

General Purpose Control Components

Welcome to the Control Catalog!

Introduction

Section Updated 11 / 2007

This new edition is your comprehensive guide to product selection and pricing for GE electrical control products. Our new format in this latest edition allows for maximum convenience and access to the information you need to serve your customers. Please note our new products highlighted on pages 2 and 3 of this introduction.

Fast Shipments

GE Fastrac is a quick-ship program that gives you access to a broad range of custom built and control products with an expedited shipping schedule.

EDI (Electronic Data Interchange)

EDI is a direct computer-to-computer exchange of business documents – primarily purchase orders and invoicing. Using off-the-shelf software, it translates data into a format that can be transmitted electronically and input directly in the order entry system. EDI offers several benefits, including reduced paper handling and associated costs, reduced errors that can occur in manual processing, and simplified sharing of information. For more details about EDI, call 1-800-GE1-STOP.

On the Web

Visit us at www.g.electrical.com to learn more about GE Consumer & Industrial. On the web you'll find detailed information regarding all of GE Consumer & Industrial's product lines, including product pictures, specs, features and benefits. You can also visit the publications library to get quick and easy access to thousands of GE product and marketing brochures or order a hard copy of a brochure.

The GE Smart Catalogs are available on www.g.electrical.com. You can register and download this complete catalog. Once downloaded, you'll have instant access to the catalog when you are online or offline. When used online, you will be notified automatically when updates are available for download.

Plus there is information regarding New Products, Where to Buy, Service, Parts Online, Training, Trade Shows and more! Visit www.g.electrical.com today to answer all your GE Consumer & Industrial questions.

EliteNet®

EliteNet® is the GE Consumer & Industrial B2B (business to business) extranet system to customize and personalize your web experience. Visit www.g.electrical.com and click on EliteNet® in the upper right corner to register. You still have access to all the great tools from the public web home page, plus you can customize the information you see to show only what matters most to you.

If you have an account with GE Consumer & Industrial you can check orders, place orders, check price and availability of products, process returns and even review your payables status any day of the week and any time of day no matter where you are worldwide!

For easy access to technical information about our construction products, register on our consultant's EliteNet®. An account with GE Consumer & Industrial is not required.

GE Consumer & Industrial is committed to making your business more productive by providing simple access to solutions and answers.

Key Contact Information

Customer Service

Customer service for all products listed in the Control Catalog, GEP-1260 and the BuyLog®, GEP-1100 can be obtained at:

GE Consumer & Industrial
Customer Service Center
4601 Park Road
Suite 400
Charlotte, NC 28209
Telephone: 1 (800) GE1-STOP, (800-431-7867)
Email: ge.1stop@indsys.ge.com

Post Sales Service

Post sales service issues and warranty cases can be initiated and updated via EliteNet® or contact:

1 (888) GE-RESOLve (888-437-3765)

Component Application Support

Pre-sales application engineering support for component products can be found at:

GE Fastech
(800) 327-8155 or Fastchlt@Indsys.ge.com

How to Order Additional Control Catalogs

Additional copies can be ordered via the www.g.electrical.com website or through:

GE Consumer & Industrial
Distribution Services
PO Box 2913
Bloomington, IL 61702-2913
Telephone: (309) 664-1513
Fax: (309) 662-9660

GE Consumer & Industrial Global Headquarters

Appliance Park
Louisville, KY 40225
www.geconsumerandindustrial.com

GE Consumer & Industrial

Electrical Distribution
41 Woodford Avenue
Plainville, CT 06062
www.g.electrical.com

AF-60LPT™, AF-600FPT™, AF-650GPT™, and GEM™ are trademarks of GE Consumer & Industrial.

A-Series®, ASTAT®, BuyLog®, EliteNet®, Energy Saver®, Light Tower®, MicroVersaTrip®, Power Break®, and Spectra® are registered trademarks of GE Consumer & Industrial.

Lexan® is a registered trademark of GE Plastics.



General Purpose Control Components

What's new!

...and where to find it.

Introduction

Miniature Circuit Breakers with UL Approval

The new series of E2000 circuit breakers provide branch circuit protection and are UL approved and UL 489 listed. They are available in single-, double- and triple pole versions with a rated VAC of 120/240.

See page 7-6.



Miniature Circuit Breakers with UL Approval

Emergency Push-Buttons

These new push-buttons feature an improved ergonomic design to ensure positive actuation and a more comfortable feel for users. All versions are manufactured in thermoplastic, complementing the existing range of round plastic operators, and are double insulated for operator safety and suitable for use in corrosive environments. The reduced front of panel projection significantly improves appearance while providing differentiation from other operator functions.

See page 9-69.



Emergency Push-Buttons



General Purpose Control Components

GE Fastrac Program

What you want.

When you want it.

Introduction

Fastrac Program Lead Times listed in red - Restrictions Apply

GE Fastrac Program is one of the broadest, fastest quick-ship programs in the marketplace. By giving you the capability to meet the tightest deadlines, it provides the power for you to meet demanding time requirements and specifications.

The GE Fastrac Program encompasses the most popular products in a variety of lines, including:

- combination and non-combination starters
- reversers and two-speed controllers
- NEMA contactors
- reduced voltage starters
- lighting contactors
- safety switches/load centers
- transformers
- lighting panelboards
- power panelboards
- switchboards
- motor control centers
- Limitamp® medium voltage motor control
- busway
- low voltage switchgear
- medium voltage switchgear
- circuit breaker trip unit conversion kits

On the following pages, you'll find a quick reference on quick shipments from the GE Fastrac Program, including details on the scope of each product line involved and a comparison of timing to standard shipping cycles.

