard PLCs and HMI devices
- Certified by TÜV for use in applications to SIL 3 according to IEC 61508 and PLe/Category 4, according to ISO 13849-1
- Programmed with RSLogix Guard PLUS! Software
- DIN rail mounting
- Cost-effective safety control system

Specifications

General Specifications

The following specifications are common to all GuardPLC products unless indicated.

Temperature, operating	0…60 °C (32…140 °F)
Temperature, nonoperating	-40…85 °C (-40…185 °F) without backup battery
Relative Humidity	95%
Vibration	1 g @ 10…150 Hz
Shock, operating	15 g

Certifications

(When product is marked.)

Certifications	GuardPLC 1600, GuardPLC 1800, and 1753 I/O
c-UL-us	c-UL Listed Industrial Control Equipment.
CE	Compliant for all applicable directives.
C-Tick	C-Tick compliant with all applicable acts
Functional Safety	certified by TÜV up to SIL 3, and PLe/Cat. 4

GuardPLC 1600 Controller Specifications

Cat. No.	1753-L28BBBM	1753-L28BBBP
Application Memory	250 KB	
User Program Memory	250 Kbytes	
Available User Memory	500	
Current Consumption	8 A with maximum load 0.5 A idle current (controller only)	
Operating Voltage Range	24V DC, -15% to +20%, $w_{ss} \leq 15\%$∗	
Communication Ports	4 Ethernet 10/100BaseT ports 1 9-pin D-shell RS-485 port (Modbus Slave) 1 9-pin D-shell RS-485 port (GuardPLC ASCII) 1 9-pin D-shell Comm port (unused)	4 Ethernet 10/100BaseT ports 1 9-pin D-shell RS-485 port (PROFIBUS DP Slave) 1 9-pin D-shell RS-485 port (GuardPLC ASCII) 1 9-pin D-shell Comm port (unused)
Ethernet Port	4 x RJ-45, 10/100BaseT (with 100 Mbit/s) with integrated switch	
EtherNet/IP Communication Rate	10/100 Mbps	
Enclosure Protection	IP20	
Digital Inputs		
Number of Digital Inputs	20 safety❄	
Voltage, On-State Input, Max.	30V DC	
Voltage, On-State Input, Nom.	24V DC	
Digital Outputs		
Number of Digital Outputs	8 safety❄	
Current, On-State Output, per Channel	Channels 1…3; 5…7: 0.5 A @ 60 °C (140 °F) Channels 4 and 8: 1 A @ 60 °C (140 °F); 2 A @ 50 °C (122 °C)	
Voltage, On-State Output, Max.	26.8V DC	
Voltage, On-State Output, Min.	18.4V DC	
Voltage, On-State Output, Nom.	24V DC	
General		
Dimensions (HxWxD), Metric	114 x 257 x 78 mm‡	
Dimensions (HxWxD), Imperial	4.49 x 10.1 x 3.07 in‡	

∗ Requires a power supply with protective separation conforming to IEC 61131-2 requirements.
❄ Not electrically isolated.
‡ Height includes latch; width includes housing screws; depth includes grounding bolt and connectors.

GuardPLC 1800 Controller

The GuardPLC 1800 controller takes all the features of the GuardPLC 1600 controller, then adds analog inputs and high-speed counters for specialized applications such as emergency shut down, flame control, and amusement park ride control.

Benefits

- 32 safety digital I/O points – designed specifically for interfacing with safety components such as e-stops and light curtains.
- 8 safety-rated analog inputs – for sensing temperature, pressure, etc.
- 2 safety-rated high-speed counters – for sensing speed, flow, and motion.
- Embedded 4-port Ethernet switch – eliminates the need for external networking hardware.
- Supports EtherNet/IP protocol for easy integration with standard PLCs and HMIs.
- Modbus RTU slave and PROFIBUS DP slave communication options – lets the controller connect to standard PLCs and HMI devices, and an RS-485 port is available for ASCII communication (read only).
- Expandability – Use GuardPLC Distributed I/O to expand your safety system.
- Removable terminal blocks – make swapping controllers an efficient task so operations can be up and running again quickly in the event of a failure.

