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Siemens SIRIUS IEC Starters

The SIRIUS IEC Starter is the new generation of IEC HP rated magnetic starters, designed to meet and exceed today's market requirements for HP rated starters.

The new SIRIUS Starters take advantage of the reliability of the SIRIUS line of contactors and overload relays in addition to the new line of SIRIUS ACT 3SU 22mm pilot devices as the standard control device.

As evident in the design and size, all efforts were put in place to offer a new line of starters that exceeds the performance of the previous generation.

The SIRIUS IEC Starters line also offers more price flexibility in the very competitive starters market.

SIRIUS Starters Features:

- CSA approved
- 100HP, 600V max
- Auxiliary contacts available
- Ambient 60°C on contactors
- Fast and simple 3-prong overload contactor connection: no coil extension required
- Standard primary and secondary fusing on control transformers
- Standard 22mm SIRIUS ACT Control Devices

SIRIUS HP Rated Magnetic Starters

Selection

Catalogue Number Selection Guide

Starter Series	Disconnect Type	Starter Type	Enclosure Type	Contactor Ref. Number	Coil Voltage	Overload Relay Setting Range
		page 15/5 - 15/18				page 15/19
V SIRIUS IEC HP rated Starter N SIRIUS IEC NEMA rated Starter	1 Non-combination 2 Circuit breaker combination 3 Non-fusible type 4 Fusible combination	A FVNR B FVR N 2S1W constant or variable torque R 2S1W constant horsepower U 2S2W constant horsepower W 2S2W constant or variable torque	B CSA type 1 EEMAC type 1 general purpose C CSA type 5 EEMAC type 12 dust tight industrial use D CSA type 4 EEMAC type 4 watertight F CSA type 4x EEMAC type 4x watertight corrosion resistant	15 3RT2015 16 3RT2016 17 3RT2017 18 3RT2018 25 3RT2025 26 3RT2026 27 3RT2027 35 3RT2035 36 3RT2036 37 3RT2037 38 3RT2038 45 3RT2045 46 3RT2046 47 3RT2047	C 24V/60Hz 24V/50Hz K 120V/60 Hz 110V/50Hz M 208V/60Hz P 240V/60Hz 220V/50Hz V 460V/60Hz 380V/50Hz T 600V/60Hz Z Others Specify	0A to 4M Standard Class 10 bimetal overload relay 2R to 2U Optional Class 20 electronic overload relay (for 3ph only) 00 Provision for field mounting of overload relay

Catalogue Number Selection Guide

Power Line Voltage	Control Circuit	Additional Auxiliary Contacts	Pilot Devices				
			Operators		Indicators		
			Operators Type	Legend Plate(s)	Indicator type	Functions	Colour Choice
page 15/20		page 15/21	pages 15/21 - 15/22		page 15/22	page 15/23	
6 600V Max. Distributor Stock 1 120V/1Ph/60Hz 2 208V/3PH/60Hz 3 230V/3PH/60Hz 4 460V/3Ph/60Hz 5 575V/3Ph/60Hz 7 230V/1Ph/60Hz 9 Other Specify	0 Separate control circuit, unfused N Separate control circuit, fused max 250V P Common control with one control fuse (for 120V 1ph only) R Standard control transformer c/w 2 prim. & 1 sec. 120V fuse U Extra 50VA capacity Control Transformer W Extra 100VA capacity Control Transformer 9 Other Specify	0 None E 4 N.O. F 1 N.O. + 1 N.C. J 3 N.O. + 1 N.C. K 2 N.C. L 2 N.O. M 2 N.O. + 2 N.C. 9 Other Specify	0 none 1 or 2 1 push button extended head red 3 or 4 1 twist lock mushroom red 5 or 6 2 push buttons 1-red, 1-green 7 or 8 3 push buttons 1-red, 2-black A or B 2 pos. selector switch C or D 2 pos. selector switch spring return E or F 2 pos. selector switch key operated G or H 3 pos. selector switch J or K 3 pos. selector switch spring return L or M 3 pos. selector switch key operated N or P 3 pos. selector switch spring return key operated T or U 3 pos. selector switch and 2 push buttons START STOP for hand operation 9 Other Specify	0 none A EMERGENCY STOP B STOP C START STOP D ON OFF E to J 3 legend plates for 3 push button K to T 1 legend plate for 2 pos. selector switch 1 to 8 1 legend plate for 3 pos. selector switch X 3 legend plates for 3 pos. selector switch and START STOP push button 9 Other Specify	0 none 5 or 6 Full Voltage 120V LED c/w legend plate(s) 7 or 8 Full Voltage 24V LED c/w legend plate(s)	0 none 1 to 5 1 indicator for 1 function 6 to E 2 indicators for 2 functions F to R 3 indicators for 3 functions	0 none C to F Colour choice for 1 indicator 1 to 6 Colour choice for 2 indicators K to P Colour choice for 3 indicators

General

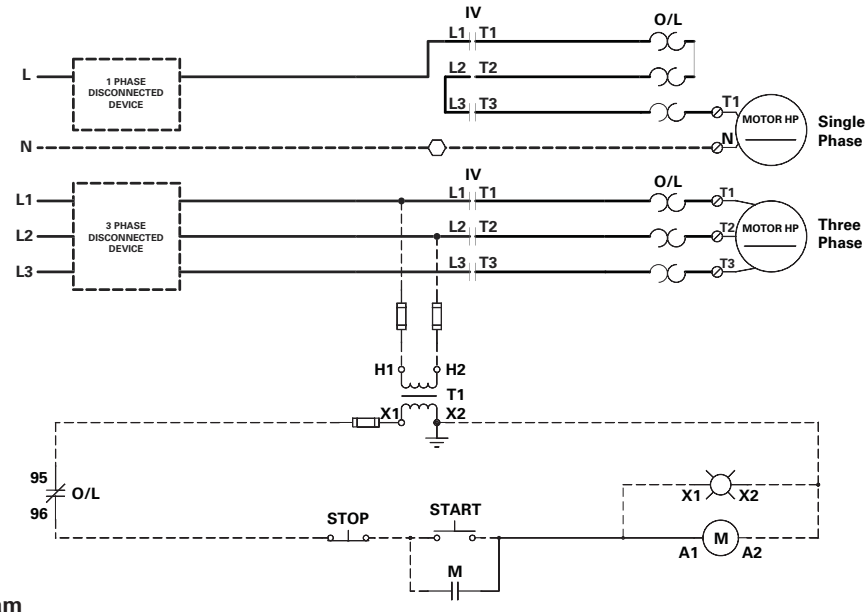
Description

Siemens full voltage non-reversing type starters are designed for full voltage across-the-line starting of single or 3-phase squirrel cage motors. They also can be used as the primary control of wound rotor motors.

Combined with short circuit protection, FVNR starters are also offered as combination starters.

- Fusible disconnect type complete with Form I, Class J fuse clips.
- Circuit breaker type or as Non-Fusible Controller.

FVNR starters are available up to 100HP, 600V AC, EEMAC type 1, 12, 4 or 4X sheet metal enclosed. They are an assembly of the proven 3RT contactors and the exclusive 3RU bimetal overload relays.



FVNR Typical Wiring Diagram

Catalogue Number:

V 1 A B 1 5 K . . . . Z . .

- HP Rated Starter
- Disconnect Type
- Starter Type
- Enclosure Type
- Contactor Ref.
- Coil Voltage
- Overload Relay
- Power Line Volt. and Control Circuit
- Additional Aux. Contacts
- Pilot Devices Operators
- Pilot Devices Indicators
- Other options (fuse clips, control & timing relays, metering & protective devices, etc)

Full Voltage Non-Reversing

Non-Combination

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 1 NO auxiliary contact on all 20A enclosed, with options to add extra contacts ▪ 3 NO + 3 NC auxiliary contacts on all other sizes ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below. ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Non-Combination HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux①, Contacts supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	15	1	–	**V1AB15K..**	V0	**V1AC15K..**	S
	1/3	1	2	3	5	**7 1/2**	16	1	–	**V1AB16K..**		**V1AC16K..**	
	1/2	2	3	3	7 1/2	**10**	17	1	–	**V1AB17K..**		**V1AC17K..**	
	1	2	3	5	10	**10**	18	1	–	**V1AB18K..**		**V1AC18K..**	
35	1	3	5	5	10	**15**	25	3	3	**V1AB25K..**	V1	**V1AC25K..**	S
	2	3	5	7 1/2	15	**20**	26	3	3	**V1AB26K..**		**V1AC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V1AB27K..**	V1	**V1AC27K..**	S
	3	5	10	10	25	**25**	28	3	3	**V1AB28K..**		**V1AC28K..**	
55	3	7 1/2	10	15	30	**40**	35	3	3	**V1AB35K..**	V2	**V1AC35K..**	H2
60	3	10	15	15	40	**50**	36	3	3	**V1AB36K..**	V2	**V1AC36K..**	H2
80	5	10	20	20	50	**50**	37	3	3	**V1AB37K..**	V2	**V1AC37K..**	H2
90	5	15	20	25	50	**60**	38	3	3	**V1AB38K..**	V2	**V1AC38K..**	H2
105	7 1/2	15	25	30	60	**60**	45	3	3	**V1AB45K..**	V4	**V1AC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V1AB46K..**	V4	**V1AC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V1AB47K..**	V4	**V1AC47K..**	H5

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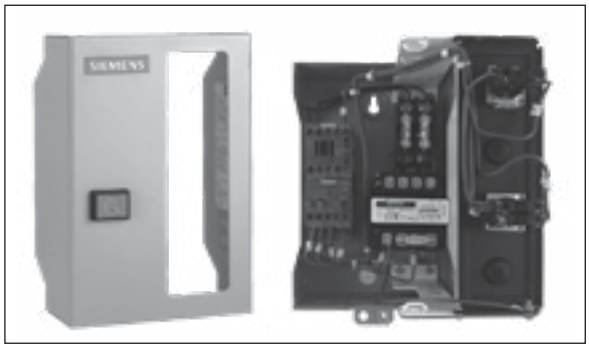


① Some Aux contacts may be used for control options, where necessary.

Full Voltage Non-Reversing

Circuit Breaker Combination

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 1 NO auxiliary contact on all 20A enclosed, with options to add extra contacts ▪ 3 NO + 3NC auxiliary contacts on all other sizes ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Circuit Breaker Combination[a] HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux, Contacts[2] supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
	1/4	3/4	$1^{1/2}$	2	3	**5**	15	1	–	**V2AB15K..**		**V2AC15K..**	
20	1/3	1	2	3	5	**$7^{1/2}$**	16	1	–	**V2AB16K..**	V2	**V2AC16K..**	H2
	1/2	2	3	3	7 1/2	**10**	17	1	–	**V2AB17K..**		**V2AC17K..**	
	1	2	3	5	10	**10**	18	1	–	**V2AB18K..**		**V2AC18K..**	
35	1	3	5	5	10	**15**	25	3	3	**V2AB25K..**	V2	**V2AC25K..**	H2
	2	3	5	$7^{1/2}$	15	**20**	26	3	3	**V2AB26K..**		**V2AC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V2AB27K..**	V2	**V2AC27K..**	H2
	3	5	10	10	25	**25**	28	3	3	**V2AB28K..**		**V2AC28K..**	
55	3	$7^{1/2}$	10	15	30	**40**	35	3	3	**V2AB35K..**	V2	**V2AC35K..**	H2
60	3	10	15	15	40	**50**	36	3	3	**V2AB36K..**	V2	**V2AC36K..**	H2
80	5	10	20	20	50	**50**	37	3	3	**V2AB37K..**	V2	**V2AC37K..**	H2
90	5	15	20	25	50	**60**	38	3	3	**V2AB38K..**	V2	**V2AC38K..**	H2
105	$7^{1/2}$	15	25	30	60	**60**	45	3	3	**V2AB45K..**	V4	**V2AC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V2AB46K..**	V4	**V2AC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V2AB47K..**	V4	**V2AC47K..**	H5

NEMA rated available - contact your Siemens representative

① Factory will automatically select the circuit breaker based on standard or given motor full-load current and the following:
- Continuous-current rating of a minimum 115% of motor full-load current.
- Trip-setting position is 11 times motor full load current.

