

User's Manual

**Synchronous Machine
AMG 1600UT14 LSE**

October 2007

Serial no. 4589343-4

ABB ref. 8769HE401-402

Project: ACP, MIRAFLORES

5.

Electrical Drawings

October 2007

Serial no. 4589343-4
ABB ref. 8769HE401-402
Project: ACP, MIRAFLORES

Contents

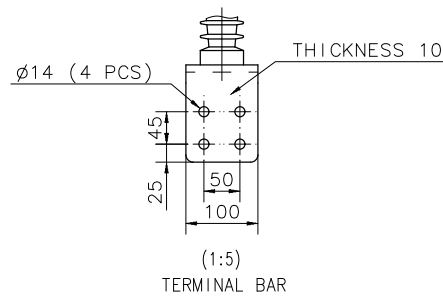
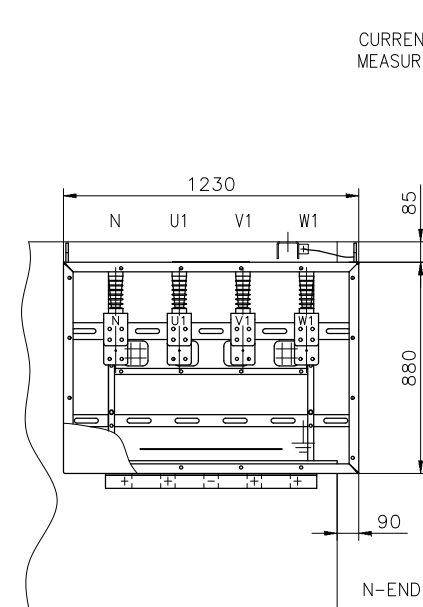
Electrical Drawings

Main Connection Diagram	5147917
Layout of Connection	5148024
Auxiliary Terminal Box B3A	5123633
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Exciter Rotor with Diode Bridge	5122424
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Symbols for roughness according to ISO 1302 .
SMA 431

General references for linear and angular dimensions are given in the table below.
Referential standards SMA 422, DIN 71681.1, DIN 71681.2