Typical Applications

- Emergency shutdown
- Burner management systems
- Perimeter guarding for robot / weld cells
- Perimeter guarding for packaging machines

Product Design

The GuardPLC 1800 controller has the same features as the GuardPLC 1600 controller with additional I/O, including analog I/O and high-speed counters for specialty applications. Built-in I/O includes 24 digital inputs, 8 digital outputs, 8 analog inputs, plus 2 high-speed counters. With GuardPLC distributed I/O you can place additional safety I/O where your safety field devices are located, reducing wiring costs.

The GuardPLC 1800 offers a built-in four-port Ethernet switch and 100M GuardPLC Ethernet comes standard. For flexibility in connecting to HMI devices and standard PLCs, the controller includes EtherNet/IP, Modbus RTU Slave or PROFIBUS DP Slave, an RS-485 port for ASCII communications.

At 10 ms throughput, this controller is one of the fastest safety PLCs in the industry. Its exceptionally high mean time between failures helps increase the safety and reliability of your system. Removable terminal blocks make swapping controllers a quick task so operations can be up and running again quickly in the event of failure.

Features

- 32 digital I/O points: 24 inputs, 8 outputs
- 8 analog inputs
- 2 high-speed counters
- EtherNet/IP for easy integration with standard PLCs and HMIs.
- Modbus RTU slave and PROFIBUS DP slave communication options – allow the controller to connect to standard PLCs and HMI devices, and an RS-485 port is available for ASCII communication (read only).
- Programmed with RSLogix Guard PLUS! software
- Certified by TÜV for use in applications to SIL 3 according to IEC 61508 and PLe/Category 4, according to ISO 13849-1
- DIN rail mounting

Specifications

General Specifications

The following specifications are common to all GuardPLC products unless indicated.

Temperature, operating	0…60 °C (32…140 °F)
Temperature, nonoperating	-40…85 °C (-40…185 °F) without backup battery
Relative Humidity	95%
Vibration	1 g @ 10…150 Hz
Shock, operating	15 g

Certifications

(When product is marked.)

Certifications	GuardPLC 1600, GuardPLC 1800, and 1753 I/O
c-UL-us	c-UL Listed Industrial Control Equipment.
CE	Compliant for all applicable directives.
C-Tick	C-Tick compliant with all applicable acts
Functional Safety	certified by TÜV up to SIL 3, and PLe/Cat. 4

GuardPLC 1800 Controller Specifications

Cat. No.	1753-L32BBBM8A	1753-L32BBBP8A
Application Memory	250 KB	
User Program Memory	250 Kbytes	
Available User Memory	500	
Current Consumption	9 A with maximum load 0.75 A idle current (controller only)	
Operating Voltage Range	24V DC, -15% to +20%, w_{ss} ≤ 15%✶	
Communication Ports	4 Ethernet 10/100BaseT ports 1 9-pin D-shell RS-485 port (Modbus Slave) 1 9-pin D-shell RS-485 port (GuardPLC ASCII) 1 9-pin D-shell Comm port (unused)	4 Ethernet 10/100BaseT ports 1 9-pin D-shell RS-485 port (PROFIBUS DP Slave) 1 9-pin D-shell RS-485 port (GuardPLC ASCII) 1 9-pin D-shell Comm port (unused)
Ethernet Port	4 RJ-45	
EtherNet/IP Communication Rate	10/100 Mbps	
Enclosure Protection	IP20	
Digital Inputs		
Number of Digital Inputs	24 safety❄	
Voltage, On-State Input, Max.	30V DC	
Voltage, On-State Input, Nom.	24V DC	
Digital Outputs		
Number of Digital Outputs	8 safety❄	
Current, On-State Output, per Channel	Channels 1…3; 5…7: 0.5 A @ 60 °C (140 °F) Channels 4 and 8: 1 A @ 60 °C (140 °F); 2 A @ 50 °C (122 °C)	
Voltage, On-State Output, Max.	Supply Voltage (L+)	
Voltage, On-State Output, Min.	Supply Voltage (L+) minus 2V	
Voltage, On-State Output, Nom.	24V DC	
Counters		
Number of Counters	2 safety❄	
Counter Resolution, Bits	24 bits	
Counting Frequency (kHz), Max.	100	
Inputs per Counter	3 (A, B, Z)	
Analog Inputs		
Number of Analog Inputs	8 safety‡	
Input Resolution	12-bit	
Input Signal Range	0…10V DC (nominal); -0.1…11.5V DC (service value) 0…20 mA (nominal); 0.4…23 mA (service value)§	
Accuracy	0.1% @ 25 °C (77 °F) 0.5% @ 60 °C (140 °F)	
Safety Accuracy	± 2%	
General		
Dimensions (HxWxD), Metric	114 x 257 x 81 mm♣	
Dimensions (HxWxD), Imperial	4.49 x 10.1 x 3.19 in♣	

