Guardmaster Safety Relays

Innovative technology in a broad portfolio
of safety control solutions

Allen-Bradley
Guardmaster®

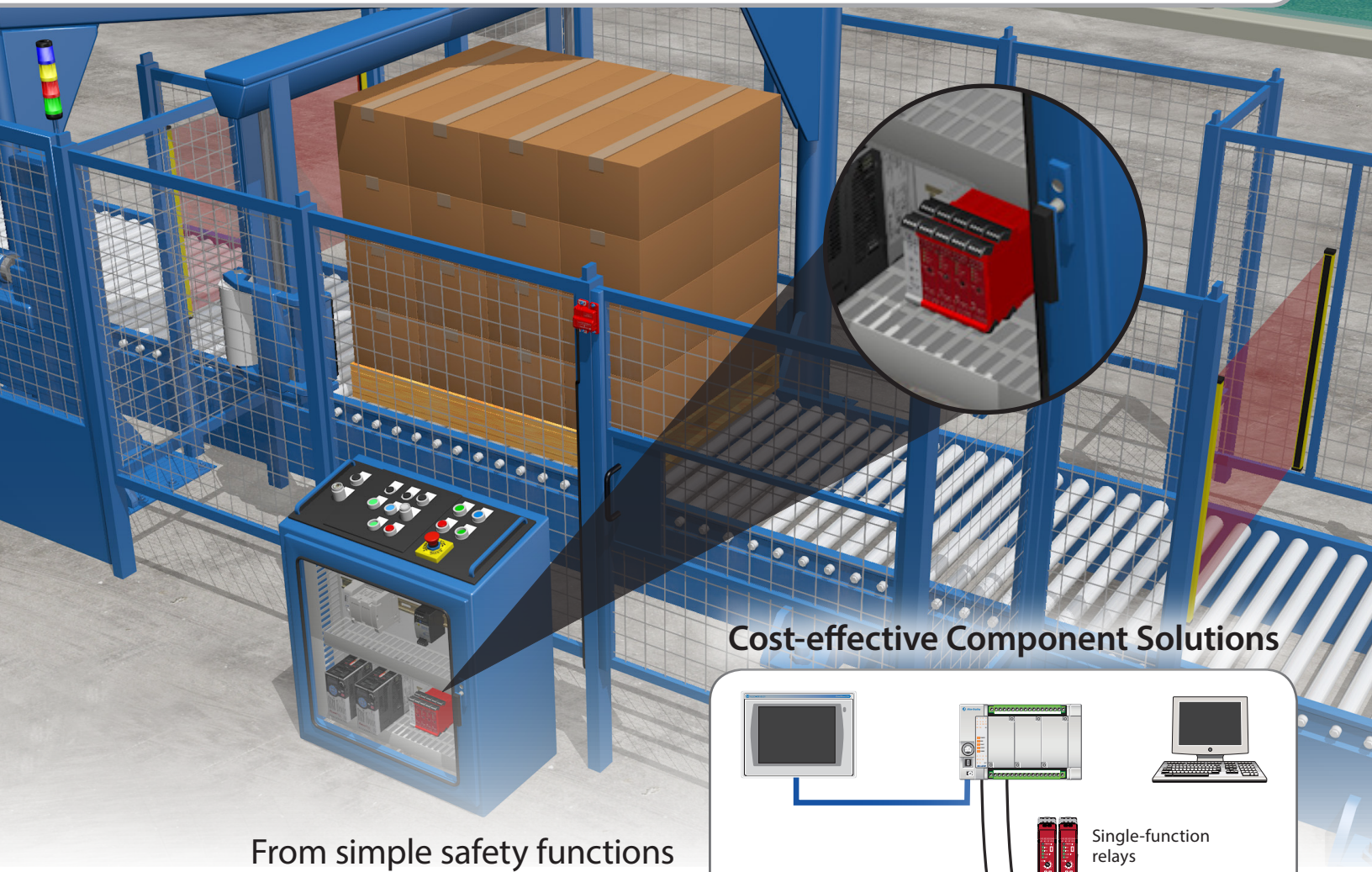
LISTEN.
THINK.
SOLVE.®

Allen-Bradley • Rockwell Software

Rockwell Automation

Guardmaster Safety Relays

Allen-Bradley® Guardmaster® Safety Relays from Rockwell Automation check and monitor a safety system and either allow the machine to start or execute commands to stop the machine or control safety-related functions. Single-function safety relays are the most economical solution for smaller machines where a dedicated logic device is needed to complete the safety function. Modular and configurable safety relays are preferred where a large and diverse number of safeguarding devices and minimal zone control are required.

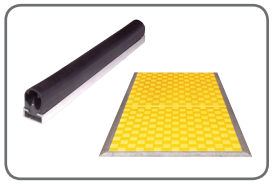


Cost-effective Component Solutions

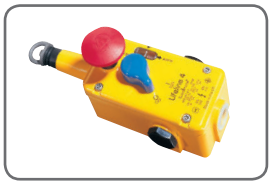
From simple safety functions to fully integrated systems, Rockwell Automation offers a complete range of flexible, scalable Allen-Bradley safety solutions.

Other Rockwell Automation Safety Products...