CURRENT TRANSFORMERS FOR MEASURING AND PROTECTION

CURRENT TRANSFORMERS FOR SHORT CIRCUIT EXCITATION POWER ONE IN EACH PHASE

CURRENT TRANSFORMER FOR PARALLEL OPERATION

PRESSURE RELIEVE OPENING

TERMINAL BARS

L-SIDE

VOLTAGE TRANSFORMER FOR EXCITATION POWER AND ACTUAL VALUE MEASURING

R-SIDE

ROXTEC CABLE GLANDS

N-END

NEUTRAL BAR

U2

V2

W2

W1

V1

U1

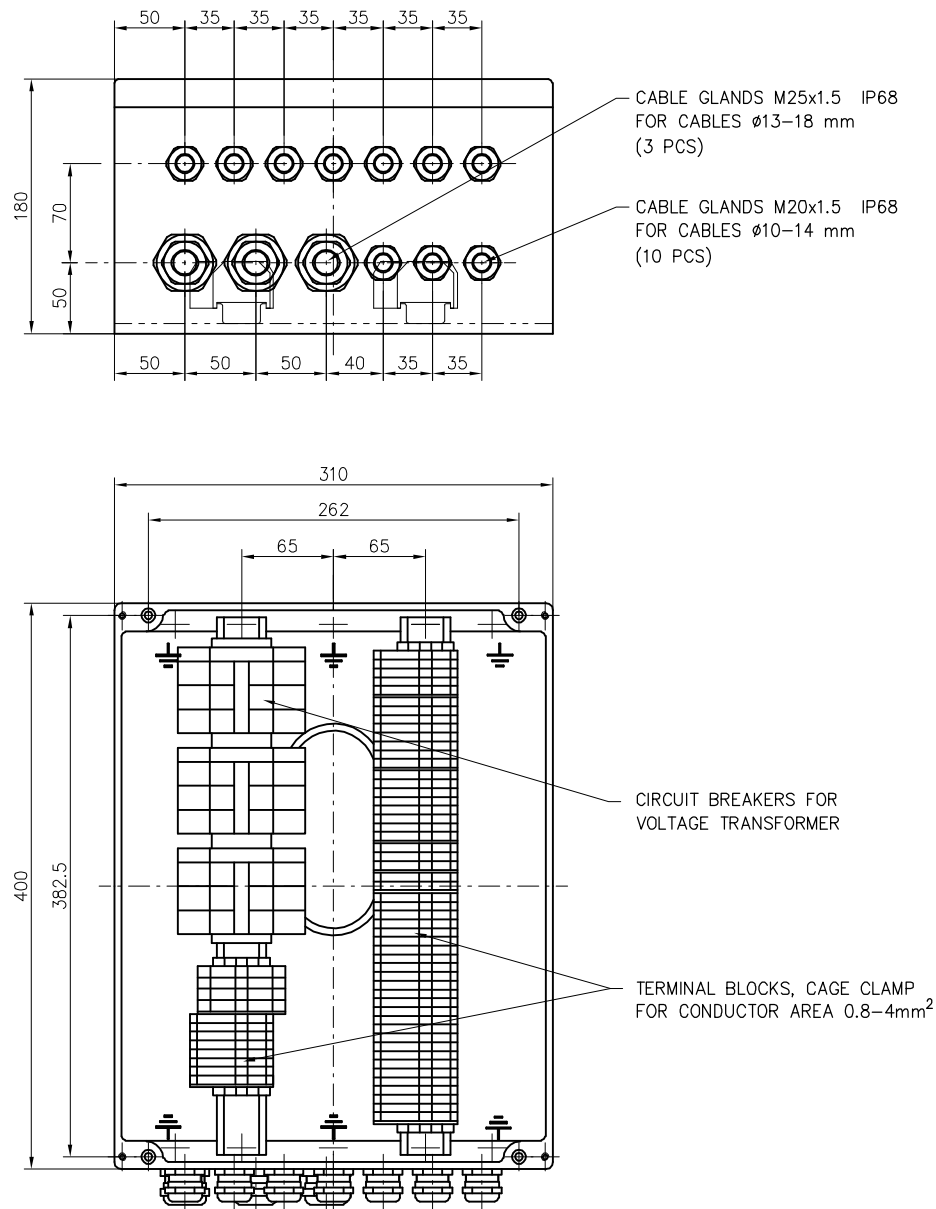
N

CONNECTION CAN BE MIRROR IMAGE TOO.
PLEASE, SEE MAIN DIMENSIONS DRAWING

Prepared 2007-01-18 E. UKKOLA	Separate part list with separate No. ☐	Title LAYOUT OF CONNECTION	Scale 1:15
Reviewed 2007-01-18 V-P. KOIVUNEN	Responsible department ATAP/PT		Language FI-EN
Approved 2007-01-18 H. PARTANEN	Original day		Mounting A2
Distribution PO	Functional code DA	Weight AMC 1600	Revision A
ABB Oy, Machines, Helsinki		Document No. 3AFP 5148024	Sheet 1/1