You'll also find references to available publications that further detail the specific parameters of each product line program.

These publications may be ordered from:

GE Consumer & Industrial
Distribution Services
P.O. Box 2913, Bloomington, IL 61702-2913
(309) 664-1513 Fax (309) 662-9660



General Purpose Control Components

GE Fastrac Program

Introduction

What you want.

When you want it.

Fastrac Program Lead Times listed in red - Restrictions Apply

Combination and non-combination starters

The GE Fastrac Program covers eighty percent of the combination magnetic motor starters that GE sells as well as non-combination magnetic motor starters (3-phase, 3-pole) in NEMA sizes 0-4 with a full range of options.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1260 Control Catalog, Section 1
DE-216 Combination Starter Basics

Reversers and two-speed controllers

Magnetic reversing controllers and magnetic two-speed controllers are available.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1260 Control Catalog, Section 1

NEMA contactors

Magnetic contactors are available in NEMA sizes 00-6 and in 1, 2, 3, and 4 pole configurations.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1260 Control Catalog, Section 1

Reduced voltage starters

Most autotransformer, open transition wye-delta, and part-winding reduced voltage starters are available through GE Fastrac Program.

Standard cycle: 5 weeks.

GE Fastrac Program: 3 days

References: GEP-1260 Control Catalog, Section 2

Switchboards

Look for many Class 1, Class 2 switchboards under the GE Fastrac Program banner.

GE Fastrac Program: 2 weeks

References: GEP-1100 BuyLog® Catalog, Section 10
GEP-786 Engineered Products Catalog, Section 3

AV3 and Power Break® designs are also available. Contact your local GE Consumer & Industrial sales office for details.

Motor control centers

GE Fastrac Program encompasses a variety of motor control centers.

Motor control centers

GE Fastrac Program: 1 week

References: GEP-1100 BuyLog Catalog, Section 12
GEP-786 Engineered Products Catalog, Section 10

Motor control center units

GE Fastrac Program: 1 week

References: GEP-1100 BuyLog Catalog, Section 12
GEP-9030 GE Fastrac Program

Limitamp® medium voltage motor control

Many different Limitamp® medium voltage motor control units are available through GE Fastrac Program.

GE Fastrac Program: 3 weeks

References: GEP-786 Engineered Products Catalog, Section 11

Lighting contactors

Choose from a wide variety of the most popular mechanically and electrically held lighting contactors.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1260 Control Catalog, Section 3
DEP-123 Lighting Contactors Catalog



GE Fastrac Program

What you want.

When you want it.

Fastrac Program Lead Times listed in red - Restrictions Apply

Dry type transformers

GE Fastrac Program includes popular three-phase dry type transformers of 15-500kVA. Catalog numbers available include 9T23B3871 through 9.

Standard cycle: 5 days.

GE Fastrac Program: 1 day

References: GEP-1100 BuyLog Catalog, Section 8

Safety switches/Load centers

The GE Fastrac Program includes popular heavy duty and general duty safety switches as well as single and three phase load centers.

Standard cycle: 5 days.

GE Fastrac Program: Distributor stock

References: GEP-1100 BuyLog Catalog, Section 1 (load centers) and Section 2 (safety switches)

Lighting panelboards

GE Fastrac Program offers quick shipment of many high-volume A-Series® lighting panelboards.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1100 BuyLog Catalog, Section 9

Power panelboards

You'll find a range of popular Spectra® Series power panelboards available through GE Fastrac Program.

Standard cycle: 2 weeks.

GE Fastrac Program: 1 day

References: GEP-1100 BuyLog Catalog, Section 9

Busway

GE Fastrac Program encompasses many busway offerings. It places selected high-volume switch-operated fusible busway plugs, busway hangers and bus runs in stock and ready for immediate shipment. One-day shipment of fusible 30 through 200 ampere plugs for Spectra® Series, Armor-Clad and FVK. Two-week shipments for short, simple runs of Spectra® Series LowAmp Bus.

Standard cycle: 4 to 6 weeks.

GE Fastrac Program: 24 hours to 10 days.

References: GEP-1100 BuyLog Catalog, Section 11

Low voltage switchgear

A wide range of AKD-10 low-voltage switchgear is available on a GE Fastrac Program basis.

GE Fastrac Program: Contact your local GE Consumer & Industrial representative for details.

References: DET-196 AKD-10 Switchgear Application Guide

Trip unit conversion kits for low voltage power circuit breakers

MicroVersaTrip® Plus and MicroVersaTrip® PM trip unit conversion kits are available to upgrade existing breakers.

GE Fastrac Program: Contact your local GE Consumer & Industrial representative for details.

References: DET-066B	MicroVersaTrip® Plus & MicroVersaTrip® PM Conversion Kits for GE Power Circuit Breakers
DET-067B	MicroVersaTrip® Plus & MicroVersaTrip® PM Conversion Kits for I-T-E Power Circuit Breakers
DET-093B	MicroVersaTrip® Plus & MicroVersaTrip® PM Conversion Kits for Westinghouse Power Circuit Breakers
DET-226	MicroVersaTrip® Plus & MicroVersaTrip® PM Conversion Kits for Allis Chalmers Power Circuit Breakers

Medium voltage switchgear

A broad selection of Power/Vac units are available within the GE Fastrac Program.

GE Fastrac Program: Contact your local GE Consumer & Industrial representative for details.