Safety light curtains and scanners

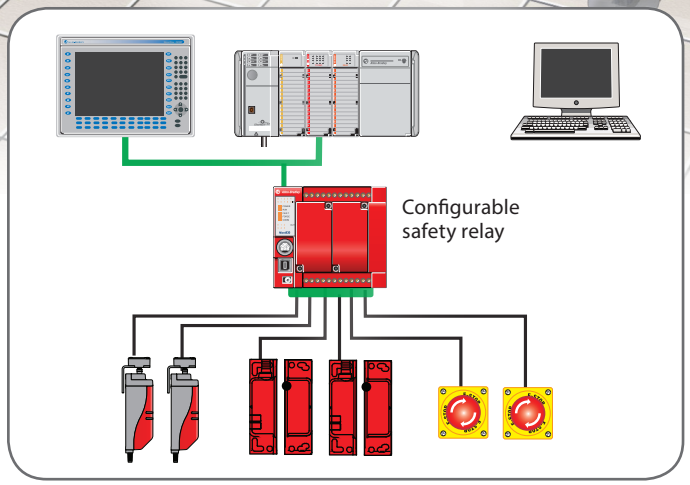

Pressure sensitive devices


Interlock switches

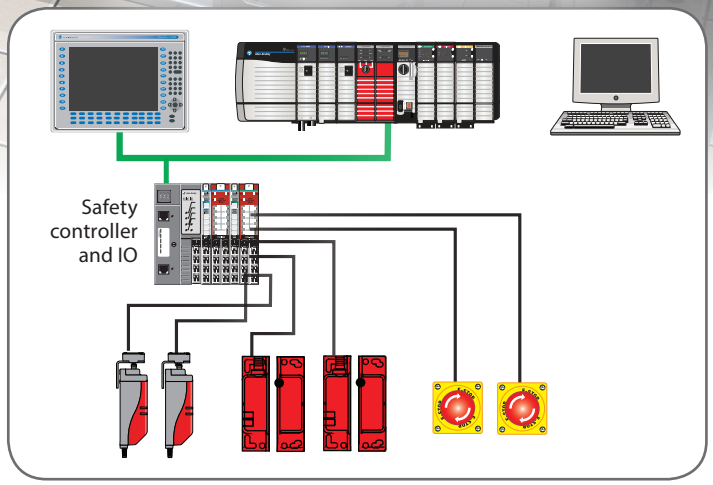

Cable pull switches


Enabling switches

Midrange Solutions



Highly Integrated Solutions

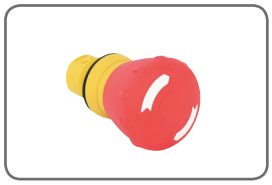


Note: *Representative applications only. Actual solutions may vary.*

GuardLogix and CompactLogix

SmartGuard 600

Variable speed and servo drives



E-stops

Non- contact switches

Welcome to the Next Generation of Safety Relays

The new family of Allen-Bradley Guardmaster Safety Relays from Rockwell Automation includes eight units capable of monitoring a broad range of safety devices in a variety of applications. These eight units can achieve most of the functions safety systems require, helping simplify purchasing and parts management. The family is designed to meet new functional safety standards, such as ISO 13849-1 or IEC 62061 and offers key functions to simplify installation and system complexity.

Universal inputs
Syncs safety devices (e.g., safety interlock switches, emergency stop devices, and safety light curtains) with the relay without additional configuration.

Optical Bus Technology
Relays seamlessly communicate with EthernNet/IP network adapter via embedded optical interface.

Simple logic functions
Configures "AND/OR" logic in a single relay or through a combination of relays.

Two dual safety inputs
Allows the connection of two dual channel input devices into one safety relay.

TÜV approved single rotary switch
Sets the required function of the safety relay and eliminates typical redundant switch setting.

Single wire safety connection
Links relays and simplifies cascading and expanding safety functions by linking relays with a single wire connection.

Reduce system complexity and spare parts stocking with 8 safety relays that address most applications.

Guardmaster 440R-ENETR EtherNet/IP Network Interface

The Guardmaster EtherNet/IP™ Network Interface (440R-ENETR) allows Guardmaster Safety Relays with embedded optical bus technology to seamlessly communicate on an EtherNet/IP network. The information gathered from the GSR intelligent safety relays by way of the EtherNet/IP Interface helps minimize unplanned downtime and increase efficiencies for startup.

- Compliant with ODVA requirements for linear, star, and ring EtherNet/IP network topography
- Connects up to six Guardmaster safety relays on a single network interface
- Easy-to-use, compact solution

Cat Number	Description
440R-ENETR	Guardmaster Ethernet/IP Network Interface
Supported Guardmaster Safety Relays	
440R-D22R2	Guardmaster DI
440R-D22S2	Guardmaster DIS
440R-EM4R2	Guardmaster EM
440R-EM4R2D	Guardmaster EMD
440R-GL2S2P	Guardmaster GLP
440R-GL2S2T	Guardmaster GLT