✶ From a power supply with protective separation conforming to IEC 61131-2 requirements.
❄ Not electrically isolated.
‡ Unipolar, not electrically isolated.
§ With 500 Ω shunt.
♣ Height including latch; width including housing screws; depth including grounding bolt and shield plate.

Distributed Safety I/O for GuardPLC Ethernet

Take advantage of all the benefits of traditional distributed I/O with GuardPLC distributed safety I/O, available for all GuardPLC systems.

GuardPLC distributed I/O modules provide considerable flexibility in configuring the right mix of I/O in the right place. The 16 digital input module offers 4 pulse test source terminals, allowing users to pulse test all 16 digital inputs from the I/O module and providing PLe/Category 4 capable safety circuitry while retaining all the advantages of distributed I/O. The 16 digital output module is rated for 2A on every other output point, limiting the need for additional interposing safety relays for additional current and therefore saving on machine costs.

The safety relay output module can provide dry contact enable signals as well as high current AC or DC outputs. The 8 input/8 output and 16 input/8 output digital combination modules feature both positive and negative switching outputs, for applications that use diverse outputs. The analog input module lets you distribute analog inputs for more process-oriented safety applications.

All I/O modules include GuardPLC 100 Mbps Ethernet, which provides one of the fastest safety networks and machine stop times in the industry. The built-in two-port Ethernet switches make connecting I/O modules to the GuardPLC controller as easy as daisy-chaining Ethernet cable from I/O module to controller.

Benefits

- Place the I/O where the devices reside.
- Reduce wiring costs and the time necessary to wire the machine or cell.
- Reduce machine or cell start up time.
- Increase machine and cell reliability.