References: GET-6600E Power/Vac Switchgear Application Guide



Quick Index

1	NEMA Full Voltage Power Devices
2	Reduced Voltage Starters
3	Lighting Contactors
4	Definite Purpose Controls
5	IEC Power Devices
6	IEC Manual Motor Starters
7	Miniature Circuit Breakers
8	IEC Switches and Disconnects
9	Pilot and Signaling Devices
10	Logic Control
11	Specialty Control Devices
12	Terminal Blocks
13	Enclosures
14	Control Renewal Parts
15	Transformers
16	Drives
17	GE Publication Index
18	GE Product Index

Table of Contents

Section 1: NEMA Full Voltage Power Devices

NEMA Rated Full Voltage Power Devices

GE Fastrac Program Information.....	1-5
Application Information and Technical Data (300-Line).....	1-6

Magnetic Nonreversing Starters (CR306, CR386)

Basic Features (300-Line) and Technical Features (CR306, CR386).....	1-9
Non-combination, NEMA Sizes 00-9 with Thermal Overload Relays — Application Information and Selection Instructions (CR306, CR386).....	1-10
Non-combination, NEMA Sizes 00-9 with Thermal Overload Relays (CR306, CR386).....	1-11
Non-combination, NEMA Sizes 1-6 with Solid State Overload Relays — Selection Instructions and Technical Features (CR306).....	1-13
Non-combination, NEMA Sizes 1-6 with Solid State Overload Relays.....	1-14
Outlines and Dimensions (CR306, CR386).....	1-15

Magnetic Reversing Starters (CR309)

Application Information and Selection Instructions.....	1-19
Non-combination, NEMA Sizes 00-7 with Thermal Overload Relays, Three-Phase.....	1-20
Non-combination, NEMA Sizes 00-1 with Thermal Overload Relays, Single-Phase.....	1-21
Outlines and Dimensions (CR309).....	1-22

Magnetic Two-Speed Starters (CR309)

Application Information and Selection Instructions.....	1-26
Non-combination, NEMA Sizes 0-5 with Thermal Overload Relays, Two-Winding.....	1-27
Non-combination, NEMA Sizes 0-5 with Thermal Overload Relays, One-Winding.....	1-28
Outlines and Dimensions (CR309).....	1-29

Magnetic Nonreversing Starters (CR307, CR407, CR308, CR408)

Application Information and Selection Instructions.....	1-32
Nonfusible Disconnect Type (CR308, CR408).....	1-33
Fusible Disconnect Type (CR308, CR408).....	1-34
Nonfusible and Fusible Part Number Configuration Size 0-2, NEMA Type 1 (CR308).....	1-36
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR408).....	1-39
Thermal Magnetic Circuit Breaker Type (CR307, CR407).....	1-44
Thermal Magnetic Part Number Configuration Size 0-2, NEMA Type 1 (CR307).....	1-45
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR407).....	1-48
Outlines and Dimensions.....	1-61

Mag-Break® Magnetic Nonreversing Starters (CR387, CR487)

Application Information and Selection Instructions.....	1-52
Mag-Break Circuit Breaker Type (CR387, CR487).....	1-53
Mag-Break Part Number Configuration Size 0-2, NEMA Type 1 (CR387).....	1-54
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR487).....	1-57
Outlines and Dimensions.....	1-61

Magnetic Reversing Starters (CR310, CR410, CR311, CR411)

Application Information and Selection Instructions.....	1-66
Nonfusible Disconnect Type (CR311, CR411).....	1-67
Fusible Disconnect Type (CR311, CR411).....	1-68