② Some aux contacts may be used for control options, where necessary.

Full Voltage Non-Reversing

Fusible Switch Combination and Non-Fusible Starter

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 1 NO auxiliary contact on all 20A enclosed, with options to add extra contacts ▪ 3 NO + 3NC auxiliary contacts on all other sizes ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Fusible Switch Combinations and Non-Fusible Starters HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						FUSE CLIPS Type IJ Amps	Contactor reference number	Aux. Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase								CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V			NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	NONE 30	15	1	–	**V3AB15K..** **V4AB15K..**	V2	**V3AC15K..** **V4AC15K..**	H2
	1/3	1	2	3	5	**7 1/2**	NONE 30	16	1	–	**V3AB16K..** **V4AB16K..**		**V3AC16K..** **V4AC16K..**	
	1/2	2	3	3	7 1/2	**10**	NONE 30	17	1	–	**V3AB17K..** **V4AB17K..**		**V3AC17K..** **V4AC17K..**	
35	1	2	3	5	10	**10**	NONE 30	18	1	–	**V3AB18K..** **V4AB18K..**		**V3AC18K..** **V4AC18K..**	
	1	3	5	5	10	**15**	NONE 30 60	25	3	3	**V3AB25K..** **V4AB25K..** **V4AB25K..**		**V3AC25K..** **V4AC25K..** **V4AC25K..**	
	2	3	5	7 1/2	15	**20**	NONE 30 60	26	3	3	**V3AB26K..** **V4AB26K..** **V4AB26K..**		**V3AC26K..** **V4AC26K..** **V4AC26K..**	
42	2	5	10	10	20	**25**	NONE 30 60	27	3	3	**V3AB27K..** **V4AB27K..** **V4AB27K..**		**V3AC27K..** **V4AC27K..** **V4AC27K..**	
	3	5	10	10	25	**25**	NONE 30 60	28	3	3	**V3AB28K..** **V4AB28K..** **V4AB28K..**		**V3AC28K..** **V4AC28K..** **V4AC28K..**	
55	3	7 1/2	10	15	30	**40**	NONE 30 60	35	3	3	**V3AB35K..** **V4AB35K..** **V4AB35K..**	V2	**V3AC35K..** **V4AC35K..** **V4AC35K..**	H2
60	3	10	15	15	40	**50**	NONE 30 60 100	36	3	3	**V3AB36K..** **V4AB36K..** **V4AB36K..** **V4AB36K..**	V2	**V3AC36K..** **V4AC36K..** **V4AC36K..** **V4AC36K..**	H2
80	5	10	20	20	50	**50**	NONE 30 60 100	37	3	3	**V3AB37K..** **V4AB37K..** **V4AB37K..** **V4AB37K..**	V2	**V3AC37K..** **V4AC37K..** **V4AC37K..** **V4AC37K..**	H2
90	5	15	20	25	50	**60**	NONE 30 60 100	38	3	3	**V3AB38K..** **V4AB38K..** **V4AB38K..** **V4AB38K..**	V2	**V3AC38K..** **V4AC38K..** **V4AC38K..** **V4AC38K..**	H2
105	–	–	–	–	–	**60**	NONE 60 100	45	3	3	**V3AB45K..** **V4AB45K..** **V4AB45K..**	V4	**V3AC45K..** **V4AC45K..** **V4AC45K..**	H5

NEMA rated available - contact your Siemens representative

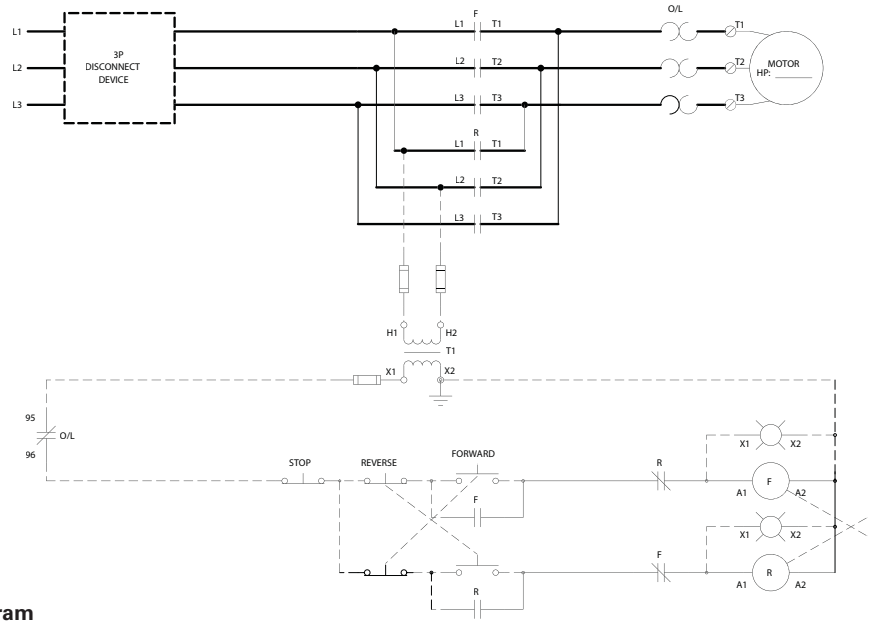
General

Description
Siemens full voltage reversing type starters are designed for full voltage across-the-line starting and reversing of single or 3-phase squirrel cage motors. They also can be used as the primary control of wound rotor motors.

Combined with short circuit protection, FVR starters are also offered as combination starters:

- Fusible disconnect type complete with Form I, Class J fuse clips.
- Circuit breaker type or as Non-Fusible Controller.

FVR - starters are available up to 100HP, 600V AC in EEMAC Type 1, 12, 4 or 4X sheet metal enclosures. FVR - starters are an assembly of the 3RA Reversing Contactor including electrical and mechanical interlock and a 3RU bimetallic overload relay.



FVNR Typical Wiring Diagram

Catalogue No.:

V1	B	B	15	K	..	..	.	..	...	.

- HP Rated Starter
- Disconnect Type
- Starter Type
- Enclosure Type
- Contactor Ref.
- Coil Voltage
- Overload Relay
- Power Line Volt. and Control Circuit
- Additional Aux. Contacts
- Pilot Devices Operators
- Pilot Devices Indicators
- Other options
  (fuse clips, control & timing relays, metering & protective devices, etc)

Full Voltage Reversing

Non-Combination

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Non-Combination HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux, Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
	1/4	3/4	1 1/2	2	3	**5**	15	2	3	**V1BB15K..**		**V1BC15K..**	
20	1/3	1	2	3	5	**7 1/2**	16	2	3	**V1BB16K..**	V1	**V1BC16K..**	S
	1/2	2	3	3	7 1/2	**10**	17	2	3	**V1BB17K..**		**V1BC17K..**	
	1	2	3	5	10	**10**	18	2	3	**V1BB18K..**		**V1BC18K..**	
35	1	3	5	5	10	**15**	25	3	3	**V1BB25K..**	V1	**V1BC25K..**	S
	2	3	5	7 1/2	15	**20**	26	3	3	**V1BB26K..**		**V1BC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V1BB27K..**	V1	**V1BC27K..**	S
	3	5	10	10	25	**25**	28	3	3	**V1BB28K..**		**V1BC28K..**	
55	3	7 1/2	10	15	30	**40**	35	3	3	**V1BB35K..**	V2	**V1BC35K..**	H2
60	3	10	15	15	40	**50**	36	3	3	**V1BB36K..**	V2	**V1BC36K..**	H2
80	5	10	20	20	50	**50**	37	3	3	**V1BB37K..**	V2	**V1BC37K..**	H2
90	5	15	20	25	50	**60**	38	3	3	**V1BB38K..**	V2	**V1BC38K..**	H2
105	7 1/2	15	25	30	60	**60**	45	3	3	**V1BB45K..**	V4	**V1BC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V1BB46K..**	V4	**V1BC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V1BB47K..**	V4	**V1BC47K..**	H5

NEMA rated available - contact your Siemens representative

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Full Voltage Reversing

Circuit Breaker Combination

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Circuit Breaker Combination HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux. Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
	1/4	3/4	1 1/2	2	3	**5**	15	2	3	**V2BB15K..**		**V2BC15K..**	
20	1/3	1	2	3	5	**7 1/2**	16	2	3	**V2BB16K..**	V3	**V2BC16K..**	H3
	1/2	2	3	3	7 1/2	**10**	17	2	3	**V2BB17K..**		**V2BC17K..**	
	1	2	3	5	10	**10**	18	2	3	**V2BB18K..**		**V2BC18K..**	
35	1	3	5	5	10	**15**	25	3	3	**V2BB25K..**	V3	**V2BC25K..**	H3
	2	3	5	7 1/2	15	**20**	26	3	3	**V2BB26K..**		**V2BC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V2BB27K..**	V3	**V2BC27K..**	H3
	3	5	10	10	25	**25**	28	3	3	**V2BB28K..**		**V2BC28K..**	
55	3	7 1/2	10	15	30	**40**	35	3	3	**V2BB35K..**	V3	**V2BC35K..**	H3
60	3	10	15	15	40	**50**	36	3	3	**V2BB36K..**	V3	**V2BC36K..**	H3
80	5	10	20	20	50	**50**	37	3	3	**V2BB37K..**	V3	**V2BC37K..**	H3
90	5	15	20	25	50	**60**	38	3	3	**V2BB38K..**	V3	**V2BC38K..**	H3
105	7 1/2	15	25	30	60	**60**	45	3	3	**V2BB45K..**	V4	**V2BC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V2BB46K..**	V4	**V2BC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V2BB47K..**	V4	**V2BC47K..**	H5

NEMA rated available - contact your Siemens representative

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Full Voltage Reversing

Fusible Switch Combination and Non-Fusible Starterr

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table specify a 120V 60 Hz coil. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Fusible Switch Combinations and Non-Fusible Starters HP Rated