Guardmaster Safety Relays

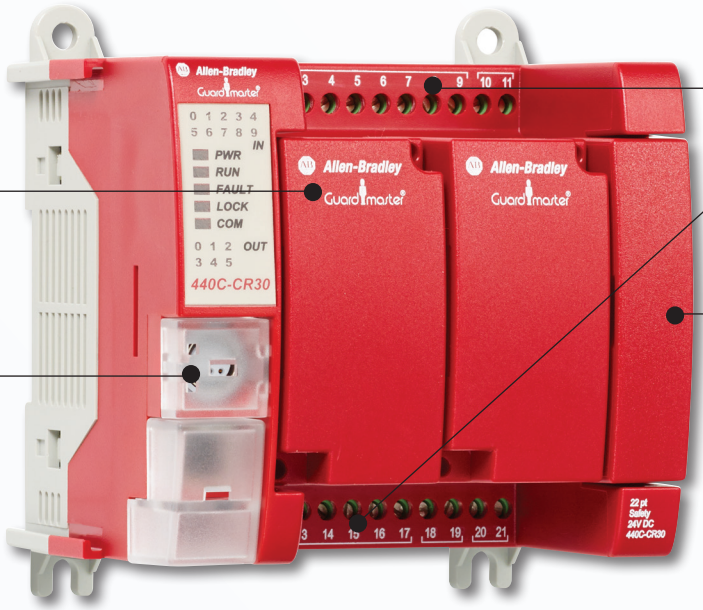
DESCRIPTION	SAFETY RELAYS				EXPANSION RELAYS		ACCESS CONTROL	
	Guardmaster DI/DIS Consolidates functionality of two safety relays into a single electromechanical relay (DI) or solid state (DIS) outputs 		**Guardmaster SI/CI** Ideal for safety functions using one dual or single channel safety device. Ideally suited for global E-stop function in combination with another GSR relay 		**Guardmaster EM/EMD** Easily add 4 N.C. instantaneous (EM) or delayed (EMD) outputs to a system 		**Guardmaster GLT/GLP** Developed for applications requiring access control monitoring the stop time, standstill or safe limited speed to unlock guards when equipment reaches a safe condition. 	
Features	• Suitable for applications up to PLe, Cat. 4 per ISO 13849-1 and SIL CL3 per IEC 62061 • Two dual channel inputs • Rotary switch configures auto/manual or monitored manual reset and AND/OR logic of inputs • Universal inputs are compatible with interlocks, light curtains, safety mats, E-stops, and SensaGuard™ • Single wire safety input and output to cascade safety relays and expand with output modules while maintaining SIL 3, PLe		• Suitable for applications up to PLe, Cat. 4 per ISO 13849-1 and SIL CL3 per IEC 62061 • Rotary switch configures auto/manual or monitored manual reset • Universal inputs are compatible with interlocks, light curtains, safety mats, E-stops, and SensaGuard • Single wire safety output connects to control other safety relays e.g. as Global E-Stop and expand with output modules while maintaining SIL 3, PLe		• Suitable for applications up to PLe, Cat. 4 per ISO 13849-1 and SIL CL3 per IEC 62061 • Four instantaneous or delayed safety outputs and one auxiliary PNP output • Controlled by single wire safety to expand outputs of a GSR module while maintaining SIL 3, PLe • Timer version provides on-delay, off-delay and jog outputs that can be configured