Nonfusible and Fusible Part Number Configuration		Application Information and Selection Instructions	
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR411).....	1-70	(CR124).....	1-149
Thermal Magnetic Circuit Breaker Type (CR310, CR410)	1-75	Single-Pole, 270 Maximum Amperes Continuous	
Thermal Magnetic Part Number Configuration		(CR124).....	1-150
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR410).....	1-76	Outlines and Dimensions (CR324, CR124).....	1-151
Outlines and Dimensions.....	1-86	Approximate Motor Full-Load Current Ratings.....	1-153
Mag-Break® Magnetic Reversing Starters (CR390, CR490)		Heaters Selection	
Application Information and Selection Instructions.....	1-80	Motor Starter Heaters (CR123C, CR123F).....	1-155
Mag-Break Circuit Breaker Type (CR390, CR490)	1-81	Panel Mounted Overload Relays Heaters	
Mag-Break Part Number Configuration		(CR123C, CR123F).....	1-159
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR490).....	1-82	Panel Mounted Overload Relays Heaters	
Outlines and Dimensions.....	1-86	(CR123K, CR123L).....	1-161
Magnetic Two-speed Controllers (CR412, CR413, CR492)		Solid State Overload Relays for Panel Mounting (CR324X)	
Application Information and Selection Instructions.....	1-88	Technical Features.....	1-162
Nonfusible Disconnect Type (CR413).....	1-89	Selection Instructions.....	1-163
Fusible Disconnect Type (CR413).....	1-90	Outlines and Dimensions.....	1-165
Nonfusible and Fusible Part Number Configuration		NEMA Rated Full Voltage Manual Starters	
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR413).....	1-91	Application Information and Selection Instructions	
Thermal Magnetic Circuit Breaker Type (CR412).....	1-96	(CR101H, CR101Y).....	1-166
Thermal Magnetic Part Number Configuration		Non-combination, Single Phase.....	1-167
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR412).....	1-97	Enclosure Components.....	1-168
Mag-Break Circuit Breaker Type (CR492).....	1-101	Outlines and Dimensions (CR101H, CR101Y).....	1-169
Mag-Break Part Number Configuration		Application Information and Selection Instructions	
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR492).....	1-102	(CR1062).....	1-170
Outlines and Dimensions.....	1-124	Single-Phase and Polyphase.....	1-171
Magnetic Two-speed Controllers (CR414, CR415, CR494)		Outlines and Dimensions (CR1062).....	1-173
Application Information and Selection Instructions.....	1-106	Manual Starter Heaters for Single-phase	
Nonfusible Disconnect Type (CR415).....	1-107	and Polyphase.....	1-174
Fusible Disconnect Type (CR415).....	1-108	Pumping Panels	
Nonfusible and Fusible Part Number Configuration		Application Information and Selection Instructions	
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR415).....	1-109	(CR340, CR341).....	1-176
Thermal Magnetic Circuit Breaker Type (CR414).....	1-114	Fusible Disconnect Type with Thermal Overload Relays,	
Thermal Magnetic Part Number Configuration		Thermal Class 20 (CR341).....	1-177
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR414).....	1-115	Fusible Disconnect Type with Thermal Overload Relays,	
Mag-Break Circuit Breaker Type (CR494).....	1-119	Thermal Class 10 (CR341).....	1-178
Mag-Break Part Number Configuration		Fusible Disconnect Type with Solid State Overload Relays,	
Size 0-4, NEMA Type 1, 3R, 12, 4/4X (CR494).....	1-120	Class 10-20-30 (CR341).....	1-180
Outlines and Dimensions.....	1-124	Fusible Disconnect Type Part Number Configuration	
Factory-Installed Modifications for Magnetic Starters		(CR341).....	1-181
NEMA Sizes 00-6 (CR306, CR307, CR308, CR309, CR310,		With Thermal Overload Relay, Relay Class 20 (CR340).....	1-184
CR311, CR387, CR390, CR407, CR408, CR410, CR411, CR487,		Mag-Break Type with Thermal Overload Relays,	
CR490).....	1-126	Thermal Class 10 (CR340).....	1-185
NEMA Sizes 00-9 (CR306, CR307, CR308, CR310).....	1-132	Mag-Break Type with Solid State Overload Relays,	
Field-Installed Modifications for Magnetic Starters		Class 10-20-30 (CR340).....	1-186
Auxiliary Contact Kits (CR305X, CR385X).....	1-134	Mag-Break Type Part Number Configuration	
Modification Kits.....	1-137	(CR340).....	1-187
Fuse-Clip Kits (CR308X).....	1-141	Heaters (CR340, CR341).....	1-190
Enclosures for NEMA Rated Full Voltage Starters (300-Line)		Outlines and Dimensions (CR340, CR341).....	1-192
Application Information and Selection Instructions.....	1-143	Magnetic Nonreversing Contactors (CR305, CR385)	
Selection Tables.....	1-144	Application Information and Selection Instructions	
Combination Starter Enclosure Kits.....	1-145	(CR305, CR385).....	1-195
Overload Relays for Panel Mounting		NEMA Sizes 00-9, One- and Two-Pole (CR305, CR385).....	1-196
Application Information and Selection Instructions		NEMA Sizes 00-9, Three-Pole (CR305, CR385).....	1-197
(CR324).....	1-147	NEMA Sizes 00-9, Four-Pole (CR305, CR385).....	1-198
Three-Pole, 135 Maximum Amperes Continuous			
(CR324).....	1-148		



General Purpose Control Components

Table of Contents

Introduction

Factory Installed Modifications for Magnetic Contactors (CR305, CR385)	1-199
Outlines and Dimensions (CR305, CR385)	1-210
Field-Installed Modifications for Magnetic Contactors (CR305, CR385)	
Application Information and Selection Instructions	1-204
Auxiliary Contact Kits (CR305X, CR385X)	1-205
Modification Kits	1-207
Outlines and Dimensions (CR305, CR385)	1-210

Section 2: Reduced Voltage Starters

Reduced Voltage Starters-Solid State	
Introduction	2-2
ASTAT®-SD	
Applications, Features and Description	2-3
Open Starters (QS2)	2-4
Enclosed Noncombination Starters (CR376)	2-5
Enclosed Combination Starters, Fusible Disconnect Type (CR377)	2-6
Enclosed Combination Starters, Mag-Break Type (CR378)	2-7
Enclosed Starters, Factory Installed Modifications (CR376, CR377, CR378)	2-8
Technical Specifications	2-10
Outlines and Dimensions	2-12
ASTAT®-IBP Plus	
Applications, Features and Description	2-13
Open Starters (Q13)	2-16
Enclosed Starters (CR374, CR375)	2-17
Technical Specifications (Q13)	2-21
Open Starters, Outlines and Dimensions	2-25
ASTAT®-CD Plus	
Applications, Features and Description	2-29
Open Starters (QC2)	2-32
Enclosed Noncombination Starters (CR370)	2-33
Enclosed Combination Starters, Fusible Disconnect Type (CR371)	2-36
Enclosed Combination Starters, Mag-Break Type (CR373)	2-38
Enclosed Starters, Factory Installed Modifications (CR370, CR371, CR373)	2-41
Technical Specifications (QC2)	2-46
Open Starters, Outlines and Dimensions (QC2)	2-49
Enclosed Starters, Outlines, Dimensions and Weights (CR370, CR371, CR373)	2-51
Reduced Voltage Starters-Electromechanical	
Introduction	2-53
Reduced Voltage Autotransformer Starters	
Applications, Features, Description and Product Number Selection Instructions (CR331)	2-54, 2-55
Product Table (CR331)	2-56
Outlines, Dimensions and Weights (CR331)	2-57
Reduced Voltage Wye Delta Starters	
Applications, Features, Description and Product Number Selection Instructions (CR332)	2-58
Product Tables (CR332)	2-59
Outlines, Dimensions and Weights (CR332)	2-61

