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AUTOMATION GROUP

Passionately Helping Customers Be More Successful

By Delivering Exceptional Experiences

Automation Product Guide

Low Voltage Products
Machine Safety Systems
Variable Frequency Drives
Soft Starters
Motors
Programmable Logic Controllers
(PLC) & HMIs
Automation Solutions



For More Information Visit:
www.gerrie.com



TABLE OF CONTENTS

AUTOMATION GROUP LINE CARD – ABB PRODUCT LINE	1
MOTOR RATING AND RATED CURRENT	3
AF LINE 3 POLE CONTACTORS	4
THERMAL OVERLOAD RELAYS	5
AF LINE REVERSING CONTACTORS	6
AF LINE FOUR POLE CONTACTORS	7
AF LINE LIGHTING CONTACTORS	8
DEFINITE PURPOSE CONTACTORS	9
ENCLOSED STARTERS	10
SINGLE PHASE MANUAL MOTOR STARTERS	13
MANUAL MOTOR PROTECTORS	14
22MM COMPACT PILOT DEVICES	15
22MM MODULAR PILOT DEVICES	16
30MM PILOT DEVICES	21
ENCLOSED DISCONNECT SWITCHES	25
FUSIBLE DISCONNECT SWITCHES	28
NON-FUSIBLE DISCONNECT SWITCHES	29
FLANGE MOUNTED CABLE OPERATED DISCONNECT SWITCHES (FUSIBLE AND NON-FUSIBLE)	31
PLUGGABLE INTERFACE RELAYS	34
POWER SUPPLIES	35
INTERFACE RELAYS & OPTOCOUPERS	36
MULTIFUNCTION TIMERS	36
MONITORING RELAYS (SINGLE AND THREE PHASE)	37
SU200M BRANCH PROTECTORS (UL489) MINIATURE CIRCUIT BREAKERS	39
ST200M SUPPLEMENTARY PROTECTORS (UL1077) MINIATURE CIRCUIT BREAKERS	40
TMAX XT MOLDED CASE CIRCUIT BREAKERS	41
SAFETY PRODUCTS	42
SAFETY CONTROLLER & SAFETY RELAYS	44
OPTICAL SAFETY DEVICES (LIGHT CURTAINS)	44
SAFETY SENSORS (ADAM/EVA)	45
SAFETY AF CONTACTORS	46
PSR SOFTSTARTERS	47
PSE SOFTSTARTERS	48
PSTX SOFTSTARTERS	49
ENCLOSED PSTX SOFTSTARTERS	50
ABB MICRO DRIVES COMPARISON	51

TABLE OF CONTENTS

ACS180 VARIABLE FREQUENCY DRIVES	52
ACS255 VARIABLE FREQUENCY DRIVES	54
ACS380 VARIABLE FREQUENCY DRIVES	56
ACS580 VARIABLE FREQUENCY DRIVES	58
ACS580 NEMA 4X RATED VARIABLE FREQUENCY DRIVES	62
ACQ580 VARIABLE FREQUENCY DRIVES	63
ACS880 VARIABLE FREQUENCY DRIVES	64
ACH580 HVAC VARIABLE FREQUENCY DRIVES	71
ENERGY SAVINGS WITH VARIABLE FREQUENCY DRIVES	74
MOTORS OVERVIEW AND QUESTIONNAIRE (ABB FORMERLY BALDOR)	79
AC500/ECO PLC	82
CP600/ECO CONTROL PANEL (TOUCH SCREEN)	84

AUTOMATION GROUP LINE CARD – ABB PRODUCT LINE



Pilot Devices: Push Buttons / Switches / Indicators



Timers / Relays / Optocouplers



Power Supplies / Electronics Products



Disconnect Switches



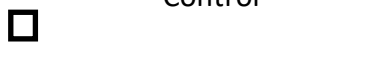
Miniature Circuit Breaker



Molded Case Circuit Breakers



Contactors / Overloads / Motor Control



Starters



Soft Starters



Drives

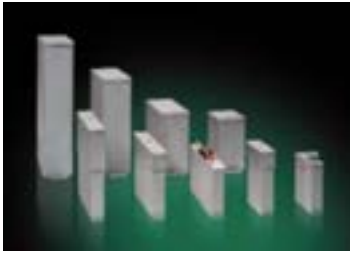


Motors



Safety Products



AUTOMATION GROUP LINE CARD – ABB PRODUCT LINE

 Power Quality Products:
P.F. Correction Capacitors


 Power Quality Products:
Harmonic Filters



PLCs / HMIs



Fuse Holders

Sectors:

- Plant utilities and building automation
- Water and waste water
- Food and beverage
- Pharmaceutical

- Cement and aggregate
- Oil and gas
- Plastic/Chemical
- Other (please specify)

- Mixers, dispersers, agitators
- Extruders
- Conveyors/material handling
- Fans, pumps, compressors
- Boilers, burner management
- Chillers, refrigeration, ovens, freezers, pasteurization
- Building HVAC
- Pollution control systems

- Co-generation
- Blending, chemical feeder and delivery systems
- Ozone and UV systems, solids handling, booster and other pumps
- Metal working presses and feed systems
- Payoff and winding
- Ball mills, crushers
- Other (please specify)

Customer Name: _____

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Alliston, ON
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Fax: (705) 434-9339

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890 Langs Dr,
Cambridge, ON
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Fax: (519) 740-2833

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St. Thomas, ON
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Woodstock
1229 Seagrave Rd Wood-
stock, ON
Tel: (519) 539-4789
Fax: (519) 539-4385



MOTOR RATING AND RATED CURRENT

The currents shown in the table are those given for standard three phase squirrel-cage motors. 1800 r.p.m. 60Hz. Values quoted are for guidance only, they can vary depending on the number of poles and design.

Horse Power	110 – 120V			220 – 240V ① ②			380 – 415V		440-480V			550-600V		
	Single Phase	Two Phase	Three Phase	Single Phase	Two Phase	Three Phase	Single Phase	Three Phase	Single Phase	Two Phase	Three Phase	Single Phase	Two Phase	Three Phase
1/10	3.0	-	-	1.5	-	-	1.0	-	-	-	-	-	-	-
1/8	3.8	-	-	1.9	-	-	1.2	-	-	-	-	-	-	-
1/6	4.4	-	-	2.2	-	-	1.4	-	-	-	-	-	-	-
1/4	5.8	-	-	2.9	-	-	1.8	-	-	-	-	-	-	-
1/3	7.2	-	-	3.6	-	-	2.3	-	-	-	-	-	-	-
1/2	9.8	4.0	4.0	4.9	2.0	2.2	3.2	1.3	2.5	1.0	1.1	2.0	0.8	0.9
3/4	13.8	4.8	5.6	6.9	2.4	3.2	4.5	1.8	3.5	1.2	1.6	2.8	1.0	1.3
1	16	6.4	7.2	8	3.2	4.2	5.1	2.3	4	1.6	2.1	3.2	1.3	1.7
1 1/2	20	9.0	10.4	10	4.5	6	6.4	3.3	5	2.3	3	4	1.8	2.4
2	24	11.8	13.6	12	5.9	6.8	7.7	4.3	6	3	3.4	4.8	2.4	2.7
3	34	16.6	19.2	17	8.3	9.6	10.9	6.1	8.5	4.2	4.8	6.8	3.3	3.9
5	56	26.4	30.4	28	13.2	15.2	17.9	9.7	14	6.6	7.6	11.2	5.3	6.1
7 1/2	80	38	44	40	19	22	27	14	21	9	11	16	8	9
10	100	48	56	50	24	28	33	18	26	12	14	20	10	11
15	135	72	84	68	36	42	44	27	34	18	21	27	14	17
20	-	94	108	88	47	54	56	34	44	23	27	35	19	22
25	-	118	136	110	59	68	70	44	55	29	34	44	24	27
30	-	138	160	136	69	80	87	51	68	35	40	54	28	32
40	-	180	208	176	90	104	112	66	88	45	52	70	36	41
50	-	226	260	216	113	130	139	83	108	56	65	86	45	52
60	-	-	-	-	133	154	-	103	-	67	77	-	53	62
75	-	-	-	-	166	192	-	128	-	83	96	-	66	77
100	-	-	-	-	218	248	-	165	-	109	124	-	87	99
125	-	-	-	-	-	312	-	208	-	135	156	-	108	125
150	-	-	-	-	-	360	-	240	-	156	180	-	125	144
200	-	-	-	-	-	480	-	320	-	208	240	-	167	192
250	-	-	-	-	-	604	-	403	-	-	302	-	-	242
300	-	-	-	-	-	722	-	482	-	-	361	-	-	289
350	-	-	-	-	-	828	-	560	-	-	414	-	-	336
400	-	-	-	-	-	954	-	636	-	-	477	-	-	382
500	-	-	-	-	-	1180	-	786	-	-	590	-	-	472

① To obtain full load currents for 200V and 208V motors, increase corresponding 220-240V ratings by 15% and 10%

② To obtain full load currents for 265V and 277V motors, decrease corresponding 220-240V ratings by 13% and 17%



AF LINE 3 POLE CONTACTORS

Features:

- An **Electronic coil** accepts a wide control voltage range (AC/DC **0.85 x Uc min..1.1 x Uc Max.** Where Uc is control voltage)
- AF contactors have **built-in surge protection** and do not require additional surge suppressors.
- **AF...Z contactors** are available for **direct control by PLC-output** $\geq 24\text{VDC } 500\text{mA}$ (AF09...AF30 contactors only, for other contactors, please use interposing relay)
- The built-in N.C. auxiliary contact is a mirror contact in compliance with annex F of IEC 60947-4-1.



Amp Ratings		Single-Phase HP Ratings		Three-Phase HP Ratings				Auxiliary Contacts		Part Number
AC-3	AC-1	120V	240V	208V	240V	480V	600V	NO	NC	100-250V 50/60Hz - DC Coil*
9	25	0.75	1.5	2	2	5	7.5	1	0	AF09-30-10-13
11	28	1	2	3	3	7.5	10	1	0	AF12-30-10-13
17	30	1.5	3	5	5	10	15	1	0	AF16-30-10-13
22	45	2	3	7.5	7.5	15	20	0	0	AF26-30-00-13
27	50	2	5	10	10	20	25	0	0	AF30-30-00-13
41	60	3	7.5	15	15	30	40	0	0	AF40-30-00-13
52	80	3	10	20	20	40	50	0	0	AF52-30-00-13
62	90	5	15	25	25	50	60	0	0	AF65-30-00-13
77	105	7.5	15	30	30	60	75	0	0	AF80-30-00-13
77	115	7.5	20	30	30	60	75	0	0	AF96-30-00-13
99	160	-	-	30	40	75	100	1	1	AF116-30-11-13
125	200	-	-	40	50	100	125	1	1	AF140-30-11-13

NOTE:

AC-1 – Non Inductive Loads

AC-3 – Inductive Loads

ACCESSORIES – AUXILIARY CONTACTS & COILS

Coil voltages and codes AF09...AF140		
Voltage 50/60 Hz	Voltage DC	Code
24...60	20...60(1)	11**
48...130	48...130	12
100...250	100...250	13
250...500	250...500	14

Note:

**AF..-00...-11 not suitable for direct control by PLC-output.

Please note that spare coils for replacement are only available from AF400 onwards.



AUXILIARY CONTACTS					
NO	NC	Front Mount	Side Mount	Contactors Type	Part No.
1	0	X		AF09...AF96	CA4-10
0	1	X		AF09...AF96	CA4-01
2	2	X		AF09...AF16...-30-10	CA4-22M
2	2	X		AF09...AF16...-30-01	CA4-22U
2	2	X		AF26...AF96...-30-00	CA4-22E
1	1		X	AF09...AF96	CAL4-11
1	1		X	AF116...AF140	CAL19-11
1	1		X	AF116...AF140	CAL19-11B



THERMAL OVERLOAD RELAYS

Features:

- Overload protection with **class 10 tripping category**
- Trip-free mechanism
- Ambient temperature compensation
- Suitable for direct mounting; separate mounting kit also available
- Phase loss sensitivity
- Manual/Automatic reset selectable



For Contactor Type	Setting Range Amps	Part No.
AF09.....AF30	0.10 ... 0.13	TF42-0.13
	0.13 ... 0.17	TF42-0.17
	0.17 ... 0.23	TF42-0.23
	0.23 ... 0.31	TF42-0.31
	0.31 ... 0.41	TF42-0.41
	0.41 ... 0.55	TF42-0.55
	0.55 ... 0.74	TF42-0.74
	0.74 ... 1.00	TF42-1.0
	1.00 ... 1.30	TF42-1.3
	1.30... 1.70	TF42-1.7
	1.70... 2.30	TF42-2.3
	2.30... 3.10	TF42-3.1
	3.10... 4.20	TF42-4.2
	4.20 ...5.70	TF42-5.7
	5.70 ...7.60	TF42-7.6
	7.60 ...10.0	TF42-10
	10.0 ...13.0	TF42-13
	13.0 ...16.0	TF42-16
16.0 ...20.0	TF42-20	
20.0 ...24.0	TF42-24	
24.0 ...29.0	TF42-29	
29.035.0	TF42-35	
35.040.0	TF42-38	
AF40.....AF65	22 ...28	TF65-28
	25 ...33	TF65-33
	30 ...40	TF65-40
	36 ...47	TF65-47
	44 ...53	TF65-53
	50...60	TF65-60
	57...67	TF65-67
AF80.....AF96	40 ...51	TF96-51
	48 ...60	TF96-60
	57 ...68	TF96-68
	65 ...78	TF96-78
	75 ...87	TF96-87
AF116.....AF140	84...96	TF96-96
	66...90	TF140DU-90
	80...110	TF140DU-110
	100...135	TF140DU-135
	110...142	TF140DU-142

ACCESSORIES – SEPARATE MOUNTING KITS

SEPARATE MOUNTING KITS (Reqd. when O/L not mounted directly onto a contactor)		
Description	Mounting Type	Part Number
TF42	Snap on mounting kit	DB42



AF LINE REVERSING CONTACTORS – KITS FOR FIELD ASSEMBLY

Each reversing contactor will include:

- 2 Side-by-side mounted 3-pole contactors
- 1 Mechanical and electrical interlocking device (electrical interlock includes 2NC contacts)**
- 1 BER.....Power connection set connecting main poles of the contactors

Amp Rating		Three-Phase HP Ratings				Contactors KM1 + KM2	Interlock Type	**NC Contacts for Elect. Int.	Connection Set
AC-3	AC-1	208V	240V	480V	600V	100-250V 50/60Hz - DC Coil*			
9	25	2	2	5	7.5	2xAF09-30-10-13	VEM4	Included	BER16-4
11	28	3	3	7.5	10	2xAF12-30-10-13	VEM4		BER16-4
17	30	5	5	10	15	2xAF16-30-10-13	VEM4		BER16-4
22	45	7.5	7.5	15	20	2xAF26-30-00-13	VEM4		BER38-4
27	50	10	10	20	25	2xAF30-30-00-13	VEM4		BER38-4
41	60	15	15	30	40	2xAF40-30-00-13	VM96-4	2xCAL4-11	BER65-4
52	80	20	20	40	50	2xAF52-30-00-13	VM96-4		BER65-4
62	90	25	25	50	60	2xAF65-30-00-13	VM96-4		BER65-4
77	105	30	30	60	75	2xAF80-30-00-13	VM96-4		BER96-4
77	115	30	30	60	75	2xAF96-30-00-13	VM96-4		BER96-4
99	160	30	40	75	100	2xAF116-30-11-13	VM19	2xCAL19-11B	BER140-4
125	200	40	50	100	125	2xAF140-30-11-13	VM19		BER140-4

NOTE:

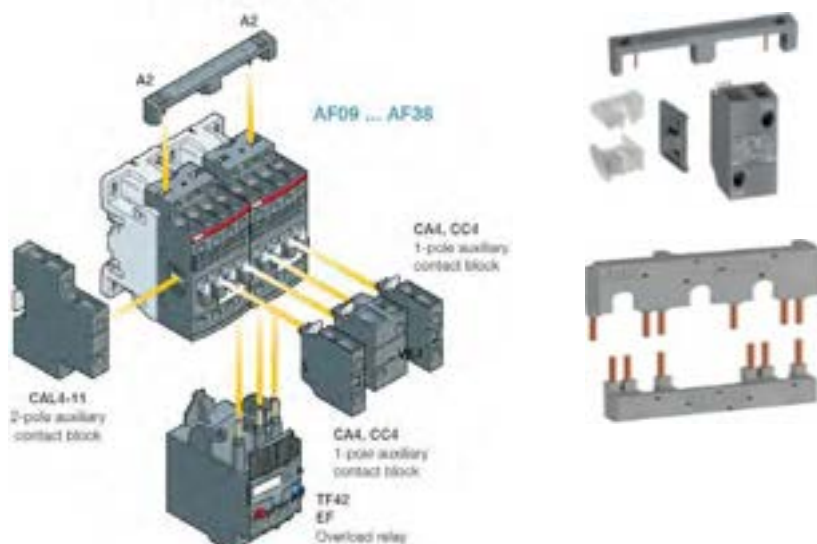
AC-1 – Non Inductive Loads

AC-3 – Inductive Loads

* For other coil voltages, please refer to the coil voltage chart on page 4.

Please note that spare coils for replacement are only available from AF400 onwards.

How to assemble:



VEM4....Mechanical and electrical interlock set

BER..-4 Connection set including

-Phase to Phase connection

-Parallel connection



AF LINE FOUR POLE CONTACTORS

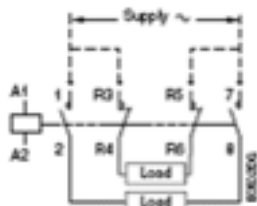
Features:

- CSA approved with maximum operating voltage of 600VAC 60Hz
- Available Main Pole Configurations: 4NO or 2NO+2NC

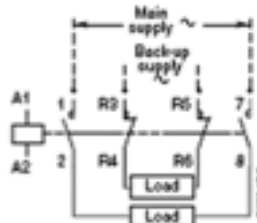
Applications

- 2 Loads with 2 separate supplies*
- 2 Separate loads with one supply*

Single supply and two separate loads



Two separate supply and two separate loads



General Purpose Current AC1 600VAC	Auxiliary Contacts		Open Type Part No.
	NO	NC	100-250V 50/60Hz - DC Coil**
4 N.O. MAIN POLES			
25	-	-	AF09-40-00-13
30	-	-	AF16-40-00-13
45	-	-	AF26-40-00-13
55	-	-	AF38-40-00-13
65	-	-	AF45-40-00-70
80	-	-	AF50-40-00-70
105	-	-	AF75-40-00-70
2 N.O. + 2 N.C. MAIN POLES			
25	-	-	AF09-22-00-13
30	-	-	AF16-22-00-13
45	-	-	AF26-22-00-13
55	-	-	AF38-22-00-13
65	-	-	AF45-22-00-70
105	-	-	AF75-22-00-70

NOTE*: Please note that these contactors are not suitable for a reversing starter or star-delta starter or for controlling a single load from two separate supplies.

**For other coil voltages, please refer to the coil voltage chart below.

ACCESSORIES – AUXILIARY CONTACTS

NO	NC	Front Mount	Side Mount	Contactor Type	Part No.
1	-	X	-	AF09...AF38-40-00 AF09...AF38-22-00	CA4-10
-	1	X	-		CA4-01
1	1	-	X		CAL4-11
3	1	X	-		CA4-31E+
2	2	X	-		CA4-22E+
1	-	X	-	AF45...AF75-40-00 AF45...AF75-22-00	CA5-10
0	1	X	-		CA5-01
2	2	X	-		CA5-22E
1	1	-	X		CAL5-11

ACCESSORIES - COILS

CONTACTOR COILS***		Coil voltages and codes AF09...AF38		Coil voltages and codes AF45...AF75		
For Contactors	Part No.	Voltage 50/60 Hz-DC	Code	Voltage 50/60 Hz	Voltage DC	Code
AF45...AF75	ZAF75 -***	24...60 AC / 20..60 DC	11+++	-	20...60	72++
		48.....130	12	48...130	48...130	69
		100...250	13	100...250	100...250	70
		250...500	14			

(++) The connection polarities indicated close to the coil terminal must be respected: A1 for positive pole and A2 for negative pole.

***Please select coil voltage code from the chart when ordering spare coil.

+++ AF..-00-..11 not suitable for direct control by PLC-output.

Please note that spare coils are available for replacement from AF45 onwards.

LIGHTING CONTACTORS

Features:

- CSA approved with maximum operating voltage of 600VAC 60Hz
- 3, 4, 8 and 12 Pole versions available (Specials on request)
- Electrically or mechanically held contactors

Applications:

- Tungsten filament lighting loads
- Electric discharge lighting loads
- Electric water heaters



No. of Poles	Amp Rating Lighting	Auxiliary Contacts		Open Type Part No.	NEMA 1 Enclosed Type* Part No.
		NO	NC	100-250VAC/DC, 50/60Hz Coil**	-
4	20	-	-	AF09-40-00-13LU	*Please contact ABB Automation Group for further information.
8	20	-	-	AF09-80-00-13LU	
12	20	-	-	AF09-120-00-13LU	
4	30	-	-	AF16-40-00-13LU	
8	30	-	-	AF16-80-00-13LU	
12	30	-	-	AF16-120-00-13LU	
4	45	-	-	AF26-40-00-13LU	
8	45	-	-	AF26-80-00-13LU	
12	45	-	-	AF26-120-00-13LU	
4	50	-	-	AF38-40-00-13LU	
3	65	-	-	AF40-30-00-13LU	
3	80	-	-	AF52-30-00-13LU	
3	90	-	-	AF65-30-00-13LU	
3	105	-	-	AF80-30-00-13LU	
3	115	-	-	AF96-30-00-13LU	
3	160	1	1	AF116-30-11-13LU	
3	200	1	1	AF140-30-11-13LU	
3	250	1	1	AF190-30-11-13LU	
3	300	1	1	AF205-30-11-13LU	
3	400	1	1	AF265-30-11-84LU	

*Factory modification accessories, pilot devices and control transformers are available

**Please refer to the following chart for more coil voltages

ACCESSORIES—AUXILIARY CONTACTS AND COILS

Coil voltages and codes AF09...AF140		
Voltage 50/60 Hz	Voltage DC	Code
24...60	20...60(1)	11**
48...130	48...130	12
100...250	100...250	13
250...500	250...500	14



AUXILIARY CONTACTS					
NO	NC	Front Mount	Side Mount	Contacteur Type	Part No.
1	0	X		AF09..AF96	CA4-10
0	1	X		AF09..AF96	CA4-01
2	2	X		AF09..AF16...-30-10	CA4-22M
2	2	X		AF09..AF16...-30-01	CA4-22U
2	2	X		AF26..AF96...-30-00	CA4-22E
1	1		X	AF09..AF96	CAL4-11
1	1		X	AF116..AF140	CAL19-11
1	1		X	AF116..AF140	CAL19-11B



CONTROL RELAYS - NF... TYPE, AC/DC OPERATED

Features:

- CSA/UL Approved
- DC operated version available
- NFZ with low consumption coil also available.
- Complete range of snap on accessories
- Also available control relays with spring or ring tongue terminals
- 3, 4 and 8 pole contact combinations available
- Offers mechanically linked auxiliary contacts for SAFETY circuit applications



1 st Stack		2 nd Stack		Part Number	100-250V 50/60HZ- DC Coil*
NO	NC	NO	NC		
2	2	-	-		NF22E-13
3	1	-	-		NF31E-13
4	-	-	-		NF40E-13
4	-	-	4		NF44E-13
4	-	1	3		NF53E-13
4	-	2	2		NF62E-13
4	-	3	1		NF71E-13
4	-	4	-		NF80E-13

Refer to page 7 for auxiliary contact ordering information

Refer to page 7 for coil code information. All "NF" relays use AF09...AF16 coils codes

DEFINITE PURPOSE CONTACTORS

Features:

- Double E magnet: optimal performance with low power consumption
- Coil is Class B insulation system with wide range of voltages
- 1 NO and 1 NC auxiliary contact blocks and SPDT contacts available on 3 pole version

Applications:

- Air conditioning, ventilation, refrigeration, pools and spas, compressors, pumps



No. of Poles	FLA	Max. 1 Phase HP		Max. 3 Phase HP Rating				Resistive Amps	Coil**	Part Number
		120V	240V	200/280V	240/277V	480V	600V			
2	20	2	3	-	-	-	-	30	120VAC	DP20C2P-1
2	20	2	3	-	-	-	-	30	24VAC	DP20C2P-F
2	30	2	3	-	-	-	-	40	120VAC	DP30C2P-1*
2	30	2	3	-	-	-	-	40	24VAC	DP30C2P-F*
2	40	2	3	-	-	-	-	50	120VAC	DP40C2P-1
2	40	2	3	-	-	-	-	50	24VAC	DP40C2P-F
3	20	1.5	3	7.5	7.5	7.5	7.5	30	120VAC	DP20C3P-1
3	20	1.5	3	7.5	7.5	7.5	7.5	30	24VAC	DP20C3P-F
3	30	2	5	10	10	15	20	40	120VAC	DP30C3P-1*
3	40	3	7.5	10	10	20	25	50	120VAC	DP40C3P-1*
3	50	3	10	15	15	25	25	65	120VAC	DP50C3P-1
3	60	5	10	20	25	30	30	75	120VAC	DP60C3P-1
3	75	5	15	20	25	40	40	93	120VAC	DP75C3P-1
3	90	7.5	20	25	30	50	50	120	120VAC	DP90C3P-1
4	30	2	5	10	10	10	-	40	120VAC	DP30C4P-1*
4	40	3	7.5	10	10	10	-	50	120VAC	DP40C4P-1

*Mostly stocked at Gerrie Branches.

** Please refer to the following chart for other coil voltages:

Coil Voltage Selection Chart						
Voltage	24VAC	120VAC	208/240VAC	277VAC	480VAC	575VAC
Suffix #	F	1	2	C	4	6



DRAF PLASTIC ENCLOSED STARTERS—SINGLE & THREE PHASE

Features:

- CSA/UL Ratings up to 15 HP, 600V max
- Compact space saving construction
- NEMA 4X Enclosure
- CSA approved pilot device options for field installation are available
- CSA approved for switching AC Ballasts, AC Incandescent and AC Heating loads



Single-Phase HP Ratings		Three-Phase HP Ratings				Pilot Devices	Options	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
120V	240V	208V	240V	480V	600V				
0.75	1.5	2	2	5	7.5	Start/Stop	Please refer to table below	8.58"x4.21"x5.16"	DRAF09(Z)-13U [^]
1	2	3	3	7.5	10				DRAF12(Z)-13U [^]
2	3	5	5	10	15				DRAF16(Z)-13U [^]

Other coil voltages are available

[^] Select appropriate overload from the overload selection chart on Page 12

Note: For single phase 120V application, add a power wire from T1 to T2 of O/L and from L2 to L3 of contactor.

