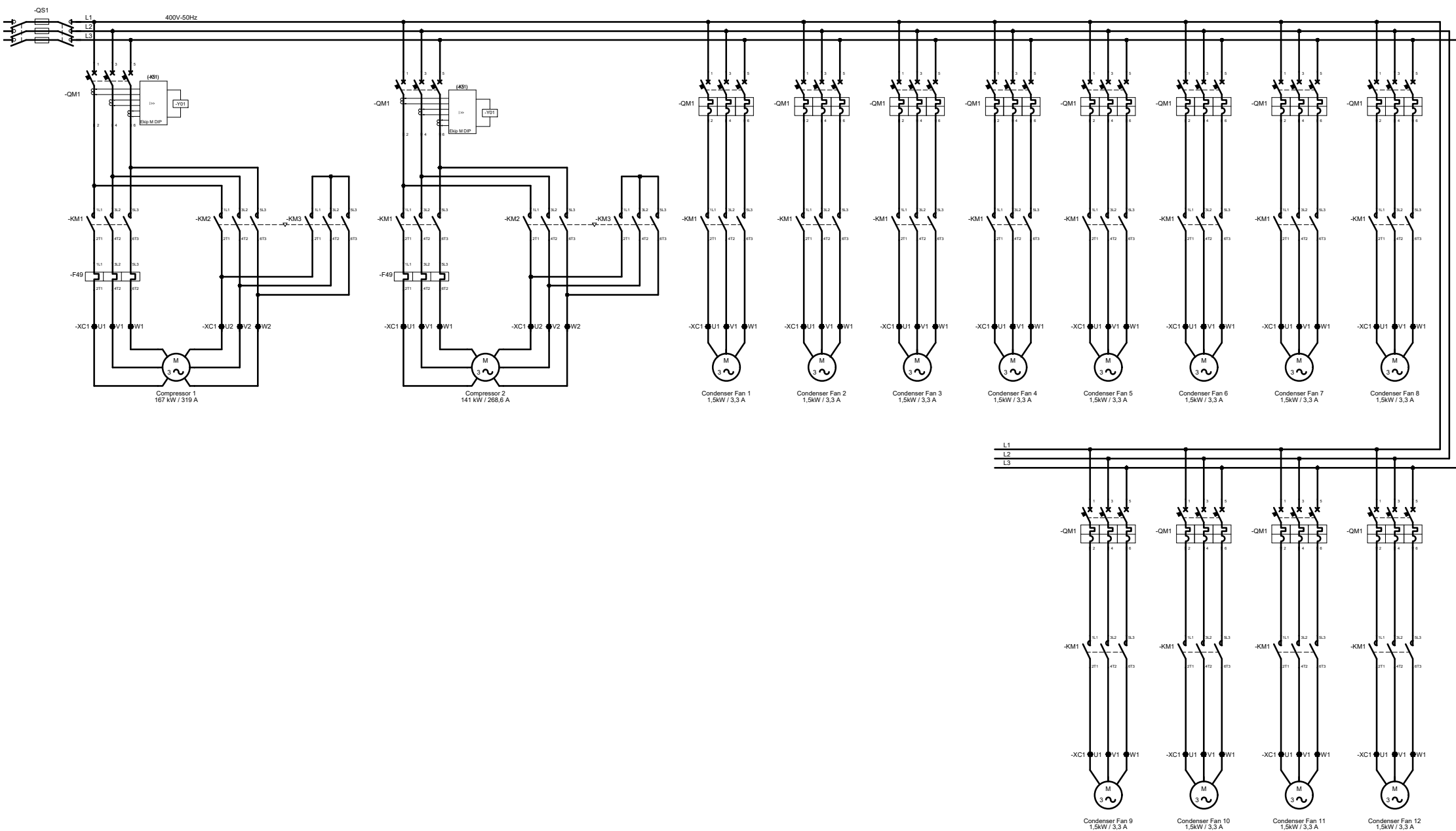




PACCHETTO D'INSTALLAZIONE

INSTALLATION PACKAGE

Soluzione di avviamento motore e protezione per sistema di raffreddamento d'aria equipaggiato con 2 compressori da 167 e 141kW e 12 ventilatori da 1.5kW (mercato IEC)

Motor starting and protection solution for Air-cooled chiller system with 2 Nos. of compressors 167 & 141kW and 12Nos. of 1.5kW condenser fans (IEC Market)