Schematic Diagrams (CR332)	2-62
Reduced Voltage Part Winding Starters	
Applications, Features, Description and Product Number Selection Instructions (CR330)	2-63
Product Table (CR330)	2-64
Outlines, Dimensions and Weights (CR330)	2-64
Schematic Diagrams (CR330)	2-65
Reduced Voltage Starters	
Factory Installed Modifications (CR330, CR331, CR332)	2-66
Heaters (CR123, CR123F)	2-68

Section 3: Lighting Contactors

CR460, CR463 Series	
Introduction - 2-12 Pole, 30 Amp	3-2
Components (CR463)	3-6
Electrically Held, Standard Assembled Forms (CR463L)	3-8
Electrically Held, Modified Assembled Forms (CR463L)	3-10
Mechanically Held, Standard Assembled Forms (CR463M)	3-12
Mechanically Held, Modified Assembled Forms (CR463M)	3-14
Electrically Held/Mechanically Held - Wiring Diagrams (CR463L, CR463M)	3-16
Electrically Held/Mechanically Held - Outlines and Dimensions (CR463L, CR463M)	3-17
Electrically Held/Mechanically Held - Technical Data (CR460, CR463 Series)	3-20
CR360L Series	
Electrically Held, 2-4 Pole, 30-300 Amp (CR360L)	3-21
Electrically Held - Outlines, Dimensions and Weights (CR360L)	3-24
CR160 Series	
Mechanically Held, 2-3 Pole, 30-225 Amps (CR160MC)	3-26
Mechanically Held - Outlines, Dimensions and Weights (CR160MC)	3-30
CR360ML Series	
Mechanically Held, 2-3 Pole, 400-1000 Amps (CR360ML)	3-32
Mechanically Held - Outlines, Dimensions and Weights (CR360ML)	3-36

Section 4: Definite Purpose Controls

Full Voltage Contactors	
Definite Purpose Controls Advantages (CR453C Compact)	4-2
Definite Purpose Controls Advantages (CR453A Standard)	4-3
Compact, Single Phase, 20A-40A (CR453C) Product Tables	4-4
Compact, Single Phase, 20A-40A (CR453C) Factory Modified Forms	4-5
Standard, Single Phase, 25A-40A (CR453A) Product Tables	4-6
Standard, Single Phase, 25A-40A (CR453A) Factory Modified Forms	4-7
Standard, Three Phase, 4-pole, 25A-40A (CR353) Product Tables	4-8
Standard, Three Phase, 4-pole, 25A-40A (CR353) Factory Modified Forms	4-9



General Purpose Control Components

Table of Contents

Introduction

Standard, Three Phase, 2-pole and 3-pole, 50A-150A (CR353) Product Tables	4-10
Standard, Three Phase, 2-pole and 3-pole, 50A-150A (CR353) Factory Modified Forms.....	4-11
Standard, Three Phase and Single Phase, 25A-40A (CR455) Product Tables	4-12
Standard, 2-Speed Controllers, 25A-40A (CR355) Product Tables	4-13
Standard, Three Phase and Single Phase, 25A-40A (CR455) Factory Modified Forms.....	4-14
Full Voltage Starters	
Standard, Three Phase and Single Phase, 3-Pole, 25A-40A (CR454) Product Tables.....	4-15
Standard, Three Phase and Single Phase, 3-Pole, 25A-40A (CR454) Factory Modified Forms.....	4-16
Standard, Three Phase and Single Phase, 2-Pole and 3-Pole, 50A-60A (CR354) Product Tables.....	4-17
Standard, Three Phase and Single Phase, 2-Pole and 3-Pole, 50A-60A (CR354) Factory Modified Forms	4-18
Heaters, Three Phase and Single Phase, 50A-60A	4-19
Full Voltage Contactors and Starters	
Accessories (CR453A, CR353).....	4-20
Accessories (C-2000).....	4-20
Replacement Coils and Renewal Parts, Contactors and Starters.....	4-22
Technical Data, Contactors and Starters.....	4-24
Outlines and Dimensions, Contactors and Starters.....	4-27
Bulk Pack Data.....	4-34

Section 5: IEC Power Devices

Contactors Overview (C-2000)	5-3
Mini Contactors (C-2000)	
Overview.....	5-4
Features and Benefits	5-5
Accessory Features	5-6
Product Offering.....	5-7
Product Number Selection Instructions.....	5-7
Product Descriptions.....	5-8
AC 3-Pole, Up to 600 VAC Coil, Nonreversing	5-9
AC 3-Pole, Up to 250 VDC Coil, Nonreversing	5-10
AC 4-Pole, Up to 600 VAC Coil, Nonreversing.....	5-11
AC 4-Pole, Up to 250 VDC Coil, Nonreversing	5-12
AC 3-Pole, Up to 600 VAC Coil, Reversing	5-13
AC 3-Pole, Up to 250 VDC Coil, Reversing	5-14
AC 3-Pole, Up to 24 VDC Coil, Nonreversing.....	5-15
Accessories.....	5-16
Overload Relays.....	5-20
Overload Relays Accessories	5-20
Control Relays.....	5-21
Control Relay Accessories	5-23
Outlines and Dimensions	5-24
Technical Information.....	5-31
Application Information	5-34
Application Information - Overload Relay Performance Curves	5-35

Contactors and Starters (C-2000)