Enclosed Amps	CSA MAXIMUM HP RATING						FUSE CLIPS Type IJ Amps	Contactor reference number	Aux. Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase								CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V			NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	NONE 30	15	2	3	**V3BB15K..** **V4BB15K..**	V3	**V3BC15K..** **V4BC15K..**	H2
	1/3	1	2	3	5	**7 1/2**	NONE 30	16	2	3	**V3BB16K..** **V4BB16K..**		**V3BC16K..** **V4BC16K..**	
	1/2	2	3	3	7 1/2	**10**	NONE 30	17	2	3	**V3BB17K..** **V4BB17K..**		**V3BC17K..** **V4BC17K..**	
	1	2	3	5	10	**10**	NONE 30	18	2	3	**V3BB18K..** **V4BB18K..**		**V3BC18K..** **V4BC18K..**	
35	1	3	5	5	10	**15**	NONE 30 60	25	3	3	**V3BB25K..** **V4BB25K..** **V4BB25K..**	V3	**V3BC25K..** **V4BC25K..** **V4BC25K..**	H2
	2	3	5	7 1/2	15	**20**	NONE 30 60	26	3	3	**V3BB26K..** **V4BB26K..** **V4BB26K..**		**V3BC26K..** **V4BC26K..** **V4BC26K..**	
42	2	5	10	10	20	**25**	NONE 30 60	27	3	3	**V3BB27K..** **V4BB27K..** **V4BB27K..**	V3	**V3BC27K..** **V4BC27K..** **V4BC27K..**	H2
	3	5	10	10	25	**25**	NONE 30 60	28	3	3	**V3BB28K..** **V4BB28K..** **V4BB28K..**		**V3BC28K..** **V4BC28K..** **V4BC28K..**	H2
55	3	7 1/2	10	15	30	**40**	NONE 30 60	35	3	3	**V3BB35K..** **V4BB35K..** **V4BB35K..**	V3	**V3BC35K..** **V4BC35K..** **V4BC35K..**	H2
60	3	10	15	15	40	**50**	NONE 30 60 100	36	3	3	**V3BB36K..** **V4BB36K..** **V4BB36K..** **V4BB36K..**	V3	**V3BC36K..** **V4BC36K..** **V4BC36K..** **V4BC36K..**	H2
80	5	10	20	20	50	**50**	NONE 30 60 100	37	3	3	**V3BB37K..** **V4BB37K..** **V4BB37K..** **V4BB37K..**	V3	**V3BC37K..** **V4BC37K..** **V4BC37K..** **V4BC37K..**	H2
90	5	15	20	25	50	**60**	NONE 30 60 100	38	3	3	**V3BB38K..** **V4BB38K..** **V4BB38K..** **V4BB38K..**	V3	**V3BC38K..** **V4BC38K..** **V4BC38K..** **V4BC38K..**	H2
105	–	–	–	–	–	**60**	NONE 60 100	45	3	3	**V3BB45K..** **V4BB45K..** **V4BB45K..**	V4	**V3BC45K..** **V4BC45K..** **V4BC45K..**	H5

NEMA rated available - contact your Siemens representative

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Description

Full-voltage ac magnetic two speed controllers are designed to control reconnectable squirrel-cage induction motors for operation at two different constant speeds depending on the construction of the motor. These controllers are available in combination and non-combination types. The speed of an induction motor is a function of the supply frequency and the number of poles of the motor winding. To obtain different speeds with a fixed supply frequency, the number of magnetic poles of the motor must be changed. Characteristics at any speed are similar to those of a single-speed motor. There are two basic methods of providing multiple-pole combinations:

Separate-Winding Motors have a separate winding for each speed. This motor construction is slightly more expensive, but the controller is relatively simple, and a wide variety of speeds can be selected. Separate winding motors with delta connected motor windings require one corner to be opened on each unused winding.

Consequent-Pole Motors have a single winding for two speeds. Extra winding taps are brought out for reconnection for different number of stator poles. While the motor costs less, the controller is more complicated, and speed range is limited to a 2-to-1 ratio.

Torque Characteristics

Multi-speed motors are divided into three application groups:

Constant Torque - HP output varies directly with speed, while torque remains constant. A constant-torque motor rated 100 HP at 1200 rpm delivers 50 HP at 600 rpm. This type is applicable to conveyors, mills, dough mixers, reciprocating pumps, and other similar loads.

Variable Torque - HP varies as a square of speed, while torque varies directly with speed. A variable-torque motor rated 100 HP at 1200 rpm delivers 25 HP at 600 rpm. This type is applicable to systems having fan or centrifugal pump characteristics.

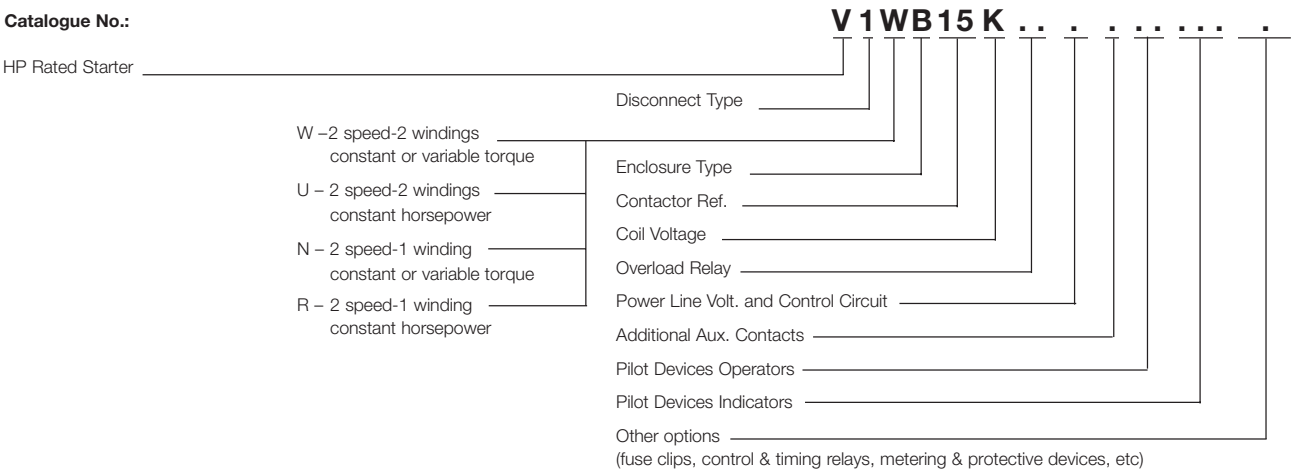
Constant Horsepower - Motor delivers rated HP at all full-load speeds, while torque varies inversely to speed. This type is applicable to cutting tools, lathes, spindles, etc.

Selection and Ordering

Starter ratings are based on the maximum HP at the highest speed. Electrical interlocking is furnished on all multi-speed starters to preclude connecting more than one speed winding at the same time. Both mechanical and electrical interlocking is provided wherever there is a possibility of short circuiting of the line.

Standard wiring permits starting the motor on any speed. To change a running motor to a higher speed, operator presses the desired speed button. To change to a lower speed, operator must press "stop" button before selecting the lower speed; allowing time for the motor to slow down, this reduces shock on driven machinery and surges on the power system.

When control at various speeds is by means of two-wire control devices, such as limit, pressure or float switches,deceleration relays should be used,unless both the motor manufacturer and the machine manufacturer have been consulted.



Two Speed Two Winding Starters

Non-Combination, Constant or Variable Torque

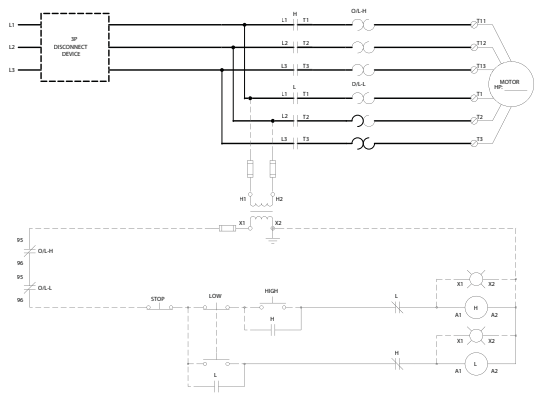
Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Non-Combination HP Rated										For Constant Horsepower, 'W' is replaced with 'U'			
Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux. Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	15	3	2	**V1WB15K..**	V1	**V1WC15K..**	S
	1/3	1	2	3	5	**7 1/2**	16	3	2	**V1WB16K..**		**V1WC16K..**	
	1/2	2	3	3	7 1/2	**10**	17	3	2	**V1WB17K..**		**V1WC17K..**	
35	1	2	3	5	10	**10**	18	3	3	**V1WB18K..**	V2	**V1WC18K..**	H2
	1	3	5	5	10	**15**	25	3	3	**V1WB25K..**		**V1WC25K..**	
	2	3	5	7 1/2	15	**20**	26	3	3	**V1WB26K..**		**V1WC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V1WB27K..**		**V1WC27K..**	
	3	5	10	10	25	**25**	28	3	3	**V1WB28K..**		**V1WC28K..**	
55	3	7 1/2	10	15	30	**40**	35	3	3	**V1WB35K..**	V2	**V1WC35K..**	H2
60	3	10	15	15	40	**50**	36	3	3	**V1WB36K..**	V2	**V1WC36K..**	H2
80	5	10	20	20	50	**50**	37	3	3	**V1WB37K..**	V2	**V1WC37K..**	H2
90	5	15	20	25	50	**60**	38	3	3	**V1WB38K..**	V2	**V1WC38K..**	H2
105	7 1/2	15	25	30	60	**60**	45	3	3	**V1WB45K..**	V4	**V1WC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V1WB46K..**	V4	**V1WC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V1WB47K..**	V4	**V1WC47K..**	H5

NEMA rated available - contact your Siemens representative



2S2W Typical Wiring Diagram

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Two Speed Two Winding Starters

Circuit Breaker Combination, Constant or Variable Torque

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Circuit Breaker Combination[a] HP Rated									For Constant Horsepower, 'W' is replaced with 'U'			
Enclosed Amps	CSA MAXIMUM HP RATING						Contactor reference number	Aux. Contacts② supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase							CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	15	3	2	**V2WB15K..**	V3	**V2WC15K..**	H3
	1/3	1	2	3	5	**7 1/2**	16	3	2	**V2WB16K..**		**V2WC16K..**	
	1/2	2	3	3	7 1/2	**10**	17	3	2	**V2WB17K..**		**V2WC17K..**	
35	1	2	3	5	10	**10**	18	3	3	**V2WB18K..**		**V2WC18K..**	
	1	3	5	5	10	**15**	25	3	3	**V2WB25K..**	V3	**V2WC25K..**	H3
	2	3	5	7 1/2	15	**20**	26	3	3	**V2WB26K..**		**V2WC26K..**	
42	2	5	10	10	20	**25**	27	3	3	**V2WB27K..**	V3	**V2WC27K..**	H3
	3	5	10	10	25	**25**	28	3	3	**V2WB28K..**		**V2WC28K..**	
55	3	7 1/2	10	15	30	**40**	35	3	3	**V2WB35K..**	V3	**V2WC35K..**	H3
60	3	10	15	15	40	**50**	36	3	3	**V2WB36K..**	V3	**V2WC36K..**	H3
80	5	10	20	20	50	**50**	37	3	3	**V2WB37K..**	V3	**V2WC37K..**	H3
90	5	15	20	25	50	**60**	38	3	3	**V2WB38K..**	V3	**V2WC38K..**	H3
105	7 1/2	15	25	30	60	**60**	45	3	3	**V2WB45K..**	V4	**V2WC45K..**	H5
115	10	–	30	30	75	**75**	46	3	3	**V2WB46K..**	V4	**V2WC46K..**	H5
125	10	–	30	40	75	**100**	47	3	3	**V2WB47K..**	V4	**V2WC47K..**	H5

NEMA rated available - contact your Siemens representative

① Factory will automatically select the circuit breaker based on standard or given motor full-load current and the following:
- Continuous-current rating of a minimum 115% of motor full-load current.
- Trip-setting position is 11 times motor full load current.