ABB

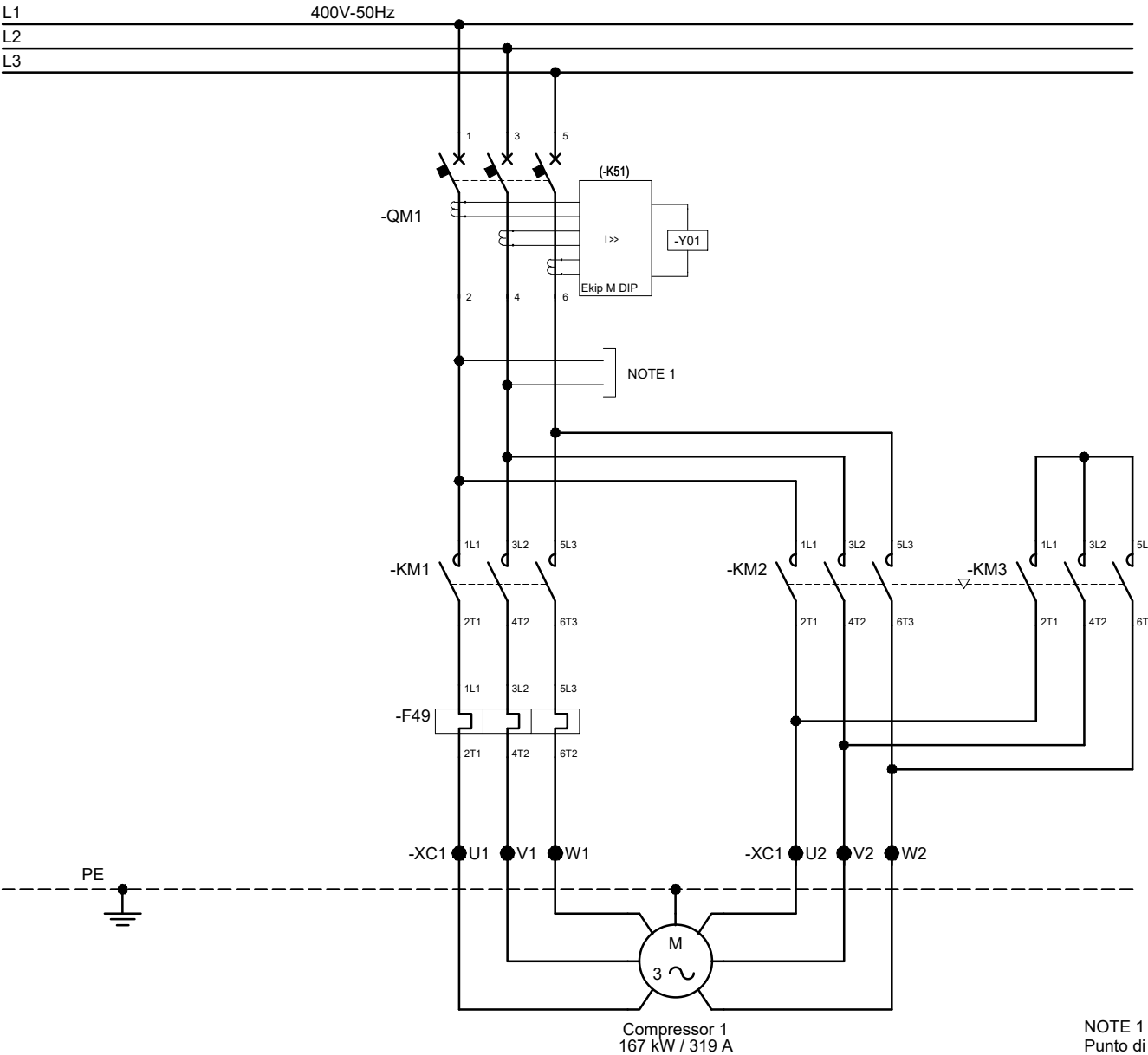
ESSENTIAL

1SD000046A1001

ECN_____

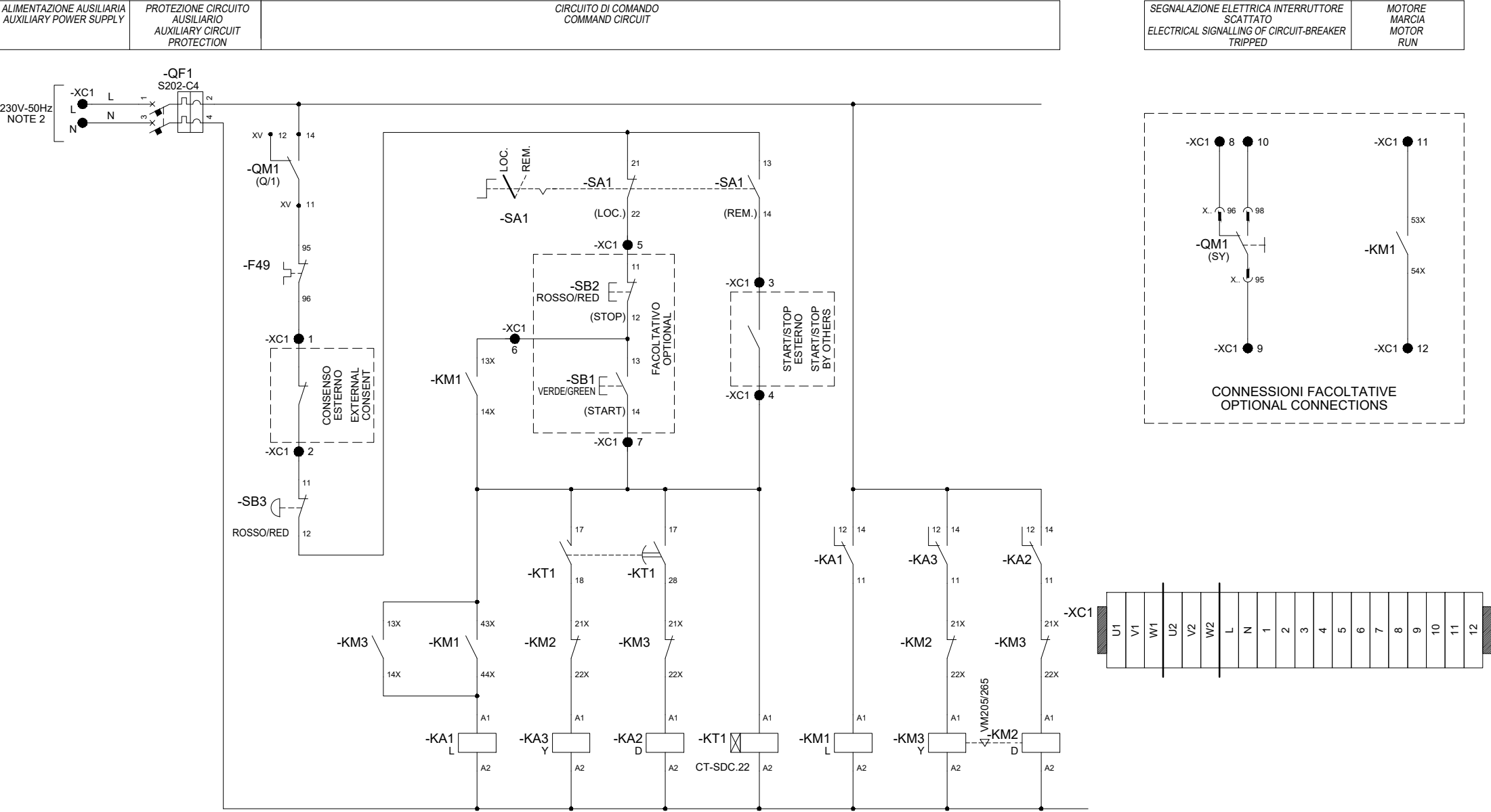
1/10

PARTENZA MOTORE STELLA/TRIANGOLO 167kW / 319A / STAR/DELTA STARTER 167kW / 319A



NOTE 1
Punto di connessione per trasformatore ausiliario 400 / 230V
