



The GuardPLC2000 CPU has one 10/100BaseT Ethernet port for programming and configuration and two interface ports (9-pin D-shell) for serial connections. The CPU controls all functions of the GuardPLC 2000 system as well as communication to other systems. LEDs display the operating modes: Run and Error for the I/O modules; Run, Error, Stop, Programming and Forcing for the CPU.

Typical Applications

- Perimeter guarding for Robot/weld cells
- Perimeter guarding for Packaging Machines
- Entertainment industry (ride control and ski lift control)
- Semi-conductor industry
- Press Control
- Burner Management
- Shipping (rudder controls)

Features

- Metal chassis
- I/O self test
- 24V DC digital I/O
- Expandable number of I/O
- Multiple I/O test points
- Certified by TÜV for use in applications up to SIL 3 according to IEC 61508; EN 954-1, Category 4
- Programmed with RSLogix Guard Software
- RS-232 port for ASCII communication (read only)
- Ethernet port for programming, configuration and Peer-to-Peer

Specifications

User Memory	500 KB application code memory 500 KB application data memory
Operating Voltages	3.3V DC 5V DC
Current Consumption	3.3V @ 1.5A 5V @ 0.1A
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Operating Humidity	5 to 95% (without condensation)
Shock	Operating: 30g non operating: 50g
Vibration	Operating: 2g @ 10 to 500Hz
Weight	6.3 kg (fully equipped)
Dimensions (WxHxD)	255 x 285 x 210mm (10 x 11.22 x 8.26in)

Safety PLCs

GuardPLC 2000 Safety System

Chassis 1755-A6 Power Supply 1755-PB720



The GuardPLC chassis houses the GuardPLC 2000 controller, power supply, and up to six safety I/O modules. A filler module is also available for unused slots (catalogue number 1755-N2).

Specifications

Description	Expansion chassis for adding safety I/O modules
Number of Slots	6
Dimensions (WxHxD)	255 x 285 x 210mm (10 x 11.2 x 8.3in)
Weight	3.3kg (7.2lbs)
Mounting	Back-panel mounting
Catalogue Number	1755-A6

The power supply module transforms the system supply voltage from 24V to 3.3V DC/5V DC (used for internal I/O bus). It occupies the left-most slot of the GuardPLC 2000 chassis. The power supply comes with a lithium battery, which has a four-year life span, that is used for back-up. Four LEDs indicate the power supply, battery voltage, and faults.

GuardPLC Safety Control Systems

Overview

Safety-related input modules are automatically subjected to a high-grade, cyclical self-test in both the GuardPLC 1200 and GuardPLC 2000 systems during operation. These test routines are TÜV approved and help ensure the safe function of the respective module. When an error is detected, the application is provided with an “0” signal, and a detailed error message is generated optionally. If there are minor failures in the module (no effect on the safety function), no user diagnostic information is generated.

- The GuardPLC 2000 digital I/O module has 24 inputs and 16 outputs for signals, and the inputs and outputs are electrically isolated in groups of eight. The GuardPLC 1200 digital I/O module has 20 inputs and 8 outputs. In case of module error, the outputs are switched to the de-energized state.
- The analog output module, which is available in the GuardPLC 2000 system only, the eight channels on the analog input module can be used as eight single-ended or four differential analog inputs for 0 to 20 mA. No mixing is allowed. The incoming signals are converted into an integer value with a 12-bit resolution. This value then can be used in the user program. In case of module error, the logic outputs of the modules are switched to the de-energized state.

- The analog output module, which is available in the GuardPLC 2000 system only, has eight analog outputs with a 12-bit resolution. They are electrically isolated in groups of two outputs with a common ground. The output ranges of the module can be switched to 0 to 21 mA, 0 to 10.25V DC or -10.25 to +10.25V DC. For each channel, the module has a switch placed on the printed circuit board to switch the different output ranges. In case of module error, the outputs are switched to the de-energized state.
- The counter module has two operating modes: counter mode and decoder mode. The module has 24-bit counters with two outputs each. The counters can operate in both directions (up and down) and have a separate reset input. The input signals of 5V can be in a frequency range of 0 to 1 MHz in a GuardPLC 2000 system. Use a PC to configure the input voltage, which can be 5V or in a range of 10 to 26.4V. In case of module error, the outputs are switched to the de-energized state. The counter can count pulses with direction and reset inputs up to 1 MHz in the GuardPLC 2000 system and up to 100 KHz in the GuardPLC 1200 system.