Digital Safety I/O Module Specifications

Cat. No.	1753-IB16	1753-IB8XOB8	1753-IB16XOB8	1753-IB20XOB8	1753-OB16
Description	GuardPLC Digital Input Module	GuardPLC Digital Combination Module	GuardPLC Digital Combination Module	GuardPLC Digital Combination Module	GuardPLC Digital Output Module
Operating Voltage Range	24V DC, -15%…+20%, w_{ss} 15%∗	24V DC, -15%…+20%, w_{ss} 15%∗	24V DC, -15%…+20%, w_{ss} 15%∗	24V DC, -15%…+20%, w_{ss} 15%∗	24V DC, -15%…+20% w_{ss} 15%∗
Digital Inputs					
Number of Digital Inputs	16 safety❄	8 safety❄	16 safety❄	20 safety❄	—
Voltage, On-State Input, Nom.	24V DC	24V DC	24V DC	24V DC	—
Digital Outputs					
Number of Digital Outputs	—	8 positive-switching and 2 negative-switching safety ❄	8 positive-switching and 8 negative-switching safety ❄	8 safety❄	16 safety❄
Current, On-State Output, per Channel	—	L+ Channels 1…3, 5…7: 0.5 A @ 60 °C (140 °F) L+ Channels 4 and 8: 1 A @ 60 °C (140 °F), 2 A @ 40 °C (104 °F) L- Channels 1 and 2: 1 A @ 60 °C (140 °F), 2 A @ 40 °C (104 °F)	Channels 2, 4, 5 and 7: 0.5 A @ 60 °C (140 °F) Channels 1 and 8: 1 A @ 60 °C (140 °F), 2 A @ 40 °C (104 °F) Channels 3 and 6: 1 A @ 60 °C (140 °F)	Channels 1…3, 5…7: 0.5 A @ 60 °C (140 °F) Channels 4 and 8: 1 A @ 60 °C (140 °F), 2 A @ 50 °C (122 °F)	1 A @ 60 °C (140 °F) 2 A @ 40 °C (104 °F)
Voltage, On-State Output, Max.	—	Supply Voltage (L+)	Supply Voltage (L+)	Supply Voltage (L+)	Supply Voltage (L+)
Pulse Test Sources					
Number of Pulse Test Sources	4❄	2❄	2❄	—	—
General					
Temperature, operating	0…60° C (32…140° F)	0…60°C (32…140°F)	0…60°C (32…140°F)	0…60°C (32…140°F)	0…60 °C (32…140 °F)
Temperature, nonoperating	-40…85 °C (-40…185 °F)	-40…85 °C (-40…185 °F)	-40…85 °C (-40…185 °F)	-40…85 °C (-40…185 °F)	-40…85 °C (-40…185 °F)
Dimensions (HxWxD), Metric	114 x 152 x 78 mm‡	114 x 152 x 78 mm‡	114 x 205 x 100 mm‡	114 x 207 x 78 mm‡	114 x 207 x 78 mm‡
Dimensions (HxWxD), Imperial	4.49 x 5 99 x 3.07 in‡	4.49 x 6.00 x 3.07 in‡	4.49 x 8.08 x 3.94 in‡	4.49 x 8.16 x 3.07 in‡	4.49 x 8.16 x 3.07 in‡

∗ Requires a power supply with protective separation, conforming to IEC 61131-2 requirements.
❄ Not electrically isolated.
‡ Height including latch; width including housing screws; depth including grounding bolt and connectors.

Digital Relay Safety Output Module Specifications

Cat. No.	1753-OW8
Description	GuardPLC Digital Relay Output Module
Number of Outputs	8 safety relay
Operating Voltage Range	24V DC, -15%…+20% w_{ss} 15%✶
Switching Voltage	5…250 V AC/ DC
Switching Current	• UL: 24V DC @ 1A resistive load, 250V AC @ 6 A general purpose • TUV: up to 240VA (for V AC), up to 30V DC @ 90 W, up to 70V DC @ 35 W, up to 127V DC @ 30 W
Service Life, Mechanical	≥10^6 switching cycles
Temperature, operating	0…60 °C (32…140 °F)
Temperature, nonoperating	-40…+85 °C (-40…+185 °F)
Dimensions (HxWxD), Metric	114 x 207 x 98 mm❄
Dimensions (HxWxD), Imperial	4.49 x 8.16 x 3.86 in❄

‡ External fusing adapted.
✶ Requires a power supply with protective separation, conforming to IEC 61131-2 requirements.
❄ Height including latch; width including housing screws; depth including grounding bolt and connectors.