② Some aux contacts may be used for control options and electrical interlock, where necessary.

Two Speed Two Winding Starters

Fusible Switch Combination & Non-Fusible Starter, Constant or Variable Torque *Selection*

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ 2 NO + 2 NC contact block supplied per contactor. ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Fusible Switch Combinations and Non-Fusible Starters HP Rated											For Constant Horsepower, 'W' is replaced with 'U'			
Enclosed Amps	CSA MAXIMUM HP RATING						FUSE CLIPS Type IJ Amps	Contactor reference number	Aux, Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
	1 phase		3 phase								CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	115V	230V	208V	230V	460V	575V			NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1/4	3/4	1 1/2	2	3	**5**	NONE 30	15	3	2	**V3WB15K..** **V4WB15K..**	V3	**V3WC15K..** **V4WC15K..**	H3
	1/3	1	2	3	5	**7 1/2**	NONE 30	16	3	2	**V3WB16K..** **V4WB16K..**		**V3WC16K..** **V4WC16K..**	
	1/2	2	3	3	7 1/2	**10**	NONE 30	17	3	2	**V3WB17K..** **V4WB17K..**		**V3WC17K..** **V4WC17K..**	
	1	2	3	5	10	**10**	NONE 30	18	2	2	**V3WB18K..** **V4WB18K..**		**V3WC18K..** **V4WC18K..**	
35	1	3	5	5	10	**15**	NONE 30 60	25	2	2	**V3WB25K..** **V4WB25K..** **V4WB25K..**	V3	**V3WC25K..** **V4WC25K..** **V4WC25K..**	H3
	2	3	5	7 1/2	15	**20**	NONE 30 60	26	2	2	**V3WB26K..** **V4WB26K..** **V4WB26K..**		**V3WC26K..** **V4WC26K..** **V4WC26K..**	
42	2	5	10	10	20	**25**	NONE 30 60	27	2	2	**V3WB27K..** **V4WB27K..** **V4WB27K..**	V3	**V3WC27K..** **V4WC27K..** **V4WC27K..**	H3
	3	5	10	10	25	**25**	NONE 30 60	28	2	2	**V3WB28K..** **V4WB28K..** **V4WB28K..**		**V3WC28K..** **V4WC28K..** **V4WC28K..**	
55	3	7 1/2	10	15	30	**40**	NONE 30 60	35	2	2	**V3WB35K..** **V4BWB35K..** **V4WB35K..**	V3	**V3WC35K..** **V4WC35K..** **V4WC35K..**	H3
60	3	10	15	15	40	**50**	NONE 30 60 100	36	2	2	**V3WB36K..** **V4WB36K..** **V4WB36K..** **V4WB36K..**	V3	**V3WC36K..** **V4WC36K..** **V4WC36K..** **V4WC36K..**	H3
80	5	10	20	20	50	**50**	NONE 30 60 100	37	2	2	**V3WB37K..** **V4WB37K..** **V4WB37K..** **V4WB37K..**	V3	**V3WC37K..** **V4WC37K..** **V4WC37K..** **V4WC37K..**	H3
90	5	15	20	25	50	**60**	NONE 30 60 100	38	2	2	**V3WB38K..** **V4WB38K..** **V4WB38K..** **V4WB38K..**	V3	**V3WC38K..** **V4WC38K..** **V4WC38K..** **V4WC38K..**	H3
105	–	–	–	–	–	**60**	NONE 60 100	45	2	2	**V3AB45K..** **V4AB45K..** **V4AB45K..**	V4	**V3AC45K..** **V4AC45K..** **V4AC45K..**	H5

NEMA rated available - contact your Siemens representative

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Two Speed Single Winding Starters

Non-Combination, Constant or Variable Torque

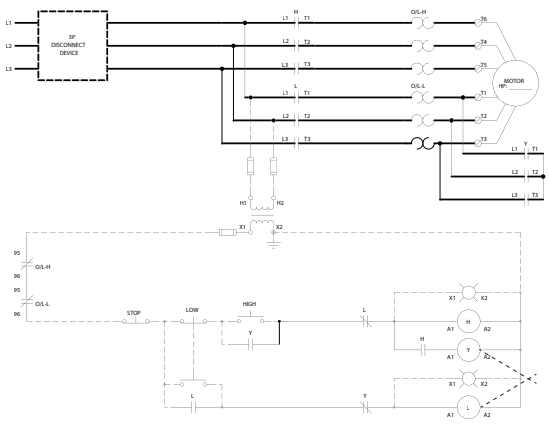
Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetal overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Non-Combination HP Rated								For Constant Horsepower, 'N' is replaced with 'R'			
								Enclosure Sheet Metal			
								CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
Enclosed Amps	3 phase				Contactor reference number	Aux. Contacts① supplied as standard per contactor					
	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	$1^{1/2}$	2	3	**5**	15	2	3	**V1NB15K..**	V2	**V1NC15K..**	H2
	2	3	5	**$7^{1/2}$**	16	2	3	**V1NB16K..**		**V1NC16K..**	
	3	3	$7^{1/2}$	**10**	17	2	3	**V1NB17K..**		**V1NC17K..**	
35	3	5	10	**10**	18	2	3	**V1NB18K..**	V2	**V1NC18K..**	H2
	5	5	10	**15**	25	3	3	**V1NB25K..**		**V1NC25K..**	
	5	$7^{1/2}$	15	**20**	26	3	3	**V1NB26K..**		**V1NC26K..**	
42	10	10	20	**25**	27	3	3	**V1NB27K..**	V2	**V1NC27K..**	H2
	10	10	25	**25**	28	3	3	**V1NB28K..**		**V1NC28K..**	
55	10	15	30	**40**	35	3	3	**V1NB35K..**	V3	**V1NC35K..**	H3
60	15	15	40	**50**	36	3	3	**V1NB36K..**	V3	**V1NC36K..**	H3
80	20	20	50	**50**	37	3	3	**V1NB37K..**	V3	**V1NC37K..**	H3
90	20	25	50	**60**	38	3	3	**V1NB38K..**	V3	**V1NC38K..**	H3
105	25	30	60	**60**	45	3	3	**V1NB45K..**	V4	**V1NC45K..**	H5
115	30	30	75	**75**	46	3	3	**V1NB46K..**	V4	**V1NC46K..**	H5
125	30	–	75	**100**	47	3	3	**V1NB47K..**	V4	**V1NC47K..**	H5

NEMA rated available - contact your Siemens representative



2S1W Constant or Variable Torque Typical Wiring Diagram

① Some aux contacts may be used for control options and electrical interlock, where necessary.

Two Speed Single Winding Starters

Circuit Breaker Combination, Constant or Variable Torque

Selection

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Circuit Breaker Combination[a] HP Rated

Enclosed Amps	3 phase				Contactor reference number	Aux. Contacts[2] supplied as standard per contactor		Enclosure Sheet Metal			
								CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	208V	230V	460V	575V		NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	1 1/2	2	3	**5**	15	2	3	**V2NB15K..**	V3	**V2NC15K..**	H3
	2	3	5	**7 1/2**	16	2	3	**V2NB16K..**		**V2NC16K..**	
35	3	3	7 1/2	**10**	17	2	3	**V2NB17K..**		**V2NC17K..**	
	3	5	10	**10**	18	2	3	**V2NB18K..**		**V2NC18K..**	
	5	5	10	**15**	25	3	3	**V2NB25K..**		**V2NC25K..**	
42	5	7 1/2	15	**20**	26	3	3	**V2NB26K..**		**V2NC26K..**	
	10	10	20	**25**	27	3	3	**V2NB27K..**		**V2NC27K..**	
55	10	10	25	**25**	28	3	3	**V2NB28K..**		**V2NC28K..**	
60	10	15	30	**40**	35	3	3	**V2NB35K..**	V3	**V2NC35K..**	H3
80	15	15	40	**50**	36	3	3	**V2NB36K..**	V3	**V2NC36K..**	H3
90	20	20	50	**50**	37	3	3	**V2NB37K..**	V3	**V2NC37K..**	H3
105	20	25	50	**60**	38	3	3	**V2NB38K..**	V3	**V2NC38K..**	H3
115	25	30	60	**60**	45	3	3	**V2NB45K..**	V4	**V2NC45K..**	H5
125	30	30	75	**75**	46	3	3	**V2NB46K..**	V4	**V2NC46K..**	H5
	30	–	75	**100**	47	3	3	**V2NB47K..**	V4	**V2NC47K..**	H5

NEMA rated available - contact your Siemens representative

① Factory will automatically select the circuit breaker based on standard or given motor full-load current and the following:
- Continuous-current rating of a minimum 115% of motor full-load current.
- Trip-setting position is 11 times motor full load current.

② Some aux contacts may be used for control options and electrical interlock, where necessary.

Two Speed Single Winding Starters

Fusible Switch Combination & Non-Fusible Starters, Constant or Variable Torque *Selection*

Standard Features	Ordering Information Required	Coil Voltage Codes		
		ACV 60 Hz	ACV 50 Hz	Coil Suffix
▪ Mechanical and electrical interlock ▪ 2 NO + 2 NC contact block supplied per contactor ▪ Class 10 bimetallic overload relays including: - Manual or Automatic reset - Phase Loss Protection - Separate Trip and Alarm contact ▪ All enclosures are designed to accept a standard sized control transformer ▪ All enclosures have provisions for up to 4 pilot devices	▪ Select basic type nr. from table below ▪ Add suffix for both overload relay setting range from page 15/19 ▪ Add suffix for factory modification from page 15/20 - 15/24	24 120 208 240 460 600	20 110 – 220 380 –	C K M P V T
		other voltages and frequencies are available upon request		

The type numbers in the selection table below specify 120V 60 Hz coils. If a different coil voltage is required, change the "K" (7 digit) as per Coil Suffix Table above.