Connection point for auxiliary transformer 400 / 230V

PARTENZA MOTORE STELLA/TRIANGOLO 167kW / 319A / STAR/DELTA STARTER 167kW / 319A

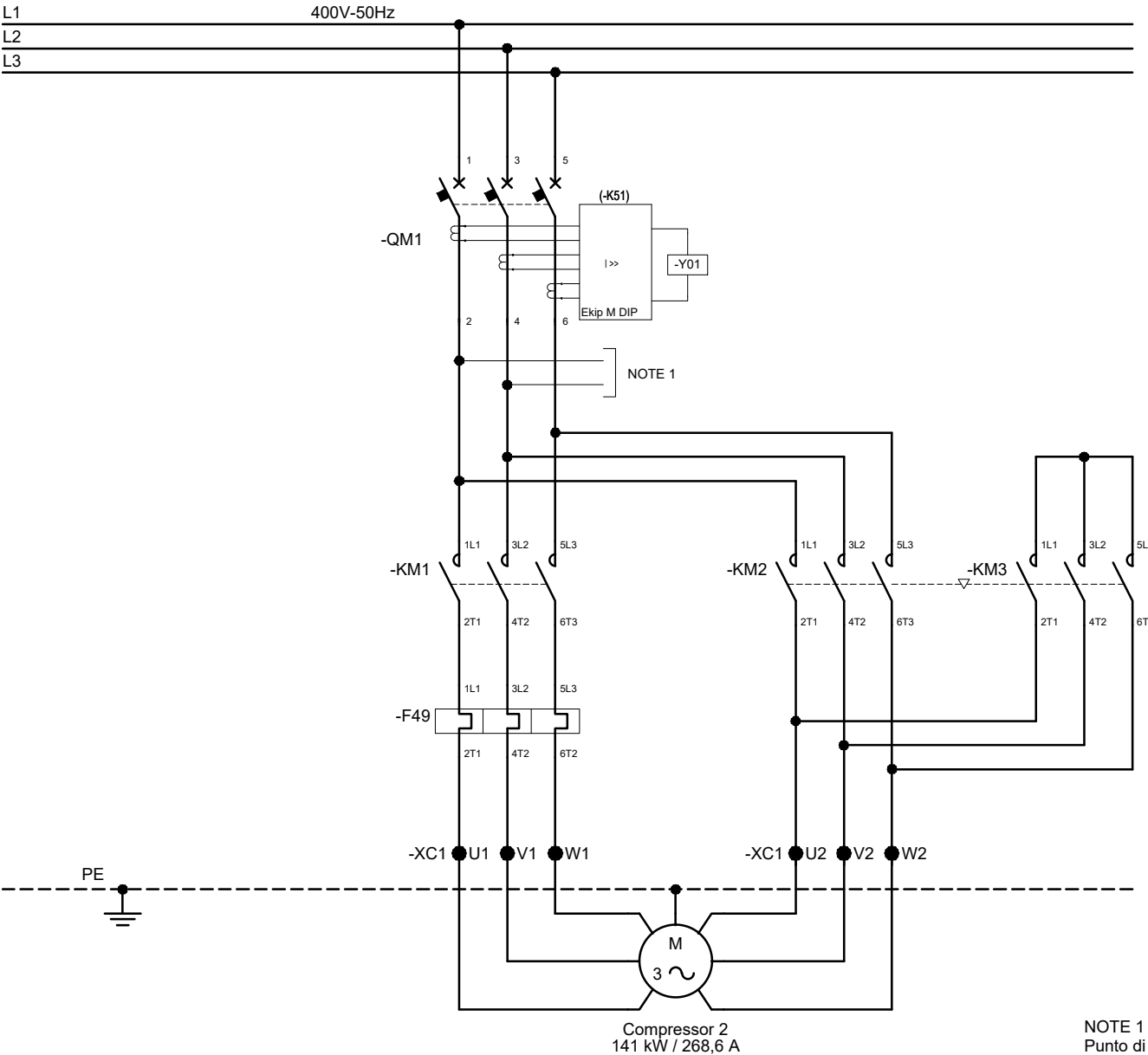


NOTE 2
Arrivo da linea principale con trasformatore 400/230V
Incoming from main line with 400 / 230V transformer