Introduction.....	5-36
Product Number Selection Instructions.....	5-37
Contactors - Nonreversing and Reversing, AC Controlled, 3-Pole	5-38
Contactors - Nonreversing and Reversing, DC Controlled, 3-Pole	5-39
Contactors - Nonreversing and Reversing, AC/DC Controlled, 3-Pole	5-40
Contactors - Nonreversing, AC, DC, AC/DC Controlled, 4-Pole	5-42
Contactors - Nonreversing, AC/DC Controlled, 4-Pole.....	5-43
Contactors Accessories	5-44
Contactors Coils.....	5-50
Contactors Enclosures.....	5-51
Contactors Enclosure Accessories.....	5-52
Contactors Thermal Overload Relays	5-53
Contactors Thermal Overload Relays Accessories.....	5-57
Contactors Thermal Overload Relays Technical Characteristics.....	5-58
Control Relays Selection Guide	5-60
Control Relays Accessories.....	5-61
Specifications - Contactors, Starters, and Relays	5-64
Contactors Technical Data.....	5-65
Overload Relays Technical Data.....	5-68
Contactors Accessories Technical Data	5-69
Contactors Lifetime Curves	5-70
Contactors Application Ratings-DC	5-73
Contactors Application Ratings-AC.....	5-74
Contactors Application Ratings-KVA.....	5-75
Contactors and Starters Type 2 Coordination	5-76
Contactors and Starters Wiring Diagrams.....	5-77
Contactors Dimensions	5-79

Assembled Starters (C-2000)

Selection Guide.....	5-95
Nonreversing, AC	5-97
Reversing, AC	5-101
Wye-Delta, Open Transition, AC.....	5-105
Enclosures	5-109

Section 6: IEC Manual Motor Starters

Overview.....	6-2
Selection Guide.....	6-5
Accessories - Front Mounted	6-7
Accessories - Side Mounted	6-7
Accessories - Group Mounted	6-9
Accessories - External Handle Operators	6-10
Accessories - Other	6-10
Accessories - Integrated Starter Components	6-11
Enclosures and Enclosure Accessories	6-13
Integrated with Contactor, Open, AC Operated	
Contactors, Standard Interruption Capacity	6-15
Integrated with Contactor, Open, DC Operated	
Contactors, Standard Interruption Capacity	6-16
Integrated with Contactor, Open, AC Operated	
Contactors, High Interruption Capacity	6-17



General Purpose Control Components

Table of Contents

Introduction

Integrated with Contactor, Open, DC Operated	
Contactors, High Interruption Capacity	6-18
Integrated with Contactor, Factory Installed	
Accessories	6-19
Enclosed, Non-metal Enclosures,	
Standard Interruption Capacity	6-20
Enclosed, Factory Installed Accessories	6-21
Enclosed, Metal Enclosures, High Interruption Capacity	6-22
Enclosed, Factory Installed Accessories	6-23
Integrated with Contactor, Enclosed,	
AC Operated Contactors, High Interruption Capacity	6-24
Integrated with Contactor, Enclosed,	
DC Operated Contactors, High Interruption Capacity	6-26
Integrated with Contactors,	
Factory Installed Accessories	6-28
Outline Drawings	6-30
Wiring Diagrams – Accessories	6-42
Short Circuit Current Rating, Rating Breaking Capacity	6-44
Type 2 Short Circuit Rating, Individual Group and	
Combination Starters	6-45
Specifications	6-46
Time Current Curves	6-47

Section 7: Miniature Circuit Breakers

E2000 Miniature Circuit Breakers

EP60 Series	7-2
EP100 Series	7-4
EP100 ULH Series	7-6
EP100 UC Series (Branch Circuit Protection)	7-8
Series CA Auxiliary Switch and Bell Alarm	7-10
Series CB Auxiliary Switch and Bell Alarm	7-11
Shunt Trip and Undervoltage Release	7-12
Technical Data	7-13

Section 8: IEC Switches and Disconnects

ML Disconnect Switches

Introduction	8-2
Mounting Styles and Availability	8-3
Open Main Switches Product Tables	8-4
Enclosed Switches Product Tables	8-7
Emergency Stop Switches with Undervoltage Release	8-8
Accessories	8-9
Technical Data - UL, CSA and IEC Ratings	8-10
Outlines and Dimensions	8-11
Switching Diagrams - How to Read	8-16
Switching Diagrams	8-17

Section 9: Pilot and Signaling Devices

Heavy-Duty 30.5 mm Watertight/Oiltight Push Buttons (CR104P)

Introduction and Overview	9-2
Standard, Non-Illuminated Push Buttons	9-4
Standard, Illuminated Push Buttons	9-6
Mushroom Head, Non-Illuminated Push Buttons	9-7
Mushroom Head, Illuminated Push Buttons	9-8
Key-Operated Push Buttons	9-9
Special Function, Non-Illuminated Push Buttons	9-10

Special Function, Non-Illuminated	
Push-Turn Push Buttons	9-11
Special Function, Illuminated Push Buttons	9-12
Protected Mushroom Head Push Buttons	9-13
Pilot Devices, Standard Indicating and Push-to-Test	9-15
Pilot Lights, Cluster-Type and Remote Test Lights	9-16
Knob Operated, Non-Illuminated Selector Switches	9-17
Lever Operated, Non-Illuminated Selector Switches	9-19
Key-Operated, Non-Illuminated Selector Switches	9-21
Knob Operated, Illuminated Selector Switches	9-25
Cam Logic Tables for Selector Switches	9-30
Special Operators; Joysticks	9-31
Special Operators; Potentiometer Operators	9-32
Contact Blocks	9-33
Accessories, Components and Kits	9-35
Nameplates and Inserts	9-40
Kitted Operators (Hot Buttons)	9-42
Enclosures and Stations, Assembled with Push Buttons	9-44
Enclosures and Stations, Assembled Unwired	9-45
Enclosures and Stations, Enclosure Only	9-46
Enclosure Dimensions	9-47
Push Button Stations, Surface Mounted	9-48
Push Button Stations, Flush- Mounted	9-51
Push Button Stations, Dimensions	9-54
Palm Switches	9-55
Push Buttons, Technical Data	9-56