Fusible Switch Combinations and Non-Fusible Starters HP Rated

Enclosed Amps	3 phase				FUSE CLIPS Type IJ Amps	Contactor reference number	Aux, Contacts① supplied as standard per contactor		Enclosure Sheet Metal			
									CSA / EEMAC Type 1 General Purpose Enclosure		CSA Type 5 / EEMAC Type 12 Industrial Use	
	200V	230V	460V	575V			NO	NC	Catalogue Number	Encl. Fig.	Catalogue Number	Encl. Fig.
20	$1^{1/2}$	2	3	**5**	NONE 30	15	2	3	**V3NB15K..** **V4NB15K..**	V3	**V3NC15K..** **V4NC15K..**	H3
	2	3	5	**$7^{1/2}$**	NONE 30	16	2	3	**V3NB16K..** **V4NB16K..**		**V3NC16K..** **V4NC16K..**	
	3	3	$7^{1/2}$	**10**	NONE 30	17	2	3	**V3NB17K..** **V4NB17K..**		**V3NC17K..** **V4NC17K..**	
	3	5	10	**10**	NONE 30	18	2	3	**V3NB18K..** **V4NB18K..**		**V3NC18K..** **V4NC18K..**	
35	5	5	10	**15**	NONE 30 60	25	2	2	**V3NB25K..** **V4NB25K..** **V4NB25K..**		**V3NC25K..** **V4NC25K..** **V4NC25K..**	
	5	$7^{1/2}$	15	**20**	NONE 30 60	26	2	2	**V3NB26K..** **V4NB26K..** **V4NB26K..**		**V3NC26K..** **V4NC26K..** **V4NC26K..**	
42	10	10	20	**25**	NONE 30 60	27	2	2	**V3NB27K..** **V4NB27K..** **V4NB27K..**		**V3NC27K..** **V4NC27K..** **V4NC27K..**	
	10	10	25	**25**	NONE 30 60	28	2	2	**V3NB28K..** **V4NB28K..** **V4NB28K..**		**V3NC28K..** **V4NC28K..** **V4NC28K..**	
55	10	15	30	**40**	NONE 30 60	35	2	2	**V3NB35K..** **V4NB35K..** **V4NB35K..**		**V3NC35K..** **V4NC35K..** **V4NC35K..**	
60	15	15	40	**50**	NONE 30 60 100	36	2	2	**V3NB36K..** **V4NB36K..** **V4NB36K..** **V4NB36K..**		**V3NC36K..** **V4NC36K..** **V4NC36K..** **V4NC36K..**	
80	20	20	50	**50**	NONE 30 60 100	37	2	2	**V3NB37K..** **V4NB37K..** **V4NB37K..** **V4NB37K..**		**V3NC37K..** **V4NC37K..** **V4NC37K..** **V4NC37K..**	
90	20	25	50	**60**	NONE 30 60 100	38	2	2	**V3NB38K..** **V4NB38K..** **V4NB38K..** **V4NB38K..**		**V3NC38K..** **V4NC38K..** **V4NC38K..** **V4NC38K..**	

NEMA rated available - contact your Siemens representative

① Some aux contacts may be used for control options and electrical interlock, where neccessary

Overload Relay Chart

Append to Catalogue Number V4AB15K _ _		The overload relay calibration is based on a motor service factor (S.F.) of 1.15. If the service factor is 1.0, multiply motor F.L.C. by 0.92 before making selection.					
Adjustment Range Amps	Contactor Reference in Type No. (5. and 6. digit)							
	15 / 16 / 17/ 18		25 / 26 / 27		35 / 36 / 37 / 38		45 / 46 / 47	
	Overload Type	Overload Suffix	Overload Type	Overload Suffix	Overload Type	Overload Suffix	Overload Type	Overload Suffix
0.11 - 0.16 0.14 - 0.2 0.18 - 0.25	3RU2116 3RU2116 3RU2116	0A 0B 0C						
0.22 - 0.32 0.28 - 0.4 0.35 - 0.5	3RU2116 3RU2116 3RU2116	0D 0E 0F						
0.45 - 0.63 0.55 - 0.8 0.7 - 1.0	3RU2116 3RU2116 3RU2116	0G 0H 0J						
0.9 - 1.25 1.1 - 1.6 1.4 - 2	3RU2116 3RU2116 3RU2116	0K 1A 1B						
1.8 - 2.5 2.2 - 3.2 2.8 - 4	3RU2116 3RU2116 3RU2116	1C 1D 1E	3RU2126 3RU2126 3RU2126	1C 1D 1E				
3.5 - 5 4.5 - 6.3 5.5 - 8	3RU2116 3RU2116 3RU2116	1F 1G 1H	3RU2126 3RU2126 3RU2126	1F 1G 1H	3RU2136	1H		
7 - 10 9 - 12.5	3RU2116 3RU2116	1J 1K	3RU2126 3RU2126	1J 1K	3RU2136 3RU2136	1J 1K		
11 - 16 14 - 20 17 - 22	3RU2116	4A	3RU2126 3RU2126 3RU2126	4A 4B 4C	3RU2136 3RU2136 3RU2136	4A 4B —		
18 - 25 20 - 25 23 - 28 22 - 32			3RU2126 3RU2126 3RU2126 3RU2126	— 4D 4N —	3RU2136 3RU2136 3RU2136 3RU2136	4D — — 4E		
27 - 32 28 - 40 30 - 36 34 - 40			3RU2126 3RU2126 3RU2126 3RU2126	4E — 4P 4F	3RU2136 3RU2136 3RU2136 3RU2136	— 4F — —	3RU2146 3RU2146 3RU2146 3RU2146	— 4F — —
36 - 45 36 - 50 40 - 50					3RU2136 3RU2136 3RU2136	4G — 4H	3RU2146 3RU2146 3RU2146	— 4H —
47 - 57 45 - 63 54 - 65					3RU2136 3RU2136 3RU2136	4Q — 4J	3RU2146 3RU2146 3RU2146	— 4J —
57 - 75 62 - 73 70 - 80					3RU2136 3RU2136 3RU2136	— 4K 4R	3RU2146 3RU2146 3RU2146	4K — —
70 - 90 80 - 100							3RU2146 3RU2146	4L 4M

Other Options	Suffix
Provision only for field amounting of overload relay	00
Substitute bimetal overload relay with solid state type 3RB2, Class 20	□□①

① Contact your Siemens representative for quote. Designators will be added based on requested configuration.

Factory Modifications

Power Line Voltage and Control Circuit Options

Selection

Power Line Voltage Selection		Append to Catalogue Number i.e.: V4AB15K1E_ _						
		120V	208V	230V	460V	575V	600V Max.	Other
Single Phase, 60HZ (L1, N)	Suffix	1	–	–	–	–	–	–
Single Phase, 60Hz (L1, L2)		–	–	7	–	–	–	–
Three Phases, 60Hz (L1, L2, L3)		–	2	3	4	5	–	–
Three Phases, 600V Max, 60Hz(L1, L2, L3)		–	–	–	–	–	6	–
Specify voltage, frequency, No. of phase & neutral if required		–	–	–	–	–	–	3

Note: Power line voltage is an important data to be known in order to provide a starter properly connected for single phase or three phase load.

Control Circuit Selection

Power Line Voltage Selection	Append to Catalogue Number i.e.: V4AB15K1E_ _	
	Contactor Reference No.	Suffix
Separate Control Circuit, Unfused		0
Separate Control Circuit, Fused, 1 fuse max. 250V		N
Common Control with 1 Control Fuse, max. 250V (for 120V control only)		P
Control Circuit Transformer: Standard Capacity		R
Control Circuit Transformer: Extra Capacity		
May require larger enclosure	additional 50VA	U
Consult Siemens	100VA	W
Special transformer voltages Specify		9

Additional Auxiliary Contacts

Append to Catalogue Number ie: V4AB15K1E5R_			
		Suffix	
Std. auxiliary contacts as per starter selection table		0	Options available for FVNR type starters with contactor ref numbers: 15 / 16 / 17 / 18 Other configurations will come with additional 2 N.O. + 2 N.C. aux block as standard
Addition of:	2 N.O.	L	
	2 N.C.	F	
	4 N.O.	K	
	3 N.O. + 1 N.C.	E	
	2 N.O. + 2 N.C.	J	
		M	

Pilot Devices – Operators

Legend Plates are supplied as standard with Operators

Append to Catalogue Number i.e.: V4AB30K1E5R0_ _							
Operator Description			**First Suffix**[1]	**EEMAC Enclosure Type**	**English Legend**	**Second Suffix**	**French Legend**
None			0	1/12 4	–	–	–
Pushbutton							
1 pushbutton momentary	extended head red	1 N.C.	1 (2)	1/12 4	STOP	B	ARRET
twist lock maintained	mushroom red	1 N.C.	3 (4)	1/12 4	EMERGENCY STOP	A	ARRET D'URGENCE
2 pushbuttons momentary	1 - red 1 - green	1 N.C. 1 N.O.	5 (6)	1/12 4	START STOP ON OFF	C D	MARCHE ARRET EN HORS
3 pushbuttons momentary	1 - red 2 - black each	1 N.C. 1 N.O.	7 (8)	1/12 4	FORWARD REVERSE STOP HIGH LOW STOP UP DOWN STOP FAST SLOW STOP OPEN CLOSE STOP	E F G H J	AVANT ARRIERE ARRET HAUTE BASSE ARRET EN HAUT EN BAS ARRET VITE LENTEMENT ARRET OUVRIR FERMER ARRET

[1] When ordering French legend plates use the "first suffix" in brackets.

Pilot Devices – Operators (continued)

Legend Plates are supplied as standard with Operators

Append to Catalogue Number i.e.: V4AB30K1E5R0_ _					
Operator Description	**First Suffix①**	**EEMAC Enclosure Type**	**English Legend**	**Second Suffix**	**French Legend**
2-position selector switch					
2 position selector switch maintained	A (B)	1/12 4	STOP START	K	ARRET MARCHE
			OFF ON	L	HORS EN
			HAND AUTO	M	MAN AUTO
2 position selector switch spring return	C (D)	1/12 4	FOR REV	N	AVANT ARRIERE
			HIGH LOW	P	HAUTE BASSE
			UP DOWN	Q	HAUT BAS
2 position selector switch key operated maintained	E (F)	1/12 4	FAST SLOW	R	VITE LENT
			OPEN CLOSE	S	OUVRIR FERMER
			LOCAL REMOTE	T	LOCAL A DIST.
3-position selector switch					
3 position selector switch maintained	G (H)	1/12 4			
3 position selector switch 1 spring return from both sides	J (K)	1/12 4	HAND OFF AUTO	1	MAN ARRET AUTO
			FOR OFF REV	2	AVANT ARRET ARRIERE
			HIGH OFF LOW	3	HAUTE ARRET BASSE
			UP OFF DOWN	4	HAUT ARRET BAS
3 position selector switch key operated maintained	L (M)	1/12 4	FAST OFF SLOW	5	VITE ARRET LENT
			OPEN OFF CLOSE	6	OUVRIR ARRET FERMER
			LOCAL OFF REMOTE	7	LOCAL HORS A DIST.
			TEST OFF AUTO	8	ESSAI ARRET AUTO
3 position selector switch key operated spring return from both sides	N (P)	1/12 4			
2 pushbuttons & 3-position selector switch					
3 position selector switch maintained c/w START STOP pushbuttons momentary green	T (U)	1/12 4	HAND OFF AUTO for selector switch and START STOP for pushbutton	X	MAN ARRET AUTO for selector switch and MARCHE ARRET for pushbuttons

Pilot Devices – Indicators

Append to Catalogue Number i.e.: V4AB15K1E5R05C _ _ _		
Pilot Lights Description	**First Suffix①**	**Enclosure Type**
No Pilot Lights	0	1/4/12
LED c/w legend plate(s) 120V extended lfie	5 (6)	1/12 4
LED c/w legend plate(s) 24V extended life	7 (8)	1/12 4
LED without legend plate(s) 120V extended life	C	1/12 4
LED without legend plate(s) 24V extended life	D	1/12 4

① When ordering French legend plates use the "first suffix" in brackets.