via rotary switches		• Designed to meet requirements of PLe, Cat. 4 per ISO 13849-1 and SIL CL3 per IEC 62061 • Applicable for Stop Category 0 and 1 • Rotary switch configures reset type and speed monitoring mode (GLP) or time delay (GLT) GLT: • Allows access when maximum stop time of the equipment has lapsed and reaches standstill • Combinations of two instantaneous and two delayed switching outputs	GLP: • 2 PNP proximity sensor inputs for standstill or slow-speed monitoring to allow access when equipment reaches a safe speed • Supports standard proximity switches while maintaining a safety rating up to PLd per ISO 13849-1, SILcl 2 per IEC 61508
Model	**DI**	**DIS**	**SI**	**CI**	**EM**	**EMD**	**GLT**	**GLP**
Catalog number	**440R-D22R2**	**440R-D22S2**	**440R-S12R2**	**440R-S13R2**	**440R-EM4R2**	**440R-EM4R2D**	**440R-GL2S2T**	**440R-GL2S2P**
Input type	2 Universal Safety Inputs, 1 Single Wire Safety		1 Universal Safety Inputs, 1 Single Wire Safety		1 Single Wire Safety	1 Single Wire Safety Jog Input (EMD)	2 Universal Safety Input, 1 Single Wire Safety Time based Stop monitoring	1 Universal Safety Input, 1 Single Wire Safety 2 Proximity Switch Inputs for speed monitoring
Safety outputs	2 NO 1 Single wire safety	2 PNP 1 Single wire safety	2 NO	3 NO	4 NO 1 Single wire safety	4 NO delayed 1 Single wire safety	2 PNP 2 Lock 1 Single wire safety	
Diagnostics	LED indicators, 1 PNP Aux, optical bus			LED indicators 1 NC, optical bus	LED indicators, 1 PNP Aux, optical bus			
Configuration	Rotary Switch							
Housing	22.5 mm DIN rail mounted							
Power Supply	24V DC							
Safety Rating	SILcl 3 per IEC62061							
Certifications	CE, cULus, C-Tick, CCC, S-Mark							

Software Configurable Safety Relay

The Allen-Bradley Guardmaster 440C-CR30 Safety Relay is a flexible, cost-effective and easy-to-use configurable safety relay ideal for applications requiring 4 to 9 safety circuits and control of up to 5 zones.

