



**Rockwell  
Automation**

# LOGIX HOT BACKUP SOLUTIONS

Reduce unplanned downtime with Logix  
redundant control solutions



# Downtime is a certainty. What's the plan?

## **Lost production is inevitable, so planning for outages is critical.**

Part of that planning process should include an understanding of control system reliability. This has a different meaning in every industry, so going back to the basics is necessary. Identifying the type of disruption and severity of the outcome can help you evaluate risk mitigation options should a downtime incident occur.

A good place to start is with a risk assessment. Depending on your specific manufacturing environment and application, the results of the assessment can help determine suggested techniques to help keep your people and your equipment safe.

One of those suggestions may be to build controller redundancy into your operations. Before diving into the details, **what are some of the considerations in your specific industry and application?**



## WITH SOME PROCESSES, REDUNDANT CONTROLLERS ARE TWICE AS NICE!

Some production environments are continuous or irreversible and require high availability at all costs. Disruption of the process could be catastrophic from both a safety and profitability perspective. If any failure or stoppage occurs after production starts, the product is often scrapped, and the process reinitiated to realize a quality output. Think life sciences, food and beverage, pulp and paper, oil and gas, mining, cement, etc.

Other industries or applications simply can't afford to restart their production because it can take days, weeks, even up to a month to get back to full operation. A perfect example is the metals industry. What if a large furnace in a steel mill experiences a failure? It could take days to reach a stable operating temperature again so production can resume.

Although these examples are more aligned with critical industries where reliability at the highest levels is required, some applications need high availability for other reasons, including customer service. Think baggage handling.

In ALL these cases, what might be the cost of not implementing redundant control?



## WHAT'S THE COST OF DOING NOTHING?

Wouldn't it be great if you could predict anomalies in your operations so you could identify and potentially eliminate downtime before it occurs? Technology advancements in artificial intelligence and machine learning might be a good strategy, but often require a data scientist to mine and make sense of the data. In the end, there are several alternatives to consider to help prevent stoppages, including system redundancy. Weighing the costs and the risks of those options is part of the critical decision-making process. One of those alternatives is the "do nothing" scenario, but that can come at a high price:

### Loss of product

As mentioned previously, any interruption of continuous processes can result in loss of profit, uptime, and product. Machines sit idle, materials are scrapped, and processes and people must recalibrate and start over.

### Increased downtime

When your capital assets are out of commission, there's more at stake than lost production. Downtime leads to the non-utilization of resources, not only for the equipment that's experiencing the breakdown, but also for the upstream and downstream equipment in your process workflow. This translates to non-utilization of your human resources as well.

### Increased TCO/decreased ROI

When human and capital resources are not in use due to a downtime incident, tangible and intangible company resources continue to be consumed which affects the bottom line. Total cost of ownership increases while your return on investment decreases, and that's not a good combination.

Avoid these scenarios by choosing an alternative that's somewhere in between the "do nothing" and the data scientist — controller redundancy with Logix. With an investment in extra hardware and the accompanying software, you can help reduce unplanned downtime caused by failures, faults or system maintenance requirements.





# Logix controllers with redundant capability

Reliable control systems deliver consistent operation of your production floor. To increase reliability, consider implementing redundant control into your system.

Redundant capability isn't new to the Logix family of controllers. In fact, it's been available in different form factors for quite some time. Continued investment now makes this functionality available in the latest additions to the Logix product portfolios.

Whether you have a need for large or small control, you have options with ControlLogix® and CompactLogix™ controllers.


And whether you need one-click activation or would rather program the data sync yourself, Studio 5000 Logix Designer® software provides the design environment for configuring your redundant control.



# Logix control redundancy details

## CONTROLLOGIX REDUNDANCY

## HOT BACKUP

	ControlLogix 5580	ControlLogix 5570	ControlLogix 5570/5580 CompactLogix 5370/5380
Controller support	ControlLogix 5580	ControlLogix 5570	ControlLogix 5570/5580 CompactLogix 5370/5380
Required module	1756-RM2	1756-RM2	n/a
Network support	EtherNet/IP™	EtherNet/IP and ControlNet™	EtherNet/IP ControlNet (ControlLogix only)
I/O support	1756, 5094, 1794, 1734, 1738, 1715	1756, 1794, 1734, 1738, 1715	1756, 1794, 5069
Software	Studio 5000 Logix Designer v33	Studio 5000 Logix Designer RSNetWorx™ (if using ControlNet)	Studio 5000 Logix Designer Logix Hot Backup Code Generator RSNetworx (if using ControlNet)
Data synchronization	Automatic	Automatic	User configured
Switchover time	>= 20ms	>= 20ms	>= 250ms
Program duplication for secondary controller	Automatic	Automatic	User initiated
Online edits	Automatically sent to both controllers	Automatically sent to both controllers	User initiated in both controllers
Network address swap for HMI	Yes	Yes, on EtherNet/IP	No
Forced status equalization	Yes	Yes	No
Output status during switchover	Maintained	Maintained	Maintained
Firmware update in run mode	Yes	Yes	Yes
High availability systems reference manual			
User manual			Contact local sales office (Reference Technical Note 68593)

# ControlLogix 5580 controller quick look

Controller catalog	Description	Network Support			I/O Support			Security		Process				High Availability
		Ethernet	Use of embedded Ethernet port	ControlNet / DeviceNet / DHRIO	Existing I/O*	5069 I/O	5094 I/O	CIP security	62443-4-2 compliant	Embedded process objects	Phase Manager™ software	Sequence Manager™ software	Default Process Tasking model	Supports a redundancy configuration**
1756-L8xE	Standard controller	■	▲	▲	■	▲	■	▲	▲	●	■	●	●	■
1756-L8xE-NSE	No stored energy	■	▲	▲	■	▲	■	▲	▲	●	■	●	●	■
1756-L8xEK	Conformally coated	■	▲	▲	■	▲	■	▲	▲	●	■	●	●	■
1756-L8xEXT	Extreme temperature	■	▲	▲	■	▲	■	▲	▲	●	■	●	●	■
1756-L8xEP	Process controller	■	▲	▲	■	▲	■	▲	▲	■	■	●	■	■
1756-L8xES	Safety controller	■	■	■	■	■	■	●	●	●	■	●	●	●

■ Supported in all configurations

▲ Supported in standard (but not redundant) configuration

● Not Supported

\* ControlLogix® 5580 controllers configured for redundancy will support the same I/O as a ControlLogix® 5570 redundant controller; for example, 1769 I/O isn't supported in a ControlLogix® 5570 redundant controller, so it's also not supported with ControlLogix® 5580 redundancy

\*\* New functionality delivered through the Studio 5000 Logix Designer® application version 33 firmware and software; no new controller catalog number required to enable this feature

Whether you are in an industry where near 100% uptime with full backup capabilities is required, or work in a different industry where high availability is needed for other reasons, you have options.

With scalable alternatives for I/O, memory, and cost, Logix redundant controllers deliver high performance and high availability for all industries and application needs.

## LEARN MORE

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