Pilot Lights
Legend Plates and Lens Colours

Table A - One Pilot Light

LEGEND PLATES			LEGEND COLOURS						
English	French		Red	Yellow	Green	Blue			Other Specify
RUN	MARCHE	Suffix	1C	1D	1E	–			19
ON	EN CIRCUIT		2C	2D	2E	–			29
OFF	ARRÊT		3C	3D	3E	–			39
O/L TRIPPED	SURCHARGE		4C	4D	–	–			49
READY	PRÊT		5C	5D	5E	5F			59
Other Legend Plates Specify			9C	9D	9E	9F			99

Table B - Two Pilot Lights

LEGEND PLATES			LEGEND COLOURS						
English	French		Red Red	Green Green	Red Yellow	Red Green	Green Red	Green Yellow	Other Specify
RUN ▪ OFF	MARCHE ▪ ARRÊT	Suffix	–	–	–	64	65	–	69
ON ▪ OFF	EN CIRCUIT ▪ ARRÊT		–	–	–	74	75	–	79
RUN ▪ O/L TRIPPED	MARCHE ▪ SURCHARGE		–	–	83	–	85	86	89
ON ▪ O/L TRIPPED	EN CIRCUIT ▪ SURCHARGE		–	–	A3	–	A5	A6	A9
FORWARD ▪ REVERSE	AVANT ▪ ARRIERE		B1	B2	–	B4	B5	–	B9
FAST ▪ SLOW	VITE ▪ LENTEMENT		C1	C2	–	C4	C5	–	C9
UP ▪ DOWN	EN HAUT ▪ EN BAS		D1	D2	–	D4	D5	–	D9
HIGH ▪ LOW	HAUT ▪ BAS		E1	E2	–	E4	E5	–	E9
Other Legend Plates Specify			91	92	93	94	95	96	99

Table B - Three Pilot Lights

LEGEND PLATES			LEGEND COLOURS						
English	French		Red Red Green	Green Green Red	Red Red Yellow	Green Green Yellow	Red Green Yellow	Green Red Yellow	Other Specify
RUN ▪ OFF ▪ O/L TRIPPED	MARCHE ▪ ARRÊT ▪ SURCHARGE	Suffix	–	–	–	–	FN	FP	F9
ON ▪ OFF ▪ O/L TRIPPED	EN CIRCUIT ▪ ARRÊT ▪ SURCHARGE		–	–	–	–	GN	GP	G9
FORWARD ▪ REVERSE ▪ OFF	AVANT ▪ ARRIERE ▪ ARRÊT		HK	HJ	–	–	–	–	H9
FAST ▪ SLOW ▪ OFF	VITE ▪ LENTEMENT ▪ ARRÊT		JK	JJ	–	–	–	–	J9
UP ▪ DOWN ▪ OFF	EN HAUT ▪ EN BAS ▪ ARRÊT		KK	KJ	–	–	–	–	K9
HIGH ▪ LOW ▪ OFF	HAUT ▪ BAS ▪ ARRÊT		LK	LJ	–	–	–	–	L9
FORWARD ▪ REVERSE ▪ O/L TRIPPED	AVANT ▪ ARRIERE ▪ SURCHARGE		–	MJ	ML	MM	MN	MP	M9
FAST ▪ SLOW ▪ O/L TRIPPED	VITE ▪ LENTEMENT ▪ SURCHARGE		–	NJ	NL	NM	NN	NP	N9
UP ▪ DOWN ▪ O/L TRIPPED	EN HAUT ▪ EN BAS ▪ SURCHARGE		–	PJ	PL	PM	PN	PP	P9
HIGH ▪ LOW ▪ O/L TRIPPED	HAUT ▪ BAS ▪ SURCHARGE		–	RJ	RL	RM	RN	RP	R9
Other Legend Plates Specify			9K	9J	9L	9M	9N	9P	99

Miscellaneous Options:

Specify by suffix and description as required.

Append to Catalogue No i.e.: V4AB15K1E5R05C165-Z _ _ _ _ _ _

Description		Suffix
Disconnect Devices		
Auxiliary Contacts, not wired		
Fusible or Non-Fusible	1 N.O. & 1 N.C.	AX
Disconnect Switch	2 N.O. & 2 N.C.	AY
Circuit Breaker	1 SPDT	AW
	2 SPDT	AX
	1 SPDT & 1 Alarm SPDT	AY
Metering[1]		
Installed & wired, EEMAC Type 1 & 12		
Ammeter, 3-1/2" Panel Type[2]		
c/w one 5A sec. CT		
One extra CT		MA
Two extra CT's		M0
		MT
Voltmeter, 3-1/2" Panel Type[b]		
c/w One 0-750V Pt fused		MV
3-Phase Selector Switch		MS
Elapsed Time Meter ME		ME
Phase Failure and Phase Sequence		
Monitoring Relay		MD
Control Relays and Timers[1]		
4 Pole Relay, A600		
2 N.O. & 2 N.C.	not wired	K2
	wired	K5
3 N.O. & 1 N.C.	not wired	K3
	wired	K6
4 N.O.	not wired	K4
	wired	K7
Time Delay Relays[1]		
1-SPDT, B300, max 240V AC coil		
ON-Delay adj. up to 100s	not wired	S1
	wired	S2
OFF - Delay adj. up to 100s	not wired	S3
	wired	S4
Thermistor Tripping Unit[1]		
max. 240V AC coil,	Auto Reset	HA
installed and wired	Manual Reset	HM
Surge Suppressors		
for Contactors and Control Relays		SX
Wire Markers		WM

Description		Suffix
Drip Shield		
available for hinged cover enclosures only (V2, V3, V4)		DS
Identification Name Plate		
Lamacoid	1-25 characters	N1
	25-50 characters	N2

Fuse Clips:

All Fusible Disconnect Combination Starters are supplied with Form I, Class J fuse clips as standard.

Fuse Clip Size	Form IJ
	Suffix
30A	PD (time-delay)
60A	PJ (fast-acting)
100A	

Terminal Blocks

Description	Suffix
Wired 1 point terminal	T1
Wired 2 point terminal	T2
Wired 3 point terminal	T3
Wired 4 point terminal	T4
Wired 5 point terminal	T5
Wired 6 point terminal	T6
Wired 7 point terminal	T7
Wired 8 point terminal	T8
Wired 9 point terminal	T9
Wired 10 point terminal	T0
Unwired 1 point terminal	A
Unwired 2 point terminal	B
Unwired 3 point terminal	C
Unwired 4 point terminal	D
Unwired 5 point terminal	E
Unwired 6 point terminal	F
Unwired 7 point terminal	G
Unwired 8 point terminal	H
Unwired 9 point terminal	J
Unwired 10 point terminal	K

[1] Option may require larger enclosure. Consult Siemens.

[2] All requests must be accompanied by complete meter specifications. Availability may be limited.

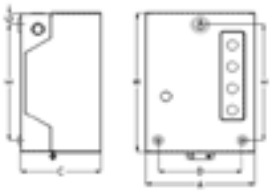


Figure 1

Non-Combination Starter EEMAC Type 1 (Lift-Off Cover)

Figure 1		Width A	Height B	Depth C	Mfg.-Holes D	E	F	G	H	No. of Holes
V0	MM	161.70	244.7	146	110.3	174	–	25.7	–	3
	INCH	6.37	9.64	5.75	4.34	6.85	–	1.01	–	
V1	MM	241.5	320.9	178.3	187.3	268.1	–	24	–	3
	INCH	9.51	12.64	7.02	7.38	10.55	–	0.95	–	

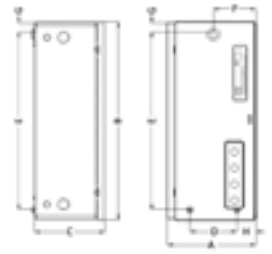


Figure 2

Non-Combination/Combination Starter EEMAC Type 1

V2	MM	264	610	210	140	548	127	28	57	3
	INCH	10.39	24	8.25	5.5	21.58	5	1.1	2.25	
V3	MM	410	640	209.6	280	578	–	28	60	4
	INCH	16.14	25.2	8.25	11	22.76	–	1.1	2.36	
V4	MM	510	900	279.6	380	838	–	28	60	4
	INCH	20.08	35.43	11.01	14.96	32.99	–	1.1	2.36	

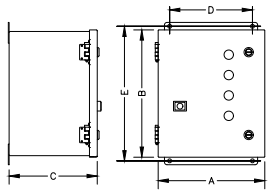


Figure 3

Non-Combination Starter EEMAC Type 12

S	MM	262	312	216	203.2	330	–	–	–	4
	INCH	10.3	12.3	8.5	8	13	–	–	–	

Figure 4

Non-Combination/Combination Starter EEMAC Type 12

H2	MM	254	610	209.6	165	648	127	12	44.5	3
	INCH	10	24	8.25	6.5	25.51	5	0.47	1.75	
H3	MM	400	640	209.6	311	678	200	12	44.5	3
	INCH	15.75	25.2	8.25	12.24	26.69	7.87	0.47	1.75	
H5	MM	500	900	280	411	955.35	–	25	44.5	4
	INCH	19.69	35.43	11.02	16.18	37.61	–	0.98	1.75	

Note: All dimensions shown for reference purpose only.
Not to be used for construction purposes.

3RE41 Enclosed IEC Motor Starter Packages

Product overview

3RE41 Enclosed IEC motor starters are well suited for both industrial and commercial applications. They are durable and dependable, particularly when it comes to motor protection. Protecting the performance of motors is a critical priority and the 3RE41 enclosed starters are offered with either thermal or solid-state overload relays (ordered separately) to maximize your motor protection.

Packages include a SIRIUS 3RT2 series contactor inside a NEMA 1 enclosure. They are available with or without control transformers, HAND-OFF-AUTO selector switches, ON-OFF push buttons and pilot lights. Overload relays can be purchased separately and installed in the field.

Motor Starter Features

General
- From fractional up to 25 Hp at 575 V
- Non-combination type
- Non-reversing
- Single phase and 3-phase loads
- Thermal and solid-state overload relays (sold separately)
- Type 1 enclosures
- RoHS compliant
- Certifications: cULus

Contactor
- Horsepower rated
- High contact reliability
- Auxiliary contact(s) included as standard
- Screw type terminal connections

Overload Relay Features

Thermal overload relays
- Trip Class 10
- Phase failure sensitivity
- For single and three phase loads
- Includes NC trip contact and NO alarm contact
- Manual and automatic RESET (selectable)
- Switch position indicator
- TEST function
- STOP button
- Sealable cover (optional)
- Screw-type terminals

Solid-state overload relays
- Selectable Trip Class 5, 10, 20 and 30
- Overload, phase failure and unbalance protection
- Internal ground fault detection (selectable)
- Internal power supply
- Includes NC trip contact and NO alarm contact
- Manual and automatic RESET (selectable)
- Electrical remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring
- Sealable cover (optional)
- Screw-type terminals

Available Factory Mods, Field Kits, Accessories

Factory modifications
- Push buttons
- Selector switches
- Pilot lights
- Control power transformers

Field kits and accessories
- Push buttons
- Selector switches
- Pilot lights
- Auxiliary contacts
- Control power transformers
- etc.