Heavy-Duty 22.5 mm Watertight/Oiltight Push Buttons (C-2000)

Table of Contents/Quick Reference Guide	
(Detailed listing for C-2000 Push Buttons)	9-58
Introduction, Quick Reference Guide	9-58, 9-59
How to Select, Price and Order	9-60, 9-61
Nomenclature Keys	9-62 to 9-64
Standard Push Buttons	9-65
Illuminated Push Buttons	9-67
Mushroom-Head Push Buttons, Emergency Push Button	9-69
Illuminated Mushroom-Head Push Buttons	9-71
Special Function, Non-Illuminated Push Buttons	9-72
Special Function, Illuminated Push Buttons	9-74
Key-Operated & Selector Push Buttons	9-76 to 9-77
Multi-Function Push Buttons	9-78
Selector Switches	9-79
Pilot Lights	9-93
Push-to-Test Pilot Lights	9-94
Special Operators	9-96
Power Supplies & Contact Blocks	9-100
Nameplates	9-103
Specially Marked Push Button Caps; Diffusers & Inserts	9-107
Caps, Heads, Lenses & Handles	9-111
Plastic Enclosures, Nameplates, Contact Blocks & Power	
Supplies for Base-Mounted Pilot Devices	9-113
Die-Cast Aluminum Enclosures	9-115
Sheet Steel & Stainless Steel Enclosures	9-116
Accessories	9-118
Lamps	9-119
Assembled Forms	9-121
Technical Data	9-127 to 9-133



General Purpose Control Components

Table of Contents

Introduction

Section 10: Logic Control

General Purpose Relays

Plug-in Relays Application and Features (CR420)	10-2
Plug-in Relays Product Series Overview (CR420)	10-3
Plug-in Relays Product Tables (CR420H and CR420J)	10-4
Plug-in Relays Product Tables (CR420K and CR420M)	10-5
Plug-in Relays Product Tables (CR420N)	10-6
Plug-in Relays Technical Data (CR420H and CR420J)	10-7
Plug-in Relays Technical Data (CR420K and CR420M)	10-8
Plug-in Relays Technical Data (CR420N)	10-9
Plug-in Relays Connection Diagrams (CR420)	10-10
Plug-in Relays Outlines and Dimensions (CR420)	10-11

Industrial/Machine Tool Relays

AC Operated, DC Operated, Latched Relays	
Application and Features (CR120B)	10-14
AC Operated, DC Operated, Latched Relays Product Tables (CR120B, CR120BD, CR120BL)	10-15
AC Operated Weld Check Relays Description (CR120BP)	10-16
AC Operated Weld Check Relays	
Product Tables (CR120BP)	10-17
Standard Components (CR120B)	10-18
Accessories (CR120B)	10-19
Outlines and Dimensions (CR120B)	10-20

IEC Electronic Timers

IEC Electronic Timers Product Overview	10-22
Multivoltage Electronic Timers Product Tables	10-23
Multivoltage Electronic Timers Technical Data	10-25
Multivoltage Electronic Timers	
Outlines and Dimensions	10-32

IEC Protective Relays

IEC Protective Relays Overview	10-33
Liquid Level Detector Relays Product Tables	10-34
Differential Ground Fault Relays Product Tables	10-34
Control and Protection Relays Product Tables	10-35
IEC Protective Relays Technical Data	10-37
IEC Protective Relays Outlines and Dimensions	10-51

Section 11: Specialty Control Devices

Industrial Strongbox Solenoids (CR9500)

Introduction	11-2
AC Solenoid Forms	11-3
Mounting Options and Accessories for AC Forms	11-3
DC Solenoid Forms	11-4
Outlines and Dimensions	11-4

Heavy Duty AC and DC Solenoids (CR9503)

Introduction	11-5
Heavy Duty AC Solenoids	11-6
Heavy Duty DC Solenoids	11-7
Outlines and Dimensions	11-8

Pressure Switches (CR127A, CR127B)

Introduction	11-9
Low Pressure Forms (Bellows Actuated) (CR127B)	11-10
High Pressure Forms (Piston Actuated) (CR127A)	11-10
Factory and Field-Installed Modifications	11-11
Outlines and Dimensions	11-11

Vane-Operated Limit Switches (CR115A, CR115AS)

Introduction	11-12
Vane-Operated Limit Switches (all forms) (CR115A)	11-13

Vane-Operated Limit Switches (solid-state forms) (CR115AS)	11-14
Outlines and Dimensions	11-15

Magnet-Operated Limit Switches (CR115A, CR115AS)

Introduction	11-16
Magnet-Operated Forms (CR115A, CR115AS)	11-17
High Current Forms (CR115A)	11-17
Outlines and Dimensions	11-18

Geared Rotary Limit Switches (CR115E)

Introduction	11-19
Snap-Acting Forms (CR115E)	11-20
Outlines and Dimensions	11-21

Precision Snap-Acting Limit Switches (CR115B)

Introduction	11-22
Snap-Acting Forms (CR115B)	11-23
Accessories	11-23
Outlines and Dimensions	11-23

Section 12: Terminal Blocks

DIN-rail Mounted Terminal Blocks (CR151K) 12-2

Product Tables	12-3, 12-4
Accessories	12-3, 12-4
Technical Data	12-5
Outlines and Dimensions	12-6