PARTENZA MOTORE STELLA/TRIANGOLO 167kW / 319A / STAR/DELTA STARTER 167kW / 319A

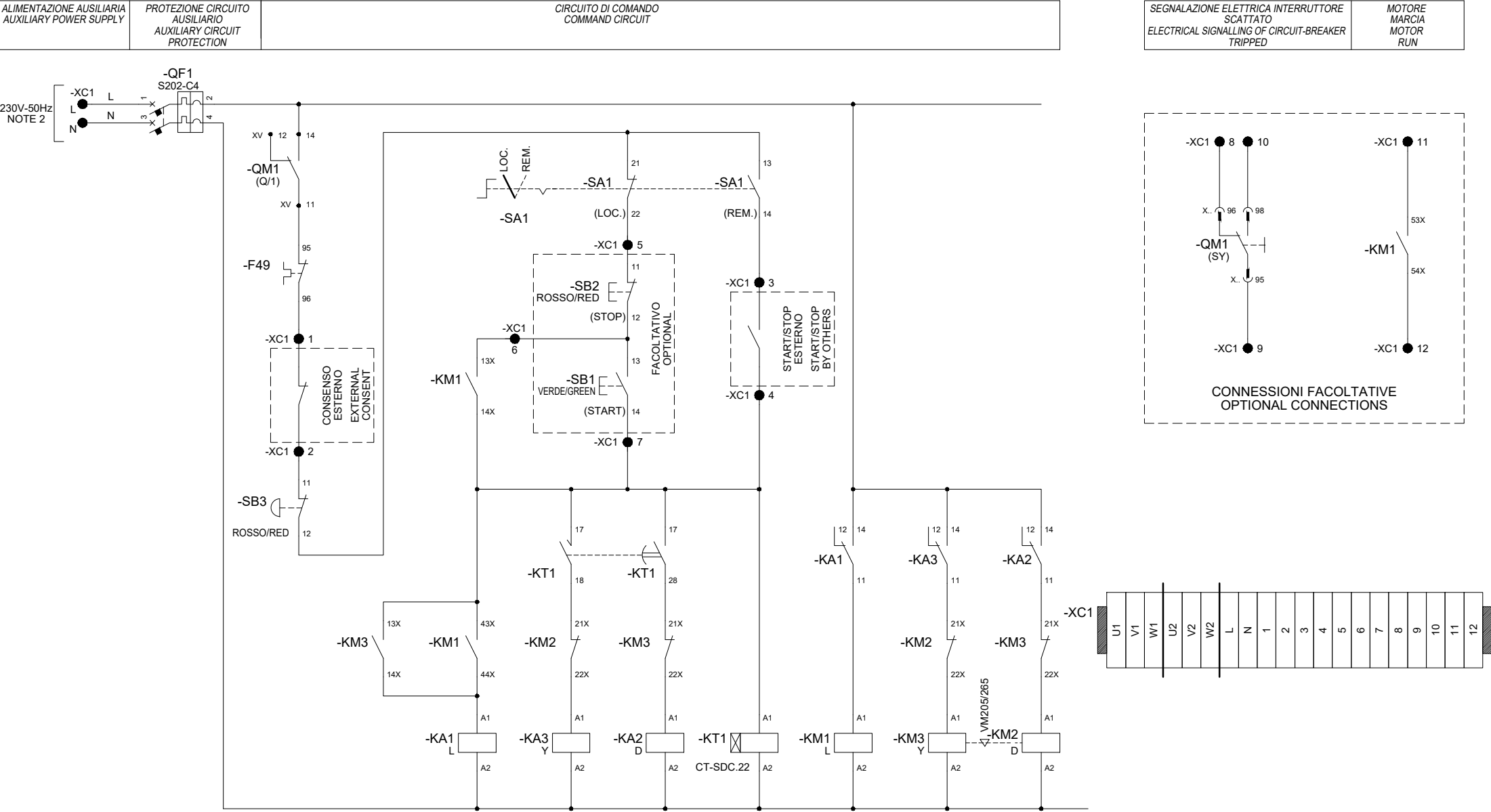
SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	1	Interruttore automatico 3P. 3P. Circuit breaker	XT5S 630 Ekip M Dip I In=630A	ABB	1SDA100439R1
-QM1	1	1 contatto di scambio aperto-chiuso + 1 contatto sgancio automatico 1 changeover contact open-closed + 1 changeover for tripped indication	AUX-C 1Q+1SY 250Vac/dc XT1..XT4 F/P	ABB	1SDA066431R1
-KM1, -KM2	2	Contattore AF265-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF265-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF265-30-11-13	ABB	1SFL547002R1311
-KM3	1	Contattore AF190-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF190-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF190-30-11-13	ABB	1SFL487002R1311
-KM1, -KM2, -KM3	3	CAL19-11 cont. 1NA+1NC per AF116...AF370 CAL19-11 Auxiliary Contact Block, 1NO+1NC for AF116...AF370	CAL19-11	ABB	1SFN010820R1011
-KM1	1	CAL19-11B cont. 1NA+1NC per AF116...AF370 CAL19-11B Auxiliary Contact Block, 1NO+1NC for AF116...AF370 (FACOLTATIVO) (OPTIONAL)	CAL19-11B	ABB	1SFN010820R3311
-F49	1	Relè termici elettronici-Montaggio diretto su contattori AF265...AF370 A/AF210...300 EF370-380 Electronic Overload Relay for AF265...AF370 A/AF210...300	EF370-380	ABB	1SAX611001R1101
-KM2, -KM3	1	Interblocco meccanico tra AF370...265 e AF205/190 Mechanical Interlock Unit	VM205/265	ABB	1SFN035203R1000