Catalogue Numbering System

3RE4 Nomenclature
Non-Combination Motor Starters

3RE4	1	6	2	–	5	A	A	3	0	–	0	Y	Y	0

Controller Type

16 = Non-combination non-reversing

Frame Size: UL60947-4-1 Hp Rating

15 = S00: 1-Ph Hp (0.25@115V, 0.5@208V, 0.75@230V), 3-Ph Hp (1.5@208V, 2@230V, 3@460V, 5@575V)
17 = S00: 1-Ph Hp (0.5@115V, 1.5@208V, 2@230V), 3Ph Hp (3@208V, 3@230V, 7.5@460V, 10@575V)
25 = S0: 1-Ph Hp (1@115V, 2@208V, 3@230V), 3-Ph Hp (5@208V, 5@230V, 10@460V, 15@575V)
28 = S0: 1-Ph Hp (3@115V, 5@208V, 5@230V), 3-Ph Hp (10@208V, 10@230V, 25@460V, 25@575V)

Enclosure Type and Size

A = NEMA Type 1 - standard size (Select large size enclosure if control transformer or other devices are to be installed on the base of the enclosure)
B = NEMA Type 1 - large size

Disconnect Type

A = None

Nominal Coil Voltage

3 = 115/120 V AC 50/60Hz

Overload Relay Type

0 = (none)

Overload Relay Amp Range

0Y = No overload relay

Special

Y0 = (none)
B1 = Start-Stop Push Buttons, Red On Pilot Light
B4 = Start-Stop Push Buttons, CPT Std Capacity 208:120V, Red On Pilot Light
C1 = Start-Stop Push Buttons, CPT Std Capacity 240:120V, Red On Pilot Light
C7 = Start-Stop Push Buttons, CPT Std Capacity 480:120V, Red On Pilot Light
P0 = Start-Stop Push Buttons,CPT Std Capacity 600:120V,Red On Pilot Light
F7 = Hand-Off-Auto Selector Switch, Red On Pilot Light
G1 = Hand-Off-Auto Selector Switch, CPT Std Capacity 208:120V, Red On Pilot Light
G7 = Hand-Off-Auto Selector Switch, CPT Std Capacity 240:120V, Red On Pilot Light
H4 = Hand-Off-Auto Selector Switch, CPT Std Capacity 480:120V, Red On Pilot Light
P1 = Hand-Off-Auto Selector Switch,CPT Std Capacity 600:120V,Red On Pilot Light

Note:
This catalogue numbering system is presented here merely for information purposes and for better understanding of logic behind article numbers. For your orders, please use the article numbers listed in the Selection section.

Enclosed Modular IEC Motor Starter Packages

3RE41 Non-Reversing Starter, 3-Pole (both 1-Ph and 3-Ph) , Standard NEMA 1 Enclosure *Selection*

Ordering Information

- Can be converted to a motor starter by installing an overload relay (see page 15/30).
- NEMA 1 Enclosure.
- 115/120 VAC 50/60 Hz coils.
- For accessories, see page 15/31 - 15/32.
- Only overload relays, pilot devices, pilot lights and fuse blocks can be added to Standard size enclosures - for other accessories, please select controllers in large NEMA 1 enclosures.
- For replacement parts, see page 15/32.
- For dimensions, see page 15/33.
- For wiring diagrams, see page 15/34 - 15/35.

Non-Reversing Starter, 3-Pole (for both 1-Phase and 3-Phase), Standard Enclosure

Catalogue Number	Control Transformer①	Operator Devices	Unused Aux Contacts		Contactor Ref Number	Frame Size	Maximum HP Rating						
							1-Phase			3-Phase			
			NO	NC			115V	208V	230V	208V	230V	460V	575V
3RE4161-5AA30-0YB1	None	Start-Stop push buttons, red On pilot light	0	0	15	S00	0.25	0.5	0.75	1.5	2	3	5
3RE4161-5AA30-0YF7	None	HOA Selector Switch, red On pilot light	1	0	15	S00	0.25	0.5	0.75	1.5	2	3	5
3RE4161-7AA30-0YY0	None	None	1	0	17	S00	0.5	1.5	2	3	3	7.5	10
3RE4162-5AA30-0YB1	None	Start-Stop push buttons, red On pilot light	0	1	25	S0	1	2	3	5	5	10	15
3RE4162-5AA30-0YF7	None	HOA Selector Switch, red On pilot light	1	1	25	S0	1	2	3	5	5	10	15
3RE4162-8AA30-0YY0	None	None	1	1	28	S0	3	5	5	10	10	25	25

① NEMA 1 standard size enclosures don't offer enough space for factory or field installed control transformers. If control transformers are required, please select starter in a NEMA 1 large size enclosure (see page 15/29).

Enclosed Modular IEC Motor Starter Packages

3RE41 Non-Reversing Starter, 3-Pole (both 1-Ph and 3-Ph) , Standard NEMA 1 Enclosure *Selection*

Ordering Information

- Can be converted to a motor starter by installing an overload relay (see page 15/30).
- NEMA 1 Enclosure.
- 115/120 VAC 50/60 Hz coils.
- For accessories, see page 15/31 - 15/32.
- For replacement parts, see page 15/32.
- For dimensions, see page 15/33.
- For wiring diagrams, see page 15/34 - 15/35.

Non-Reversing Starter, 3-Pole (for both 1-Phase and 3-Phase), Large Enclosure

Catalogue Number	Control Transformer	Operator Devices	Unused Aux Contacts		Contactor Ref Number	Frame Size	Maximum HP Rating						
							1-Phase			3-Phase			
			NO	NC			115V	208V	230V	208V	230V	460V	575V
3RE4161-5BA30-0YP0	600/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	15	S00	—	—	—	–	—	—	5
3RE4161-5BA30-0YB4	208/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	15	S00	—	0.5	—	1.5	—	—	—
3RE4161-5BA30-0YC1	240/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	15	S00	—	—	0.75	—	2	—	—
3RE4161-5BA30-0YC7	480/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	15	S00	—	—	—	—	—	3	—
3RE4161-5BA30-0YP1	600/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	15	S00	—	—	—	—	—	—	5
3RE4161-5BA30-0YG1	208/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	15	S00	—	0.5	—	1.5	—	—	—
3RE4161-5BA30-0YG7	240/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	15	S00	—	—	0.75	—	2	—	—
3RE4161-5BA30-0YH4	480/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	15	S00	—	—	—	—	—	3	—
3RE4161-5BA30-0YY0	None	None	1	0	15	S00	0.25	0.5	0.75	1.5	2	3	5
3RE4161-7BA30-0YP0	600/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	17	S00	—	—	—	—	—	—	10
3RE4161-7BA30-0YB4	208/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	17	S00	—	1.5	—	3	—	—	—
3RE4161-7BA30-0YC1	240/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	17	S00	—	—	2	—	3	—	—
3RE4161-7BA30-0YC7	480/120V, 45VA	Start-Stop push buttons, red On pilot light	0	0	17	S00	—	—	—	—	—	7.5	—
3RE4161-7BA30-0YP1	600/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	17	S00	—	—	—	—	—	—	10
3RE4161-7BA30-0YG1	208/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	17	S00	—	1.5	—	3	—	—	—
3RE4161-7BA30-0YG7	240/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	17	S00	—	—	2	—	3	—	—
3RE4161-7BA30-0YH4	480/120V, 45VA	HOA Selector Switch, red On pilot light	1	0	17	S00	—	—	—	—	—	7.5	—
3RE4161-7BA30-0YY0	None	None	1	0	17	S00	0.5	1.5	2	3	3	7.5	10
3RE4162-5BA30-0YP0	600/120V, 75VA	Start-Stop push buttons, red On pilot light	0	1	25	S0	—	—	—	—	—	—	15
3RE4162-5BA30-0YP1	600/120V, 75VA	HOA Selector Switch, red On pilot light	1	1	25	S0	—	—	—	—	—	—	15
3RE4162-8BA30-0YP0	600/120V, 75VA	Start-Stop push buttons, red On pilot light	0	1	28	S0	—	—	—	—	—	—	25
3RE4162-8BA30-0YB4	208/120V, 75VA	Start-Stop push buttons, red On pilot light	0	1	28	S0	—	5	—	10	—	—	—
3RE4162-8BA30-0YC1	240/120V, 75VA	Start-Stop push buttons, red On pilot light	0	1	28	S0	—	—	5	—	10	—	—
3RE4162-8BA30-0YC7	480/120V, 75VA	Start-Stop push buttons, red On pilot light	0	1	28	S0	—	—	—	—	—	25	—
3RE4162-8BA30-0YP1	600/120V, 75VA	HOA Selector Switch, red On pilot light	1	1	28	S0	—	—	—	—	—	—	25
3RE4162-8BA30-0YG1	208/120V, 75VA	HOA Selector Switch, red On pilot light	1	1	28	S0	—	5	—	10	—	—	—
3RE4162-8BA30-0YG7	240/120V, 75VA	HOA Selector Switch, red On pilot light	1	1	28	S0	—	—	5	—	10	—	—
3RE4162-8BA30-0YH4	480/120V, 75VA	HOA Selector Switch, red On pilot light	1	1	28	S0	—	—	—	—	—	25	—
3RE4162-8BA30-0YY0	None	None	1	1	28	S0	3	5	5	10	10	25	25

Selection Tables for 3RE41 Overload Relays

Thermal Overload Relay

Solid-State Overload Relay

Thermal Overload Relays, Trip Class 10, Single and Three Phase

Features and technical characteristics:

- Phase failure sensitivity
- Includes NC trip contact and NO alarm contact
- Manual and automatic RESET (selectable)
- Switch position indicator
- TEST function
- STOP button
- Sealable cover (optional)
- Screw-type terminals

Current Adjustment Range (Amp)	Thermal Overload Relay (reference only)
Frame Size S00	
0.7 - 1	**3RU2116-0JB0**
0.9 - 1.25	**3RU2116-0KB0**
1.1 - 1.6	**3RU2116-1AB0**
1.4 - 2	**3RU2116-1BB0**
1.8 - 2.5	**3RU2116-1CB0**
2.2 - 3.2	**3RU2116-1DB0**
2.8 - 4	**3RU2116-1EB0**
3.5 - 5	**3RU2116-1FB0**
4.5 - 6.3	**3RU2116-1GB0**
5.5 - 8	**3RU2116-1HB0**
7 - 10	**3RU2116-1JB0**
9 - 12.5	**3RU2116-1KB0**
11 - 16	**3RU2116-4AB0**

Current Adjustment Range (Amp)	Thermal Overload Relay (reference only)
Frame Size S0	
1.8 - 2.5	**3RU2126-1CB0**
2.2 - 3.2	**3RU2126-1DB0**
2.8 - 4	**3RU2126-1EB0**
3.5 - 5	**3RU2126-1FB0**
4.5 - 6.3	**3RU2126-1GB0**
5.5 - 8	**3RU2126-1HB0**
7 - 10	**3RU2126-1JB0**
9 - 12.5	**3RU2126-1KB0**
11 - 16	**3RU2126-4AB0**
14 - 20	**3RU2126-4BB0**
17 - 22	**3RU2126-4CB0**
20 - 25	**3RU2126-4DB0**
23 - 28	**3RU2126-4NB0**
27 - 32	**3RU2126-4EB0**
30 - 36	**3RU2126-4PB0**
34 - 40	**3RU2126-4FB0**

Solid-State Overload Relays, Selectable Trip Class 5, 10, 20 and 30, Three Phase Only

Features and technical characteristics:

- Overload, phase failure and unbalance protection
- Internal ground fault detection (selectable)
- Internal power supply
- Includes NC trip contact and NO alarm contact
- Manual and automatic RESET (selectable)
- Electrical remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring
- Sealable cover (optional)
- Screw-type terminals