For single phase 240V application, add a power wire from T2 of O/L to L3 contactor.

Coil Voltage Selection Chart				
Type	12-20VDC	24-60VAC 20-60VDC	100-250VAC/DC	250VAC/DC
DRAF	-	11	13	14
DRAF...Z*	20	21	23	-

*Low Consumption Coil

Pilot Device Field Installation Options:			
Emergency Stop	Pilot Light Green (RUN)	Pilot Light Red (OFF)	Two Position Selector Switch (Hand-Auto)
Part Number # DY-ESTOP	Part Number # DY-PLI-*	Part Number # DY-PLH-*	Part Number # DY-SL2

METAL ENCLOSED STARTERS—SINGLE PHASE 120V AND 240V

Features:

- CSA/UL Ratings up to 7.5HP, 120V and 15HP, 240V
- NEMA Ratings Size 00 to Size 3 are also available
- Pre-wired pilot devices and control transformer kits



METAL ENCLOSED, EEMAC1 COMPLETELY ASSEMBLED EXCEPT O/L RELAY & PILOT DEVICE KIT**						
120V, SINGLE PHASE, NON REVERSING STARTERS						
CSA Motor Switching Current	Contactor Size	Max. Motor HP Ratings 120V	Pilot Devices	Transformer	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
13.8	AF09	0.75	No**	No**	10"x6.75"x6.5"	PS-AFAX13*
20	AF16	1.5				PS-0FAX13*
24	AF30	2				PS-1FAX13*
34	AF52	3			17"x12"x7"	PS-2FAX13*
240V, SINGLE PHASE, NON REVERSING STARTERS						
CSA Motor Switching Current	Contactor Size	Max. Motor HP Ratings 240V	Pilot Devices	Transformer	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
10	AF09	1.5	No**	No**	10"x6.75"x6.5"	PS-AFBX13*
17	AF16	3				PS-0FBX13*
28	AF30	5				PS-1FBX13*
50	AF52	10			17"x12"x7"	PS-2FBX13*

Other coil voltages and larger horsepower ratings are available.

*Select appropriate overload from the overload selection chart on Page 15

**Select appropriate field modification kit from the selection chart on Page 15



METAL ENCLOSED STARTERS—THREE PHASE

Features:

- CSA/UL Ratings up to 125 HP, 600V max.
- NEMA Ratings Size 00 to Size 4 are also available
- NEMA 12 Dust Tight and NEMA 4 Water Tight enclosures available upon request
- Pre-wired pilot devices and control transformer kits

METAL ENCLOSED, EEMAC1 COMPLETELY ASSEMBLED EXCEPT O/L RELAY & PILOT DEVICE KIT**										
THREE PHASE, NON REVERSING STARTERS										
CSA Motor Switching Current	Contactor Size	Max. Motor HP Rating				Pilot Devices	Transformer	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil	
		200/208V	220/240V	460/480V	575/600V					
9	AF09	2	2	5	7.5	No**	No**	10"x6.75"x6.5"	PS-AFSX13*	
17	AF16	5	5	10	15				PS-0FSX13*	
27	AF30	10	10	20	25				PS-1FSX13*	
52	AF52	15	20	40	50			17"x12"x7"		PS-2FSX13*

METAL ENCLOSED FUSIBLE COMBINATION STARTERS—SINGLE PHASE

METAL ENCLOSED, EEMAC1 COMPLETELY ASSEMBLED EXCEPT O/L RELAY & PILOT DEVICE KIT**						
120V, SINGLE PHASE, NON REVERSING STARTERS						
CSA Motor Switching Current	Contactor Size	Max. Motor HP Ratings 120V	Pilot Devices	Transformer	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
13.8	AF09	0.75	No**	No**	20"x8.5"x8"	PS-AFAF13*
20	AF16	1.5				PS-0FAF13*
24	AF30	2				PS-1FAF13*
34	AF52	3			28"x12"x8"	PS-2FAF13*
240V, SINGLE PHASE, NON REVERSING STARTERS						
CSA Motor Switching Current	Contactor Size	Max. Motor HP Ratings 240V	Pilot Devices	Transformer	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
10	AF09	1.5	No**	No**	20"x8.5"x8"	PS-AFBF13*
17	AF16	3				PS-0FBF13*
28	AF30	5				PS-1FBF13*
50	AF52	10			28"x12"x8"	PS-2FBF13*

METAL ENCLOSED FUSIBLE COMBINATION STARTERS—THREE PHASE

METAL ENCLOSED, EEMAC1 COMPLETELY ASSEMBLED EXCEPT O/L RELAY & PILOT DEVICE KIT**									
THREE PHASE, NON REVERSING STARTERS									
CSA Motor Switching Current	Contactor Size	200/208V	220/240V	460/480V	575/600V	Pilot Devices	Transformers	Dimensions HxWxD (inches)	Part Number 100-250VAC/DC, 50/60Hz Coil
9	AF09	2	2	5	7.5	No**	No**	20"x8.5"x8"	PS-AFSF13*
17	AF16	5	5	10	15				PS-0FSF13*
27	AF30	10	10	20	25				PS-1FSF13*
52	AF52	15	20	40	50			28"x12"x8"	PS-2FSF13*

Other coil voltages and larger horsepower ratings are available.

* Select appropriate overload from the overload selection chart on Page 15.

** Select appropriate field modification kit from the selection chart on Page 15.

Fuses not included for the fusible disconnect. Please order appropriate 'J' type time delay fuses



FIELD MODIFICATION KITS FOR METAL ENCLOSED STARTERS

CONTROL CIRCUIT TRANSFORMERS C/W SECONDARY FUSING



Contactor Sizes	VA Rating	Prim. / Sec. Voltage	Part Number
AF09-AF16-AF26-AF52-AF80	50	600 / 120	PS-50-600/120
		600 / 24	PS-50-600/24
		208 / 120	PS-50-208/120
		208 / 24	PS-50-208/24

PILOT DEVICE KITS



Pilot Devices	Legend Plates	Part Number
Start/Stop Momentary push button	START / STOP	PS-SS
Start/Stop Momentary push button with indication (130VAC)	START / STOP, ON	PS-SSI
Start/Stop Momentary push button with indication (24VAC)	START / STOP, ON	PS-SSIF
Selector Switch Off/On	OFF / ON	PS-SL2
Selector Switch Hand/Off/Auto	HAND / OFF / AUTO	PS-SL3
Selector Switch Hand/Off/Auto with indication (130VAC)	HAND / OFF / AUTO, ON	PS-SL3I
Selector Switch Hand/Off/Auto with indication (24VAC)	HAND / OFF / AUTO, ON	PS-SL3IF

Note: Other field modification kits are available.

TA THERMAL OVERLOAD RELAYS



For Contactor Type	Setting Range Amps	Part No.
AF09.....AF30	0.10 ... 0.13	TF42-0.13
	0.13 ... 0.17	TF42-0.17
	0.17 ... 0.23	TF42-0.23
	0.23 ... 0.31	TF42-0.31
	0.31 ... 0.41	TF42-0.41
	0.41 ... 0.55	TF42-0.55
	0.55 ... 0.74	TF42-0.74
	0.74 ... 1.00	TF42-1.0
	1.00 ... 1.30	TF42-1.3
	1.30... 1.70	TF42-1.7
	1.70... 2.30	TF42-2.3
	2.30... 3.10	TF42-3.1
	3.10... 4.20	TF42-4.2
	4.20 ...5.70	TF42-5.7
	5.70 ...7.60	TF42-7.6
	7.60 ...10.0	TF42-10
	10.0 ...13.0	TF42-13
	13.0 ...16.0	TF42-16
16.0 ...20.0	TF42-20	
20.0 ...24.0	TF42-24	
24.0 ...29.0	TF42-29	
29.035.0	TF42-35	
35.040.0	TF42-38	
AF40.....AF65	22 ...28	TF65-28
	25 ...33	TF65-33
	30 ...40	TF65-40
	36 ...47	TF65-47
	44 ...53	TF65-53
	50....60	TF65-60
	57....67	TF65-67



CR101 SINGLE-PHASE MANUAL MOTOR STARTERS

NEW

When undervoltage protection is not needed, the CR101 manual motor starters are a cost-effective option that offers reliable overload protection for single-phase motors up to one horsepower (115 or 230 volts).

- 1HP maximum at 115V or 230V
- 0.75HP maximum at 277V for 2-pole forms
- 25-60Hz



CR101H1

Open starters include an unmounted nameplate. Heaters can be selected from the table on the following pages and ordered as a separate item. One heater is required per starter (two for 2-speed forms and for combination starter CR101H13).

TOGGLE-OPERATED NON-REVERSING OPEN	
No. of poles	Part Number
1	CR101Y2
2	CR101H2



CR101H400H

CR101H

2 units are individually boxed and “poly-packed” 10 per carton as standard.

TOGGLE-OPERATED NON-REVERSING ENCLOSED NEMA 1		
No. of poles	Indicating light	Part Number
1	No	CR101Y12
2	No	CR101H12
1	Yes	CR101Y11*
2	Yes	CR101H11*

2 units are individually boxed and “poly-packed” 10 per carton as standard.

*includes a 115/230-volt neon lamp(s). Not available at 277V

Overload heater units for CR101H, CR101Y

All CR123H heaters are packaged as single units. Table below suggests proper size heater to trip at 125% motor current. Listed values are for motors with 1.15-1.25 service factor. For 1.35 service factor, multiply FLA by 1.15 and use that value to select heater(s). For 1.0 service factor, multiply FLA by 0.9 and use value.

Max motor FLA	Heater part number
0.48	CR123H055A
0.58	CR123H067A
0.71	CR123H082A
0.86	CR123H099A
1.04	CR123H120A
1.25	CR123H144A
1.78	CR123H205A
2.53	CR123H291A
3.56	CR123H410A
4.60	CR123H529A
5.43	CR123H625A
6.98	CR123H802A
8.25	CR123H950A
10.6	CR123H122B
12.5	CR123H144B
16.0	CR123H186B

More heater ranges are available.



MANUAL MOTOR PROTECTORS

Features:

- UL listed and CSA certified for Group Motor Installations up to 65kA
- Selectable ranges for FLA from 0.10 – 95A in trip class 10
- 35mm DIN rail snap-on mounting
- Wide range of accessories
- **Type E** products available (MS132) for 480Y/277V or 600Y/347V circuits**
- Under voltage trip available



FLA Adjustment Range	Single-Phase HP Ratings		Three-Phase HP Ratings			Part Number**
	115V	230V	230V	460V	575V	
MS132						
.63 – 1.0	-	-	-	-	1/2	MS132-1.0
1.0 – 1.6	-	1/10	-	3/4	3/4	MS132-1.6
1.6 – 2.5	-	1/6	1/2	1	1.5	MS132-2.5
2.5 – 4.0	1/8	1/3	1	2	3	MS132-4.0
4.0 – 6.3	1/4	1/2	1.5	3	5	MS132-6.3
6.3 – 10	1/2	1.5	3	5	7.5	MS132-10
10 – 16	1	2	5	10	10	MS132-16
16 – 20	1.5	3	5	10	15	MS132-20
20 – 25	2	3	7.5	15	20	MS132-25
25 – 32	2	5	10	20	25	MS132-32

Note:

** For Type E applications, when ordering MS132 type manual motor protectors, please order MS132-S1-M3-XX from accessories listed below.



FLA Adjustment Range	Single-Phase HP Ratings		Three-Phase HP Ratings			Part Number
	115V	230V	230V	460V	575V	
MS165						
10 – 16	1	2	5	10	10	MS165-16
14 – 20	1.5	3	5	10	15	MS165-20
18 – 25	2	3	7.5	15	20	MS165-25
23 – 32	2	5	10	20	30	MS165-32
30 – 42	3	7.5	15	30	40	MS165-42
40 - 54	3	10	20	40	50	MS165-54
52 - 65	5	10	20	50	60	MS165-65

ACCESSORIES



AUXILIARY CONTACTS			
Description	Version	For MSP	Part Number
Side Mount	1NO + 1NC	MS132, MS165	HK1-11
Front Mount			HKF1-11
SIGNALING CONTACTS			
Right Side	1NO + 1NC	MS132, MS165	SK1-11
THREE PHASE FEEDER TERMINALS FOR TYPE E APPLICATIONS**			
65A / 600VAC	10...4 AWG	MS132	S1-M3-25
92A / 600VAC	8...2 AWG		S1-M3-35



BUSBARS FOR DIRECT MOUNTING OF CONTACTORS		
Contactors Type	For MSP	Part Number
AF09....AF16	MS132 up to 25A	BEA16-4
AF26....AF38	MS132 up to 10A	BEA26-4
AF26....AF38	MS132 12...16A	BEA38-4



IP65 ENCLOSURES (NEMA TYPE 12)			
Suitable for	Description	Colour	Part Number
MS116, MS132	Padlockable max. 3 padlocks with ball diameter 4...6.5 mm	Yellow/Red	IB132-Y
		Grey/Black	IB132-G



22 MM COMPACT PILOT DEVICE (300VAC RATED) PUSH BUTTONS, PILOT LIGHTS & SELECTOR SWITCHES

Features:

- Compact range: cost efficient, easy to use and reliable with “All-in-one” function. 300V rated
- Pilot lights and illuminated push buttons available with LED and filament bulbs
- High degree of protection IP66, NEMA 1, 3R, 4, 4X, 12, 13
- Other contact combinations available

PUSH BUTTONS (Contact blocks included)



Description	Color	Contacts Included	Part Number
Flush Momentary	Black	1 NO	CP1-10B-10
	Red	1 NC	CP1-10R-01
	Yellow	1 NO	CP1-10Y-10
	Green	1 NO	CP1-10G-10
Extended Momentary	Black	1 NO	CP3-10B-10
	Red	1 NC	CP3-10R-01
Emergency Stop Twist Release, 40 mm	Red	1 NC	CE4T-10R-01
Emergency Stop Key Release, 40 mm	Red	1 NO + 1 NC	CE4K1-10R-11

2 POSITION SELECTOR SWITCHES NON-ILLUMINATED (Contact blocks included)



Description	Color	Contacts Included	Part Number
Maintained, Both Positions	Black	1 NO	C2SS1-10B-10
Spring Return From Right		1 NO	C2SS3-10B-10

3 POSITION SELECTOR SWITCHES NON-ILLUMINATED (Contact blocks included)



Description	Color	Contacts Included	Part Number
Maintained, All Positions	Black	2 NO	C3SS1-10B-20
Spring Return Left & Right			C3SS2-10B-20
Spring Return From Left			C3SS7-10B-20
Spring Return From Right			C3SS3-10B-20

FULL VOLTAGE PILOT LIGHTS – BA 9s BASE (Bulb not included)



Description	Color	Part Number
Full Voltage Pilot Lights	Red	CL-100R
	Green	CL-100G
	Yellow	CL-100Y
	Blue	CL-100L
Filament bulb, BA 9s base, 24V	-	STD50456
Filament bulb, BA 9s base, 125V	-	STD50267

LED PILOT LIGHTS – WITH INTEGRATED LED SERVICE LIFE>50,000 HRS (bulb included)



Description	Color	Part Number
Rated Voltage 24V, AC/DC	Red	CL2-502R
	Green	CL2-502G
	Yellow	CL2-502Y
	Blue	CL2-502L

LED PILOT LIGHTS – WITH INTEGRATED LED SERVICE LIFE>50,000 HRS (bulb included)



Description	Color	Part Number
Rated Voltage 110-130V, AC	Red	CL2-513R
	Green	CL2-513G
	Yellow	CL2-513Y
	Blue	CL2-513L



22 MM MODULAR PILOT DEVICES (600VAC RATED) PUSH BUTTONS, NON ILLUMINATED AND ILLUMINATED

Features:

- High degree of protection: IP66, NEMA 1, 3R, 4, 4X, 12, 13
- Snap on feature reduces installation time
- Low energy gold plated contact blocks available
- Black plastic bezel included; chrome bezel available upon request
- Up-to 600V rated



Description	Color	Part Number
PUSH BUTTON OPERATORS, NON-ILLUMINATED <i>(Order Contact Holder, Contact Blocks Separate)</i>		
<i>(Order Contact Holder, Contact Blocks Separate)</i>		
Flush Momentary	Black	MP1-10B
	Red	MP1-10R
	Yellow	MP1-10Y
	Green	MP1-10G
Set of 6 color caps (Red, Green, Yellow, Blue, White, Black, Clear)	-	MP1-10M
Extended Momentary	Black	MP3-10B
	Red	MP3-10R
Set of 6 color caps (Red, Green, Yellow, Blue, White, Black, Clear)	-	MP3-10M
PUSH BUTTON OPERATORS, ILLUMINATED** <i>(Order Contact Holder, Contact Blocks, Lamp Block & Lamp Separate)</i>		
Flush Momentary	Red	MP1-11R
	Yellow	MP1-11Y
	Green	MP1-11G
Set of 6 color caps (Red, Green, Yellow, Blue, White, Clear)	-	MP1-11M
Flush Maintained	Red	MP2-11R
	Yellow	MP2-11Y
	Green	MP2-11G
Extended Momentary	Red	MP3-11R
	Green	MP3-11G
Set of 6 color caps (Red, Green, Yellow, Blue, White, Clear)	-	MP3-11M
DOUBLE PUSH BUTTON OPERATORS, ILLUMINATED** <i>(Order Contact Holder, Contact Blocks, Lamp Block and Lamp Separate)</i> Yellow Lens With Flash Buttons		
Upper Button With Text "Start"	Green	MPD4-11Y
Lower Button With Text "Stop"	Red	



** 1) No contact block in the center position, lamp holder only.

2) For legend plates please refer to the chart on Page 20.



22 MM MODULAR PILOT DEVICES SELECTOR SWITCHES, NON ILLUMINATED & ILLUMINATED



Description	Color	Part Number
2 POSITION SELECTOR SWITCH OPERATOR, NON-ILLUMINATED** <i>(Order Contact Holder, Contact Blocks Separate)</i>		
Maintained, Both Positions	Black	M2SS1-10B
Momentary Spring Return From Right		M2SS3-10B
2 POSITION SELECTOR SWITCH OPERATOR, ILLUMINATED** <i>(Order Contact Holder, Contact Blocks Separate)</i>		
Maintained, Both Positions	Red	M2SS1-11R
Spring Return From Right		M2SS3-11R



Description	Part Number
2 POSITION KEY-OPERATED SELECTOR SWITCH OPERATOR** <i>(Order Contact Holder, Contact Blocks Separate)</i>	
Maintained, Key can be removed in both positions	M2SSK1-101*
Maintained, Key can be removed in middle position only	M2SSK2-101*
Momentary Spring Return From Right, Key can be removed in the middle position only	M2SSK3-101*



Description	Color	Part Number
3 POSITION SELECTOR SWITCH OPERATOR, NON-ILLUMINATED** <i>(Order Contact Holder, Contact Blocks Separate)</i>		
Maintained, All Positions	Black	M3SS1-10B
Momentary Spring Return from Left and Right		M3SS2-10B
Momentary Spring Return From Right		M3SS3-10B
3 POSITION SELECTOR SWITCH OPERATOR, ILLUMINATED** <i>(Order Contact Holder, Contact Blocks Separate)</i>		
Maintained, All Positions	Red	M3SS1-11R
Spring Return From Left & Right		M3SS2-11R
Spring Return From Left		M3SS7-11R
Spring Return From Right		M3SS3-11R



Description	Part Number
3 POSITION KEY-OPERATED SELECTOR SWITCH OPERATOR** <i>(Order Contact Holder, Contact Blocks Separate)</i>	
Maintained, Key can be removed in all positions	M3SSK1-101*
Maintained, Key can be removed in middle position only	M3SSK2-101*
Momentary Spring Return From Left & Right, Key can be removed in middle position only	M3SSK3-101*
Momentary Spring Return From Right, Key can be removed in left position	M3SSK4-101*
Momentary Spring Return From Right, Key can be removed in all positions	M3SSK5-101*

Note:

*1) Other key codes are available upon request

**2) No contact block in the center position

3) For legend plates please refer to the chart on Page 20



22 MM MODULAR PILOT DEVICES

MUSHROOM & E-STOP PUSH BUTTONS, NON ILLUMINATED & ILLUMINATED



Description	Color	Part Number
MUSHROOM PUSH BUTTON OPERATOR, NON-ILLUMINATED <i>(Order Contact Holder, Contacts Blocks Separate)</i>		
Momentary, 40mm Plastic	Red	MPM1-10R
	Yellow	MPM1-10Y
Momentary, 60mm Plastic	Red	MPM2-10R
	Yellow	MPM2-10Y
MUSHROOM PUSH BUTTON OPERATOR, ILLUMINATED** <i>(Order Contact Holder, Contacts Blocks Separate)</i>		
Momentary, 40mm Plastic	Red	MPM1-11R
	Yellow	MPM1-11Y
Momentary, 60mm Plastic	Red	MPM2-11R
	Yellow	MPM2-11Y
EMERGENCY STOP PUSH BUTTON OPERATOR, NON-ILLUMINATED <i>(Order Contact Holder, Contacts Blocks Separate)</i>		
Twist Release, 40mm Plastic (UL508 Cat.)	Red	MPET4-10R
Pull Release, 40mm Plastic (UL508 Cat.)		MPEP4-10R
Twist Release, 60mm Plastic		MPMT4-10R
Pull Release, 60mm Plastic		MPMP4-10R
EMERGENCY STOP PUSH BUTTON OPERATOR, ILLUMINATED** <i>(Order Contact Holder, Contacts Blocks Separate)</i>		
Twist Release, 40mm Plastic	Red	MPMT3-11R
Pull Release, 40mm Plastic		MPMP3-11R
Twist Release, 60mm Plastic		MPMT4-11R
Pull Release, 60mm Plastic		MPMP4-11R

**1) No contact block in the center position, lamp holder only.

2) For legend plates please refer to the chart on Page 20.

POTENTIOMETER



POTENTIOMETER		
With Resistor 10 kohm	Black Plastic Bezel	MT-110B



22 MM COMPACT AND MODULAR PILOT DEVICES—ACCESSORIES



ADAPTOR FOR USING 22MM PILOT DEVICES IN 30MM MOUNTING HOLES (COMPACT & MODULAR)	
Black Plastic	KA1-8029
Chrome Metal	KA1-8030
ADAPTOR FOR USING MODULAR 22MM E-STOP PUSH BUTTONS IN 30MM MOUNTING HOLES	
Black Plastic	KA1-8027
Chrome Metal	KA1-8028



Description	Part Number
BEZEL FOR COMPACT AND MODULAR RANGE PUSH BUTTONS	
Chrome Metal	KA1-8021
BEZEL FOR COMPACT RANGE SELECTOR SWITCHES	
Chrome Metal	KA1-8078
BEZEL FOR MODULAR RANGE SELECTOR SWITCHES	
Chrome Metal	KA1-8024



Description	Part Number
CONTACT HOLDER	
Holder for 3 blocks	MCBH-00
Holder for 5 blocks	MCBH5-00
AUXILIARY CONTACTS	
1NO Single contact block without holder	MCB-10
1NC Single contact block without holder	MCB-01
1NO + 1NC Double contact block without holder	MCB-11
1NO with gold plated contacts	MCB-10G
1NC with gold plated contacts	MCB-01G



LAMPS		
Description	Color	Part Number
LED Bulb Standard, 24V AC/DC*	Red	KA2-2021
LED Bulb Standard, 24V AC/DC*	Green	KA2-2022
LED Bulb Standard, 24V AC/DC*	Yellow	KA2-2023
LED Bulb Standard, 24V AC/DC*	Blue	KA2-2024
LED Bulb Standard, 24V AC/DC*	White	KA2-2025
LED Bulb Standard, 120V AC*	Red	KA2-2131
LED Bulb Standard, 120V AC*	Green	KA2-2132
LED Bulb Standard, 120V AC*	Yellow	KA2-2133
LED Bulb Standard, 120V AC*	Blue	KA2-2134
LED Bulb Standard, 120V AC*	White	KA2-2135

LEGEND PLATES—FIXED NAME PLATES SILVER/GREY/A-FIXLUMINUM


Description	Type	Part Number
Legend Plates	OFF	CBK-NPE10
	ON	CBK-NPE11
	OPEN	CBK-NPE12
	RAISE	CBK-NPE13
	RUN	CBK-NPE16
	SLOW	CBK-NPE18
	START	CBK-NPE19
	STOP	CBK-NPE20
	CLOSE	CBK-NPE1
	DOWN	CBK-NPE2
	EMERGENCY STOP	CBK-NPE3
	UP	CBK-NPE21
	POWER ON	CBK-NPE35
	HAND/AUTO	CBK-NPE22
	OFF/ON	CBK-NPE24
	FWD/REV	CBK-NPE32
	JOG	CBK-NPE40
	HAND/ O / AUTO	CBK-NPE26
	FWD/ O / REV	CBK-NPE33
	POTENTIOMETER (Scale: 0-10)	CBK-NPEPOT

SPECIAL LEGEND PLATES FOR PLASTIC ENCLOSURES (HORIZONTAL MOUNTING)

Description	Part Number
Legend Plate Emergency Stop	MA6-1026

SPECIAL LEGEND PLATES FOR PLASTIC ENCLOSURES (VERTICAL MOUNTING)


Description	Part Number
Legend Plate Emergency Stop	MA6-1101

22 MM PILOT DEVICES—PLASTIC ENCLOSURE ONLY


Description	Color	No. of Holes	Part Number
IP 66, NEMA 4X	Dark Grey / Light Grey	1 Hole	MEP1-0
	Yellow / Light Grey	1 Hole	MEPY1-0
	Dark Grey / Light Grey	2 Holes	MEP2-0
	Dark Grey / Light Grey	3 Holes	MEP3-0

ASSEMBLED PUSH BUTTON STATIONS – PLASTIC ENCLOSURE*


Description	Part Number
EMERGENCY STOP, twist release 40mm, 2 NC (No Legend Plate)	MEPY1-1005
START-STOP (c/w Legend Plate)	MEP2-1991

*1) Enclosed Push Button Stations are CSA/UL Type 1, 3R, 4, 4X, 12, 13

CONTACT BLOCKS FOR REAR MOUNTING (PLASTIC ENCLOSURES)