-KM1, -KM2, -KM3	1	Connssione per linea e triangolo AF265...AF370 e stella AF190...AF205 Connections for Star-Delta starters L+D=AF265, Y=AF205	BEY265-4	ABB	1SFN085413R1000
-KT1	1	CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC	CT-SDC.22	ABB	1SVR508211R0100
-QF1	1	Interruttore magnetotermico - 6kA Curva C 4A - 2P - C - 4 A Miniature Circuit Breaker - 6kA Curve C 4A - 2P - C - 4 A	S202-C4	ABB	2CDS252001R0044
-SB1	1	Pulsante verde compatto, 1NA (ghiera in plastica nera) Compact Pushbutton - Flush - Green - Black plastic - 1NO (FACOLTATIVO) (OPTIONAL)	CP1-10G-10	ABB	1SFA619100R1012
-SB2	1	Pulsante rosso compatto, 1NC (ghiera in plastica nera) Compact Pushbutton - Flush - Red - Black plastic - 1NC (FACOLTATIVO) (OPTIONAL)	CP1-10R-01	ABB	1SFA619100R1041
-SB3	1	Pulsante emergenza compatto, ø 40 mm, sgancio a rotazione, 1NC Compact Emergency Stop - Twist release - Mushroom 40mm - Red - Non-illuminated - Black plastic - 1NC	CE4T-10R-01	ABB	1SFA619550R1041
-SA1	1	Selettore nero, 2 pos. stab. 45°, 1NA+1NC (ghiera in plastica nera) Selector Switch - 2-position - Maintained - Short handle - Black Plastic - 1NO+1NC	C2SS1-10B-11	ABB	1SFA619200R1076
-KA1, -KA2, -KA3	3	Mini relè industriali Alim. 230V c.a. 1 c/o Auxiliary relay supply 230V AC 1 c/o	CR-P230AC1	ABB	1SVR405600R3000
-KA1, -KA2, -KA3	3	Zoccolo standard per 1/2 C/O (CR-P) Standard socket for 1c/o or 2c/o CR-P relays	CR-PSS	ABB	1SVR405650R1000
-KA1, -KA2, -KA3	3	CR-PH fermo per rele' CR-P CR-PH Holder for CR-P socket	CR-PH	ABB	1SVR405659R0000