Analog Safety I/O Module Specifications

Cat. No.	1753-IF8XOF4
Description	GuardPLC Analog Combination Module
Operating Voltage Range	24V DC, -15%…+20%, w_{ss} 15%✶
Number of Safety Analog Inputs	8
Input Signal Range	Nominal: 0…+10V DC or 0…20 mA (with shunt) Service: -0.1…+11.5V DC or -0.4…23 mA (with shunt)
Input Impedance	Analog Input: >2 MΩ
Input Resolution	12 bit
Accuracy	0.5%
Number of Analog Outputs (Standard)	4‡
Output Signal Range	4…20 mA 0…20 mA
Output Impedance	Current Output: 600 Ω max.
Temperature, operating	0…60°C (32…140°F)
Temperature, nonoperating	-40…85 °C (-40…185 °F)
Dimensions (HxWxD), Metric	114 x 207 x 111 mm❄
Dimensions (HxWxD), Imperial	4.49 x 8.16 x 4.37 in❄

‡ Non-safety-related with common safety switch-off.
✶ Requires a power supply with protective separation, conforming to IEC 61131-2 requirements.
❄ Height including latch; width including housing screws; depth including grounding bolt, connectors, and shield plate.

RSLogix Guard PLUS! Programming Software

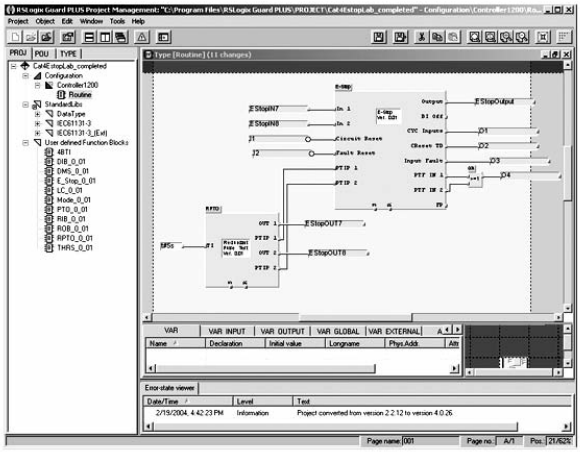
Development and testing of programs for all GuardPLC systems is done with RSLogix Guard PLUS! programming software, an easy to use yet highly powerful programming software. RSLogix Guard PLUS! software is project-based, meaning you can store programs for multiple controllers in one project.

RSLogix Guard PLUS! is based on graphical function blocks. Simply design your logic using pre-defined elements such as AND-gates, OR-gates, numerical functions, etc., then connect inputs and outputs using the mouse.
RSLogix Guard PLUS! software offers unlimited data tags, program pages, and function blocks for maximum flexibility.

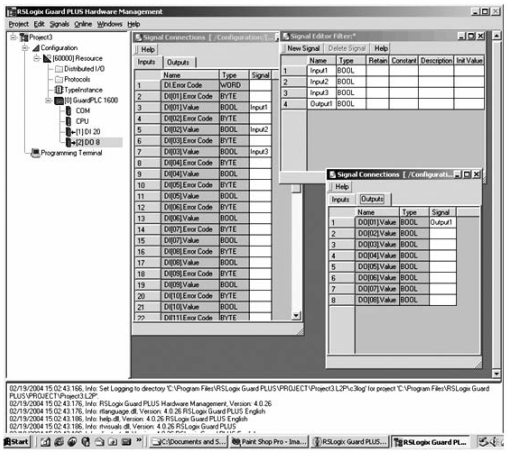
Once RSLogix Guard PLUS! software has been configured for the chosen controller, input and output variables are defined in a tag list to establish the link between hardware and software in a manner similar to that used by ControlLogix controllers and RSLogix 5000 programming software.

To save time and decrease development effort, the offline program simulation allows you to test your program without downloading it to a GuardPLC controller. Online program monitoring allows you to view your logic inside the controller to see which parts are logically true and false and to troubleshoot as necessary.

RSLogix Guard PLUS! Programming Software Examples



Use the project management screen to write a program, perform offline program simulation, and view the program running online.



The hardware management screen within RSLogix Guard PLUS! lets you configure the hardware of your GuardPLC system, create tags, and then drag them into your program.