Description	Part Number
CONTACT BLOCK	
1 NO	MCB-10B
1 NC	MCB-01B
DOUBLE CONTACT BLOCK	
2 NO	MCB-20B
2 NC	MCB-02B
1 NO + 1 NC	MCB-11B



30MM HEAVY DUTY OIL-TIGHT PILOT DEVICES

Features:

- UL listed File # E2403
- Positively driven contacts suitable for applications down to 5V/1mA
- High degree of protection IEC 529; IP10, IP11, IP14, IP54 and IP66
UL/NEMA Type; 1, 3R, 4, 4X, 12, 13
- Temperature range during operation: -35°C to +70°C



PILOT LIGHTS—LED BULB



A3L4AA-6L4G



A3L4AA-6L4R



A3L4AA-6L4M

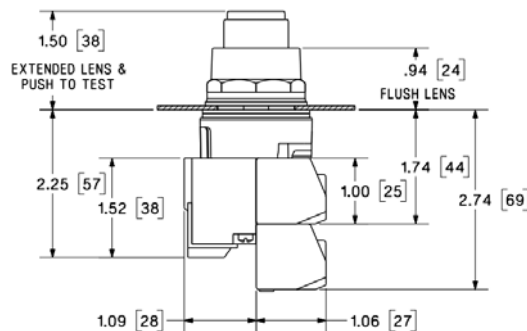
Color	Voltage	Part Number
Clear	24 V AC/DC	A3L4AA-6L2C
	120 V AC/DC	A3L4AA-6L4C
	24-240 V AC/DC	A3L4AA-6LUC
Green	24 V AC/DC	A3L4AA-6L2G
	120 V AC/DC	A3L4AA-6L4G
	6-8 V AC/DC	A3L4AA-6LBG
Blue	24 V AC/DC	A3L4AA-6L2L
	120 V AC/DC	A3L4AA-6L4L
	24-240 V AC/DC	A3L4AA-6LUL
Amber	24 V AC/DC	A3L4AA-6L2M
	120 V AC/DC	A3L4AA-6L4M
	6-8 V AC/DC	A3L4AA-6LBM
	24-240 V AC/DC	A3L4AA-6LUM
Red	24 V AC/DC	A3L4AA-6L2R
	120 V AC/DC	A3L4AA-6L4R
	6-8 V AC/DC	A3L4AA-6LBR
	24-240 V AC/DC	A3L4AA-6LUR
White	24 V AC/DC	A3L4AA-6L2W
	120 V AC/DC	A3L4AA-6L4W
	6-8 V AC/DC	A3L4AA-6LBW
	24-240 V AC/DC	A3L4AA-6LUW

PUSH BUTTONS ILLUMINATED—Chrome metal (contact blocks NOT included)



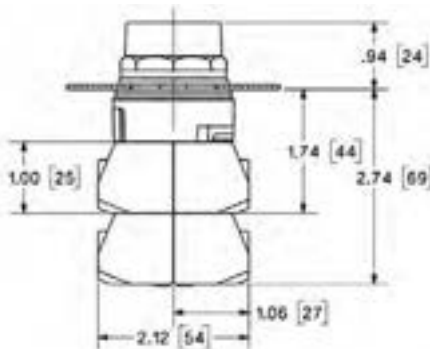
A3PLE1-6LBR-11

Description	Voltage	Color	Contacts	Part Number
Extended Momentary	24-240V AC/DC	Clear	1NO 1NC	A3PLE1-6LUC-91
	24-240V AC/DC	Green	1NO 1NC	A3PLE1-6LUG-91
	24-240V AC/DC	Blue	1NO 1NC	A3PLE1-6LUL-91
	24-240V AC/DC	Amber	1NO 1NC	A3PLE1-6LUM91
	24-240V AC/DC	Red	1NO 1NC	A3PLE1-6LUR-91
	24-240V AC/DC	White	1NO 1NC	A3PLE1-6LUW-91

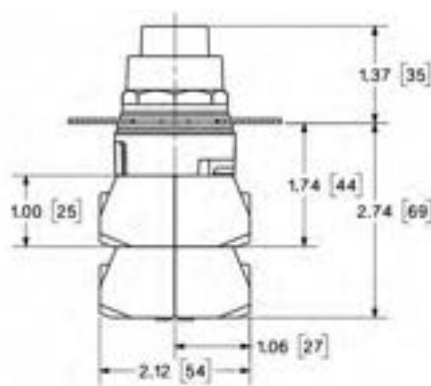


30MM HEAVY DUTY OIL-TIGHT PILOT DEVICES
PUSH BUTTONS NON-ILLUMINATED—Chrome metal (contact blocks NOT included)

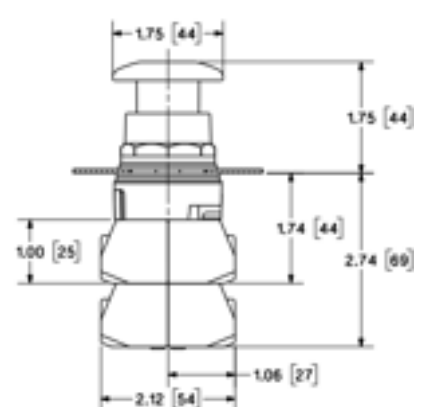

Description	Color	Contacts	Part Number
Flush Momentary	Black	-	A3PBF1-600B-00
	Black	1NO 1NC	A3PBF1-600B-91
	Green	-	A3PBF1-600G-00
	Green	1NO 0NC	A3PBF1-600G-10
	Blue	-	A3PBF1-600L-00
	Red	-	A3PBF1-600R-00
	Red	0NO 1NC	A3PBF1-600R-01
	Yellow	-	A3PBF1-600Y-00
	Yellow	1NO 1NC	A3PBF1-600Y-91
Extended Momentary	Black	-	A3PBE1-600B-00
	Green	-	A3PBE1-600G-00
	Red	-	A3PBE1-600R-00
	Red	0NO 1 NC	A3PBE1-600R-01
	Yellow	-	A3PBE1-600Y-00
Mushroom Momentary	Black	-	A3PB41-600B-00
	Green	-	A3PB41-600G-00
	Red	-	A3PB41-600R-00
	Yellow	-	A3PB41-600Y-00
Mushroom maintained push-pull, 44 mm	Red	-	A3PPA2-600R-00
	Red	0NO 1NC	A3PPA2-600R-01
Mushroom maintained twist-release, 44 mm	Red	-	A3PT4R-600R-00
Mushroom maintained push-pull, 44mm metal	Red	-	A3PPM2-600R-00
	Red	0NO 1NC	A3PP42-600R-01
Mushroom Momentary, 60mm	Black	-	A3PB61-600B-00
	Green	-	A3PB61-600G-00
	Red	-	A3PB61-600R-00
	Yellow	-	A3PB61-600Y-00
Mushroom maintained push-pull, 60mm	Red	-	A3PP62-600R-00

DIMENSIONS


Momentary pushbutton non-illuminated flush cap
Dimensions inches, [mm]



Momentary pushbutton non-illuminated raised cap



Momentary pushbutton small plastic mushroom head



30MM HEAVY DUTY OIL-TIGHT PILOT DEVICES

NON-ILLUMINATED SELECTOR SWITCHES



A3SSBD-6AAB-91

Operating Principle	Color	Cam Function	Contacts Included	Part Number
2-Position, short handle	White	A	-	A3SSAA-6AAB-00
			1NO 0NC	A3SSAA-6AAB-10
2-position, rebound	White	A	-	A3SSAC-6AAB-00
3-position, short handle	White	B	-	A3SSBA-6AAB-00
			2NO 0NC	A3SSBA-6AAB-20
3-position, short handle	White	B	-	A3SSBB-6AAB-00
3-position, short handle	White	B	-	A3SSBC-6AAB-00
3-position, short handle	White	B	-	A3SSBD-6AAB-00

CONTACT BLOCKS



A3XC01

Contacts Included	Part Number
0NO 1NC	A3XC01 ⁽¹⁾
0NO 1NC Late break	A3XC0B ⁽²⁾
1NO 0NC	A3XC10
1NO 0NC Early break	A3XC0M ⁽²⁾
1NO 1NC	A3XC91 ⁽¹⁾
1NO 0NC Extra late break	A3XC0N

- (1) Positive opening according to IEC 60947-5-1, Appendix K.
- (2) Opens after A3XC01
- (3) Closes before A3XC10

ACCESSORIES—Locks and Guards



A3XGLP



A3XL4LG



A3XLEAR

Description	Part Number
Pad lock extended cap	A3XGCE
Pad lock flush cap	A3XGCF
Lock nut mushroom	A3XGLM
Lock nut push-pull and twist release	A3XGLN
Lock nut pushbutton	A3XGLP
Guards mushroom	A3XGPM
Locking cover	A3XGCC
Guard PTT	A3XGGL
Guard pushbutton	A3XGGP



ENCLOSURES


104PEG11E



104PEG12G



104PEG13

NEMA 1, 3, 3R, 12, 13	Text	No. of holes	Part Number
Painted sheet steel	Hand-Off-Auto	1	104PEG11E
	Start-Stop	2	104PEG12G
	Estop	1	104PEG115
	No text	1	104PEG11
	No text	2	104PEG12
	No text	3	104PEG13

NEMA 4X stainless steel	Text	No. of holes	Part Number
Stainless steel	Hand-Off-Auto	1	104PES11E
	Start-Stop	2	104PES12G
	No text	1	104PES11
	No text	2	104PES12
	No text	3	104PES13

NAME PLATES


CR104PXN2RP009



CR104PXN2BP010



CR104PXN1BP024

Text	Part Number
Emergency Stop (Red)	CR104PXN*RP009
Reset	CR104PXN*BP030
Start	CR104PXN*BP037
Stop (Red)	CR104PXN*RP040
Forward-Reverse	CR104PXN*BP050
Off-On	CR104PXN*BP057
Stop-Start	CR104PXN*BP065
Hand-Off-Auto	CR104PXN*BP070

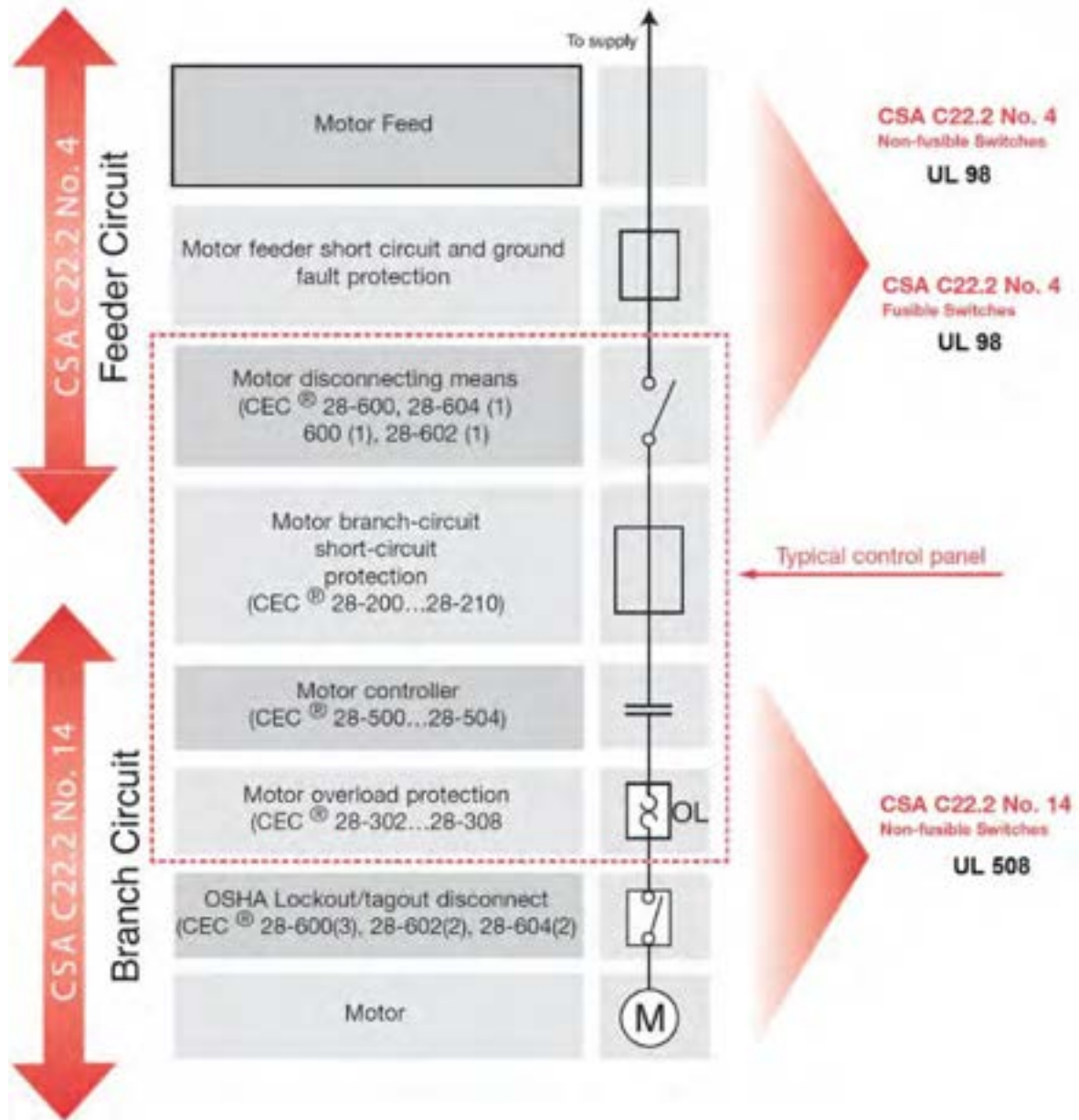
NAME PLATES SIZES TABLES

Sizes	Dimensions (H x W, inches)
Standard (Replace * with 1)	1.98 x 1.93
Large (Replace * with 2)	1.98 x 2.63
Extra-large, automotive (Replace * with 3)	2.40 x 2.44



DISCONNECTS UL98/ CSA 22.2 NO.4 AND UL508 / CSA22.2 NO.14

Use of CSA C22.2 No. 4 & No. 14 Disconnects According to CEC® Section 28



UL508 / CSA22.2 no 14

- Clearance between live parts (L- L)
- 1/2 ' ' over surface
- 3/8 ' ' thru air
- Below branch SCPD
- Manual motor controller
- Undefined amp steps

UL98 / CSA22.2 no 4

- Clearance between live parts (L- L)
- 2 ' ' over surface
- 1 ' ' thru air
- Anywhere in the circuit
- Enclosed and dead front switches
- Defined amp steps



ENCLOSED SWITCHES - UL 508, NON-FUSED

SUITABLE AS MOTOR DISCONNECTS OR ROOFTOP UNITS AND OTHER MOTOR APPLICATIONS

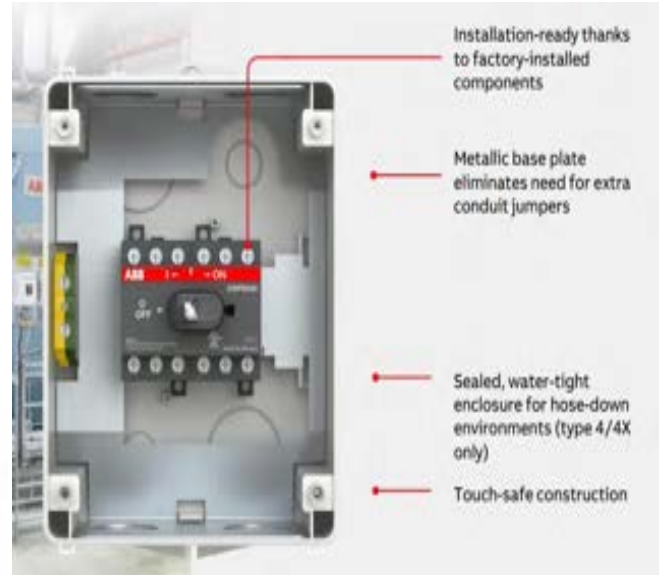
Features:

The eOS and eOT series of Enclosed Rotary Switches are available in a wide range of options to suit your application.

- Enclosure NEMA types 1, 3R, 4/4X stainless steel and plastic
- UL 508 listed 20–80 A
- Rated up to 600 V
- 3-pole, 6-pole and 3-pole changeover
- Pistol and Selector switch operators



Construction Details for EOT Plastic Enclosed Disconnects



PLASTIC ENCLOSED



METAL ENCLOSED



General Purpose Amp Rating (A)	Max. 3 Phase HP Rating			Auxiliary Contacts	Catalogue Number
	240V	480V	600V		
3-Pole Metal Enclosure Type 3R, 12					
20	5	10	10	-	EOT520N3PA3-SBA
20	5	10	10	1 NO + 1 NC	EOT520N3PA3-SB1
40	10	20	25	-	EOT540N3PA3-SBA
40	10	20	25	1 NO + 1 NC	EOT540N3PA3-SB1
60	15	30	30	-	EOT560N3PA3-SBA
60	15	30	30	1 NO + 1 NC	EOT560N3PA3-SB1
3-Pole Plastic Enclosure Type 4, 4X					
20	5	10	10	-	EOT520N3PAP-PBA
20	5	10	10	1 NO + 1 NC	EOT520N3PAP-PB1
40	10	20	25	-	EOT540N3PAP-PBA
40	10	20	25	1 NO + 1 NC	EOT540N3PAP-PB1
60	15	30	30	-	EOT560N3PAP-PBA
60	15	30	30	1 NO + 1 NC	EOT560N3PAP-PB1
80	20	40	40	-	EOT580N3PAP-PBA
80	20	40	40	1 NO + 1 NC	EOT580N3PAP-PB1
3-Pole Stainless Steel Enclosure Type 4, 4X					
20	5	10	10	-	EOT520N3PAX-PBA
20	5	10	10	1 NO + 1 NC	EOT520N3PAX-PB1
40	10	20	25	-	EOT540N3PAX-PBA
40	10	20	25	1 NO + 1 NC	EOT540N3PAX-PB1
60	15	30	30	-	EOT560N3PAX-PBA
60	15	30	30	1 NO + 1 NC	EOT560N3PAX-PB1
80	20	40	40	-	EOT580N3PAX-PBA
80	20	40	40	1 NO + 1 NC	EOT580N3PAX-PB1



ENCLOSED SWITCHES - UL 508, NON-FUSED

SUITABLE AS MOTOR DISCONNECTS FOR ROOF TOP UNITS AND OTHER MOTOR APPLICATIONS



EOT560N6PA3-PBA



EOT535N6PAX-PBA



EOT520N6PAP-PBA

General Purpose Amp Rating	Max. 3 Phase HP Rating			Auxiliary Contacts	Catalogue Number
	240V	480V	600V		
6-Pole Metal Enclosure Type 3R, 12					
20	5	10	10	-	EOT520N6PA3-PBA
20	5	10	10	1 NO + 1 NC	EOT520N6PA3-PB1
40	10	20	25	-	EOT540N6PA3-PBA
40	10	20	25	1 NO + 1 NC	EOT540N6PA3-PB1
60	15	30	30	-	EOT560N6PA3-PBA
60	15	30	30	1 NO + 1 NC	EOT560N6PA3-PB1
80	20	40	40	-	EOT580N6PA3-PBA
80	20	40	40	1 NO + 1 NC	EOT580N6PA3-PB1
6-Pole Stainless Steel Enclosure Type 4, 4X					
20	5	10	10	-	EOT520N6PAX-PBA
20	5	10	10	1 NO + 1 NC	EOT520N6PAX-PB1
40	10	20	25	-	EOT540N6PAX-PBA
40	10	20	25	1 NO + 1 NC	EOT540N6PAX-PB1
60	15	30	30	-	EOT560N6PAX-PBA
60	15	30	30	1 NO + 1 NC	EOT560N6PAX-PB1
80	20	40	40	-	EOT580N6PAX-PBA
80	20	40	40	1 NO + 1 NC	EOT580N6PAX-PB1
6-Pole Plastic Enclosure Type 4, 4X					
20	5	10	10	-	EOT520N6PAP-PBA
20	5	10	10	1 NO + 1 NC	EOT520N6PAP-PB1
40	10	20	25	-	EOT540N6PAP-PBA
40	10	20	25	1 NO + 1 NC	EOT540N6PAP-PB1
60	15	30	30	-	EOT560N6PAP-PBA
60	15	30	30	1 NO + 1 NC	EOT560N6PAP-PB1
80	20	40	40	-	EOT580N6PAP-PBA
80	20	40	40	1 NO + 1 NC	EOT580N6PAP-PB1
3-Pole Changeover Metal Enclosure Type 3R, 12					
30	7	15	20	-	EOT530N3CA3-PBA
30	7	15	20	1 NO + 1 NC	EOT530N3CA3-PB1
60	15	30	30	-	EOT560N3CA3-PBA
60	15	30	30	1 NO + 1 NC	EOT560N3CA3-PB1
80	20	40	40	-	EOT580N3CA3-PBA
80	20	40	40	1 NO + 1 NC	EOT580N3CA3-PB1
3-Pole Changeover Stainless Steel Enclosure Type 4, 4X					
30	7	15	20	-	EOT530N3CAX-PBA
60	15	30	30	-	EOT560N3CAX-PBA
80	20	40	40	-	EOT580N3CAX-PBA
3-Pole Changeover Plastic Enclosure Type 4, 4X					
30	7	15	20	-	EOT530N3CAP-PBA
30	7	15	20	1 NO + 1 NC	EOT530N3CAP-PB1
60	15	30	30	-	EOT560N3CAP-PBA
60	15	30	30	1 NO + 1 NC	EOT560N3CAP-PB1
80	20	40	40	-	EOT580N3CAP-PBA
80	20	40	40	1 NO + 1 NC	EOT580N3CAP-PB1

Pistol Handles: a. PBA: Pistol handle with No Aux

b. PB1: Pistol handle with 1NO + 1NC

Selector Handles: a. SBA: Selector handle with No Aux

b. SB1: Selector handle with 1NO + 1NC

Red/Yellow colour options available.



FUSIBLE DISCONNECT SWITCHES

Features:

- Complies with CSA 22.2 No. 4 & UL 98 requirements
- Broad range and compact space saving design
- Positive opening operation and welded contact protection
- Door interlock and padlockable handles with defeater mechanism
- Wide range of accessories

FUSIBLE DISCONNECT SWITCH KITS (Including Fusible Disconnect, Handle & Shaft)

CSA General	CSA Fuse Type***	Max. 3 Phase HP Rating					Fusible Disconnect Switch Kits Part Number
		200V	208V	240V	480V	600V	
30A – 400A, 3 Pole 600V Fusible Disconnects							
30	J	5	7.5	7.5	15	20	OS30FAJ12P
60		15	15	15	30	50	OS60GJ12P
100		25	25	30	60	75	OS100GJ12P
200		50	50	60	125	150	OS200J03P
400		100	125	125	250	350	OS400J03P

Description of handles, shafts included in kits:

- 1) Handles are all NEMA Type 1, 3R, 12 Pistol type with markings O/I and ON/OFF
- 2) Shaft lengths for 30A/60A/100A: 150mm/6"; 200A/400A: 210mm/8.3"

***Fuses not included, please order appropriate 'J' type fuses

ACCESSORIES—HANDLES, SHAFTS, AUXILIARY CONTACTS & TERMINAL LUGS

HANDLES

NEMA	Type	Marking	For Fusible Disconnect Type	Part Number
1, 3R, 12	Pistol	O/I & ON/OFF	OS30...	OHB65J6
1	Direct Mount*	O/I / TEST	OS30...	OHB55
1, 3R, 12	Pistol	O/I & ON/OFF	OS60...OS200	OHB65J6
1, 3R, 12	Pistol	O/I & ON/OFF	OS400...OS800	OHB145J12

Note: Other handles available.

*No shaft necessary and it can be padlocked

LONG SHAFTS

Shaft Size mm	Shaft Length inches/mm	For Fusible Disconnects	Part Number
6x6	11.6" / 290	OS30...OS200	EXP6X290
6x6	14.4" / 360	OS30...OS200	EXP6X360
12x12	13" / 325	OS400	EXP12X325

Note: Longer shafts available.

Shafts can be cut to length.

AUXILIARY CONTACTS

Description	AC Thermal Rating	AC Rated Voltage	For Fusible Disconnects	Part Number
1 NO	10A	600V	OS30** – OS200	OA1G10
1 NC				OA3G01
Mounting base for OA1G10 & OA3G01 (on the left side)			OS30...	OSZ4**

** Mounting base OSZ4 required for mounting auxiliary contacts on an OS30 (30A) fusible disconnect only.

TERMINAL LUG KIT

For use on	Wire Size	Wire Type	Terminal Lugs Per Kit	Part Number
OS100GJ	#14 – 2/0	Cu/Al	6	OZXA-24
OS200J	#4 – 300			OZXA-200
OS400J	#2 – 600 kcmil			OZXA-400

Note: 30A and 60A fusible disconnects include terminal lugs.



NON-FUSIBLE DISCONNECT SWITCHES

Features:

- Complies with CSA 22.2 No.4 & CSA 22.2 No.14 requirements
- Positive opening operation, welded contact protection and padlockable handles with defeater mechanism
- Compact space saving design with a wide range of accessories

NON-FUSIBLE DISCONNECT SWITCH KITS (Including Non-fusible Disconnect, Handle, Shaft)



CSA General Purpose Amp	Max. 1 Phase HP Rating		Max. 3 Phase HP Rating				Disconnect Part Number Base/DIN Rail Mount
	120V	240V	200/208V	240/277V	480V	600V	
FOR BRANCH CIRCUIT APPLICATIONS AS PER CSA 22.2.14							
20	1	2	3	5	10	10	OT16F3S
30	1.5	3	7.5	7.5	15	20	OT25F3S
40	2	5	10	10	20	25	OT40F3P
60	2	7.5	15	15	30	30	OT63F3P
80	2	10	20	20	40	40	OT80F3P

Description of handles, shafts included in kits:

- 1) Handles for 20A/30A disconnects are selector type and 40A/60A/80A disconnects are pistol type. All handles are NEMA Type 1, 3R, 12 pistol type with markings O/I, ON/OFF.
- 2) Shaft lengths for 20A/30A: 180mm/7.2", 40A/60A/80A: 170mm/6.8".