Current Adjustment Range (Amp)	Solid-State Overload Relay (reference only)
Frame Size S00	
0.32 - 1.25	**3RB3113-4NB0**
1 - 4	**3RB3113-4PB0**
3 - 12	**3RB3113-4SB0**
4 - 16	**3RB3113-4TB0**

Current Adjustment Range (Amp)	Solid-State Overload Relay (reference only)
Frame Size S0	
0.32 - 1.25	**3RB3123-4NB0**
1 - 4	**3RB3123-4PB0**
3 - 12	**3RB3123-4SB0**
6 - 25	**3RB3123-4QB0**
10 - 40	**3RB3123-4VB0**

Pilot Devices

	Device①	Enclosure NEMA Type	Catalogue Number
 49SDSBJ  49SDSB4	Start-Stop Push Buttons, momentary②	1	**49SDPB5**
 Start Push Button  Stop Push Button	Hand-Off-Auto Selector Switch	1	**49SDSBJ**
 2-Position Selector Switch  3-Position Selector Switch	On-Off Selector Switch	1	**49SDSB4**

Pilot Lights

	Device①	Enclosure NEMA Type	Voltage	Catalogue Number
	Light module and lens color: RED, GREEN, and AMBER. Legends include: ON, RUN, OFF③, OLR TRIPPED④	1	24 to 240 V AC/DC	**49SDLBU**

Auxiliary Contacts

	Device	Frame Size	Catalogue Number
	1 NO & 1 NC laterally mounted, screw terminals	S00	**3RH2911-1DA11**
		S0 and S2	**3RH2921-1DA11**
	2 NO laterally mounted, screw terminals	S00	**NA**
		S0 and S2	**3RH2921-1DA20**
	2 NC laterally mounted, screw terminals	S00	**3RH2911-1DA02**
		S0 and S2	**3RH2921-1DA02**

① 3SU 22 mm devices. Pilot lights include LED bulbs.
② Each contactor must have a normally open (NO) auxiliary contact available for seal-in circuit. Order separately as needed.
③ To use as an OFF indicator, the contactor must have a normally closed (NC) auxiliary contact available for the circuit. Order separately as needed.
④ To use as an overload relay (OLR) trip indicator, the OLR must have a normally open (NO) auxiliary contact available for the circuit.

Control Power Transformers①

Device	Frame Size	Catalogue Number	Transformer Table		
			Primary Volts	Secondary Volts	Code
45 VA, 1-secondary fuse	S00	**KT*050**	—	—	—
75 VA, 2-primary and 1-secondary fuses	S0	**KT*075**	—	—	—
			208	120	H
			240/480	120	8
			600	120	9

- ► Replace * with code from Transformer Table.
- ► 45VA CPT does not require primary fuses per NEC.

Control Relays and Timers①②

Relay **Timer**

Device	Catalogue Number
Control relay, 4 NO / 0 NC, 115/120 VAC	**3RH2140-1AK60**
Control relay, 3 NO / 1 NC, 115/120 VAC	**3RH2131-1AK60**
Control relay, 2 NO / 2 NC, 115/120 VAC	**3RH2122-1AK60**
ON-delay timer, 0.05 sec. – 100 hr., 24 – 240V AC/DC	**3RP2525-1BW30**
OFF-delay timer, 0.05 sec. – 100 hr., 24 – 240V AC/DC	**3RP2535-1AW30**

- ► Relays and timers include screw terminals.

Miscellaneous

75D28182001

MTR5

Device	Catalogue Number
Ground Lug, 3 Conductor, 2-14 AWG AL/CU Wire	**75D28182001**
DIN rail kit, 35mm x 5 in, for mounting optional accessories①	**MTR5**
Sealable cover for rotary dial on 3RU2 thermal overload relay (10 per package)	**3RV29 08-0P**

Replacement Parts

Device	Catalogue Number
Contactor parts (Obtain Cat. No. from device and refer to Industrial Control Catalogue).	—
Overload relay (Obtain Cat. No. from device and refer to Industrial Control Catalogue).	—
Overload Relay Reset Operator for all NEMA Type enclosures	**49MBRS**

① The accessory in a NEMA type 1 enclosure requires a large size enclosure.
② Requires DIN rail kit or equivalent.

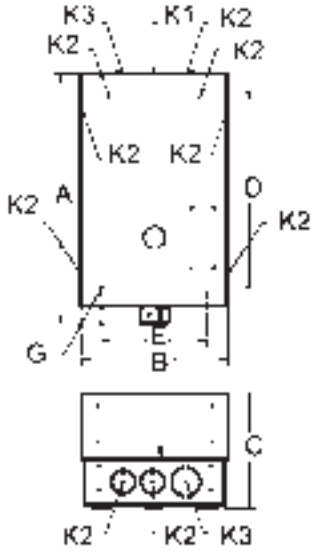


Figure 1

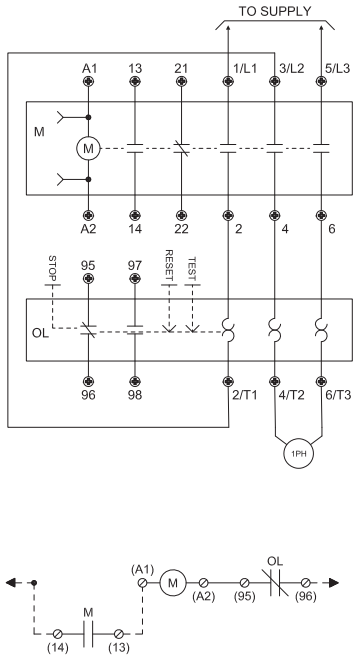
3RE41 Enclosure dimensions

Enclosure Type	Contactor Rating	Fig.	Outline Dimensions			Mounting		Conduit Size		
			A	B	C	D	E	K1	K2	K3
1 (standard size)	S00 NR, S0 NR	1	10.97	6.41	5.03	8.22	4.62	0.5	0.50-0.75	0.75–1
1 (large size)	S00 NR, S0 NR	1	13.53	7.97	6.38	10.25	6.00	0.50-0.75	0.75-1	1-1.25

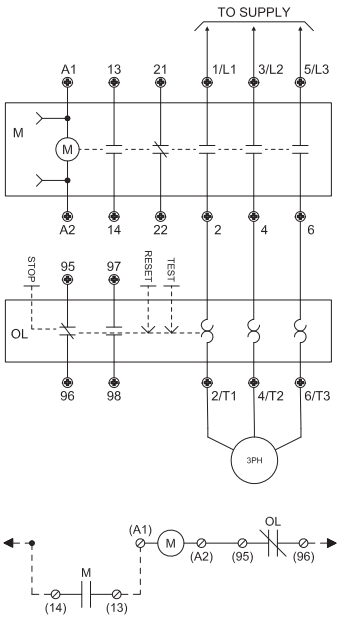
Sxx = Frame size; NR = Non-reversing

Mounting screw G is 0.25″.
Dimensions are in inches.

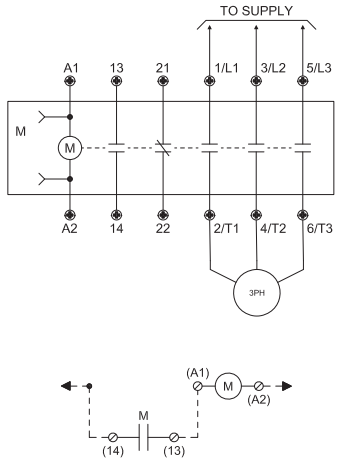
Non-combination non-reversing starter, 1-phase, 2-pole



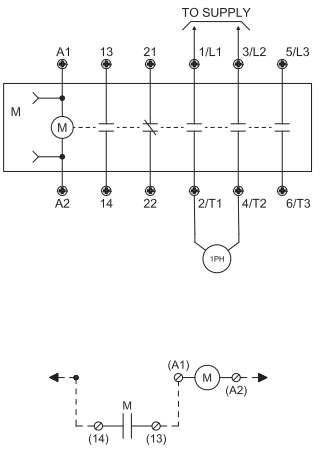
Non-combination non-reversing starter, 3-phase, 3-pole



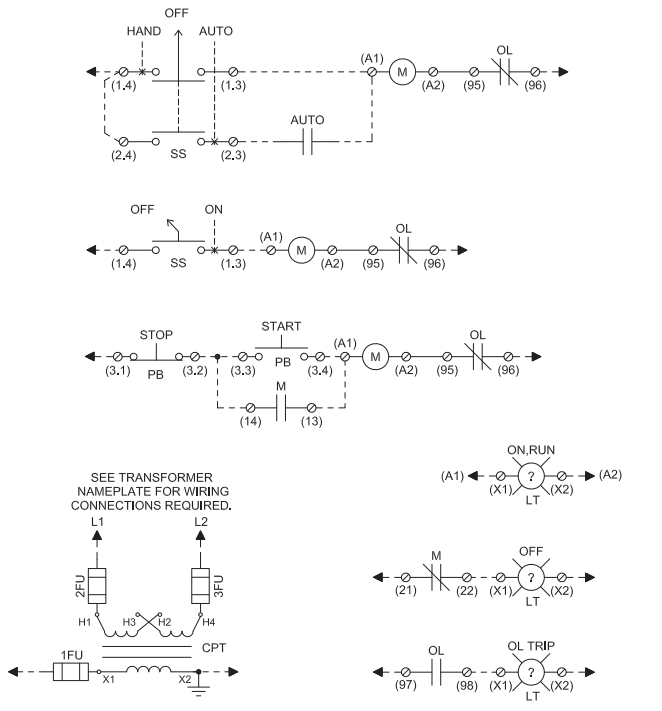
Non-combination non-reversing contactor, 3-phase, 3-pole



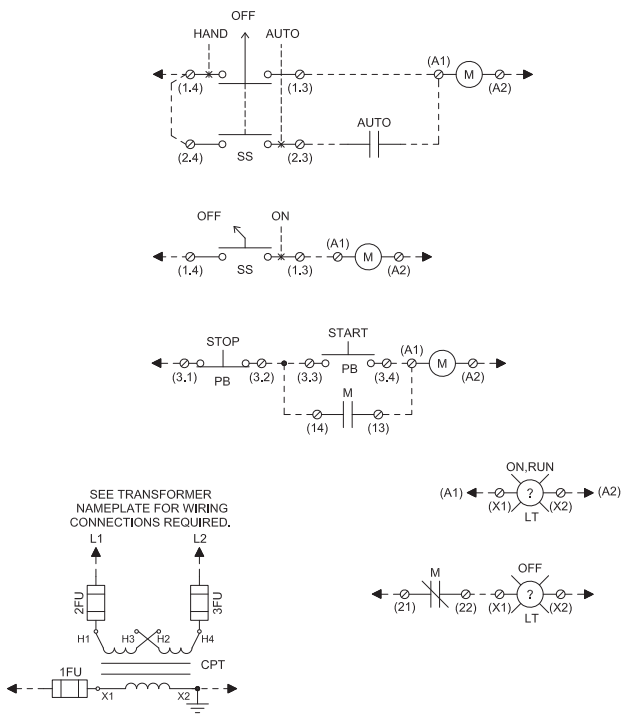
Non-combination non-reversing contactor, 1-phase, 2-pole



Control options for non-reversing starters



Control optIons for non-reversIng contactors



Notes