PARTENZA MOTORE STELLA/TRIANGOLO 141 kW / 268,6 A / STAR/DELTA STARTER 141 kW / 268,6 A



NOTE 1
Punto di connessione per trasformatore ausiliario 400 / 230V
Connection point for auxiliary transformer 400 / 230V

PARTENZA MOTORE STELLA/TRIANGOLO 141 kW / 268,6 A / STAR/DELTA STARTER 141 kW / 268,6 A

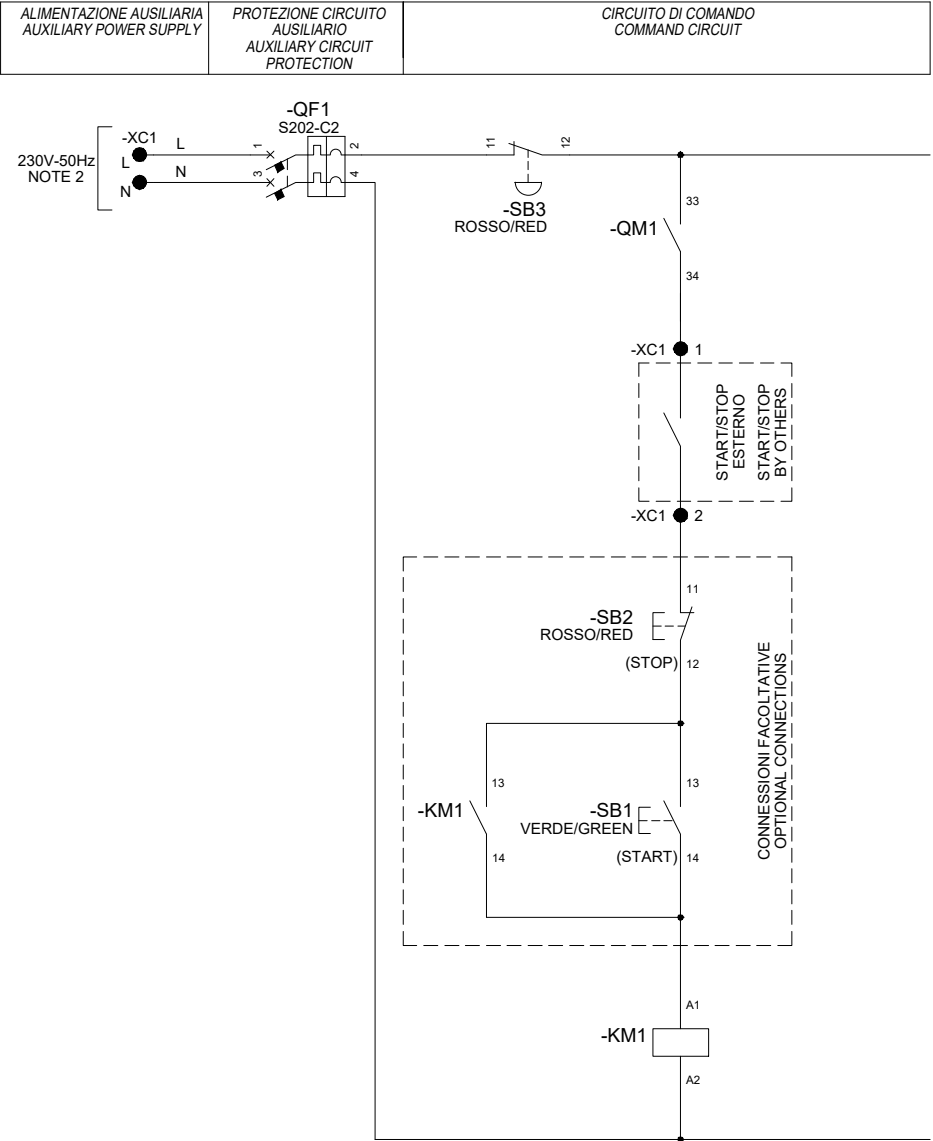
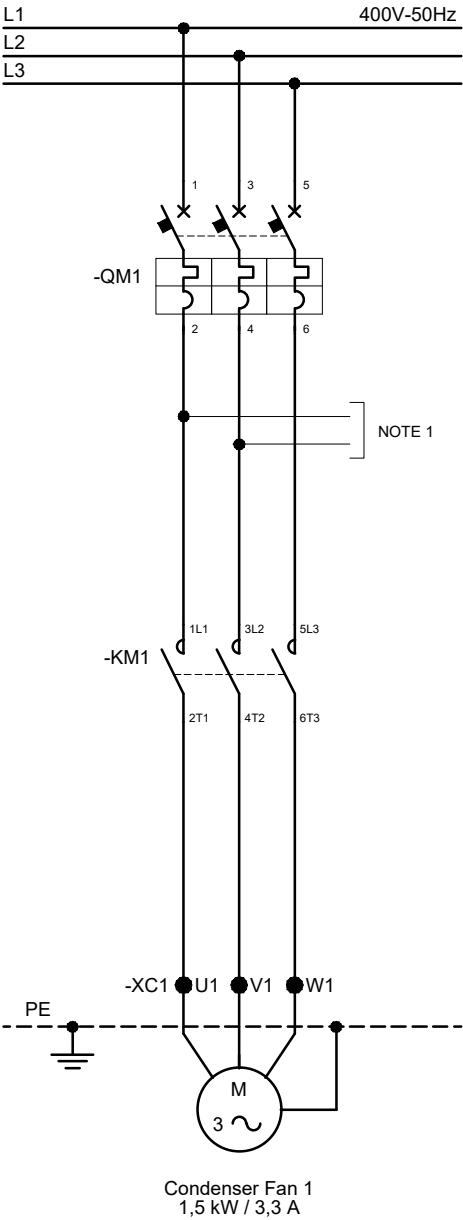


NOTE 2
Arrivo da linea principale con trasformatore 400/230V
Incoming from main line with 400 / 230V transformer

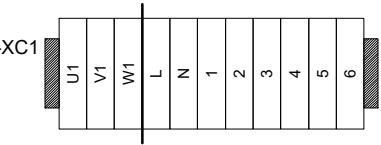
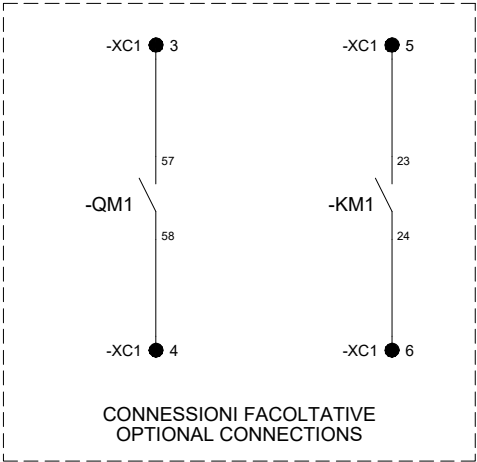
PARTENZA MOTORE STELLA/TRIANGOLO 141 kW / 268,6 A / STAR/DELTA STARTER 141 kW / 268,6 A

SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	1	Interruttore automatico 3P. 3P. Circuit breaker	XT5S 400 Ekip M Dip I In=400A	ABB	1SDA100438R1
-QM1	1	1 contatto di scambio aperto-chiuso + 1 contatto sgancio automatico 1 changeover contact open-closed + 1 changeover for tripped indication	AUX-C 1Q+1SY 250Vac/dc XT1..XT4 F/P	ABB	1SDA066431R1
-KM1, -KM2	2	Contattore AF190-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF190-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF190-30-11-13	ABB	1SFL487002R1311
-KM3	1	Contattore AF116-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF116-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF116-30-11-13	ABB	1SFL427001R1311
-KM1, -KM2, -KM3	3	CAL19-11 cont. 1NA+1NC per AF116...AF370 CAL19-11 Auxiliary Contact Block, 1NO+1NC for AF116...AF370	CAL19-11	ABB	1SFN010820R1011
-KM1	1	CAL19-11B cont. 1NA+1NC per AF116...AF370 CAL19-11B Auxiliary Contact Block, 1NO+1NC for AF116...AF370	CAL19-11B (FACOLTATIVO) (OPTIONAL)	ABB	1SFN010820R3311
-F49	1	Relè termici elettronici-Montaggio diretto su contattori AF190...AF205 e A/AF145...185 EF205-210 Electronic Overload Relay for AF190...AF205 A/AF145...185	EF205-210	ABB	1SAX531001R1101
-KM2, -KM3	1	Interblocco meccanico tra AF205/190 e AF146...AF116 Mechanical Interlock Unit	VM140/190	ABB	1SFN034403R1000
-KM1, -KM2, -KM3	1	Connessione per linea e triangolo AF190...AF205 e stella AF140...AF146 Connections for Star-Delta starters L+D=AF190, Y=AF140	BEY190-4	ABB	1SFN084813R1000
-KT1	1	CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC	CT-SDC.22	ABB	1SVR508211R0100
-QF1	1	Interruttore magnetotermico - 6kA Curva C 4A - 2P - C - 4 A Miniature Circuit Breaker - 6kA Curve C 4A - 2P - C - 4 A	S202-C4	ABB	2CDS252001R0044
-SB1	1	Pulsante verde compatto, 1NA (ghiera in plastica nera) Compact Pushbutton - Flush - Green - Black plastic - 1NO	CP1-10G-10 (FACOLTATIVO) (OPTIONAL)	ABB	1SFA619100R1012
-SB2	1	Pulsante rosso compatto, 1NC (ghiera in plastica nera) Compact Pushbutton - Flush - Red - Black plastic - 1NC	CP1-10R-01 (FACOLTATIVO) (OPTIONAL)	ABB	1SFA619100R1041
-SB3	1	Pulsante emergenza compatto, ø 40 mm, sgancio a rotazione, 1NC Compact Emergency Stop - Twist release - Mushroom 40mm - Red - Non-illuminated - Black plastic - 1NC	CE4T-10R-01	ABB	1SFA619550R1041
-SA1	1	Selettore nero, 2 pos. stab. 45°, 1NA+1NC (ghiera in plastica nera) Selector Switch - 2-position - Maintained - Short handle - Black Plastic - 1NO+1NC	C2SS1-10B-11	ABB	1SFA619200R1076
-KA1, -KA2, -KA3	3	Mini relè industriali Alim. 230V c.a. 1 c/o Auxiliary relay supply 230V AC 1 c/o	CR-P230AC1	ABB	1SVR405600R3000
-KA1, -KA2, -KA3	3	Zoccolo standard per 1/2 C/O (CR-P) Standard socket for 1c/o or 2c/o CR-P relays	CR-PSS	ABB	1SVR405650R1000
-KA1, -KA2, -KA3	3	CR-PH fermo per rele' CR-P CR-PH Holder for CR-P socket	CR-PH	ABB	1SVR405659R0000

PARTENZA MOTORE DOL 1,5 kW / 3,3 A / DOL MOTOR STARTER 1,5 kW / 3,3 A



SEGNALAZIONE ELETTRICA INTERRUTTORE SCATTATO ELECTRICAL SIGNALLING OF CIRCUIT-BREAKER TRIPPED	MOTORE MARCIA MOTOR RUN
--	----------------------------------



NOTE 1
Punto di connessione per trasformatore ausiliario 400 / 230V
Connection point for auxiliary transformer 400 / 230V

NOTE 2
Arrivo da linea principale con trasformatore 400/230V
Incoming from main line with 400 / 230V transformer

PARTENZA MOTORE DOL 1,5 kW / 3,3 A / DOL MOTOR STARTER 1,5 kW / 3,3 A

SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	12	Salvatore - In : 4A Manual Motor Starter - In : 4A	MS132-4.0	ABB	1SAM350000R1008
-QM1	12	Contatti ausiliari 1NO + 1NC per MS116, Mx132 e Mx165 Aux.-contact 1NO + 1NC for MS116, Mx132 e Mx165	HK1-11	ABB	1SAM201902R1001
-QM1	12	Contatto di segnalazione intervento magnetotermico 1NO + 1NC Signaling contacts 1NO + 1NC signal the tripping of the manual motor starter	SK1-11	ABB	1SAM201903R1001
-KM1	12	AF09-30-10-13 bob. 100...250 V c.a./c.c., aux 1NO AF09-30-10-13 100...250 VAC/DC, aux 1NO	AF09-30-10-13	ABB	1SBL137001R1310
-KM1	12	Blocco contatto ausiliario unipolare per montaggio frontale, 1NO Auxiliary contact block for front mounting, 1NO	CA4-10	ABB	1SBN010110R1010
-QM1, -KM1	12	Adatt. tra AF09..16 con MS116/132 fino a 25A Connecting Link with Manual Motor Starter	BEA16-4	ABB	1SBN081306T1000
-KM1	4	Barrette di collegamento max 65 A per MS116 e Mx132 3-phase busbar for 3 MS116 / Mx132, Ie=65A	PS1-3-0-65	ABB	1SAM201906R1103
-KM1	4	Accessori per barrette di collegamento 3-phase power infeed block	S1-M1-25	ABB	1SAM201907R1101
-QF1	12	Interruttore magnetotermico - 6kA Curva C 2A - 2P - C - 2 A Miniature Circuit Breaker - 6kA Curve C 2A - 2P - C - 2 A	S202-C2	ABB	2CDS252001R0024
-SB1	12	Pulsante verde compatto, 1NA (ghiera in plastica nera) Compact Pushbutton - Flush - Green - Black plastic - 1NO	CP1-10G-10	ABB	1SFA619100R1012
-SB2	12	Pulsante rosso compatto, 1NC (ghiera in plastica nera) Compact Pushbutton - Flush - Red - Black plastic - 1NC	CP1-10R-01	ABB	1SFA619100R1041
-SB3	12	Pulsante emergenza compatto, ø 40 mm, sgancio a rotazione, 1NC Compact Emergency Stop - Twist release - Mushroom 40mm - Red - Non-illuminated - Black plastic - 1NC	CE4T-10R-01	ABB	1SFA619550R1041