FOR FEEDER CIRCUIT APPLICATIONS AS PER CSA 22.2.4							
30	2	5	10	10	20	30	OT30F3P
60	3	7.5	20	20	40	40	OT60F3P
100	5	15	25	30	50	50	OT100F3P
200	-	40	60	75	150	200	OT200U03P

Note: Terminal lugs are integral except for OT200U03P. Lugs for OT200U03P is OZXA-200 (set of 6)

Description of handles, shafts included in kits:

- 1) Handles for 30A/60A/100A/125A/200A disconnects are pistol type. All handles are NEMA Type 1, 3R, 12 Pistol type with markings O/I, ON/OFF.
- 2) Shaft lengths for 30A/60A/100A: 170mm/6.8", 125A/200A: 210mm/8.27".

ACCESSORIES—HANDLES, SHAFTS, AUXILIARY

HANDLES



NEMA Type	Type	Marking	For Disconnect Type	Part Number
1, 3R, 12	Selector	O/I & ON/OFF	OT16...OT100F3	OHBS2AJ
	Pistol		OT16...OT100F3 / OT160E3	OHB65J6
	Pistol		OT160E3 / OT200U03	OHB80J6
Shaft alignment ring		OH_45, 65, 80, 125, 145, 175, J, L		OHZX10

LONG SHAFT



Shaft Size mm	Shaft Length inches/mm	For Disconnects	Part Number
6x6	10.5" / 265	OT16F3...OT200U03	OXP6X265
	14.4" / 360	OT16F3...OT200U03	OXP6X360
6x6 (For selector handle)	10.0" / 250	OT16F3...OT100F3	OXS6X240

Note: Other sizes available.

Shafts can be cut to lengths



AUXILIARY CONTACTS



Description	AC Thermal Rating	AC Rated Voltage	For Disconnect Type	Part Number
1 NO mounts on right hand side of switch (2 max.)	10A	600V	OT16F3 -	OA1G10
1 NC mounts on left hand side of switch (2 max.)			OT100F3	OA1G01
1 NO + 1 NC mounts on right or left hand side of switch (2 max. per side)	10A	600V	OT16F3 - OT100F3	OA2G11



NON-FUSIBLE DISCONNECT SWITCHES

DOOR MOUNTED, NON-FUSIBLE DISCONNECT SWITCH KITS (Including Non-Fusible Disconnect, Handle)



CSA General Purpose Amp	Max. 1 Phase HP Rating		Max. 3 Phase HP Rating				Door Mount Disconnect Part Number
	120V	240V	200/208V	240/277V	480V	600V	
FOR BRANCH CIRCUIT APPLICATIONS AS PER CSA 22.2.14							
40	2	5	10	10	20	25	OT40FT3S
60	2	7.5	15	15	30	30	OT63FT3S
80	2	10	20	20	40	40	OT80FT3S

Description of handles included in kits: Handles are selector type NEMA Type 1, 3R, 12 with markings O/I, ON/OFF.

Note:

- 1) OT40FT3S disconnect switches are Snap-on mounting. OT63FT3S and OT80FT3S disconnect switches are screw mounting.
- 2) Terminal lugs for the above disconnects are integral.

NON-FUSIBLE SIX POLE AND TRANSFER SWITCHES

Features:

- Complies with CSA 22.2 No. 4 & CSA 22.2 No.14 requirements
- Positive opening construction with mechanically operated contacts
- Padlockable handles with defeater mechanism
- Compact space saving design with a wide range of accessories

6 POLE SWITCHES AND 3 POLE TRANSFER SWITCHES



CSA General Purpose Amp	Max. 1 Phase HP Rating		Max. 3 Phase HP Rating				Disconnect Part Number	
	120V	240V	200V	240V	480V	600V	6 Pole Switches	3 Pole Transfer Switches
For Branch Circuit Applications as per CSA 22.2.14								
20	1	2	3	5	10	10	OT16F6	OT16F3C
30	1.5	3	7.5	7.5	15	20	OT25F6	OT25F3C
40	2	5	10	10	20	25	OT40F6	OT40F3C
60	2	7.5	15	15	30	30	OT63F6	OT63F3C
80	2	10	20	20	40	40	OT80F6	OT80F3C
For Feeder Circuit Applications as per CSA 22.2.4								
30	2	5	10	10	20	30	OT30F6	OT30F3C
60	3	7.5	20	20	40	40	OT60F6	OT60F3C
100	5	15	25	30	50	50	OT100F6	OT100F3C

Terminal lugs for the above disconnects are integral

ACCESSORIES – HANDLES, SHAFTS

HANDLES



NEMA Type	Type	Marking	For Disconnect Type	Part Number
1, 3R, 12	Pistol	I – O – II	OT16F3...OT100F3	OHB65J6E011
		O/I & ON/OFF	OT16F6...OT100F6	OHB65J6

Note: Other handles available.

LONG SHAFT



Shaft Size mm	Shaft Length inches/mm	For Disconnects	Part Number
6x6	10.5" / 265	OT16F3...OT100F3	EXP6X265
	16" / 400		EXP6X400

Note: Other shafts available.

Shafts can be cut to length.



FLANGE MOUNTED CABLE OPERATED DISCONNECT SWITCHES FUSIBLE & NON FUSIBLE

Features:

- Complies with CSA 22.2 No. 4 & UL 98 requirements
- Flange handles available for fusible disconnects up to 800A and non-fusible up to 1200A



CABLE OPERATED FUSIBLE DISCONNECT SWITCHES (Fuses not included, order appropriate 'CC' or 'J' type fuses*)						
CSA General Purpose Amps	CSA Fuse Type*	Max. 3 Phase HP Rating				Part Number
		200-208V	240V	480V	600V	
30A – 200A, 3 Pole 600V Fusible Disconnects						
30	CC	5/7.5	7.5	15	20	OS30FACC12
30	J	5/7.5	7.5	15	20	OS30FAJ12
60	J	15	15	30	50	OS60GJ12
100	J	25	30	60	75	OS100GJ30
200	J	50	60	125	150	OS200J30



CABLE OPERATED NON-FUSIBLE DISCONNECT SWITCHES						
CSA General Purpose Amps	Max. 3 Phase HP Rating					Part Number
	200V	208V	240V	480V	600V	
30 – 200A, 3 Pole 600V Non-Fusible Disconnects						
30	10	10	10	20	30	OT30F3
60	20	20	20	40	40	OT60F3
100	25	25	30	50	50	OT100F3
200	60	60	75	150	200	OT200U30

ACCESSORIES—FLANGE HANDLE, CABLE & TERMINAL LUGS



FLANGE HANDLE		
For Use With	NEMA Type	Part Number
OT30-OT200U30 / OS30-OS200J30	1, 3R, 12	OHF1C12
	1, 3R, 4, 4X, 12	OHF1C4



OPERATING MECHANISM	
For Use With	Part Number
OT30-OT100	MKCS1
OT160/OS60GJ12	MKCS3
OT200/OS100GJ30/OS200J30	MKCS4
OS30FAJ12, OS30FACC12	MKCS2






CABLE		
For Use With	Cable Length (Inches)	Part Number
OS30-OS200J30 OT30-OT200U30	36	OXC1L36
	48	OXC1L48
	60	OXC1L60
	72	OXC1L72
	84	OXC1L84
	96	OXC1L96
	108	OXC1L108






TERMINAL LUG KIT				
For Use On	Wire Size	Wire Type	Terminal Lugs Per Kit	Part Number
OS30	#18 – 8/0	Cu	-	Integral
OT30/OT60/OS60GJ03	#14 – 4			
OT100/OT160	#8 – 1/0			
OS100GJ30-OS200J30/OT200U30	#4 – 300 kcmil	Cu/Al	6	OZXA-200



<u>POWER SUPPLIES:</u>	
	<ul style="list-style-type: none"> • CP-D: Output: 12V, 24V DC (adjustable for range type > 10W) (0.42/0.83/1,3/2.1/2.5/4.2 A) Input: 1Ph AC or DC • CP-E: Output: 5V,12V,24V,48V DC (adjustable) (0.625/0.75/1.25/2.5/3/5/10/20A) Input: 1Ph AC or DC • CP-T: Output: 24V,48V DC (adjustable) (5/10/20/40A) Input: 3Ph or 2Ph AC; or DC
<u>ELECTRONIC TIMERS:</u>	
	<ul style="list-style-type: none"> • On-delay, Off-delay, On- and Off-delay, Impulse-on, Impulse-off, Impulse-on and off, Flasher-on, Flasher-off, Pulse generator with on or off, Pulse former, Star-delta change-over, Switching relay And more • 1 or 2 c/o contacts or solid-state outputs • LEDs for status indication • Wide time range, control supply voltage, control inputs
<u>MEASURING & MONITORING RELAYS:</u>	
	<ul style="list-style-type: none"> • Current and voltage monitors, single-phase • Three-phase monitors • Insulation monitors for ungrounded supply mains • Thermistor motor protection relays • Temperature monitors • Liquid level monitors and controls • Contact protection relays and sensor interface relays • Cycle monitor with watchdog function



MOTOR MONITORS & INSULATION MONITORS:	
	<p>Insulation monitors for ungrounded supply mains Motor load monitors Motor control and protection Thermistor motor protection relays</p>
ANALOG SIGNAL CONVERTERS & SIGNAL DATA CONVERTERS:	
	<p>Current /current isolator Analog standard signal converter Temperature signal converter for RTD sensors Temperature signal converter for thermocouples Serial data converters</p>
PLUGGABLE INTERFACE RELAYS & OPTOCOUPLEDERS:	
	<p>PCB, Miniature or Universal (Cube) Relays Wide coil voltage range 1 c/o, 2 c/o, 3 c/o or 4c/o contacts available LED indication Integrated test button for manual actuation Pluggable function modules: Reverse polarity protection / Freewheeling diode LED Indication RC Elements Overvoltage protection Multifunction time module</p>



PLUGGABLE INTERFACE RELAYS

Features:

- PCB, Miniature or Universal Relays
- Wide Coil range
- 1 c/o, 2 c/o, 3 c/o or 4c/o contacts available
- Integrated test button for manual actuation

Type	Description	Order code
Pluggable Miniature Relays CR-M with LED		
2 changeover contacts (Double Pole Double Throw): 250 V,12 A		
CR-M024AC2L	24VAC,2 changeover,250V/12A,LED	1SVR405611R0100
CR-M024DC2L	24VDC,2 changeover,250V/12A,LED	1SVR405611R1100
CR-M120AC2L	120VAC,2 changeover,250V/12A,LED	1SVR405611R2100
4 changeover contacts (Four Pole Double Throw): 250 V,6 A		
CR-M024AC4L	24VAC,4 changeover,250V/6A,LED	1SVR405613R0100
CR-M024DC4L	24VDC,4 changeover,250V/6A,LED	1SVR405613R1100
CR-M120AC4L	120VAC,4 changeover,250V/6A,LED	1SVR405613R2100
Accessories		
CR-M4SS	Socket for 2 or 4 changeover CR-M relay	1SVR405651R3000
CR-MH	Plastic holder for CR-M	1SVR405659R1000
CR-MH1	Metal holder for CR-M	1SVR405659R1100
Pluggable Universal Relays CR-U with LED		
2 changeover contacts (Double Pole Double Throw / 8 Pin): 250 V,10 A		
CR-U024AC2L	24VAC,2 changeover,250V/10A,LED	1SVR405621R0100
CR-U024DC2L	24VDC,2 changeover,250V/10A,LED	1SVR405621R1100
CR-U120AC2L	120VAC,2 changeover,250V/10A,LED	1SVR405621R2100
CR-U230AC2L	230VAC,2 changeover,250V/10A,LED	1SVR405621R3100
3 changeover contacts (Triple Pole Double Throw / 11 Pin): 250 V,10 A		
CR-U024AC3L	24VAC,3 changeover,250V/10A,LED	1SVR405622R0100
CR-U024DC3L	24VDC,3 changeover,250V/10A,LED	1SVR405622R1100
CR-U120AC3L	120VAC,3 changeover,250V/10A,LED	1SVR405622R2100
Accessories		
CR-U2S	Socket for 2 changeover CR-U relay	1SVR405670R0000
CR-U3S	Socket for 3 changeover CR-U relay	1SVR405660R0000
CR-UH	Holder for CR-U	1SVR405669R0000
Pluggable PCB Relays CR-P		
1 changeover contact (Single Pole Double Throw): 250 V,16 A		
CR-P024AC1	24VAC,1 changeover,250V/16A	1SVR405600R0000
CR-P024DC1	24VDC,1 changeover,250V/16A	1SVR405600R1000
CR-P120AC1	120VAC,1 changeover,250V/16A	1SVR405600R2000
2 changeover contacts (Double Pole Double Throw): 250 V,8 A		
CR-P024AC2	24VAC,2 changeover,250V/8A	1SVR405601R0000
CR-P024DC2	24VDC,2 changeover,250V/8A	1SVR405601R1000
CR-P120AC2	120VAC,2 changeover,250V/8A	1SVR405601R2000
Accessories		
CR-PSS	Socket for 1 or 2 changeover CR-P relay	1SVR405650R1000
CR-PLS	Logical socket with protective separation	1SVR405650R0000
CR-PH	Plastic holder for socket	1SVR405659R0000

* Other coil voltages available upon request



CR-M

1. Interface relay
2. Pluggable function module
3. Socket
4. Holder
5. Marker



CR-U

1. Interface relay
2. Pluggable function module
3. Socket
4. Holder



CR-P

1. Interface relay
2. Pluggable function module
3. Socket
4. Holder
5. Marker



SWITCH-MODE POWER SUPPLIES

Features:

- Output voltages available: 5 V, 12 V, 24 V, 48 V DC
- Adjustable output voltages
- High efficiency of up to 90 %
- Low power dissipation and low heating
- Free convection cooling (no forced cooling with ventilators)
- Ambient temperature range during operation -40...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- LED(s) for status indication
- Signaling output/contact for output voltage OK



Type	Input Voltage	Rated Output	Order Code
CP-E 12/2.5	85-264VAC / 90-375VDC	12 V DC / 2.5A	1SVR427032R1000
CP-E 12/10.0	90-132 V AC, 180-264 V AC / 210-375 V DC	12 V DC / 10 A	1SVR427035R1000
CP-E 24/5.0	90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 5 A	1SVR427034R0000
CP-E 24/10.0	90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 10 A	1SVR427035R0000
CP-E 24/20.0	90-264 V AC / 120-375 V DC	24 V DC / 20 A	1SVR427036R0000
CP-T 24/10.0	400-500V AC / 480 – 820 V DC	24 V DC / 10 A	1SVR427055R0000
CP-T 24/20.0	400-500V AC / 480 – 820 V DC	24 V DC / 20 A	1SVR427056R0000
CP-T 24/40.0	400-500V AC / 480 – 820 V DC	24 V DC / 40 A	1SVR427057R0000

INTERFACE RELAYS & OPTOCOUPLERS

Features:

- Space saving design Width 6.2mm
- Vibration resistant
- High switching current on small footprint



CR-S Slim Relay			
Type	Control voltage	Contacts	Part Number
CR-S024VADC1CRS	24VAC/DC	1 c/o 6A	1SVR405541R3110
CR-S110VADC1CRS	110VAC/DC	1 c/o 6A	1SVR405541R6110
CR-S230VADC1CRS	230VAC/DC	1 c/o 6A	1SVR405541R7110
R600 Boxed Slim Relay and Optocouplers			
Type	Control Voltage	Contacts	Part Number
RB121-24VUC	24VAC/DC	1 c/o 6A	1SNA645001R0300
RB121-115VUC	115VAC/DC	1 c/o 6A	1SNA645003R0500
OBIC0100-24VDC	Input: 24VDC	Transistor Output: 100mA 58VDC	1SNA645021R2600
ONIC0100-115-230VUC	Input: 115-230VAC/DC	Transistor Output: 100mA 58VDC	1SNA645022R2700
OBOC2000-24VDC	Input: 24VDC	MOS-FET Output: 2A 58VDC	1SNA645051R0400



MULTIFUNCTION TIMERS

Features:

- Single and Multifunction Timers
- LEDs for status indication
- Direct reading scales



CT-D Timers*				
Type	Control voltage	Time ranges	Output	Part Number
CT-MFD12	24-240 V AC 24-48 V DC	7 (0.05 s—100 h)	1 c/o	1SVR500020R0000
CT-MFD21	12-240 V AC/DC		2 c/o	1SVR500020R1100

Note: Other types of timers are also available.



SINGLE PHASE MONITORING RELAYS

Features:

- Monitoring of DC and AC currents: 3 mA to 15 A
- Monitoring of DC and AC voltages from 3 - 600 V
- 3 LEDs for the indication of operational states



CM-SRS (Current Monitoring)				
Type	Control voltage	Measuring ranges	Output	Part Number
CM-SRS.M2S	24-240 V AC/DC	0.3-1.5 A 1-5 A 3-15 A	2 c/o	1SVR730840R0700
CM-SRS.22S	110-130 V AC		2 c/o	1SVR730841R0500

Note: Other type of current monitoring devices are also available.



CM-ESS (Voltage Monitoring)				
Type	Control voltage	Measuring ranges	Output	Part Number
CM-ESS.MS	24-240 V AC/DC	3-30 V 6-60 V 30-300 V 60-600 V	2 c/o	1SVR730830R0500
CM-ESS.2S	110-130 V AC		2 c/o	1SVR730831R0400

Note: Other type of current voltage monitoring devices are also available.

THREE PHASE MONITORING RELAYS

Features:

- Over and undervoltage monitoring (fixed or adjustable)
- Phase unbalance monitoring
- Wide-range operating voltage



CM-MPN (Voltage Monitoring)				
Type	Supply voltage	Measuring ranges	Output	Part Number
CM-MPN.52S	3x350-580 V AC	3x350-580 V AC	2 c/o	1SVR750487R8300
CM-MPN.62S	3x450-720 V AC	3x450-720 V AC	2 c/o	1SVR750488R8300

 APPROVED AND IN STOCK!



High Performance

Fast acting protective mechanism provides current limiting protection in the event of a short circuit. Low energy let-through.

Wide Range

ABB provides breakers from fractional amperage to 63 amps in multiple trip characteristics and accessories including bus bars, auxiliary contacts, bell alarm contacts, shunt trips and undervoltage releases.

Compact

Components are small allowing you to downsize your equipment by saving in control cabinets. Both product groups the MCBs as well as Miniature MCCBs are designed in the 17.5mm housing.

Dual Function Terminals

Units have two terminal lug openings per side each will accept cable or bus bar. Openings are simultaneously tightened by a single terminal screw. Safe terminal technology prevents cable from being connected incorrectly.

International Approvals

All components including the new miniature molded case circuit breakers meet all major international standards, including CSA and UL.



SYSTEM PRO M COMPACT SU200M SERIES— BRANCH PROTECTORS AND MINIATURE MCCBS

Features:

- Branch Protectors available in C, K & Z curves with 10kA maximum interrupting.
- 1, 2, 3 & 4 pole versions available in branch circuit miniature MCCBs.
- Many accessories available.
- Miniature MCCBs are designed with current limiting technology.



Rated Current	Tripping Char.*	Inter-rupting Capacity	480Y/277VAC Part Number			
			1 Pole	2 Pole	3 Pole	4 Pole
0.5	C	10 KA	SU201M-C0.5	SU202M-C0.5	SU203M-C0.5	SU204M-C0.5
1			SU201M-C1	SU202M-C1	SU203M-C1	SU204M-C1
1.6			SU201M-C1.6	SU202M-C1.6	SU203M-C1.6	SU204M-C1.6
2			SU201M-C2	SU202M-C2	SU203M-C2	SU204M-C2
3			SU201M-C3	SU202M-C3	SU203M-C3	SU204M-C3
4			SU201M-C4	SU202M-C4	SU203M-C4	SU204M-C4
5			SU201M-C5	SU202M-C5	SU203M-C5	SU204M-C5
6			SU201M-C6	SU202M-C6	SU203M-C6	SU204M-C6
8			SU201M-C8	SU202M-C8	SU203M-C8	SU204M-C8
10			SU201M-C10	SU202M-C10	SU203M-C10	SU204M-C10
13			SU201M-C13	SU202M-C13	SU203M-C13	SU204M-C13
15			SU201M-C15	SU202M-C15	SU203M-C15	SU204M-C15
16			SU201M-C16	SU202M-C16	SU203M-C16	SU204M-C16
20			SU201M-C20	SU202M-C20	SU203M-C20	SU204M-C20
25			SU201M-C25	SU202M-C25	SU203M-C25	SU204M-C25
30			SU201M-C30	SU202M-C30	SU203M-C30	SU204M-C30
32			SU201M-C32	SU202M-C32	SU203M-C32	SU204M-C32
40			SU201M-C40	SU202M-C40	SU203M-C40	SU204M-C40
50			SU201M-C50	SU202M-C50	SU203M-C50	SU204M-C50
60			SU201M-C60	SU202M-C60	SU203M-C60	SU204M-C60
63	SU201M-C63	SU202M-C63	SU203M-C63	SU204M-C63		

* **Note:** C curve is for medium magnetic start-up currents, cable and equipment protection and with 5-10 X magnetic and 1.25X thermal characteristics. Also available K curve for high magnetic start-up currents with 8-12 X magnetic and 1.25 X thermal characteristics. Z curve available for low short circuit trip setting with 2-3 X magnetic and 1.25X thermal characteristics.

SYSTEM PRO M COMPACT SU200M SERIES—ACCESSORIES

Contact Type	Mounting Side	Part Number
1 form C	Right Side	S2C-H6RU
1 BA	Right Side	S2C-S6RU



SYSTEM PRO M COMPACT ST200M SERIES— SUPPLEMENTARY PROTECTORS AND MINIATURE MCCBS

Features:

- Supplementary Protectors available in B, C, D, K, & Z curves with 10kA maximum interrupting.
- 1, 2, 3 & 4 pole versions available in branch circuit miniature MCCBs.
- Many accessories available.
- Miniature MCCBs are designed with current limiting technology.



Rated Current	Tripping Char.*	Inter-rupting Capacity	480Y/277VAC Part Number			
			1 Pole	2 Pole	3 Pole	4 Pole
0.5	C	10 KA	ST201M-C0.5	ST202M-C0.5	ST203M-C0.5	ST204M-C0.5
1			ST201M-C1	ST202M-C1	ST203M-C1	ST204M-C1
1.6			ST201M-C1.6	ST202M-C1.6	ST203M-C1.6	ST204M-C1.6
2			ST201M-C2	ST202M-C2	ST203M-C2	ST204M-C2
3			ST201M-C3	ST202M-C3	ST203M-C3	ST204M-C3
4			ST201M-C4	ST202M-C4	ST203M-C4	ST204M-C4
5			ST201M-C5	ST202M-C5	ST203M-C5	ST204M-C5
6			ST201M-C6	ST202M-C6	ST203M-C6	ST204M-C6
8			ST201M-C8	ST202M-C8	ST203M-C8	ST204M-C8
10			ST201M-C10	ST202M-C10	ST203M-C10	ST204M-C10
13			ST201M-C13	ST202M-C13	ST203M-C13	ST204M-C13
15			ST201M-C15	ST202M-C15	ST203M-C15	ST204M-C15
16			ST201M-C16	ST202M-C16	ST203M-C16	ST204M-C16
20			ST201M-C20	ST202M-C20	ST203M-C20	ST204M-C20
25			ST201M-C25	ST202M-C25	ST203M-C25	ST204M-C25
30			ST201M-C30	ST202M-C30	ST203M-C30	ST204M-C30
32			ST201M-C32	ST202M-C32	ST203M-C32	ST204M-C32
40			ST201M-C40	ST202M-C40	ST203M-C40	ST204M-C40
50			ST201M-C50	ST202M-C50	ST203M-C50	ST204M-C50
60			ST201M-C60	ST202M-C60	ST203M-C60	ST204M-C60
63	ST201M-C63	ST202M-C63	ST203M-C63	ST204M-C63		

* Note: C curve is for medium magnetic start-up currents, cable and equipment protection and with 5-10 X magnetic and 1.25X thermal characteristics. Also available K curve for high magnetic start-up currents with 8-12 X magnetic and 1.25 X thermal characteristics. Z curve available for low short circuit trip setting with 2-3 X magnetic and 1.25X thermal characteristics.

SYSTEM PRO M COMPACT ST200M SERIES—ACCESSORIES

Contact Type	Mounting Side	Part Number
1 form C	Right Side	S2C-H6RU
1 BA	Right Side	S2C-S6RU



T MAX XT MOLDED CASE CIRCUIT BREAKERS

Features:

- UL/CSA listed and IEC rated for global application and acceptance.
- XT 1 and XT 3 are cost effective and compact size. XT 2 and XT 4 are high performance.
- Higher interrupting ratings for size taken. 600Y/347 available on all 4 models. True 600V on XT2 and XT4
- Standard depth – XT1, & XT3 are 2.76 inches deep and XT2 & XT4 is 3.25 inches.