The counter module can also be used as an 8-bit gray code encoder in the GuardPLC 2000 system or a 6-bit gray code encoder in the GuardPLC 1200 system.

I/O Hardware

Safety Digital I/O Combination Module

Operating Voltage	Signal Delay (max)	Maximum Off-State Current	On-State Current	Number of Inputs	Operating Voltage/ Type	Signal Delay (max)	Max Continuous Current per Output	Number of Outputs	Applications	Catalogue Number 1755-
10-30V DC	GuardPLC 2000 on = 70µs off = 70 µs GuardPLC 1200 on = 120 µs off = 200 µs	1.5mA @ 5V DC	2mA @ 10V 13mA @ 30V	24	18.4-26.8V DC	GuardPLC 2000 on = 70 µs off = 15 µs GuardPLC 1200 on = 15 µs off = 90 µs	2A (8A total per module)	16	Safety applications requiring 24V DC inputs and 24V DC outputs	-IB24XOB16

Safety Analog I/O Modules

Number of Inputs/ Outputs	Data Format	Voltage Range	Current Range	Back Plane Current Load	Channel Update/ Resolution	Catalogue Number 1755-
4 differential or 8 single-ended inputs — selectable	12-bit signed Integer (natural binary)	±10V 0-10V DC	0-20.5mA (with shunt)	150 mA/3.3V DC 400 mA/24V DC	12 bits (0-1000)	IF8
8 outputs	12-bit signed Integer (natural binary)	±10V 0-10V DC	0-20mA	150 mA/3.3V DC 400 mA / 24V DC	12 bits (0-1000)	OF8

Safety Counter Module

Inputs	Maximum Input Frequency	Outputs	Location	Back Plane Current Load	Catalogue Number
2	1 MHz	4	Any unused slot	0.1A / 24V DC without load 0.8A (3.3V DC), 0.1A (5V DC)	1755-HSC

Safety PLCs

GuardPLC Safety Control Systems

Weights

Catalogue Number and Weight in kg (lb)

- 1754-L28BBB 0.68 (1.5)
- 1755-A6 3.3 (7.3)
- 1755-HSC 0.26 (0.57)
- 1755-IB24XOB16 0.26 (0.57)
- 1755-IF8 0.24 (0.53)
- 1755-L1 0.28 (0.62)
- 1755-OF8 0.28 (0.62)
- 1755-PB720 0.82 (1.8)

Programming Software

RSLogix Guard Software

The safety aspects of the GuardPLC Safety Control System extend beyond the physical control platforms. Like the controllers, programming software must also be certified to support Safety Integrity Level 3 (SIL 3) applications and is a critical component of the total safety system. The programming and configuration tool for GuardPLC 2000 and GuardPLC 1200 safety controls is RSLogix Guard™ software, designed to operate with Microsoft Windows NT v4.0 or Windows 2000 operating system.

Since the RSLogix Guard software is a function block-based programming tool, there is no need for programmers to learn a cryptic programming language. Using such pre-defined elements as AND and OR gates, numerical functions, counters, and timers, programmers select and “drag” the appropriate functions onto their workstation screen. These functions, like the controllers, have been certified for use in applications up to SIL 3. Subsequent programming is as easy as drawing lines to “wire” inputs and outputs to the logical elements and making connections to hardware by way of user-defined variables or tags.

The RSLogix Guard software is also used for system diagnosis and debugging. It can provide the status of controller CPU and I/O and can be used to obtain information about the application program.

Features

- Save programming and configuration time using software that’s already certified for use in applications up to SIL 3
- Program your safety control system using pre-defined graphical elements and a “drag and drop” palette
- Tag-based system

System Requirements

To install **RSLogix Guard Programming Software** on a personal computer, you need to meet the following minimum requirements.

CPU Processor	Pentium II, 400 MHz
RAM	128M bytes
Graphic Adaptor	Resolution: 1024 x 768 pixels (XGA)
Hard Disk Space	30M bytes (minimum) for RSLogix Guard plus space for user defined programs
Operating System	Windows NT v4.0 or Windows 2000

Ordering Information

You can install **RSLogix Guard Programming Software** on a local drive only (not a network).

Description	Catalogue Number
RSLogix Guard 1200 for GuardPLC 1200 Packaged Safety Controller • 200 variables per POU (Program Organization Unit)	1754-PCS
RSLogix Guard 2000 for GuardPLC 1200 and GuardPLC 2000 Safety Controllers • 650 variables per POU (Program Organization Unit) • User-defined function blocks	1755-PCS