Panel or Mounting Track Terminal Blocks (CR151C) 12-8

Product Tables	12-9
Accessories	12-9
Outlines and Dimensions	12-9

Panel or Mounting Track Terminal Blocks—Sectional

(CR151A) 12-10

Product Tables	12-10
Accessories	12-10
Outlines and Dimensions	12-11

Panel or Mounting Track Terminal Boards (CR151B) 12-12

Product Tables	12-13
Accessories	12-13
Outlines and Dimensions	12-13

Panel or Mounting Track Terminal Boards (CR2960) 12-14

Product Tables	12-14
Outlines and Dimensions	12-14

Section 13: Enclosures

Enclosure Definitions 13-2

Enclosures for Non-Hazardous Locations 13-2

Enclosures for Hazardous Locations 13-3

IEC Enclosure Protection 13-4

Vynckier Non-metallic Enclosures 13-5

Overview	13-5
APO Series	13-7
VJ Series	13-8

Section 14: Control Renewal Parts

Renewal Parts

For NEMA Rated 300- and 200-Line Magnetic Contactors and Starters, Sizes 00-7	14-2
For Full-Voltage NEMA Rated Magnetic Contactors, Starters and Relays, Sizes 00-5	14-5
For CR2943/2940 Push Buttons	14-6



General Purpose Control Components

Table of Contents

Introduction

For Solid State Reduced Voltage Starters, ASTAT®-IBP Plus.....	14-7
For Solid State Reduced Voltage Starters, ASTAT®-CD Plus.....	14-8

Section 15: Transformers

Machine Tool

Machine Tool Applications: Single-Phase (9T58K) Product Tables	15-2
Control: Single-Phase (9T58K) Product Tables	15-3
Options and Fusing Guide	15-5
Machine Tool Applications: Wiring Diagrams	15-6
Outlines and Dimensions	15-7

CE-Rated

Product Tables (9T58E)	15-8
------------------------------	------

Dry-Type/Cased

Isolated, General Purpose, Single-Phase, (9T51B and 9T21B) Product Tables.....	15-9
Isolated, CE-Rated (9T51E) Product Tables	15-12
Dimensions and Weights	15-13
Wiring Diagrams	15-14

Section 16: Drives

AF-60LP™ Micro Drive

Product Description	16-2
Product Number System Diagram	16-2
Pricing, Dimensions and Weights	16-3
Options, Accessories, and Replacement Parts	16-4
Dynamic Braking Resistors	16-5
Standard Specifications.....	16-6
Dimensional Drawings	16-7
Basic Wiring Diagrams.....	16-8

AF-650GP™ General Purpose Drive

Product Description	16-9
Product Number System Diagram	16-9
Pricing	16-10
Dimensions and Weights	16-12
Dynamic Braking Resistors.....	16-14
Standard Specifications	16-15
Options and Accessories	16-17
Dimensional Drawings	16-20
Basic Wiring Diagrams.....	16-25

AF-600FP™ Fan and Pump Drive

Product Description.....	16-26
Product Number System Diagram.....	16-26
Pricing	16-27
Dimensions and Weights	16-29
Standard Specifications	16-31
Options and Accessories	16-33
Dimensional Drawings	16-36
Basic Wiring Diagrams.....	16-41

Section 17: GE Publication Index

Publication Index	17-1
-------------------------	------

Section 18: Product Index

Product Index	18-1
---------------------	------

Complete Listing by Product Number with Price,
Discount Schedule, GO-Number, UL, cUL information
and page number reference, followed by alphabetical
listing of product categories.



General Purpose Control Components Introducing New Auto-Updating Product Information The GE Smart Catalog™

Introduction

One-Stop Access to Catalogs

Get quick access to detailed product features, product numbers, specifications, dimensions, pricing and accessories. The following catalogs are available:

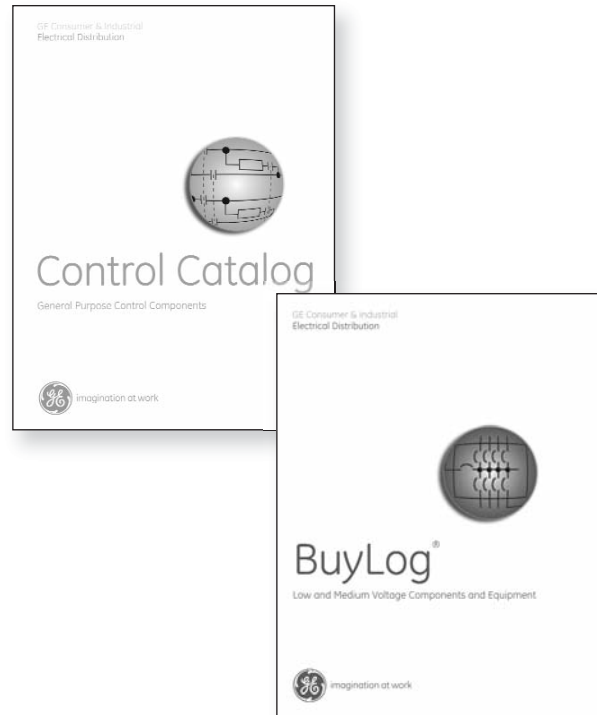
- Control Catalog — General Purpose Control Components
- BuyLog® — Low and Medium Voltage Components and Equipment

Download both catalogs or just the one you need. Once downloaded, instantly access product information on- or offline.

Automatic Catalog Updates

Having the latest GE catalog information has never been quicker or easier. When used online, you will be notified automatically when updates are available.

Learn more about how the GE Smart Catalog works.
Go to www.gecatalogs.com



NOTES:

[illegible]