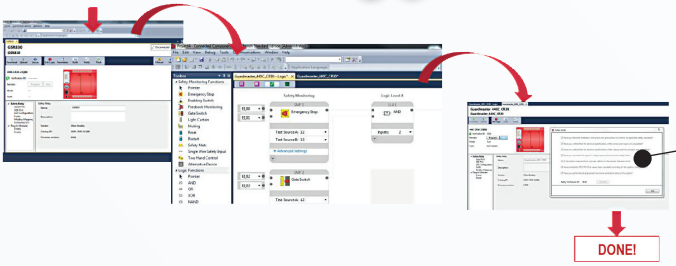
Two plug-in ports
Supports Micro800 (2080) plug-ins and offers a flexible, scalable solution.

Embedded Modbus RTU serial port
Communicates to PanelView component terminals or Micro800 controllers.



22 Embedded safety I/O points
Provides a flexible solution for applications requiring multiple safety zones.

Compact design
Optimizes panel space



Quick and easy configuration via Connected Components Workbench software
Pre-defined drag-and-drop safety function blocks simplify programming.

Connected Components

Connected Components Workbench™ software is specifically designed to help you meet today's requirements through a range of application-based control solutions.
The Connected Components solution provides a design toolkit, programming software and the products to help create a safety and standard control solution including:

- Micro Controllers
- Operator Interface
- Configurable Safety Relays
- Drives and Contactors

This bundled approach helps you more quickly design and develop machines.

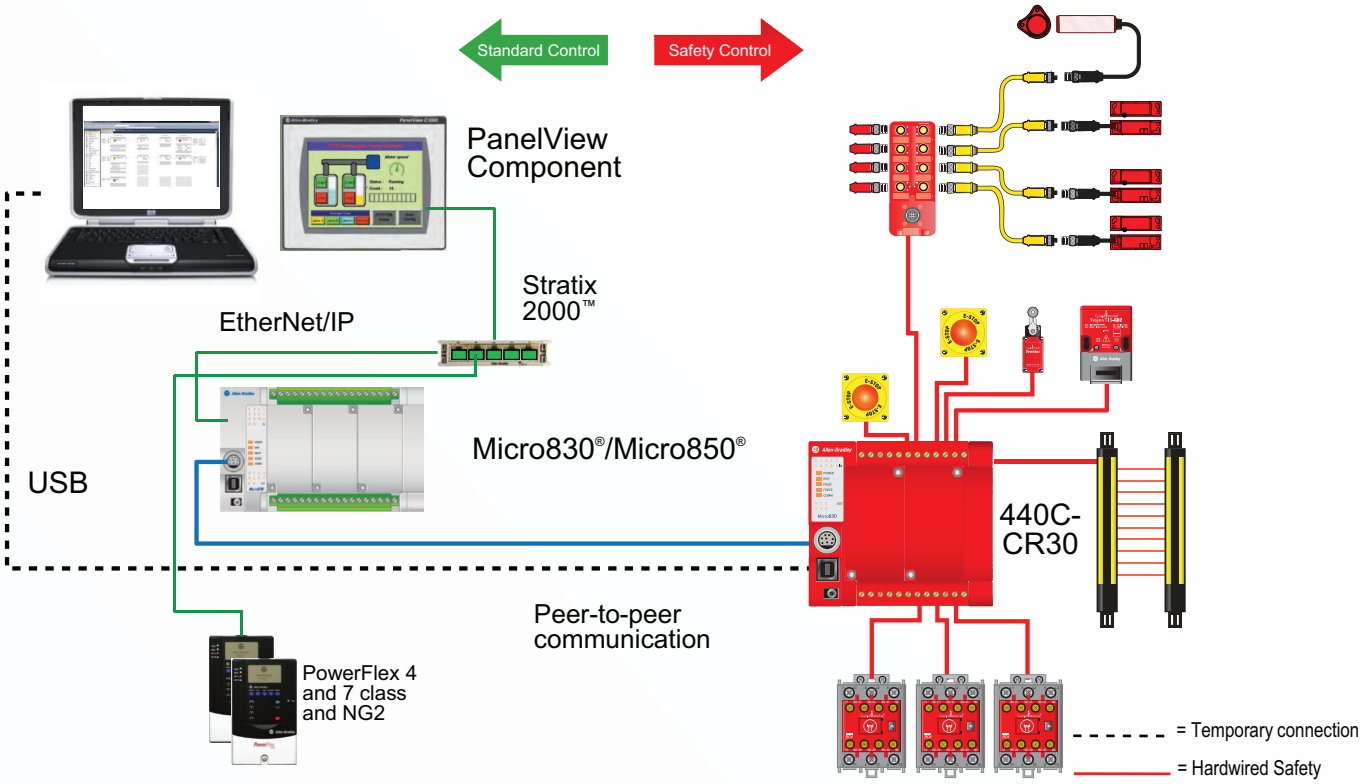
Explore the capabilities of our Guardmaster 440C-CR30 Software Configurable Safety Relay by viewing the Virtual Brochure on ab.com.