Rated Current	No. of Poles	UL/CSA Interrupting Capacity kA			Magnetic Trip	Part Number
		240 VAC	480 VAC	600 VAC		
XT1N MCCB, THERMAL-MAGNETIC, FIXED – THREE POLE						
15	3	50	25	18 600Y/347 Only	500A	XT1NU3015AFF000XXX
30					500A	XT1NU3030AFF000XXX
60					600A	XT1NU3060AFF000XXX
100					1000A	XT1NU3100AFF000XXX
XT2N MCCB, THERMAL-MAGNETIC, FIXED – THREE POLE						
15	3	65	25	18	400A	XT2NU3015AFF000XXX
30					400A	XT2NU3030AFF000XXX
60					600A	XT2NU3060AFF000XXX
100					1000A	XT2NU3100BFF000XXX
125					1250A	XT2NU3125BFF000XXX
XT3N MCCB, THERMAL-MAGNETIC, FIXED – THREE POLE						
125	3	50	25	10 600Y/347 Only	1250A	XT3NU3125AFF000XXX
150					1500A	XT3NU3150AFF000XXX
175					1750A	XT3NU3175AFF000XXX
200					2000A	XT3NU3200AFF000XXX
225					2250A	XT3NU3225AFF000XXX
XT4N MCCB, THERMAL-MAGNETIC, FIXED – THREE POLE						
125	3	65	25	18	1250A	XT4NU3125AFF000XXX
150					1500A	XT4NU3150AFF000XXX
175					1750A	XT4NU3175AFF000XXX
200					2000A	XT4NU3200AFF000XXX
225					2250A	XT4NU3225AFF000XXX
250					2500A	XT4NU3250AFF000XXX

ACCESSORIES



Direct rotary handle



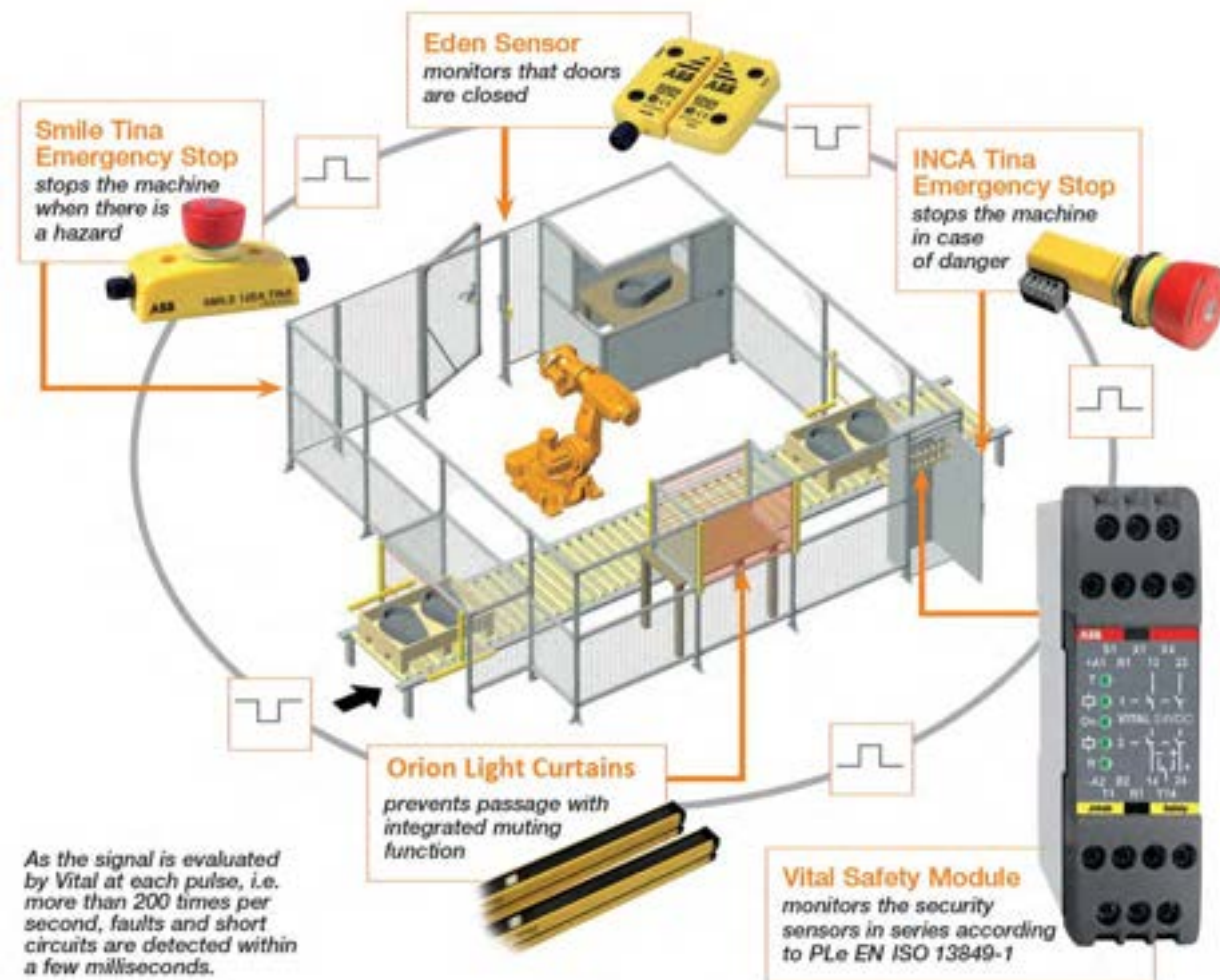
Extended rotary handle

Description	Part Number
Rotary Handle Direct Mount XT1 and XT3	KXTBRHDSTFP
Rotary Handle Extended XT1 and XT3	KXTBRHESTFP
Rotary Handle Direct Mount XT2 and XT4	KXTCRHDSTFP
Rotary Handle Extended XT2 and XT4	KXTCRHESTFP
Shunt Trip for all XT series 24-30VAC/DC	KXTASORB
Shunt Trip for all XT series 110-125VAC/DC	KXTASORD
Under voltage release for all XT series 110-125VAC/DC	KXTAUVR4
Auxiliary contact, 3 form C contacts for 3 states: Normal, Tripped, Trip unit tripping	KXTAAUX
Lug Kit 125A 14-1/0 AWG for XT1 Breakers 3PC/SKU	KXT1CU-3PC
Lug Kit 125A 14-1/0 AWG for XT2 Breakers 3PC/SKU	KXT2CU-3PC
Lug Kit 250A 10-250 AWG for XT3 Breakers 3PC/SKU	KXT3CU-3PC
Lug Kit 250A 10-250 AWG for XT4 Breakers 3PC/SKU	KXT4CU-3PC



Gerrie Electric in partnership with ABB (Jokab Safety) can help to:

- Upgrade machine safety level, without sacrificing production
- Comply with applicable national and international machine safety standards
- Save time with reduced wiring points
- Provide consultation, engineering, design, and CAD drawings
- Provide cost effective alternative to unsafe bypassing methods
- Provide machine safety product training



**FOR ADDITIONAL INFORMATION
PLEASE CONTACT YOUR LOCAL
GERRIE BRANCH**



JOKAB SAFETY PRODUCTS

Programmable Safety Controllers (PLCs):



Safety Controllers – Vital & Tina Units:



Optical Safety Devices (Light Curtains & Stands):



Dual Channel Safety Relays:



Safety E-stops and Pilot Devices:



Safety Control Devices:



Safety Sensors, Switches & Locks:




MKEY RFID Safety Switches:




MKEY RFID Safety Switches bring OSSD signaling to your door and hatch monitoring applications. Bringing PLe Safety with a single switch

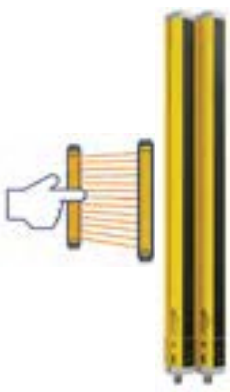
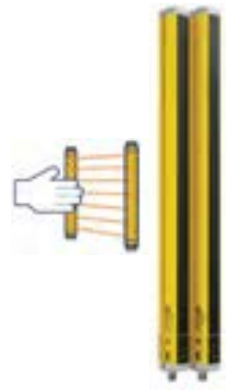
SAFETY CONTROLLER VITAL

IMAGES	DESIGNATION	ARTICLE NUMBER	DESCRIPTION
Vital			
	Vital 1	2TLA020052R1000	Safety module with one single channel input for dynamic sensors. Relay outputs 2NO.

SAFETY PLC PLUTO





IMAGES	DESIGNATION	ARTICLE NUMBER	DESCRIPTION
Pluto			
	Pluto S20 V2	2TLA020070R4700	Safety PLC. 20 I/O: 8 failsafe inputs + 8 non-failsafe outputs/failsafe inputs + 2 individually failsafe relay outputs + 2 individually failsafe transistor outputs.

OPTICAL SAFETY DEVICES



IMAGES	DESIGNATION	Part Number	DESCRIPTION
14mm Beam Spacing – 150 to 1800mm Height Options			
	Orion1-4-14-015-B	2TLA022300R0000	Orion1 Light Curtain Transmitter + Receiver, 14 mm resolution, range 0.2-6 m, Type 4.
	Orion1-4-14-030-B	2TLA022300R0100	
	Orion1-4-14-045-B	2TLA022300R0200	
	Orion1-4-14-060-B	2TLA022300R0300	
	Orion1-4-14-075-B	2TLA020056R0400	
	Orion1-4-14-090-B	2TLA020056R3000	
	Orion1-4-14-105-B	2TLA020056R4000	
	Orion1-4-14-120-B	2TLA020056R4100	
	Orion1-4-14-135-B	2TLA022300R0800	
	Orion1-4-14-150-B	2TLA022300R0900	
	Orion1-4-14-165-B	2TLA022300R1000	
Orion1-4-14-180-B	2TLA022300R1100		
30mm Beam Spacing - 150 to 1800mm Height Options			
	Orion1-4-30-015-B	2TLA022302R0000	Orion1 Light Curtain Transmitter + Receiver, 30 mm resolution, range 0.2-14 m, Type 4.
	Orion1-4-30-030-B	2TLA022302R0100	
	Orion1-4-30-045-B	2TLA022302R0200	
	Orion1-4-30-060-B	2TLA022302R0300	
	Orion1-4-30-075-B	2TLA022302R0400	
	Orion1-4-30-090-B	2TLA022302R0500	
	Orion1-4-30-105-B	2TLA022302R0600	
	Orion1-4-30-120-B	2TLA022302R0700	
	Orion1-4-30-135-B	2TLA022302R0800	
	Orion1-4-30-150-B	2TLA022302R0900	
	Orion1-4-30-165-B	2TLA022302R1000	
Orion1-4-30-180-B	2TLA022302R1100		
Note: Additional Light Grids with 500-1200mm long 2-4 Beams are available upon request.			



SENSORS, SWITCHES AND LOCKS

IMAGES	DESIGNATION	ARTICLE NUMBER	DESCRIPTION
Eden – Non – Contact Safety Sensor OSSD (For use with dual channel safety relays)			
	Eva	General Code 2TLA020046R0800	Eva actuator for use with Adam sensors in the Eden sensor system, IP67, yellow, 4pcs of DA2 spacer rings are included.
		Unique Code 2TLA020046R0900	
	Adam OSSD with M12 contact	M12-5 pin 2TLA020051R5400 (Info) 2TLA020051R5600 (Reset)	Adam safety sensor unit with a fixed M12 male connector, IP67, yellow, 4pcs of DA1 protection plate and 4pcs of DA2 spacer rings are included.
		M12-8 pin 2TLA020051R5700 (Info) 2TLA020051R5900 (Reset)	
Eden – Non – Contact Safety Sensor DYNAMIC (For use with Vital and Pluto systems)			
	Eva	General Code 2TLA020046R0800	Eva actuator for use with Adam sensors in the Eden sensor system, IP67, yellow, 4pcs of DA2 spacer rings are included.
		Unique Code 2TLA020046R0900	
	Adam DYN with M12 Contact	M12-5 Pin 2TLA020051R5100 (Info) 2TLA020051R5300(Reset)	Adam safety sensor unit with a fixed M12 male connector, IP67, yellow, 4pcs of DA1 protection plate and 4pcs of DA2 spacer rings are included.
Eden C - Non-Contact Safety Sensor for use in Food and Beverage Applications			
	<div style="display: flex; align-items: center; justify-content: center;">  <div> <p>New Eden C model provides increased resistance in demanding environments. Suited for applications with rapid temperature changes such as in hygienic washdown situations.</p> <p>Coated electronics provide additional protection in environments with up to 95% humidity, -40 to +70 °C with rapid temperature changes</p> </div> </div>		

SAFETY RELAYS

IMAGES	DESIGNATION	ARTICLE NUMBER	DESCRIPTION
Safety Relay – Sentry Series 22.5mm Width			
	SSR10 24VDC	2TLA010050R0000	General Purpose Safety Relay. 3NO/1NC For use with: E-Stops, Light Curtains, OSSD/PNP Sensors etc...
	SSR10M 85-265VAC	2TLA010050R0100	General Purpose Safety Relay. 3NO/1NC For use with: E-Stops, Light Curtains, OSSD/PNP Sensors etc...
	SSR20 24VDC	2TLA010051R0000	General Purpose Safety Relay. 3NO/1NC For use with: Two-Hand Control Devices
	BSR10 24VDC	2TLA010040R0000	Expansion Relay. 3NO/1NC Used in tandem with another relay to get more output contacts
	TSR10 24VDC	2TLA010060R0000	Timed Safety Relay. 3NO/1NC Programmable with display on relay.
	USR10 24VDC	2TLA010070R0000	Universal Safety Relay. 3NO/1NC For use with nearly every application including Bumpers/Safety Mats
	USR22 24VDC	2TLA010070R0400	Universal Safety Relay. 2NO / 2 Delayable NO Capable of doing every application.



SAFETY AF CONTACTORS

AFS contactors are designed for machine safety applications. They are delivered with fixed front-mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits. Mechanically linked and mirror contacts make your system safer.

- **Control circuit with electronic coil interface:**

- 24...60 V AC, 20...60 V DC and 100...250 V AC / DC operated accepting a wide control voltage range

- Reduced panel energy consumption

- **Mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status**

- **Front-mounted auxiliary contact block:**

- Permanently fixed

- Protective cover to prevent manual operation

- Yellow housing for easy identification

- Minimum switching capacity 12 V / 3 mA, with a failure rate 10⁻⁷ acc. to IEC 60947-5-4

- **Built-in surge suppression**

Amp Ratings		Single-Phase HP Ratings		Three-Phase HP Ratings				Auxiliary Contacts		Part Number
AC-3	AC-1	120V	240V	208V	240V	480V	600V	NO	NC	20-60V 50/60Hz - DC Coil*
9	25	0.75	1.5	2	2	5	7.5	2	2	AFS09Z-30-22-30*
9	25	0.75	1.5	2	2	5	7.5	2	2	AFS09-30-22-11
11	28	1	2	3	3	7.5	10	2	2	AFS12-30-22-11
17	30	1.5	3	5	5	10	15	2	2	AFS16-30-22-11
22	45	2	3	7.5	7.5	15	20	2	2	AFS26-30-22-11
27	50	2	5	10	10	20	25	2	2	AFS26-30-22-11
41	60	3	7.5	15	15	30	40	2	2	AFS40-30-22-11
52	80	3	10	20	20	40	50	2	2	AFS52-30-22-11
62	90	5	15	25	25	50	60	2	2	AFS65-30-22-11
77	105	7.5	15	30	30	60	75	2	2	AFS80-30-22-11
77	115	7.5	20	30	30	60	75	2	2	AFS96-30-22-11

*: -30 coil is rated for PLC transistor output: >250mA @ 24VDC



PSR SOFT STARTERS—OPEN TYPE

Features:

- UL/cULus/CE Approved.
- IP21 Degree of Protection.
- Compact design that is suitable for DIN rail or screw mounting.
- Remote control connection with Fieldbus Plug as an accessory.
- System concept with MS116, MS132 or MS450 type Manual Motor Starters and the connection kit.
- All sizes include RUN signal relay; sizes from 25A, also provided with Top of Ramp output signal relay.
- With the addition of an auxiliary cooling fan, starting capacity is increased from 10 to 20 starts per hour.



Rated Current	Three-Phase HP Ratings				Control Voltage	Ramp Type	Dimensions WxHxD (inches)	Part Number
	208V	240V	480V	600V				
3.4	0.5	0.75	2	2	100-240VAC	Start/Stop	1.77 x 5.51 x 4.49	PSR3-600-70
6.1	1	1.5	3	5			1.77 x 5.51 x 4.49	PSR6-600-70
9	2	2	5	7.5			1.77 x 5.51 x 4.49	PSR9-600-70
11	3	3	7.5	10			1.77 x 5.51 x 4.49	PSR12-600-70
15.2	3	5	10	10			1.77 x 5.51 x 4.49	PSR16-600-70
24.2	7.5	7.5	15	20			1.77 x 6.30 x 5.04	PSR25-600-70
28	7.5	10	20	25			1.77 x 6.30 x 5.04	PSR30-600-70
34	10	10	25	30			2.13 x 7.36 x 6.02	PSR37-600-70
46.2	15	15	30	40			2.13 x 7.36 x 6.02	PSR45-600-70
3.4	0.5	0.75	2	2			24VDC	Start/Stop
6.1	1	1.5	3	5	1.77 x 5.51 x 4.49	PSR6-600-11		
9	2	2	5	7.5	1.77 x 5.51 x 4.49	PSR9-600-11		
11	3	3	7.5	10	1.77 x 5.51 x 4.49	PSR12-600-11		
15.2	3	5	10	10	1.77 x 5.51 x 4.49	PSR16-600-11		
24.2	7.5	7.5	15	20	1.77 x 6.30 x 5.04	PSR25-600-11		
28	7.5	10	20	25	1.77 x 6.30 x 5.04	PSR30-600-11		
34	10	10	25	30	2.13 x 7.36 x 6.02	PSR37-600-11		
46.2	15	15	30	40	2.13 x 7.36 x 6.02	PSR45-600-11		

ACCESSORIES



Description	Part Number
Fieldbus Plug Connection Accessory	PSR-FBPA
Connection kit for PSR3-16 and MS116	PSR16-MS116
Connection kit for PSR25-30 and MS132	PSR30-MS132
Connection kit for PSR37-45 and MS450	PSR45-MS450
Fan for 3-45A units	PSR-FAN3-45A
Fan for 60-105A units	PSR-FAN60-105A



PSE SOFT STARTERS—OPEN TYPE

Features:

- UL/cULus/ CE Approved
- Compact design with **Torque Control** feature for excellent control of pumps
- **Built-in bypass** on all sizes, saving energy and installation time
- Coated circuit boards for reliable operation in harsh environment
- Motor overload protection with classes 10A, 10, 20 and 30
- **Current limit** adjustable between **1.5 - 7 x Ie**
- Kick start to start jammed pumps or conveyor belts
- Locked rotor protection, detecting jammed pumps
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen



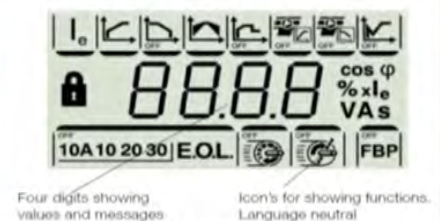
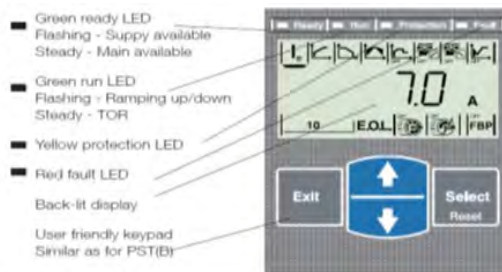
Rated Current	Three-Phase HP Ratings				Control Voltage	Dimensions WxHxD (inches)	Part Number
	208V	240V	480V	600V			
18	5	5	10	15	100-250VAC	3.54 x 9.65 x 7.30	PSE18-600-70
25	7.5	7.5	15	20	100-250VAC	3.54 x 9.65 x 7.30	PSE25-600-70
28	7.5	10	20	25	100-250VAC	3.54 x 9.65 x 7.30	PSE30-600-70
34	10	10	25	30	100-250VAC	3.54 x 9.65 x 7.30	PSE37-600-70
42	10	15	30	40	100-250VAC	3.54 x 9.65 x 7.30	PSE45-600-70
60	20	20	40	50	100-250VAC	3.54 x 9.65 x 7.30	PSE60-600-70
68	20	25	50	60	100-250VAC	3.54 x 9.65 x 7.30	PSE72-600-70
80	25	30	60	75	100-250VAC	3.54 x 9.65 x 7.30	PSE85-600-70
104	30	40	75	100	100-250VAC	3.54 x 9.65 x 7.30	PSE105-600-70
130	40	50	100	125	100-250VAC	5.12 x 11.61 x 8.64	PSE142-600-70
169	60	60	125	150	100-250VAC	5.12 x 11.61 x 8.64	PSE170-600-70
192	60	75	150	200	100-250VAC	7.48 x 21.65 x 9.31	PSE210-600-70
248	75	100	200	250	100-250VAC	7.48 x 21.65 x 9.31	PSE250-600-70
302	100	100	250	300	100-250VAC	7.48 x 21.65 x 9.31	PSE300-600-70
361	125	150	300	350	100-250VAC	7.48 x 21.65 x 9.31	PSE370-600-70

ACCESSORIES



Description	Part Number	Remark
Fieldbus Plug Connection Accessory	PS-FBPA	
External keypad including 3 meter cable (PSE18...370)	PSEEK	
Cable connectors for Al and Cu cables		
PSE142...170 (Qty required 2 for line & load)	ATK185	Suitable for wire size 4AWG-300MCM
PSE210...370 (Qty required 2 for line & load)	ATK300	Suitable for wire size 4AWG-400MCM
PSE210...370 (Qty required 2 for line & load)	ATK300/2	Suitable for wire size 2 x 4AWG-500MCM
Terminal Shrouds		
PSE142...170 (Qty required 2 for line & load)	LT185-AL	
PSE210...370 (Qty required 2 for line & load)	LT300-AL	Not compatible with ATK300/2

PSE SOFT STARTERS—FEATURES & DISPLAY SETTINGS



PSTX SOFT STARTERS—OPEN TYPE

Features:

- UL/CSA/CE Approved.
- Programmable electronic overloads: classes 10A, 10, 20 & 30.
- **Three-phase controlled**
- Operational voltage: 208 – 690 VAC
- PSTX rated operational current: 30 to 370 A (inside-delta: 640 A)
- Detachable keypad rated IP66 (Type 1, 4X,12)
- Built-in bypass for energy saving and easy installation
- Pre-configured start & stop profiles for common applications including pumps, conveyors, fans, mixers & compressors.
- Complete control of pumps, Three types of current limit, Jog with slow speed

CONNECTED IN-LINE

Rated Current	Three-Phase HP Ratings				Control Voltage 50/60 HZ	Ramp Type	Dimensions WxHxD (inches)	Part Number
	208V	240V	480V	600V				
28	7.5	10	20	25	100- 250VAC	Start/ Stop	5.90 x 12.40 x 7.60	PSTX30-690-70
34	10	10	25	30			5.90 x 12.40 x 7.60	PSTX37-690-70
42	10	15	30	40			5.90 x 12.40 x 7.60	PSTX45-690-70
60	20	20	40	50			5.90 x 12.40 x 7.60	PSTX60-690-70
68	20	25	50	60			5.90 x 12.40 x 7.60	PSTX72-690-70
80	25	30	60	75			5.90 x 12.40 x 7.60	PSTX85-690-70
104	30	40	75	100			5.90 x 12.40 x 7.60	PSTX105-690-70
130	40	50	100	125			7.80 x 14.80 x 9.30	PSTX142-690-70
169	50	60	125	150			7.80 x 14.80 x 9.30	PSTX170-690-70
192	60	75	150	200			10.20 x 18.50 x 10.90	PSTX210-690-70
248	75	100	200	250			10.20 x 18.50 x 10.90	PSTX250-690-70
302	100	100	250	300			10.20 x 18.50 x 10.90	PSTX300-690-70
361	125	150	300	350			10.20 x 18.50 x 10.90	PSTX370-690-70
480	150	200	400	500			14.20 x 19.40 x 11.10	PSTX470-690-70
590	200	200	500	600			14.20 x 19.40 x 11.10	PSTX570-690-70
720	250	300	600	700			17.13 x 19.41 x 14.47	PSTX720-690-70
840	300	350	700	800			17.13 x 19.41 x 14.47	PSTX840-690-70
1062	400	450	900	1000			17.10 x 20.20 x 14.40	PSTX1050-690-70
1250	400	500	1000	1200			17.10 x 22.20 x 14.40	PSTX1250-690-70



ACCESSORIES (PSTX30-PSTX1250)

Description		Part Number	
Fieldbus Plug Connection Accessory		PS-FBPA	
I/O Module, 24VDC Digital Input		1SAJ611000R0102	
Anybus connection accessory available (Profibus, DeviceNet, Modbus-RTU, EtherNet/IP, Modbus/TCP, Profinet)		*	
Description	Wire Range	Part Number	Package QTY
PSTX142 – PSTX170	#6 - 300MCM (1 Per Phase)	ATK185	3
PSTX210 – PSTX370	#4 – 400MCM (1 Per Phase)	ATK300	3
PSTX210 – PSTX370	#4 – 500MCM (2 Per Phase)	ATK300/2	3
PSTX470 – PSTX1050	2/0 – 500MCM (2 per Phase)	ATK580/2	3
PSTX470 – PSTX1050	2/0 – 500MCM (3 per Phase)	ATK750/3	3
PSTX1250	4/0 – 500MCM (4 Per Phase)	ATK1350/4	3



*Please refer to ABB PSTX Softstarters catalog



PSTX SOFT STARTERS - ENCLOSED - FEATURES



HORSEPOWER	25 to 700HP
DUTY	Normal Duty or Heavy Duty
COMBINATION TYPE	Circuit Breaker or Fused Disconnect
ENCLOSURE TYPE	NEMA 4
LINE VOLTAGE	<ul style="list-style-type: none"> • 600V Line Voltage, 120V Control Voltage • 480V Line Voltage, 120V Control Voltage
STANDARD EQUIPMENT PACKAGE FEATURES	<ul style="list-style-type: none"> • Circuit Breaker or Fused Disconnect • Door Mounted Keypad • Start Pushbutton • Stop Pushbutton • Hand/Off/Auto Selector Switch • Power ON Pilot Light • Run Pilot Light • Fault Pilot Light • Integrated Control Transformer
FULL EMERGENCY BYPASS PACKAGE FEATURES	<ul style="list-style-type: none"> • Emergency Bypass • Normal/E-Bypass Selector Switch • E-Bypass Start Pushbutton • E-Bypass Stop Pushbutton • E-Bypass Pilot Light • Circuit Breaker or Fused Disconnect • Door Mounted Keypad • Start Pushbutton • Stop Pushbutton • Hand/Off/Auto Selector Switch • Power ON Pilot Light • Run Pilot Light • Fault Pilot Light • Integrated Control Transformer

1. The pilot light LED colours are: Power On (white), Run (green), Fault (yellow), Emergency Bypass (yellow).



COMPARISON BETWEEN ABB MICRO DRIVES (ACS180, ACS225 & ACS380)



	ACS180	ACS255	ACS380
	Component Drives		General Machinery Drive
Ratings			
1 PH 120 VAC IN & 3 PH 200-240 VAC OUT	-	0.50 to 1.5 HP	-
1 PH 200-240 VAC IN & 3 PH 200-240 VAC OUT	0.5 to 3 HP	0.5 to 5 HP (IP66 Version Only)	0.5 to 3 HP
3 PH 200-240 VAC IN & 3 PH 200-240 VAC OUT	0.5 to 20 HP	0.5 to 5 HP (IP66 Version Only)	0.5 to 20 HP
3 PH 380-480 VAC IN & 3 PH 380-480 VAC OUT	0.75 to 30 HP	1 to 10 HP (IP66 Version Only)	0.75 to 30 HP
3 PH 500-600 VAC IN & 3 PH 500-600 VAC OUT	-	1 to 20 HP (IP20) / 1 to 15HP (IP66)	-
Features			
	Description		
Motor Control	Sensorless vector or Scalar	V/Hz or Sensorless Vector	Vector or Scalar
Protection Class	IP20 (NEMA1 Kit Option)	IP20 and IP66 (NEMA 4X Indoor Plastic Encl.)	IP20 (NEMA1 Kit Option)
Digital Inputs	(4) 12-24VDC All Programmable	(4) 10-30VDC All Programmable	(4) 12-24V DC All Programmable
Analog Inputs	(2) Configurable 0-10V, 0-20mA	(2) Configurable unipolar voltage, 0-10V, 0-20mA	(2) Configurable unipolar Voltage, 0(2)-10V, 0(4)-20mA
Analog Outputs	(1) mA or V	(1) Configurable 0-10V (2 in 600V)	(1) mA or V
Outputs	(1) NO + NC, 230V, 2A	(1) Form C Relay	(1) Form C Relay NO +NC 250VAC/ 30VDC, 2A
Program Interface	Integrated control panel, external control option		Integrated control panel, external control option
PID Loop	N/A	Yes	Yes
Braking (Brake Chopper)	Only on frames R2 to R4	Built-in	Standard
Accel/Decel Times (seconds)	-	0.1 to 600 s	0.1 to 1800 s
Communications	Modbus RTU	Modbus	Fieldbus Plugin option (DeviceNet/Profibus DP/CAN open/Modbus RTU/EtherCAT/EthernetIP/ Profinet IO/ Ethernet Powerlink
Options	NEMA 1 Enclosure Kit, Cold Configurator adaptor, Basic or Advanced control panel Cold Configurator adaptor, Basic or Advanced control panel Control Panel Mounting Kit Drive Composer Pro		NEMA 1 Enclosure Kit, Cold Configurator adaptor, Pulse Encoder Interface Module, Basic or Advanced control panel, Control Panel Mounting Kit, Drive Composer Pro
Applications			
Food & Beverage/Material Handling/Textile/Printing/Plastics/Rubber/Woodworking; Entry Gates, Ovens, Powered Roof Ventilators, X-Ray Screening, Training Equipment			



ACS180 VARIABLE FREQUENCY DRIVES

Features:

- UL/cUL/CE approved
- Built-in brake chopper
- Programmable analog and digital inputs and relay outputs
- Graphical icon based integrated control panel as standard, optional detachable control panel available
- Built-in EMC filter
- Coated boards as standard, protects against moisture and hostile particles
- Flexible installation – Screw, DIN rail, Sideways and Side by Side mounting.