Benefits

- Ease of use – program your safety control system using pre-defined graphical elements and a "drag and drop" palette.
- Tag-based system – define program variables to suit specific application and use variable names.
- Offline program simulation – test your program without using the controller.
- Online program monitoring – eases troubleshooting by viewing logic inside of GuardPLC controllers.
- Unlimited program pages and unlimited variables – configure program to suit specific needs.
- User-defined function blocks with library function – create your own specific instructions.
- Project-based controller linkage – store programs from multiple controllers in one project; ideal for cells that contain multiple GuardPLC controllers.
- Safety certified function blocks – save programming and configuration time by using function blocks that are already certified for use in safety applications.

System Requirements

Requirements to install RSLogix Guard PLUS! programming software on a personal computer.

Requirements	Minimum	Recommended
Personal Computer	Pentium III, 500 MHz	Pentium IV, 1.2 GHz
Operating System	Windows NT/2000	Windows NT/2000/XP
RAM	256 MB	512 MB
Free Hard Disk Space	at least 200 MB plus space for user programs	at least 200 MB plus space for user programs
Resolution	1024 x 768/256 colors	1280 x 1024/true color

GuardPLC™ Safety Control Systems

RXLogix Guard PLUS! Programming Software/GuardPLC Hand-held Terminal

RSLogix Guard PLUS! Programming Software

You can install RSLogix Guard PLUS! programming software on a local drive only (not a network).

Cat. No.	Description
1753-PCS-USB	RSLogix Guard PLUS! for all GuardPLC controllers. USB hardlock.
1753-PCS-PAR	RSLogix Guard PLUS! for all GuardPLC controllers. Parallel port hardlock.

Certified Function Blocks for RSLogix Guard PLUS!

GuardPLC Certified Function Blocks are additional, application-specific instructions that can be used in your GuardPLC controller's application program. Certified by TÜV, these function blocks make application development, debugging, and troubleshooting quicker and easier. Certified Function Blocks are sold in suites or libraries that contain several blocks for specific applications.

Cat. No.	Description
1753-CFBBASIC	Basic Suite of Certified Function Blocks. Includes: E-stop. Diverse Input, Light Curtain, Two-hand Run Station, Enable Pendant, Redundant Output, and Pulse Test Output.

GuardPLC OPC Server Software

GuardPLC OPC Server software allows a Windows-based PC to read data from and write data to the GuardPLC controller across the GuardPLC Ethernet network. For example, a VersaView computer could be running the GuardPLC OPC server and RSView software, then could display status information from the GuardPLC controller, such as which e-stop has been pressed, which gate is open, or which light curtain has been interrupted.

Cat. No.	Description
1753-OPC	GuardPLC OPC Server software

GuardPLC Hand-held Terminal

The GuardPLC Hand-held Terminal is a maintenance tool that lets you commission new GuardPLC controllers and Distributed I/O modules by downloading configuration data and the application program. Store all of the programs for a project on a multimedia memory card, and connect to any GuardPLC device on the Ethernet network. The hand-held terminal is ideal for a downtime event that requires quick replacement of a GuardPLC controller or DIO block, helping to get production up and running again.

1753-HHT Specifications

Operating Voltage Range	2.4…3.0V DC
Current Consumption	Approximately 360 mA (display illumination off) Approximately 560 mA (display illumination max)
Batteries	2 AA rechargeable batteries NiMH 2000 mAh or standard batteries
Operating Time, Min. with NiMH 2000 mAh batteries	Approximately 3 hours
Battery Charger, Supply Voltage	12V
Battery Charger, Current Input	≤ 0.83 A
Battery Charger, Charging Current	Approximately 1 A
Battery Charger, Trickle Charge	25 mA
Temperature, operating	5…55 °C (41…131 °F)
Temperature, nonoperating	-40…70 °C (-40…158 °F)
Relative Humidity	5…90% noncondensing
Vibration	5 g @ 10…500 Hz
Shock, operating	15 g
Dimensions (HxWxD), Metric	16.5 x 9 x 3 cm
Dimensions (HxWxD), Imperial	6.5 x 3.4 x 1.2 in
Weight, Metric	300 g
Weight, Imperial	0.66 lb