The integrated safety functions option module provides PowerFlex 755 and PowerFlex 755T, 755TR and 755TM AC drives with advanced safety on an EtherNet/IP network. Safety instructions are based on IEC 61800-5-2 and include the ability to monitor speed, direction and position. The option module can be added to a drive at any time.

The ability to integrate the safety functions over EtherNet/IP provides the opportunity to reduce hardware and installation costs while improving productivity. The integration of the safety and standard control systems provides operators and maintenance personnel with visibility to all machine events – including safety events. This enables a quick response that allows the machine to return to full production faster.

When used as part of an integrated safety system that includes a GuardLogix® 5580ES controller or Compact GuardLogix 5380ES controller, the integrated safety functions option module provides safety ratings up to and including SIL CL3 and PLe Cat 4. Studio 5000 Logix Designer® application version 31 or later is also required.

Drive-based safety instructions include:
- STO – Safe Torque Off
- SSI - Safe Stop 1

Controller-based safety instructions include:
- SFX – Safety Feedback Interface
- SS1 – Safe Stop 1
- SS2 – Safe Stop 2
- SOS – Safe Operational Stop
- SLS - Safely-limited Speed
- SLP - Safely-limited Position
- SDI - Safe Direction
- SBC - Safe Brake Control

PowerFlex 755 and PowerFlex 755T drives feature a slot-based hardware architecture that gives you the flexibility to select option modules to suit your application and expand your drive for future needs. Each drive has five option slots to support additional options for feedback, I/O, communications, auxiliary 24V DC control power and safety – including the integrated safety functions module.
Benefits of Controller-based Safety

Networked safety solutions provide the ability to simplify your machine design and minimize equipment redundancies. Fewer components mean smaller panel enclosures which helps reduce machine footprint. It also offers these other important benefits:

- A single GuardLogix® controller manages both safety and standard control
- Complete safety function integration within one software environment – Studio 5000 Logix Designer – for configuration, programming and maintenance
- The integration of the safety and standard control systems provides operators and maintenance personnel with improved visibility to all machine events – including safety events
- Safety and standard control share the same EtherNet/IP network

Management of multiple safety zones

In the past, a safety event in one section of a machine could result in the entire machine shutting down because the standard system had limited knowledge of the safety event. But Integrated Safety allows the control and safety systems to coexist on the same network and to share data between the safety and standard applications. This allows “zone control” where one zone of the machine is brought to a safe state while other zones continue to operate.

A common, unified safety implementation for motor control

Both VFD and servo drive solutions are applied in the same way for a simplified, common user experience.

- PowerFlex 755 and PowerFlex 755T AC drives with integrated safety functions option module
- Kinetix® 5700 servo drive with integrated safety

Using an Integrated Safety solution, drives and their respective motors are grouped together into zones. All zoning is done completely in the controller – compared with a hardwired solution in which drives have safety inputs daisy chained together. Modifications to your application are simplified which helps to save you both time and money.