SEGNI GRAFICI PER SCHEMI ELETTRICI (NORME IEC 617 E CEI 3-14...3-26)
GRAPHICAL SYMBOLS FOR ELECTRICAL DIAGRAMS (617 IEC STANDARDS)

SEGNO SYMBOL	IEC REF. NUMBER	LEGENDA CAPTION		03-03-05	-PRESA E SPINA (FEMMINA E MASCHIO) -PLUG AND SOCKET (MALE AND FEMALE)		07-15-07	-BOBINA DI COMANDO DI UN RELE' CON RITARDO ALLA RICADUTA -RELAY COIL OF A SLOW-RELEASING RELAY
	02-08-01	-EFFETTO TERMICO -THERMAL EFFECT		06-04-01	-MOTORE (SEGNO GENERALE) -MOTOR (GENERAL SYMBOL)		07-15-08	-BOBINA DI COMANDO DI UN RELE' CON RITARDO ALL'ATTRAZIONE -RELAY COIL OF A SLOW-OPERATING RELAY
	02-08-02	-EFFETTO ELETTROMAGNETICO -ELECTROMAGNETIC EFFECT		06-09-11	-TRASFORMATORE DI CORRENTE -CURRENT TRANSFORMER		07-21-01	-FUSIBILE (SEGNO GENERALE) -FUSE (GENERAL SYMBOL)
-----	02-12-01	-COLLEGAMENTO MECCANICO, PNEUMATICO O IDRAULICO -MECHANICAL, PNEUMATIC OR HYDRAULIC CONNECTION (LINK)		07-02-01	-CONTATTO DI CHIUSURA -MAKE CONTACT		07-21-08	-SEZIONATORE CON FUSIBILE INCORPORATO -FUSE-DISCONNECTOR (FUSE ISOLATOR)
	02-12-05	-MOVIMENTO RITARDATO (NEL SENSO DELLO SPOSTA- MENTO DELL'ARCO VERSO IL PROPRIO CENTRO) -DELAYED ACTION (IN THE DIRECTION OF MOVEMENT FROM THE ARC TOWARDS ITS CENTRE)		07-02-03	-CONTATTO DI APERTURA -BREAK CONTACT		07-13-02	-CONTATTORE (CONTATTO APERTO A RIPOSO) -CONTACTOR (CONTACT OPEN IN UNOPERATED POS.)
-----▽-----	02-12-11	-INTERBLOCCO MECCANICO TRA DUE APPARECCHI -MECHANICAL INTERLOCK BETWEEN TWO DEVICES		07-02-04	-CONTATTO DI SCAMBIO CON INTERRUZIONE MOMEN- -CHANGE-OVER BREAK BEFORE MAKE CONTACT TANEA			
-----	02-13-01	-COMANDO MECCANICO MANUALE (CASO GENERALE) -MANUALLY OPERATED CONTROL (GENERAL CASE)		07-08-02	-CONTATTO DI POSIZIONE DI APERTURA (FINE CORSA) -POSITION SWITCH (LIMIT SWITCH), BREAK CONTACT			
(M)-----	02-13-26	-COMANDO A MOTORE ELETTRICO -OPERATED BY ELECTRIC MOTOR		(07-11-06)	-ELEMENTO DI COMMUTATORE UNIPOLARE A DUE POSIZIONI CON DIAGRAMMA DI POSIZIONE -SINGLE-POLE TWO-POSITION SWITCH WITH POSITION DIAGRAM			
•	03-02-01	-CONNESSIONE DI CONDUTTORI -CONNECTION OF CONDUCTORS		(07-13-101)	-INTERRUTTORE DI POTENZA AD APERTURA AUTOMATICA -CIRCUIT BREAKER WITH AUTOMATIC RELEASE			
•	03-02-02	-TERMINALE O MORSETTO -TERMINAL		07-15-01	-BOBINA DI COMANDO (SEGNO GENERALE) -OPERATING DEVICE (GENERAL SYMBOL)			



ABB S.p.A.
5, Via Pescaria
I-24123, Bergamo
Phone: +39 035 395 111
www.abb.com

We reserve the right to make technical changes and modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG declines all and every liability for potential errors or possible lack of information in this document.

We reserve all rights to this document and to the subject matter and illustrations contained therein. All reproduction, disclosure to third parties or utilization of these contents - in whole or in part - is forbidden without the prior written consent of ABB AG. © Copyright 2022 ABB. All rights reserved.