Applications:

- | | | | |
|-------------|-----------|---------------------------|--------------------|
| • Blowers | • Pumps | • Presses | • Mixers |
| • Conveyors | • Dryers | • Automatics/Rotary Gates | • Compressors |
| • Fans | • Winders | • Treadmills | • Washing Machines |



Frame size R1



Frame size R4

Voltage Rating	Nominal Ratings				Part Number**	Frame Size***
	Normal Duty Applications with 110% overload (110% IN)		Heavy Duty Applications with 150% overload (150% IHD)			
	I _N A	P _N HP	I _{HD} A	P _{HD} HP		
200-240 VAC 1PH	2.3	0.5	1.8	0.33	ACS180-04S-02A4-1	R0
	3.5	0.75	2.4	0.5	ACS180-04S-03A7-1	R0
	4.6	1	3.7	0.75	ACS180-04S-04A8-1	R0
	6.6	1.5	4.5	1	ACS180-04S-06A9-1	R1
	7.4	2	6.6	1.5	ACS180-04S-07A8-1	R1
	9.3	3	7.4	2	ACS180-04S-09A8-1	R1
200-240 VAC 3PH	11.6	3	9.8	3	ACS180-04S-12A2-1	R2
	2.3	0.5	1.8	0.33	ACS180-04S-02A4-2	R0
	3.5	0.75	2.4	0.5	ACS180-04S-03A7-2	R0
	4.6	1	3.7	0.75	ACS180-04S-04A8-2	R0
	6.6	1.5	4.5	1	ACS180-04S-06A9-2	R1
	7.4	2	6.6	1.5	ACS180-04S-07A8-2	R1
	9.3	3	7.4	2	ACS180-04S-09A8-2	R1
	14.6	3	10.7	3	ACS180-04S-15A6-2	R2
	16.7	5	12.2	3	ACS180-04S-17A5-2	R2
	24.2	7.5	17.5	5	ACS180-04S-25A0-2	R3
	30.8	10	25	7.5	ACS180-04S-033A-2	R3
	46.2	15	32	10	ACS180-04S-048A-2	R4
52.8	20	48	15	ACS180-04S-055A-2	R4	
380-480 VAC 3PH	1.7	0.75	1.2	0.5	ACS180-04S-01A8-4	R0
	2.5	1	1.8	0.75	ACS180-04S-02A6-4	R0
	3.1	1.5	2.4	1	ACS180-04S-03A3-4	R0
	3.8	2	3.3	1.5	ACS180-04S-04A0-4	R1
	5.3	2	4	2	ACS180-04S-05A6-4	R1
	6.8	3	5.6	2	ACS180-04S-07A2-4	R1
	8.9	5	7.2	3	ACS180-04S-09A4-4	R1
	12	7.5	9.4	5	ACS180-04S-12A6-4	R2
	16.2	10	12.6	7.5	ACS180-04S-17A0-4	R2
	23.8	15	17	10	ACS180-04S-25A0-4	R3
	30.5	20	25	15	ACS180-04S-033A-4	R3
	36	25	32	20	ACS180-04S-038A-4	R4
	42	30	38	25	ACS180-04S-045A-4	R4
	48	30	42	30	ACS180-04S-050A-4	R4



ACS180 VARIABLE FREQUENCY DRIVES

Dimensions

ACS180 IP20				
Frame Size	H1 mm	H2 mm	W mm	D mm
R0	174	209	70	143
R1	190	220	70	143
R2	202	230	120	143
R3	205	241	170	174
R4	205	240	260	178

Height 1: Total height of the drive without grounding plate.

Height 2: Total height of the drive with grounding plate



Control Panel Options

Type designation	Description
ACS-AP-I	Assistant control panel (Industrial)
ACS-AP-S	Assistant control panel (Standard)
ACS-AP-W	Assistant control panel with Bluetooth interface
ACS-BP-S	Basic control panel
DPMP-EXT	Door mounting kit (contains both DPMP-02 and CDPI-01)
DPMP-01	Control panel mounting platform (flush mounted) - NEMA12
DPMP-02	Control panel mounting platform (surface mounted) - NEMA12
DPMP-04	Control panel mounting platform (surface mounted) - NEMA4X (Outdoor)
CDPI-01	Panel bus adapter



DPMP-EXT



ACS-AP-W

Other Options

Type designation	Description
CCA-01	Cold configurator adapter, Programming tool for unpowered drives
DCPT-01	Drive composer pro, Windows software for commissioning and maintaining the drive
3AXD50000178780	UL (NEMA) Type 1 kit for R2 frame drives
3AXD50000179220	UL Type 1 kit for R3 frame drives
3AXD50000179336	UL Type 1 kit for R4 frame drives



CCA-01



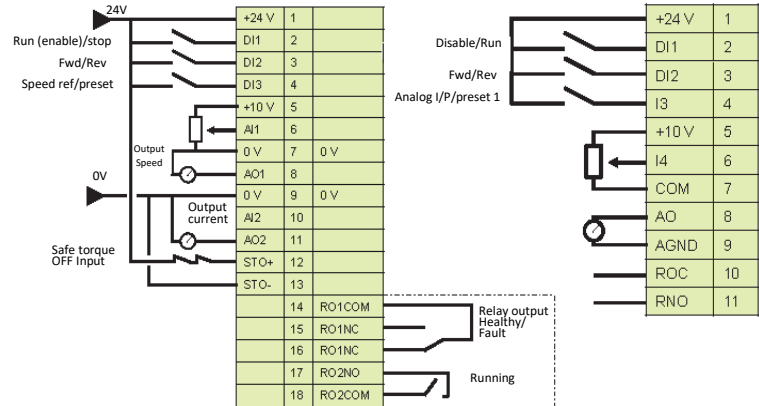
DCPT-01



ACS255 MICRO DRIVES (600V)

Features

- Easy to use, compact design
- Rated for 150% overload for 60 sec as standard
- DIN rail mounting
- Pluggable control terminals
- High performance vector control
- Built-in braking chopper in all types
- Built-in communication with Modbus RTU and CANopen® interfaces
- Remote keypad available as an option
- Built-in safe torque-off (STO) complies with EN62061SIL level 2



Applications:

- Screws
- Mixers
- Pumps
- Fans
- Conveyors

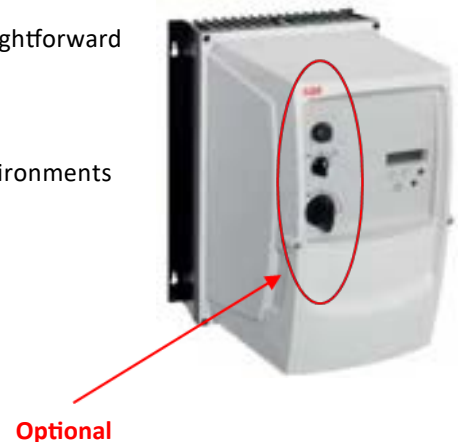
Output Ratings		Part Number IP20 Enclosure	Frame Size	Height mm/in	Width mm/in	Depth mm/in	Weight kg/lbs
Power (HP)	Amps (I)						
Input: 3-Phase AC supply, 500 to 600 V							
1	2.1	ACS255-03U-02A1-6	P2	221/8.70	112/4.41	185/7.28	1.8/4
2	3.1	ACS255-03U-03A1-6	P2	221/8.70	112/4.41	185/7.28	1.8/4
3	4.1	ACS255-03U-04A1-6	P2	221/8.70	112/4.41	185/7.28	1.8/4
5	6.5	ACS255-03U-06A5-6	P2	221/8.70	112/4.41	185/7.28	1.8/4
7.5	9	ACS255-03U-09A0-6	P2	221/8.70	112/4.41	185/7.28	1.8/4
10	12	ACS255-03U-12A0-6	P3	261/10.28	131/5.16	205/8.07	3.5/7.7
15	17	ACS255-03U-17A0-6	P3	261/10.28	131/5.16	205/8.07	3.5/7.7
20	22	ACS255-03U-22A0-6	P3	261/10.28	131/5.16	205/8.07	3.5/7.7



ACS255 MICRO DRIVES: TYPE 4X / IP66 (INDOOR) ENCLOSURE

Features

- Built-in macros and only the essential parameters make commissioning straightforward
- Intuitive keypad control
- IP66/Nema 4X dust and water proof design (wash down)
- Specially coated corrosion resistant heat sink
- Can be mounted directly on processing equipment installed in extreme environments
- No external cooling fans to replace
- Conduit cable entry
- Modbus RTU fieldbus as standard
- Optional switch features speed potentiometer, FWD-0-REW and power isolator
- Full voltage range from 110 to 600VAC.



Note: For typical I/O configuration for 600V please refer to fig. 1 and for 115V/230V/480V please refer to fig.2 above.



ACS255 MICRO DRIVES: TYPE 4X / IP66 (INDOOR) ENCLOSURE

Output Ratings			Part Number IP66 Enclosure	Frame Size	Braking chopper	Height mm/in	Width mm/in	Depth mm/in	Weight kg/lbs
Voltage (V)	Power (HP)	Amps (I)							
Input: 1-Phase AC supply, 110 to 120 V									
200 - 240VAC 3PH	0.5	2.3	ACS255-01U-02A3-1+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1	4.3	ACS255-01U-04A3-1+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1.5	5.8	ACS255-01U-05A8-1+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
Input: 1-Phase AC supply, 200 to 240 V									
200 - 240VAC 3PH	0.5	2.3	ACS255-01U-02A3-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1	4.3	ACS255-01U-04A3-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1.5	6.1	ACS255-01U-06A1-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	2	7.0	ACS255-01U-07A0-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	3	10.5	ACS255-01U-10A5-2+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
200 - 240VAC 3PH	5	18.0	ACS255-01U-18A0-2+ B063	E3	X	310/12.20	210/8.29	229/9.00	7.6/16.976
Input: 3-Phase AC supply, 200 to 240 V									
200 - 240VAC 3PH	0.5	2.3	ACS255-03U-02A3-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1	4.3	ACS255-03U-04A3-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	1.5	6.1	ACS255-03U-06A1-2+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
200 - 240VAC 3PH	2	7.0	ACS255-03U-07A0-2+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
200 - 240VAC 3PH	3	10.5	ACS255-03U-10A5-2+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
200 - 240VAC 3PH	5	18.0	ACS255-03U-18A0-2+ B063	E3	X	310/12.20	210/8.29	229/9.00	7.6/16.97
Input: 3-Phase AC supply, 380 to 480 V									
380 - 480VAC 3PH	0.5	1.2	ACS255-03U-01A2-4+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
380 - 480VAC 3PH	1	2.2	ACS255-03U-02A2-4+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
380 - 480VAC 3PH	1.5	3.3	ACS255-03U-03A3-4+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
380 - 480VAC 3PH	2	4.1	ACS255-03U-04A1-4+ B063	E1	-	232/9.13	161/6.34	179/7.05	2.8/6.50
380 - 480VAC 3PH	3	5.8	ACS255-03U-05A8-4+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
380 - 480VAC 3PH	5	9.5	ACS255-03U-09A5-4+ B063	E2	X	257/10.12	188/7.40	186/7.34	4.1/9.26
380 - 480VAC 3PH	7.5	14.0	ACS255-03U-14A0-4+ B063	E3	X	310/12.20	210/8.29	229/9.00	7.6/16.97
380 - 480VAC 3PH	10	18.0	ACS255-03U-18A0-4+ B063	E3	X	310/12.20	210/8.29	229/9.00	7.6/16.97
Input: 3-Phase AC supply, 500 to 600 V									
500 - 600VAC 3PH	1	2.1	ACS255-03U-02A1-6+ B063	P2	X	257/10.12	188/7.40	239/9.41	4.8/10.6
500 - 600VAC 3PH	2	3.1	ACS255-03U-03A1-6+ B063	P2	X	257/10.12	188/7.40	239/9.41	4.8/10.6
500 - 600VAC 3PH	3	4.1	ACS255-03U-04A1-6+ B063	P2	X	257/10.12	188/7.40	239/9.41	4.8/10.6
500 - 600VAC 3PH	5	6.5	ACS255-03U-06A5-6+ B063	P2	X	257/10.12	188/7.40	239/9.41	4.8/10.6
500 - 600VAC 3PH	7.5	9.0	ACS255-03U-09A0-6+ B063	P2	X	257/10.12	188/7.40	239/9.41	4.8/10.6
500 - 600VAC 3PH	10	12.0	ACS255-03U-12A0-6+B063	P3	X	310/12.20	211/8.29	251/9.88	7.3/16.1
500 - 600VAC 3PH	15	17.0	ACS255-03U-17A0-6+B063	P3	X	310/12.20	211/8.29	251/9.88	7.3/16.1



ACS380 VARIABLE FREQUENCY DRIVES

Features:

- UL/cUL/CE approved
- Built-in brake chopper, EMC filter, STO and Modbus RTU interface
- Programmable analog and digital inputs and analog, digital and relay outputs
- Integral, graphical icon based control panel as standard, optional detachable control panel available
- Sensorless vector control for induction and permanent magnet motors
- Coated boards as standard, protects against moisture and hostile particles
- Start-up/Maintenance/Diagnostic Assistants for fast set up and eliminating or reducing down-time



Applications

- Food and Beverage
- Conveyors
- Winders
- Material Handling
- Extruders
- Cranes



Frame size R1



Frame size R4

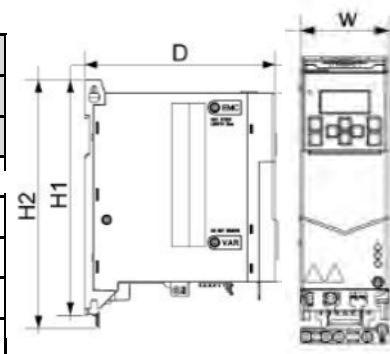
Voltage Rating	Nominal Ratings				Part Number	Frame Size
	Normal Duty		Heavy Duty			
	Applications with 110% overload (110% IN)	Applications with 150% overload (150% IHD)	IP20 Enclosure			
I_N	P_N	I_{HD}	P_{HD}			
A	HP	A	HP			
200-240 VAC 1PH	2.3	0.5	1.8	0.33	ACS380-040S-02A4-1	R0
	3.5	0.75	2.4	0.5	ACS380-040S-03A7-1	R0
	4.6	1	3.7	0.75	ACS380-040S-04A8-1	R1
	6.6	1.5	4.8	1	ACS380-040S-06A9-1	R1
	7.4	2	6.9	1.5	ACS380-040S-07A8-1	R1
	9.3	3	7.8	2	ACS380-040S-09A8-1	R2
	11.6	3	9.8	3	ACS380-040S-12A2-1	R2
200-240 VAC 3PH	2.3	0.5	1.8	0.33	ACS380-040S-02A4-2	R1
	3.5	0.75	2.4	0.5	ACS380-040S-03A7-2	R1
	4.6	1	3.7	0.75	ACS380-040S-04A8-2	R1
	6.6	1.5	4.8	1	ACS380-040S-06A9-2	R1
	7.5	2	6.9	1.5	ACS380-040S-07A8-2	R1
	9.3	3	7.8	2	ACS380-040S-09A8-2	R1
	11.6	3	9.8	3	ACS380-040S-12A2-2	R2
	16.7	5	12.2	3	ACS380-040S-17A5-2	R3
	24.2	7.5	17.5	5	ACS380-040S-25A0-2	R3
	30.8	10	25	7.5	ACS380-040S-032A-2	R4
	46.2	15	32	10	ACS380-040S-048A-2	R4
52.8	20	48	15	ACS380-040S-055A-2	R4	
380-480 VAC 3PH	1.6	0.75	1.1	0.5	ACS380-040S-01A8-4	R0
	2.1	1	1.6	0.75	ACS380-040S-02A6-4	R1
	3	1.5	2.1	1	ACS380-040S-03A3-4	R1
	3.5	2	3	1.5	ACS380-040S-04A0-4	R1
	4.8	2	3.4	2	ACS380-040S-05A6-4	R1
	6	3	4	2	ACS380-040S-07A2-4	R1
	7.6	5	4.8	3	ACS380-040S-09A4-4	R1
	11	7.5	7.6	5	ACS380-040S-12A6-4	R2
	14	10	11	7.5	ACS380-040S-17A0-4	R3
	21	15	14	10	ACS380-040S-25A0-4	R3
	27	20	21	15	ACS380-040S-032A-4	R4
	34	25	27	20	ACS380-040S-038A-4	R4
	40	30	34	25	ACS380-040S-045A-4	R4
42	30	40	30	ACS380-040S-050A-4	R4	



ACS380 VARIABLE FREQUENCY DRIVES

ACS380 IP20

Frame Size	Dimensions and Weight (Open)					
	H ₂		W		D	
	mm	in	mm	in	mm	in
R0	220	8.66	70	2.76	174	6.85
R1	220	8.66	70	2.76	174	6.85
R2	220	8.66	95	3.74	174	6.85
R3	220	8.66	169	6.65	174	6.85
R4	220	8.66	260	10.24	174	6.85



H₂: Mounting including grounding plate

W: Width

D: Depth without deeper cover



Control Panel Options	
Type designation	Description
ACS-AP-I	Assistant control panel
ACS-AP-S	Basic control panel
ACS-AP-W	Assistant control panel with Bluetooth interface
ACS-BP-S	Basic control panel
DPMP-EXT	Door mounting kit (contains both DPMP-02 and CDPI-01)
DPMP-01	Control panel mounting platform (flush mounted)
DPMP-02	Control panel mounting platform (surface mounted)



Option Selection Table		
Option code	Fieldbus protocol	Adapter
+K451	DeviceNet®	FDNA-01
+K454	PROFIBUS DP, DPV0/DPV1	FPBA-01
+K457	CANopen®	FCAN-01
+K469	EtherCAT®	FECA-01
+K470	Ethernet POWERLINK	FEPL-01
+K475	Two port EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-21
+K470	Ethernet POWERLINK	FEPL-02

Tools for configuration, monitoring and process tuning



Type designation	Description
CCA-01	Cold configurator adapter, Programming tool for unpowered drives
DCPT-01	Drive composer pro, Windows software for commissioning and maintaining the drive
3AXD50000187034	UL Type 1 kit for R0 frame drives
3AXD50000176779	UL Type 1 kit for R1 frame drives
3AXD50000178780	UL Type 1 kit for R2 frame drives
3AXD50000179220	UL Type 1 kit for R3 frame drives
3AXD50000179336	UL Type 1 kit for R4 frame drives



ACS580 VARIABLE FREQUENCY DRIVES

Features:

- Coated boards for harsh environment.
- Complete with swinging DC Chokes – reduces harmonics, cost of energy and size/weight.
- Integrated brake chopper on R1, R2 and R3 frames.
- Integrated safe torque off (STO) SIL 3, PLc
- Programmable Analog and Digital Inputs and Analog and Relay Outputs.
- Plug-in options such as Relay Output Extension, Pulse Encoder Interface, 115/230V Digital Interface or Fieldbus.
- Embedded Modbus RTU, Optional fieldbus modules available: DeviceNet, Profibus-DP, CANOpen, ControlNet, Ethernet/IP, Modbus/TCP and PROFINET IO.
- Assistant Control Panel **included** for easy programming, copying/downloading parameters to other drives.
- Start-up/Maintenance/Diagnostic Assistants for fast set up and eliminating or reducing down-time.
- Bluetooth Keypad and Phone App available as an extra (iOS/Android)

ABB Emergency Technical Support

abbautomation@gerrie.com



Applications:

- Pumps
- Fans
- Extruders
- Slurry Pumps
- Conveyors - Screw or Chain
- Compressors
- Agitators, Mixers, Grinders
- Chippers/Shredders



Voltage Rating (VAC)	Normal Ratings				Frame Size	Part Number
	Normal Duty* Applications with 110% overload (110% I _N)		Heavy Duty Applications with 150% overload (150% I _{HD})			
	I _{2N} A	P _N HP	I _{2HD} A	P _{HD} HP		
208 - 240 VAC	4.6	1	3.5	0.75	R1	ACS580-01-04A6-2
	6.6	1.5	4.6	1	R1	ACS580-01-06A6-2
	7.5	2	6.6	1.5	R1	ACS580-01-07A5-2
	10.6	3	7.5	2	R1	ACS580-01-10A6-2
	16.7	5	10.6	3	R1	ACS580-01-017A-2
	24.2	7.5	16.7	5	R2	ACS580-01-024A-2
	30.8	10	24.2	7.5	R2	ACS580-01-031A-2
	46.2	15	30.8	10	R3	ACS580-01-046A-2
	59.4	20	46.2	15	R3	ACS580-01-059A-2
	74.8	25	59.4	20	R4	ACS580-01-075A-2
	88	30	74.8	25	R5	ACS580-01-088A-2
	114	40	88	30	R5	ACS580-01-114A-2
	143	50	114	40	R6	ACS580-01-143A-2
	169	60	143	50	R7	ACS580-01-169A-2
211	75	169	60	R7	ACS580-01-211A-2	
273	100	211	75	R8	ACS580-01-273A-2	



ACS580 VARIABLE FREQUENCY DRIVES



Voltage Rating	Nominal Ratings				Part Number	Frame Size
	Normal Duty Applications with 110% overload (110% I _N)		Heavy Duty Applications with 150% overload (150% I _{HD})			
	I _N A	P _N HP	I _{HD} A	P _{HD} HP	NEMA 1 ENCLOSURE	
380 - 480 VAC	2.1	1	1.6	0.75	ACS580-01-02A1-4	R1
	3.0	1.5	2.1	1	ACS580-01-03A0-4	R1
	3.5	2	3.0	1.5	ACS580-01-03A5-4	R1
	4.8	3	3.4	2	ACS580-01-04A8-4	R1
	6.0	3	4	3	ACS580-01-06A0-4	R1
	7.6	5	4.8	3	ACS580-01-07A6-4	R1
	12	7.5	7.6	5	ACS580-01-012A-4	R1
	14	10	11	7.5	ACS580-01-014A-4	R2
	23	15	14	10	ACS580-01-023A-4	R2
	27	20	21	15	ACS580-01-027A-4	R3
	34	25	27	20	ACS580-01-034A-4	R3
	44	30	34	25	ACS580-01-044A-4	R3
	52	40	40	30	ACS580-01-052A-4	R4
	65	50	52	40	ACS580-01-065A-4	R4
	77	60	65	50	ACS580-01-077A-4	R4
	77	60	65	50	ACS580-01-078A-4	R5
	96	75	77	60	ACS580-01-096A-4	R5
	124	100	96	75	ACS580-01-124A-4	R6
	156	125	124	100	ACS580-01-156A-4	R7
	180	150	156	125	ACS580-01-180A-4	R7
240	200	180	150	ACS580-01-240A-4	R8	
260	200	240*	150	ACS580-01-260A-4	R8	
302	250	260	200	ACS580-01-302A-4	R8	
361	300	302	250	ACS580-01-361A-4	R9	
414	350	361**	300	ACS580-01-414A-4	R9	
500-600 VAC	2.7	2	2.4	1.5	ACS580-01-02A7-6	R2
	3.9	3	2.7	2	ACS580-01-03A9-6	R2
	6.1	5	3.9	3	ACS580-01-06A1-6	R2
	9	7.5	6.1	5	ACS580-01-09A0-6	R2
	11	10	9	7.5	ACS580-01-011A-6	R2
	17	15	11	10	ACS580-01-017A-6	R2
	22	20	17	15	ACS580-01-022A-6	R3
	27	25	22	20	ACS580-01-027A-6	R3
	32	30	27	25	ACS580-01-032A-6	R3
	41	40	32	30	ACS580-01-041A-6	R5
	52	50	41	40	ACS580-01-052A-6	R5
	62	60	52	50	ACS580-01-062A-6	R5
	77	75	62	60	ACS580-01-077A-6	R5
	99	100	77	75	ACS580-01-099A-6	R7
	125	125	99	100	ACS580-01-125A-6	R7
	144	150	125	125	ACS580-01-144A-6	R8
	192	200	144	150	ACS580-01-192A-6	R9
	242	250	192	200	ACS580-01-242A-6	R9
271	250	210	200	ACS580-01-271A-6	R9	

NOTES:

1) Always select the drive based on the motor name plate current and the application.

2) NEMA 12 enclosed drives are available

*Continuous current allowing 130% overload for 1 minute every 10 minutes.