Scan to learn more about safety relays on ab.com.

Mix Safety and Standard Control

Although the 440C-CR30 Software Configurable Safety Relay is a cost effective and easy-to-use solution for safety applications, it can also be used seamlessly with standard control non-safety products.

The Guardmaster 440C-CR30 Software Configurable Safety Relay combined with Micro800™ controllers, PowerFlex® drives and PanelView™ component operator interface products offer a core solution for your stand-alone machine.



Specifications	
CATALOG NUMBER	**440C-CR30-22BBB**
Communications ports, embedded	• USB 2.0 (non-isolated) • RS232 non-isolated serial
Base Programming Port	USB 2.0 (non-isolated) Any standard USB printer cable will work
Base digital I/O points (see Types and Number of Inputs/Outputs)	22
Base number of plug-in modules	2
Maximum digital I/O[1]	38
Types of plug-ins supported	2080-IQ4OB4, Digital 4 Inputs, 4 Outputs 2080-OW4I, 4 Relay Output 2080-OB4, 4 PNP Source Output 2080-IQ4, 4 Digital Inputs 2080-MEMBAK-RTC Memory Module
Power supply	Embedded 24V DC power supply, optional external 120/240V AC power supply available
Software	Connected Components Workbench

I/O Type	Number
Input Only (24V DC Sink)	10
Input Multi-Purpose Terminal: • Input (24V DC Sink) • Single-Wire Safety Input	2
Multi-Purpose Terminal: • Input (24V DC Sink) • Test Output • Output (24V DC Source)	6
Output Only (24V DC Source)	2
Output Multi-Purpose Terminal: • Output (24V DC Source) • Single-Wire Safety Output	2

[1] The number of maximum digital I/O assumes 8-point digital I/O plug-ins (for example, 2080-IQ40B4) are used on all available plug-in slots. Standard digital inputs can only be used for non-safety rated diagnostics and control such as resets, muting sensors or external device monitoring feedback circuits.

Safety Resource Center

See the latest on our safety products, events, training, resources and tools.
http://www.rockwellautomation.com/go/lit/safety-resource-center

On-Line Product Directory

Our extensive product portfolio is designed to improve your processes through every stage of your manufacturing cycle.
http://www.rockwellautomation.com/go/lit/products

Product Selection Toolbox™

Our powerful range of product selection and system configuration tools assist you in choosing and applying our products.
http://www.rockwellautomation.com/go/lit/pst

Compatibility & Download

Access product-related downloads including firmware, release notes, associated software, drivers, tools and utilities.
http://www.rockwellautomation.com/go/lit/pcdc

Connect with us.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication GLSAFE-BR003A-EN-P – August 2014