**Continuous current allowing 125% overload for 1 minute every 10 minutes.

Frame Size	R1	R2	R3	R4	R5	R6	R7	R8	R9
	in/lbs	in/lbs	in/lbs	in/lbs	in/lbs	in/lbs	in/lbs	in/lbs	in/lbs
H	14.7	18.6	19.3	22.9	28.8	28.6	34.6	38.0	37.6
W	4.9	4.9	8.0	8.0	8.0	9.9	11.2	11.8	15
D	8.8	9.0	9.0	10.1	11.6	14.5	14.6	15.5	16.5
Weight	10.1	14.6	26.0	41.9	62.4	93.5	119.1	152.2	213.9



ACS580 VARIABLE FREQUENCY DRIVES—OPTIONS

Control panel options		
Option Code	Description	Type designation
+J425	Industrial Assistant control panel	ACS-AP-I
+J425	Industrial Assistant control panel	ACS-AP-I
+J400	Assistant control panel	ACS-AP-S
+J429	Assistant control panel with Bluetooth interface	ACS-AP-W
3AXD50000010763	Door mounting kit for the panel, surface mounted	DPMP-EXT
3AUA0000108878	Control panel mounting platform (flush mounted)	DPMP-01
3ABD50000009374	Control panel mounting platform (surface mounted)	DPMP-02
3AXD50000004419	Panel bus adapter	CDPI-01
3AUA0000108087	Drive Composer Pro	DCPT-01

Option Selection Table	
Fieldbus protocol	Part #
Ethernet	FEIP-21
DeviceNet®	FDNA-01
Modbus/TCP	FMBT-21
Modbus RTU	FSCA-01
ControlNet	FCNA-01
Two port EtherNet/IP™, Modbus TCP, PROFINET IO	FENA-21
Extended Relay Output	
115/230V Digital Input	CHDI-01



NOTE: Only one option can be installed in each option slot. For the field installed options, order it as a separate item using the above mentioned part number.

PATENTED SWINGING CHOKE (REACTOR) REDUCES HARMONICS

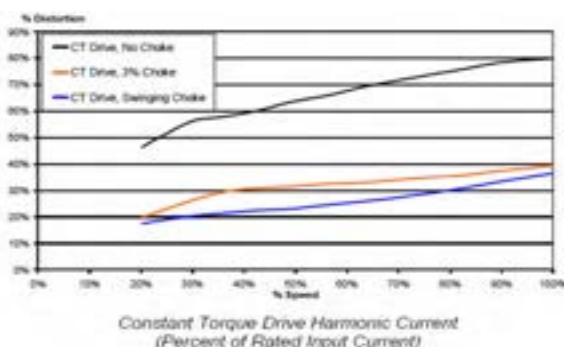
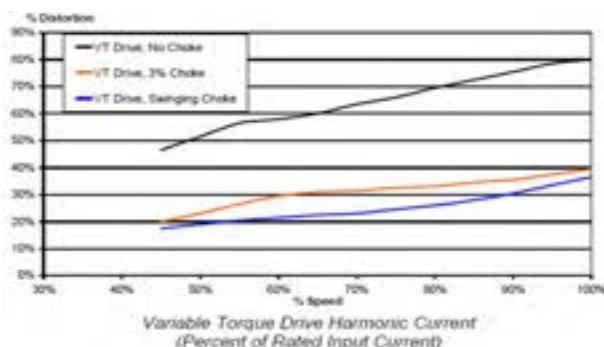
What is a swinging choke?

The swinging choke is an inductor that has an inductance value that is inversely proportional to its operating current. Over a substantial portion of the current range, the inductance decreases as the current in the choke increases.

A conventional or linear choke has a fixed inductance value that changes very little as the operating current values in the normal operating range.

Advantages of Swinging Choke vs. Conventional Choke:

- Compared to a standard linear choke, the swinging choke provides superior line harmonic current reduction when the drive's output power is less than or equal to rated output. Reduces Total Harmonic Distortion (THD) emissions up to 25%.
- The effective inductance value of a swinging choke at a full load is higher than the value of a linear choke of the same physical size, weight, and cost.
- The efficiency of a swinging choke is higher than the efficiency of a linear choke of the same inductance value



ACS580 VARIABLE FREQUENCY DRIVES— BYPASS AND DISCONNECT CONFIGURATIONS

WITH DISCONNECT ARRANGEMENT:

Available in Two Options:

ACS580 Drive with Input Disconnect Switch & Fast Acting Current Limiting Fuses

ACS580 Drive with Input Circuit Breaker

Disconnects are externally operable and interlocked with the enclosure door.



Vertical Wall Mount Enclosures

- Up to 25HP @ 208/240V and 60HP @ 480 and 600V
- NEMA 1 and NEMA 12 enclosed (bottom cable entry / exit)
- Provides minimum footprint advantage for use in crowded electrical rooms or mezzanines, or for direct mounting on machines or columns



Oversized Wall Mounting Enclosures

- 30 to 100HP @ 208/240V; 75 to 200HP @ 480V; and 75 to 150HP @ 600V
- NEMA 1 and NEMA 12 enclosed (top cable entry / exit with a removable conduit plate)
- Accommodates field addition of components that users frequently desire to include at these higher HP ratings



Free Standing Packages

- Available up to 100HP @ 208/240V; up to 200HP @ 480V and up to 150HP @ 600V
- Construction is sheet steel with a tough powder coat paint finish for corrosion resistance
- A 100 watt, thermostatically controlled space heater and thermostatic control of the force ventilated cooling system are provided as standard



NEMA 3R (Outdoor) Enclosures

- Available up to 100HP @ 208/240V; up to 200HP @ 480V and up to 150HP @ 600V
- Construction is sheet steel with a tough powder coat paint finish for corrosion resistance
- A 100 watt, thermostatically controlled space heater and thermostatic control of the force ventilated cooling system are provided as standard

NEMA3R Floor Mount



NEMA1 Wall Mount

ACS580 Packaged Drive with Bypass

- NEMA 1 and NEMA 12: up to 100HP @ 208/240V, 400HP @ 480V and 150HP @ 600V
- NEMA 3R (outdoor): up to 100HP @ 208/240V, 200HP @ 480 & 600V
- Bypass is configured with two electrically interlocked contactors, a motor overload relay, a control power transformer with primary and secondary fusing, and a cover mounted DRIVE-OFF-BYPASS selector switch
- Includes an input circuit breaker with door mounted external operating handle (pad lockable)
- As standard - fast acting, current limiting drive input fuses



NEMA1 Floor Mount



ACS580 NEMA 4X/IP66
NEW

Harsh industrial environments demand products that can withstand extreme conditions. The ACS580 **NEMA 4X/ IP66** drive can work in any environment, indoor or outdoor, extreme hot or cold, and in the washdown (or dry) zone.

Optional Built-in fuse disconnect

The optional built-in UL98 lockable line disconnect (with fuses) reduces costs and simplifies installation by removing the need for a separate fuse disconnect box, all while maintaining a 100 kA SCCR.


Applications

- Food and Beverage
- Car Wash
- Pumps, Fans, Conveyors used in
 - Wet and washdown areas
 - Cold environments down to -13 °F (-25 °C) with provisions
 - High temperature up to 122 °F (50 °C) with derating
 - Indoor/outdoor farm environments


Hardware

- Integrated safe torque off (STO)
- DC choke for harmonic mitigation
- Coated boards
- Integrated EMC C2 filter
- Two option slots (fieldbus and I/O extension)
- External +24 V AC/DC with CMOD-01 option

Ratings

- Up to: 20HP, 208-240VAC
- 30HP, 440-480VAC
- 30HP, 500-600VAC


(ACS580 with +B066)

Dimensions and weight, NEMA 4X (IP66)					
Frame Size	Height	Width	Depth without	Depth with	Weight
R1	522 mm	208 mm	249 mm	281 mm	11.8 kg
	20.55 in	8.19 in	9.79 in	11.05 in	26lb
R2	606 mm	208 mm	260 mm	292 mm	14.5 kg
	23.86 in	8.19 in	10.22 in	11.48 in	32 lb
R3	647 mm	277 mm	260 mm	289 mm	26.4 kg
	25.47 in	10.91 in	10.25 in	11.4 in	58 lb



ACQ580 VARIABLE FREQUENCY DRIVES FOR PUMPING IN WATER AND WASTE WATER APPLICATIONS

Features:

- UL/cUL/CSA Approved
- Complete with swinging choke – reduces harmonics, cost of energy and size/weight
- Pre-programmed pumping application macros
- Built-in timers and EMI/RFI filters
- Two PID controllers as standard
- Detachable advanced control panel for easy programming, copying/downloading parameters to other drives
- Start-up/Maintenance/Diagnostic Assistants for fast set up and eliminating or reducing down-time
- Specialized software features for pump control

ABB Emergency Technical Support

abbautomation@gerrie.com

Tel: (289) 861-5593

Built-in pump application software

The built-in pump application software in the ACQ580 drives is designed to enhance the reliability and durability of the water and wastewater application in which it is used. The functions protect the pump and secure its optimal functionality, increasing cost efficiency. The built-in functionalities also support the user in securing the flow of the water and wastewater in the pump solution.



Multi-pump functionality
The function maintains stable process conditions for several parallel pumps (up to 8 pumps at the same time)

operating together. It is possible to optimize the speed and number of pumps needed when the required flow or pressure rate is variable. This built-in functionality ensures continuous operation for multipump systems even if one or more pumps fails or requires maintenance.



Sensorless flow calculation
Measures the amount of water flowing without the need for external sensors. This will enable you to reduce costs as there is no need for setting up and using additional sensors or back up the flow meters to avoid interruptions in the process.



Level control
Control the filling or emptying of wastewater storage and water tower tanks. Level control can be used within a station controlling up to eight pumps. The level control function has varying pre-set water levels and the pumps will start and stop based on measured level. This method allows the pumps to run at an efficient speed and ensures the pump sump does not become over contaminated by sediment.



Soft pipe fill
The soft pipe fill function manages the pressure of water by filling the pipeline with a gentle approach. This helps to avoid sudden pressure peaks and reduces the risk of water hammer which can cause damage to the water pipes.



Quick-ramp
Protect bearings when a submersible pump is started without water. Quick ramp allows your pump to reach optimal speed to extend pump life, ensure operation and prevent unplanned outages.



Pump cleaning
Keeps the impeller of the pump clean by running a sequence of aggressive ramps between minimum and maximum pump speed.



Turbidity reduction
When a pump starts as slow as possible, it creates the lowest turbidity values for the water being moved or extracted. When you combine quick ramps and long normal ramps, the drive will protect and run submersible pump most optimal way.



Pump protection
The built-in protection functionalities ensures that pumps can operate at the best possible conditions. The maximum pressure protections help to protect the pump and the system in case of a blockage in the pipeline. In case of a pipe rupture, the minimum pressure protection can generate an alarm or fault or can be programmed to run at certain speed to avoid dirty water entering the pipeline. The inlet pressure protection can help to avoid cavitation, when the inlet pressure of a water pump falls below pump design specifications, tiny vapor bubbles form. These bubbles collapse when they meet the impeller, causing shock waves and points of high temperature that can corrode the surface of the impeller.







help to protect the pump and the system in case of a blockage in the pipeline. In case of a pipe rupture, the minimum pressure protection can generate an alarm or fault or can be programmed to run at certain speed to avoid dirty water entering the pipeline. The inlet pressure protection can help to avoid cavitation, when the inlet pressure of a water pump falls below pump design specifications, tiny vapor bubbles form. These bubbles collapse when they meet the impeller, causing shock waves and points of high temperature that can corrode the surface of the impeller.



Dry run protection
This function prevents the pump from running dry. The water pump shaft and impeller are rotating at fast rates. If there is no dry pump protection, the released heat can damage the pump over time, limiting its lifetime.

ACS880 VARIABLE FREQUENCY DRIVES

ACS880 Drive selection chart

ACS880 Drive selection chart					
ACS880-01	ACS880-11	ACS880-31	ACS880-07	ACS880-17	ACS880-37
					
Main Attributes					
High performance DTC Wall mount drive Safe Torque Off (STO)	High performance DTC Ultra-low harmonic mitigation Regenerative wall-mount drive Safe Torque Off (STO)	High performance DTC Ultra-low harmonic wall-mount drive Safe Torque Off (STO)	High performance DTC cabinet drive Configurable safety options Built to order	High performance DTC Regenerative cabinet drive Configurable safety options Built to order	High performance DTC Ultra-low harmonic module drive Configurable safety options Built to order
HP Range					
0.75-100 HP at 230 VAC 0.75-350 HP at 480 VAC 5-250 HP at 575 VAC	5-150 HP at 480 VAC	5-150 HP at 480 VAC	60-1700 HP at 480 VAC 50-3000 HP at 575 VAC	60-1950 HP at 480 VAC 150-3300 HP at 575 VAC	60-1950 HP at 480 VAC 150-3300 HP at 575 VAC
Voltage Range					
208-240 VAC 3-phase 380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase	380-500 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase
Enclosure Type					
UL Type 1 (IP21) UL type 12 (IP55) UL type open (IP20)	UL Type 1 (IP21) UL type 12 (IP55) UL type open (IP20)	UL Type 1 (IP21) UL type 12 (IP55) UL type open (IP20)	UL Type 1 (IP22) UL type 1 filtered (IP42) UL type 12 (IP54)	UL Type 1 (IP22) UL type 1 filtered (IP42) UL type 12 (IP54)	UL Type 1 (IP22) UL type 1 filtered (IP42) UL type 12 (IP54)
Control Mode					
DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)
Communications Options					
Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet
Operator Interface					
Local or remote mounted Wireless Bluetooth LCD display and keypad	Local or remote mounted Wireless Bluetooth LCD display and keypad	Local or remote mounted Wireless Bluetooth LCD display and keypad	Door mounted Wireless Bluetooth LCD display and keypad, optional start/stop switch and pilot lights	Door mounted Wireless Bluetooth LCD display and keypad, optional start/stop switch and pilot lights	Door mounted Wireless Bluetooth LCD display and keypad, optional start/stop switch and pilot lights



ACS880 VARIABLE FREQUENCY DRIVES

ACS880 Drive selection chart

ACS880-04	ACS880-04F	ACS880-04XT	ACS880-04FXT	ACS880-14	ACS880-34
Main Attributes					
High performance DTC module drive Safe Torque Off (STO)	High performance DTC module drive Safe Torque Off (STO)	High performance DTC module drive Safe Torque Off (STO)	High performance DTC module drive Safe Torque Off (STO)	High performance DTC Regenerative module drive Safe Torque Off (STO)	High performance DTC Ultra-low harmonic module drive Safe Torque Off (STO)
HP Range					
300-700 HP at 480 VAC 250-700 HP at 575 VAC	300-700 HP at 480 VAC 300-700 HP at 575 VAC	700-1250 HP at 480 VAC 700-1250 HP at 575 VAC	900-1250 HP at 480 VAC 800-1250 HP at 575 VAC	200-400 HP at 480 VAC 150-450 HP at 575 VAC	200-400 HP at 480 VAC 150-450 HP at 575 VAC
Voltage Range					
380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase	380-500 VAC 3-phase 525-690 VAC 3-phase
Enclosure Type					
UL Type open (IP20)	Inside: UL Type open (IP20) Heatsink: UL Type 12 (IP54)	UL Type open (IP00)	Inside: UL Type open (IP20) Heatsink: UL Type 12 (IP54)	UL Type open (IP20)	UL Type open (IP20)
Control mode					
DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)	DTC, Scalar (V/Hz)
Communications options					
Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, PROFINET, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet, PROFINET IO, Modbus RTU	Profibus DP, CANopen, DeviceNet, Ethernet IP, Modbus TCP, EtherCat, Ethernet POWERLINK, ControlNet, PROFINET IO, Modbus RTU
Operator Interface					
Remote mounted Wireless Bluetooth LCD display and keypad	Remote mounted Wireless Bluetooth LCD display and keypad	Remote mounted Wireless Bluetooth LCD display and keypad (optional)	Remote mounted Wireless Bluetooth LCD display and keypad (optional)	Remote mounted Wireless Bluetooth LCD display and keypad	Remote mounted Wireless Bluetooth LCD display and keypad



ACS880 VARIABLE FREQUENCY DRIVES

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abbautomation@gerrie.com

Tel: (289) 861-5593

Features:

- Direct torque control (DTC): ABB's signature motor control technology provides precise speed and torque control.
- For all applications and virtually any type of AC motor.
- Removable memory unit: Stores all the software and parameter configurations in an easily replaceable and simple to install module.
- Wide range of safety features: Safe torque off is built-in as standard. An optional safety functions module is available, simplifying the configuration and reducing installation space.
- Intuitive human-machine interface: High-contrast and high-resolution display enabling easy navigation in multiple languages.
- Start-up and maintenance tool: Drive composer PC tool for drive startup, configuration and daily use and process tuning. PC tool is connected to the drive via Ethernet or USB interface.
- Communication with all major automation networks: Fieldbus adapters enable connectivity with all major automation networks.
- Extended connectivity: In addition to the standard interfaces, the drive has three built-in slots for additional input/output extension modules and speed feedback interfaces.
- Coated boards as standard
- Built-in choke
- Built-in braking chopper, option for frame sizes R5 to R9

Applications:

- Pumps
- Fans
- Extruders
- Slurry Pumps
- Conveyors - Screw or Chain
- Compressors
- Agitators, Mixers, Grinders
- Chippers/Shredders



Voltage Rating (VAC)	Normal Ratings				Frame Size	Part Number
	Light Duty* Applications with 110% overload (110% I _N)		Heavy Duty Applications with 150% overload (150% I _{HD})			
	I _{2N} A	P _N HP	I _{2HD} A	P _{HD} HP		
208 - 240 VAC	4.4	1	3.7	0.75	R1	ACS880-01-04A6-2
	6.3	1.5	4.6	1	R1	ACS880-01-06A6-2
	7.1	2	6.6	1.5	R1	ACS880-01-07A5-2
	10.1	3	7.5	2	R1	ACS880-01-10A6-2
	16	5	10.6	3	R2	ACS880-01-16A8-2
	23.1	7.5	16.8	5	R2	ACS880-01-24A3-2
	29.3	10	24.3	7.5	R3	ACS880-01-031A-2
	44	15	38	10	R4	ACS880-01-046A-2
	58	20	45	15	R4	ACS880-01-061A-2
	71	25	61	20	R5	ACS880-01-075A-2
	83	30	72	25	R5	ACS880-01-087A-2
	109	40	87	30	R6	ACS880-01-115A-2
	138	50	105	40	R6	ACS880-01-145A-2
	162	60	145	50	R7	ACS880-01-170A-2
196	75	169	60	R7	ACS880-01-206A-2	
260	100	213	75	R8	ACS880-01-274A-2	



ACS880 VARIABLE FREQUENCY DRIVES

Voltage Rating	Nominal Ratings				Part Number**	Frame Size***
	Normal Duty Applications with 110% overload (110% I _N)		Heavy Duty Applications with 150% overload (150% I _{HD})			
	I _N A	P _N HP	I _{HD} A	P _{HD} HP	NEMA 1 ENCLOSURE	
380 - 480 VAC	2.1	1	1.7	0.75	ACS880-01-02A1-5	R1
	3	1.5	2.1	1	ACS880-01-03A0-5	R1
	3.4	2	3	1.5	ACS880-01-03A4-5	R1
	4.8	3	3.4	2	ACS880-01-04A8-5	R1
	5.2	3	4.8	2	ACS880-01-05A2-5	R1
	7.6	5	5.2	3	ACS880-01-07A6-5	R1
	11	7.5	7.6	5	ACS880-01-11A0-5	R1
	14	10	11	7.5	ACS880-01-014A-5	R2
	21	15	14	10	ACS880-01-021A-5	R2
	27	20	21	15	ACS880-01-027A-5	R3
	34	25	27	20	ACS880-01-034A-5	R3
	40	30	34	25	ACS880-01-040A-5	R4
	52	40	40	30	ACS880-01-052A-5	R4
	65	50	52	40	ACS880-01-065A-5	R5
	77	60	65	50	ACS880-01-077A-5	R5
	96	75	77	60	ACS880-01-096A-5	R6
	124	100	96	75	ACS880-01-124A-5	R6
	156	125	124	100	ACS880-01-156A-5	R7
	180	150	156	125	ACS880-01-180A-5	R7
240	200	180	150	ACS880-01-240A-5	R8	
302	250	260	200	ACS880-01-302A-5	R9	
361	300	302	250	ACS880-01-361A-5	R9	
414	350	361	300	ACS880-01-414A-5	R9	
500-600 VAC	7	5	5.6	3	ACS880-01-07A4-7	R3
	9.4	7.5	7.4	5	ACS880-01-09A9-7	R3
	13.6	10	9.9	7.5	ACS880-01-14A3-7	R3
	18	15	14.3	10	ACS880-01-019A-7	R3
	22	20	19	15	ACS880-01-023A-7	R3
	27	25	23	20	ACS880-01-027A-7	R3
	41	40	32	30	ACS880-01-035A-7	R5
	52	50	41	40	ACS880-01-042A-7	R5
	52	50	41	40	ACS880-01-049A-7	R5
	62	60	52	50	ACS880-01-061A-7	R6
	77	75	62	60	ACS880-01-084A-7	R6
	99	100	77	75	ACS880-01-098A-7	R7
	125	125	99	100	ACS880-01-119A-7	R7
	144	150	125	125	ACS880-01-142A-7	R8
	180	200	144	150	ACS880-01-174A-7	R8
242	250	192	200	ACS880-01-210A-7	R9	
271	250	242*	250	ACS880-01-271A-7	R9	

NOTES:

- 1) Always select the drive based on the motor name plate current and the application.
- *2) Continuous rms output current allowing 30% overload for 1 minute every 5 minutes.
- 3) '01' within the part number indicates wall mount configuration and these drives come with conduit box as standard.
- 4) NEMA 12 enclosed drives are available on request.
- 5) Control panel mounting kit for the remote mounting of keypad is available from accessories on page 67.
- 6) Flange mounting kits available optionally allows mounting of heatsink externally to a 3rd party enclosure (NEMA1 & NEMA12). Please refer page 67.

***7) See dimension chart on page 65 for frame size.



ACS880 VARIABLE FREQUENCY DRIVES

DIMENSIONS & WEIGHT:

Frame Size	R1	R2	R3	R4	R5	R6	R7	R8	R9
	mm	mm	mm	mm	mm	mm	mm	mm	mm
H1	405	405	471	580	732	727	880	965	955
H3	370	370	420	462	596	548	600	680	680
W	155	155	172	203	203	252	284	300	380
D	226	249	261	274	274	357	365	386	412
Weight (kg)	6	8	10	18.5	23	70	55	70	98

NOTES: 1. H1>>Height with cable entry box. 2. H3>>Height without cable entry box. 3. Width and Depth with cable entry box.

CONTROL PANEL



CONTROL PANEL MOUNTING KIT

PART NUMBER: DPMP-01

Panel flush mounting kit (with 3m CAT5 cable, DDPI board, No panel). NEMA12/IP54.

PART NUMBER: DPMP-02

Panel surface mounting kit (with 3m CAT5 cable, No panel). NEMA12/IP65.

PART NUMBER: DPMP-08

Panel flush mounting kit (with 3m CAT5 cable, No panel). NEMA4X/IP69 indoor washdown duty

ACS880 CABINET VERSION—ACS880-07

- 01
ACS880-07 frame size R6 to R8, IP22
- 02
ACS880-07 frame size R9, IP22



ACS880-07 is a Cabinet drive available from 60HP-1500HP@480V and 50HP-3000HP@600VAC. Standard delivery (Canadian version +C1xx) includes;

Cabinet-installed drive, IP22 (NEMA 1) or IP55 (NEMA12) optional, main switch disconnecter (switch fuse with UL/CSA fuses). Ready, Run, Fault pilot lights, Cable markings class A3, ACS-AP-I assistant control panel, EMC filter optional, AC or DC choke (depending on drive size), coated boards, ACS880 primary control program, Safe torque off function, bottom entry and exit of cables, circuit diagrams, USB memory stick containing all manuals.

All components UL/CSA listed/recognized.



ACS880 REGENERATIVE DRIVES VERSIONS

Wall-mounted - ACS880-11

- High Performance DTC Ultra-low harmonic Regenerative wall-mount drive
- 380-500 VAC
- 5-150HP
- Open type, NEMA 1 and NEMA 12



Wall-mounted ACS880-11

Cabinet-built - ACS880-17

- High performance DTC Regenerative cabinet drive
- 60-1950HP at 480 VAC
- 150-3300HP at 575 VAC
- Open type, NEMA 1 and NEMA 12



Cabinet-built ACS880-17

ACS880 ULTRA-LOW HARMONIC DRIVES VERSIONS

Wall-mounted - ACS880-31

- High performance DTC Ultra-low harmonic wall-mount drive
- 380-500 VAC
- 5-150 HP at 480 VAC
- Open type, NEMA 1 and NEMA 12



Wall-mounted ACS880-31

Wall-mounted - ACS880-37

- High performance DTC Ultra-low harmonic module drive
- 60-1950 HP at 480 VAC
- 150-3300 HP at 575 VAC
- Open type, NEMA 1 and NEMA 12

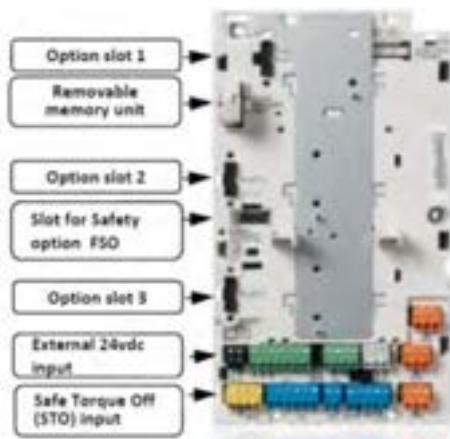


Cabinet-built ACS880-31



ACS880 VARIABLE FREQUENCY DRIVES—OPTIONS

The ACS880 control unit; standard I/O and common options



- **FEA-03 F-series extension adapter**
- Each extension module has two (2) I/O slots.
- Up to 3 FEA-03 modules can be connected to a single ACS880.
- Requires FDC0-0x adapter and fiber optic cables.
- Only FEN I/O extension modules and FEN encoder modules can be mounted on FEA-03.
- Note: Does not increase the maximum absolute number of I/O or encoder cards that can be connected to drive.



Standard I/O set

- 2 analog inputs, 2 analog outputs
- 6 digital inputs, 3 relay outputs
- 1 digital input interlock
- 2 digital inputs/outputs (freely programmable)
- External 24V power input
- Safe Torque Off (STO, SIL3/PLe) input
- Removable memory unit

Extension I/O modules available

Location	Digital inputs (DI)	Digital I/Os (DIO)	Analog inputs (AI)	Analog outputs (AO)	Relay outputs (RO)
Control unit	6 + DIL	2	2	2	3
FIO-01	-	4	-	-	2
FIO-11	-	2	3	1	-
FAIO-01	-	-	2	2	-

- Three(3) I/O extension modules can be installed simultaneously.

Speed Feedback modules

- HTL incremental encoder
- TTL incremental encoder*
- Resolver + TTL encoder
- SinCos absolute encoder + TTL encoder
- Drive can accommodate two encoder modules installed in any of the three (3) option slots.

FieldBus Adapter modules

- Devicenet
- EtherNet IP
- Profinet
- Profibus
- ControlNet
- Modbus TCP
- Modbus RTU
- Powerlink
- EtherCAT
- Drive can accommodate two fieldbus adapters installed simultaneously (slot 1 and 2)

DDCS Fiber Optic network adapter module

- One (1) FDC0-0x fiber optic adapter module can be installed in any of the three(3) option slots.

Safety Functions Option module (FSO)

- The safety functions module (FSO) has its own connector. In frame sizes R1-R5, the module occupies Option slot 2.
- In frame sizes R6-R9, the module is mounted in dedicated mounting hole and does not occupy Option slot 2.
- Only one (1) safety functions module (FSO) can be installed.



ACH580 VARIABLE FREQUENCY DRIVES FOR HVAC APPLICATIONS

(Disconnect and Bypass Packages are available)

ABB Emergency Technical Support

Features:

- UL/cUL/CSA Approved
- NEMA1 as standard; optional: NEMA12, NEMA3R (outdoor)
- Complete with swinging choke – reduces harmonics, cost of energy and size/weight
- Embedded: BACnet MS/TP, Johnson Controls N2 & Modbus RTU
- Built-in timers and EMI/RFI filters
- Detachable advanced control panel for easy programming, copying/downloading parameters to other drives
- Start-up/Maintenance/Diagnostic Assistants for fast set up and eliminating or reducing down-time
- Stand alone operation: Serial communications remain active even with VFD removed allowing supervisory control of application in bypass mode & monitor V, A, KWhrs and much more.

abbautomation@gerrie.com

Applications:

- Cooling Tower Fans
- Supply and Return Fans
- Booster Pumps
- Condensers



HP	208-240 VAC			380-480 VAC			500-600VAC		
	Amps	Part Number	Frame	Amps	Part Number	Frame	Amps	Part Number	Frame
1	4.6	ACH580-01-04A6-2	R1	2.1	ACH580-01-02A1-4	R1	-	-	-
1.5	6.6	ACH580-01-06A6-2	R1	3.0	ACH580-01-03A0-4	R1	-	-	-
2	7.5	ACH580-01-07A5-2	R1	3.5	ACH580-01-03A5-4	R1	2.7	ACH580-01-02A7-6	R2
3	10.6	ACH580-01-10A6-2	R1	4.8	ACH580-01-04A8-4	R1	3.9	ACH580-01-03A9-6	R2
5	16.7	ACH580-01-017A-2	R1	7.6	ACH580-01-07A6-4	R1	6.1	ACH580-01-06A1-6	R2
7.5	24.2	ACH580-01-024A-2	R2	12	ACH580-01-012A-4	R1	9.0	ACH580-01-09A0-6	R2
10	30.8	ACH580-01-031A-2	R2	14	ACH580-01-014A-4	R2	11	ACH580-01-011A-6	R2
15	46.2	ACH580-01-046A-2	R3	23	ACH580-01-023A-4	R2	17	ACH580-01-017A-6	R2
20	59.4	ACH580-01-059A-2	R3	27	ACH580-01-027A-4	R3	22	ACH580-01-022A-6	R3
25	74.8	ACH580-01-075A-2	R4	34	ACH580-01-034A-4	R3	27	ACH580-01-027A-6	R3
30	88	ACH580-01-088A-2	R5	44	ACH580-01-044A-4	R3	32	ACH580-01-032A-6	R3
40	114	ACH580-01-114A-2	R5	52	ACH580-01-052A-4	R4	41	ACH580-01-041A-6	R5
50	143	ACH580-01-143A-2	R6	65	ACH580-01-065A-4	R4	52	ACH580-01-052A-6	R5
60	169	ACH580-01-169A-2	R7	77	ACH580-01-077A-4	R4	62	ACH580-01-062A-6	R5
75	211	ACH580-01-211A-2	R7	96	ACH580-01-096A-4	R5	77	ACH580-01-077A-6	R5
100	273	ACH580-01-273A-2	R8	124	ACH580-01-124A-4	R6	99	ACH580-01-099A-6	R7
125	-	-	-	156	ACH580-01-156A-4	R7	125	ACH580-01-125A-6	R7
150	-	-	-	180	ACH580-01-180A-4	R7	144	ACH580-01-144A-6	R8
200	-	-	-	240	ACH580-01-240A-4	R8	192	ACH580-01-192A-6	R9
250	-	-	-	302	ACH580-01-302A-4	R9	242	ACH580-01-242A-6	R9
250	-	-	-	-	-	-	271	ACH580-01-271A-6	R9
300	-	-	-	361	ACH580-01-361A-4	R9	-	-	-
350	-	-	-	414	ACH580-01-414A-4	R9	-	-	-

NOTE:

1. Always select the drive based on the motor name plate current and the application.
2. Control panel mounting kit for remote mounting of keypad is available from accessories on page 65
3. For the dimensional details, please refer to dimension chart page 65



ACH580 VARIABLE FREQUENCY DRIVES—PACKAGED DRIVES

INPUT DISCONNECT / BREAKER



NEMA 1



NEMA 3R

1-100 HP 208V / 1-350 HP 460V / 2-150 HP 600V

This configuration provides a means of disconnecting power to the drive system by either using a door interlocked, padlockable disconnect switch and fast-acting fuses or circuit breaker.

- **NEMA 1, NEMA 12 or NEMA 3R (outdoor) Enclosure**

E-CLIPSE BYPASS

Features:

- UL/cUL/CSA Approved
- NEMA1 as standard; option: NEMA12, NEMA3R (outdoor)
- Intelligent – Microprocessor Based Advanced Features with UL Listed Motor Overload Protection
- Bypass Serial Communications: First in the Industry to have BACnet MS/TP, Modbus & N2 protocols on board allows to go to bypass mode with no failed point on the communication network
- Single Phase Protection for motor – VFD and Bypass
- Stand Alone Operation: Serial communications still active, even with VFD removed allows supervisory control of application in bypass mode & monitor Volts, Amps, KWHrs and much more – even in bypass mode



NEMA 1

1-25 HP 208V / 1-60 HP 460V / 2-30 HP 600V

This configuration incorporates a cost & space saving design where the VFD and Bypass are assembled vertically. When wall space is at a premium, this is the ideal configuration. This option is available in a Type 1 enclosure only.

- **NEMA 1 Enclosure**
- **Main Circuit Breaker or Disconnect (Door Interlocked, Padlockable)**
- **Dedicated, Drive-only Input Fuses with Disconnect option**
- **Damper Control and Fireman's Override**



ACH580 AC DRIVES—ACCESSORIES AND OPTIONS

DOOR MOUNTING KIT

PART NUMBER: DPMP-EXT

The door mounting kit is ideal for cabinet installations. The protection class is UL (NEMA) type 12 / IP65 when panel is mounted, UL (NEMA) type open / IP20 when panel is not mounted.

OTHER MAJOR ENCLOSURE OPTIONS

DESCRIPTION	OPTION CODE
	(Factory installed option)
Protection Class	
NEMA 12 (IP55) For ACH580	+B056
NEMA 3R (outdoor)	+B058

Fieldbus Adapter Modules:

- Lonworks
- Profibus/DP
- Devicenet
- Ethernet/IP
- BACnet IP

Embedded : BACnet (MS/TP), Johnson Controls N2 and Modbus RTU

NOTE: For the factory installed options, add the above mentioned 4 digit option code using ‘+’ after the order code for the drive. For the field installed options, order it as a separate item using the above mentioned part number.

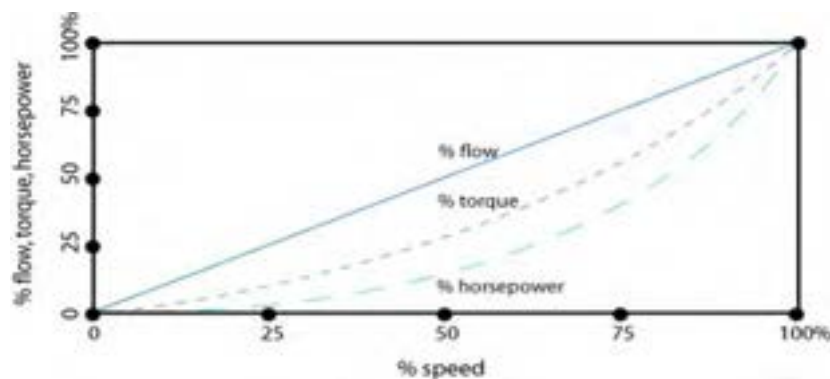


ENERGY SAVINGS WITH VARIABLE FREQUENCY DRIVES AND INVERTER DUTY MOTORS

The typical HVAC system is designed with a peak load condition in mind. However, since it is not uncommon for these systems to be running at a reduced load throughout most of the year, flow control mechanisms such as dampers, valves and inlet guide vanes are often used. While these methods are able to control the output flow of the system, they waste a lot of energy; the system is still running at the same capacity while the output flow is managed and diverted.

Controlling the output of the HVAC system itself can directly lead to significant energy savings. It is evident from the **Affinity Laws** which state relationships between HP, Flow, and Torque i.e.

- **Flow is proportional to speed**
- **Pressure (Torque) is proportional to speed squared**
- **Power (HP/kW) is proportional to speed cubed**



As a result of these relationships, we can see that a small reduction in the required airflow implies a large reduction in horsepower. In fact, running 2 motors at half speed requires less energy than running 1 motor at full speed.

APPLICATIONS FOR THE VARIABLE FREQUENCY DRIVES IN THE HVAC INDUSTRY

CENTRIFUGAL FAN: Centrifugal fans are often used to produce the air flow in HVAC systems, and two common methods of controlling this flow are discharge dampers and inlet guide vanes. While both of these are excellent ways of controlling the output of the HVAC system, they have a much higher energy requirement than an equivalent solution involving variable frequency drives. From the above diagram outlining the required horsepower as a function of the required air flow, you can see, the variable speed drive solution offers the greatest energy savings.

CENTRIFUGAL PUMP: The most common method of controlling the flow from a centrifugal pump is through the use of a throttling valve. From the above diagram outlining the required horsepower as a function of the required air flow, you can see, the variable speed drive solution offers the greatest energy savings.

COOLING TOWER: Cooling towers are used to lower the temperature of water for use in HVAC systems. This is done by blowing air across condenser water in order to transfer the heat out of the water and into the air. However, to achieve the correct amount of cooling, the centrifugal fan (which is used to blow the air) is cycled on and off according to the demand. This results in a poor use of energy, and a large increase on the mechanical stress experienced by the motor. By using a variable frequency drive, the centrifugal fan is able to run at a rate appropriate for the given demand. This results in a significant energy savings, as we discovered above.



Affinity Laws:

- Flow is proportional to Speed
- Pressure (Torque) is proportional to (Speed)²
- Power (HP/kW) is proportional to (Speed)³

From the Affinity Laws stated above, power consumed is proportional to cube of rated speed on variable torque loads. e.g. Centrifugal Fan/Pump/Blower

Example I:

50HP Motor running at 50% of nominal speed through VFD control will consume power equal to 6.25HP i.e. $50\text{HP} \times 0.5 \times 0.5 \times 0.5 = 50\text{HP} \times 0.125$ (12.5%) = 6.25HP, i.e. 87.5% savings

Cost to run a 50HP (37kW) motor per year = 37 kWatts x 365 days x 24 hrs x 0.14 c/kW-h x 0.95 efficiency = \$45,376.80
Say \$45,000 ... (A)

Summary: Savings = 87.5% of (A) = $0.875 \times \$45,000 = \$39,375$

Example II:

50HP Motor running at 80% of nominal speed through VFD control will consume power equal to 25.6HP i.e. $50\text{HP} \times 0.8 \times 0.8 \times 0.8 = 50\text{HP} \times 0.512$ (51.2%) = 25.6HP, i.e. 48.8% savings

Cost to run a 50HP (37kW) motor per year = 37 kWatts x 365 days x 24 hrs x 0.14c/kW-h x 0.95 efficiency = \$43,107.96
Say \$43,000 ... (A)

Summary: Savings = 48.8% of (A) = $0.488 \times \$43,000 = \$20,984$

Note:

Using Energy Savings Estimator software, Gerrie Electric will be pleased to submit Energy Savings Reports for your project(s).



ENERGY SAVING WITH VARIABLE FREQUENCY DRIVES

FACT

ABB's installed base of variable-speed drives have now save customers enough energy to serve a country of five million people, eliminating nearly 100 million tons of carbon dioxide emissions every year.

More than 65% of electrical energy consumed in industry is by the electric motor. Governments worldwide are realizing the need to encourage more effective use of motors with electrical variable speed drives.

It is evident from the Affinity Laws which state relationships between HP, Flow, and Torque; that 20% reduction in flow can result in approximately 50% reduction in horsepower for centrifugal loads like blower, fan, and pump.



ENERGY SAVING ESTIMATING TOOLS

ABB has developed software tools such as Energy Savings Estimator, PumpSave and FanSave for accessing the saving potential in different motor applications. PumpSave and FanSave have been essentials in the plant or design engineer's toolbox for more than a decade.

PumpSave is a calculation tool used to estimate the energy savings available when using a variable speed AC drive compared to other pump control systems. Comparisons are made with throttling control, ON/OFF control and adjustable speed control using a hydraulic or other type of slipping drive.

FanSave is a calculation tool used to estimate the energy savings available when using a variable speed AC drive compared to other fan control systems. Comparisons can be made with damper control, pitch control, single speed vane control and 2-speed vane control.



ENERGY APPRAISAL SCHEME

ABB has devised an Energy Appraisal Scheme that can rapidly determine just where and how much energy can be saved.

REPLACEMENT DRIVE SCHEME

If you have had drives installed for more than five years, you could save even more energy by replacing them with the latest technology drives. ABB's Replacement Drive Scheme offers you a turnkey solution for replacing drives, giving minimum plant disruption.

AC drives reduce energy wastage by changing the motor speed. This saves energy because the motor does not use more electrical energy than required.



ACH580 VARIABLE FREQUENCY DRIVES ENERGY SAVINGS ESTIMATING INFORMATION FORM

Customer

Contact	Company	Address	City, Postal Code
Phone	Cell	Fax	Email

Operation Data

Hours per Day of Operation (Hours)	Days per Week of Operation (Days)
Weeks per Year of Operation (Weeks)	Cost per kWh (Cents)

Application (Please select current control method)

Fan: No Speed Control Outlet Damper Control Inlet Vane Control

Pump: No Speed Control Throttling Valve Control

AC Motor Data

Motor Horsepower (HP)	Motor Voltage (V)	FLA (A)	Motor Efficiency (%)
-----------------------	-------------------	---------	----------------------

Duty Cycle

Flow (%)	Time (%)
100%	
90%	
80%	
70%	
60%	
50%	
40%	
30%	
20%	
10%	
0%	

For Gerrie Electric Use

Account Manager	
Branch Name	
Date	



VARIABLE FREQUENCY DRIVES APPLICATION AND QUOTATION

Customer Information:

Contact:	Company:	Address:	City, Postal Code:
Cell Phone:	Telephone:	Fax:	E-mail:

Motor Information:

kW/HP:	Voltage:	Phase:	Frequency:	RPM:	FLA/Amps.:
--------	----------	--------	------------	------	------------

Drive Input Information:

Voltage:	Phase:	Frequency:
----------	--------	------------

Application (e.g. Centrifugal Fan, Mixer, Conveyor, Induced Draft Fan, Centrifugal Pump):**Special Requirement(s):****Start-up (Please X either box) Installation not included:**

 By Customer:

 By Gerrie Electric:
For GERRIE ELECTRIC Use:

Suggested Drive Make, Model & Part No:

Account Manager:

Branch Name:

Date:



Motor Questionnaire

General	Motor HP :			
	If existing motor - picture of the nameplate			
	RPM (900, 1200, 1800, 3600) :			
	Voltage (115, 230, 460, 230/460, 575) :			
	Phase (1 phase, 3 phase) :	1 phase	<input type="checkbox"/>	3 phase <input type="checkbox"/>
	Mounting - foot or flange (C or D) :	Foot <input type="checkbox"/>	Flange <input type="checkbox"/>	
	Foot mount is normal and C flange is typical flange	C-Flange <input type="checkbox"/>	D-flange <input type="checkbox"/>	
	Enclosure (ODP or TEFC) :	ODP <input type="checkbox"/>	TEFC <input type="checkbox"/>	
	Application :			
	Service Factor :	typically 1.15-DOL 1.0-VFD		
VFD Related	ON VFD or across the line (DOL) or Both:	VFD <input type="checkbox"/>	DOL <input type="checkbox"/>	Both <input type="checkbox"/>
	Variable Torque (Centrifugal Fan or Centrifugal Pump) :	VT <input type="checkbox"/>	CT <input type="checkbox"/>	
	Constant Torque (Conveyor, Crusher, Extruder, etc) :			
	Speed Range (10:1 VT / 4:1 CT typical) :			
	Distance to the motor from VFD :	Long distances can cause insulation / bearing failure		
Others	Safe or Hazardous area :	Safe <input type="checkbox"/>	Hazardous <input type="checkbox"/>	
	Classification (Class 1 Div 2 or Zone 2) :			
	Groups (A,B,C,D or IIA, IIB, IIC) :			
	Any special options required :			
	VFD Output filter :	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
VFD Input reactor :	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Motor Shaft Grounding Brush :	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Motor Space heaters :	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Others :				







MORE MOTORS ARE AVAILABLE ... HERE ARE A FEW TYPES ...


GENERAL PURPOSE MOTORS – TEFC	
	<ul style="list-style-type: none"> • TENV & TEFC 1/12 – 15HP • ODP 1/6 – 10HP • C-face – with and without base, D-flange • 50Hz and 50/60Hz available • Designed for longevity with a 3 year warranty on premium efficient Super-E Motors • Suitable for inverter use per NEMA MG1 Part 31.4.4.2
GENERAL PURPOSE MOTORS – ODP	
	<ul style="list-style-type: none"> • TENV & TEFC 1/8 – 1500HP • 200, 230/460, 460, 575VAC • C-face – with and without base, D-flange • 50Hz and 50/60Hz available • Designed for longevity with a 3 year warranty on premium efficient Super-E Motors • Suitable for inverter use per NEMA MG1 Part 31.4.4.2
SEVERE DUTY MOTORS	
	<ul style="list-style-type: none"> • TENV & TEFC 1/2 – 3000HP • 200, 230/460, 460, 575, 690, Medium Voltage AC • Robust cast iron construction • C-face – with and without base, D-flange • Division 2 / Zone 2, Class 1, Groups A,B,C,D • IEEE Std. 841-2009 • Severe Duty and motors marked with inverter speed range • Design D (High slip) Oil Field Pump Motors 3 – 150HP • Inverter ready nameplate
WASH DOWN DUTY MOTORS	
	<ul style="list-style-type: none"> • TENV & TEFC 1/4 – 20HP • 200, 230/460, 460, 575VAC • Standard mounting and C-face – with and without base • White washdown, paint-free, stainless and SSE Encapsulated stainless designs • Feather pickers • 56J and Close-Coupled pump models available • Custom IEC available • 50Hz and 50/60Hz available



MOTORS (BALDOR—A DIVISION OF ABB)

<p>FARM DUTY MOTORS</p>	
	<ul style="list-style-type: none"> • Single and Three Phase • High torque designs • Premium efficient designs • Grain Dryers; Grain Augers; Irrigation Tower Drive; Aeration Fan; Dairy Vacuum Pump; Poultry Feed Auger Drive; Metering Pump • 115/230, 200, 230/460, 460, 575 VAC • 50Hz and 50/60Hz available
<p>RPM XE MOTORS</p>	
	<ul style="list-style-type: none"> • TEFC, severe duty, Design B, 1.15SF • Efficiency two or four levels above NEMA premium • Power dense and standard NEMA frame sizes • Designed for across the line operation • Suitable to adjustable frequency power in scalar mode • UP to IE3 combined system efficiency when properly matched with VFD • Operates at true synchronous speed regardless of load
<p>INVERTER / VECTOR MOTORS</p>	
	<ul style="list-style-type: none"> • TEFC & TEBC 1/3 – 1500HP • TEFC V*S Master 1/3 – 1500HP • Washdown motors ½ - 10HP • Explosion proof ½ - 75HP • Designed for adjustable frequency power and complies with MG1-part 31 • Turn Down Ratio of 1000:1 Constant Torque with provision for encoder mounting • Class H insulation
<p>INVERTER / VECTOR MOTORS – LAMINATED FRAME</p>	
	<ul style="list-style-type: none"> • TEFC & TEBC 5 – 1200HP – with or without feedback • Interior Permanent Magnet 10 – 1500HP • Custom NEMA and IEC Motors available • TENV 2 – 100HP • TEFC 71/2 – 200HP • TEBC 5 – 500HP • DPFV 5 – 1,200HP



Features:

- Scalable flexibility with the entire AC500 PLC family
- More user memory (128KB) than any comparable system on the market today
- Tried and tested CoDeSys programming environment across entire AC500 family
- Integrated serial interface parameterizes as Modbus Master/Slave, second serial port as an option
- Economical, cost effective concept
- More speed, program processing time of 0.1µs/instruction
- Advanced simulation mode allows program to be debugged w/o PLC hardware, reducing on-site testing req.
- Options such as Real Time Clock, SD card, programming cables etc. available
- One time buy life upgrade software package all in one ABB Control Suit, PLC, Drives, Panels and more


S500 INPUT/OUTPUT MODULES


- Universal Hardware, customized by software
Analog: U, I, PT100...
Digitals: input, output, counter
Function modules: PWM, interrupt, frequency counter...
- Same fieldbus interface module for different field busses
- Same terminal unit for digital and analog I/Os
- Same I/O modules for central and distributed systems
AC500 CPU: up to ten I/O modules
AC500-eCo CPU: up to seven I/O modules
Fieldbus module: up to seven I/O modules
- Pre-wiring without I/O module



AC500 PLC

Features:

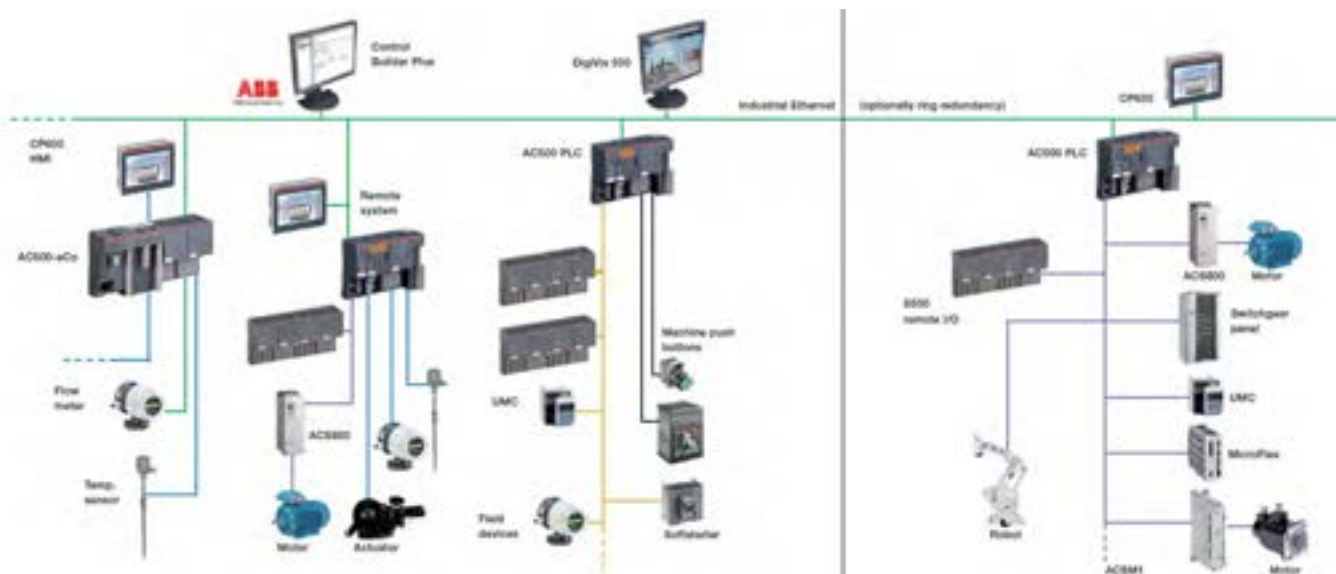
- Scalable control
- Wide choice of communication and field bus modules
- User-selectable coupler types for simultaneous operation
- Fast replacement thanks to plug-in modules
- A single software package for the entire range
- Seamless integration of control system and field devices
- Attractive price-performance ratio
- Extreme condition -30 +70 operational temperature , -40 reliable start
- Increased resistance to 95% humidity and salt mist
- Extended immunity to hazardous gases



AC500 can be a communication hub with the following protocols:



NOTE: Maximum of 4 protocols can be installed in 1 base + optional Ethernet on CPU



PANELS (TOUCH SCREENS)

CP600-eCo and CP600 Key features

- Front protection IP66
- Engineering software Panel Builder 600 integrated in Automation Builder

- Two versions available:
 - CP600-eCo / CP600: Configuration with Panel Builder 600 for clear tailor made visualization.
 - CP600-WEB: visualization of AC500 web server V2.3 with Automation Builder visualization.



- Brilliant colored display
- Use easily tags from PLC, drives, motion controller and robots configuration within Automation Builder

- Slim design for easily installation even in compact spaces
- Robust plastic housing
- Front protection IP66

CP600-eCo Control Panels

Display Size	Resolution	Type	Part Number
4.3"	480x272	CP604	1SAP504100R0001
7.0"	800x480	CP607	1SAP507100R0001
10.1"	1024x600	CP610	1SAP510100R0001



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Fax: (519) 740-2833

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Fax: (519) 823-0068

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