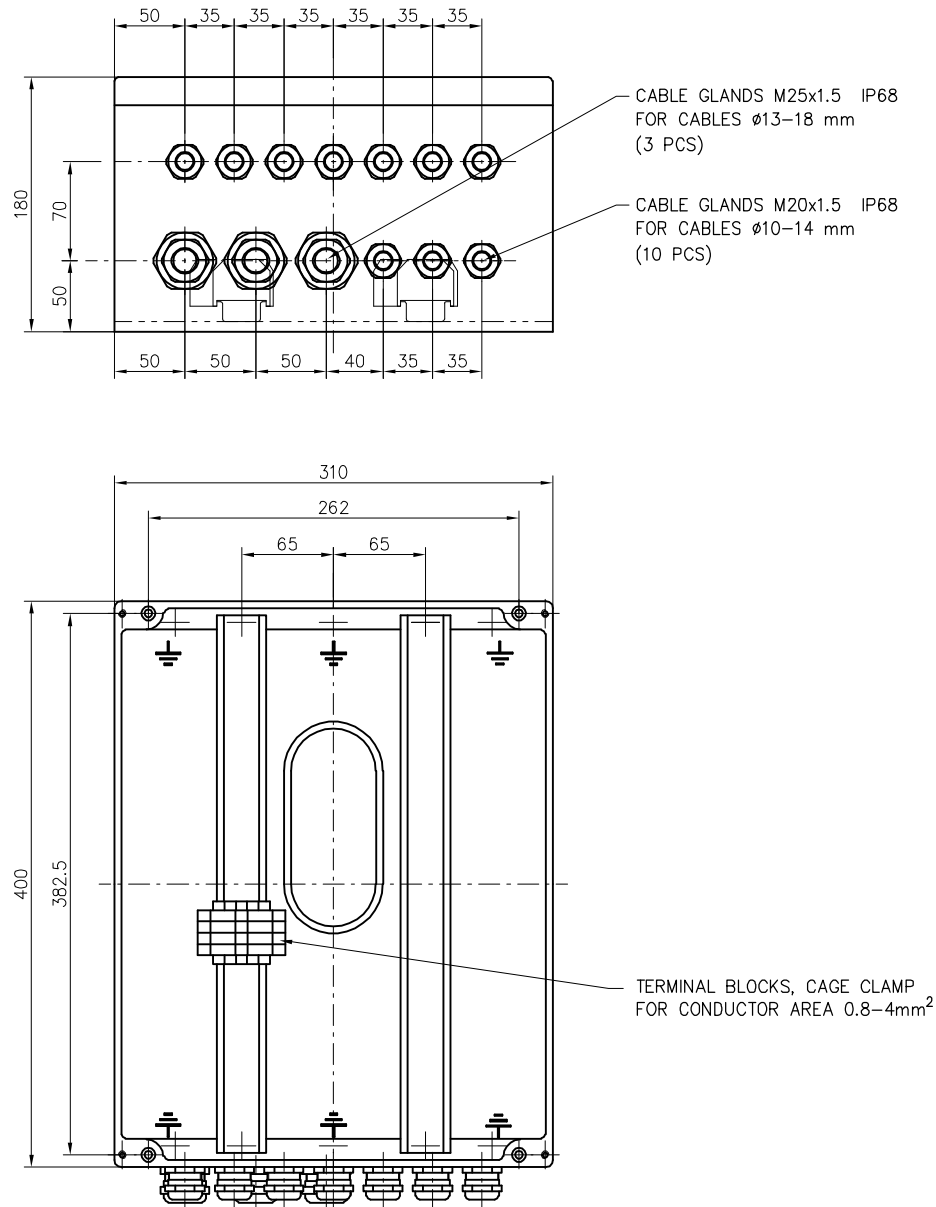
I-DEAS

ABB Oy, Machines, Helsinki
General tolerances for linear and angular dimensions
according to ISO 1302
Referential standards 9A0A.422, DIN 71871.1
Symbols for roughness according to ISO 1302,
9A0A.431
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Prepared 2001-04-02 P.HÄYRINEN	Separate part list with separate No. ☐	Title TERMINAL BOX FOR ACCESSORIES B3A	Scale 1:2.5
Reviewed 2001-04-02 OTTELIN	Responsible Department FIDRI/PT	Language fi-en	Sheet A2
Approved 2001-04-02 PARTANEN	Original Dwg	Mounting A	Revision 1/1
Distribution Functional Code ZP	Order No.	Weight AMG	Document No. 3AFP 5123633
ABB Oy, Machines, Helsinki		AutoCAD	

ABB Oy, Machines, Helsinki
General tolerances for linear and angular dimensions
according to ISO 1302.
Referential standards 9A0A.422, DIN 7181.1
Symbols for roughness according to ISO 1302,
9A0A.431
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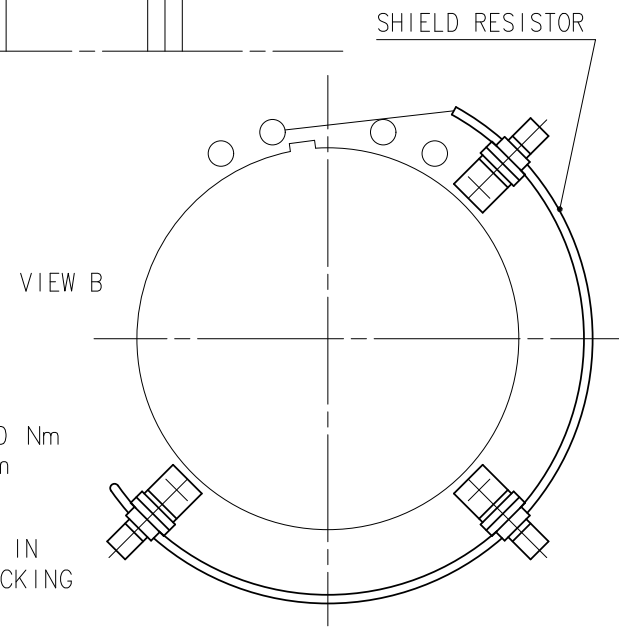
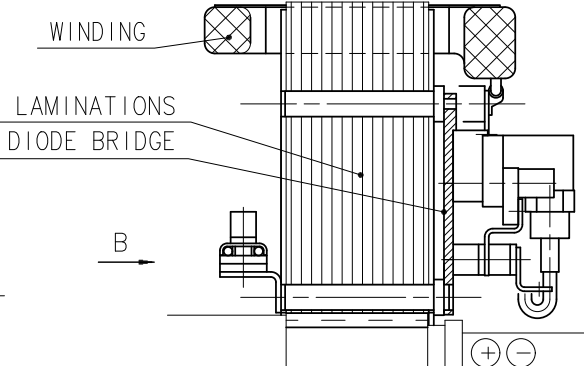
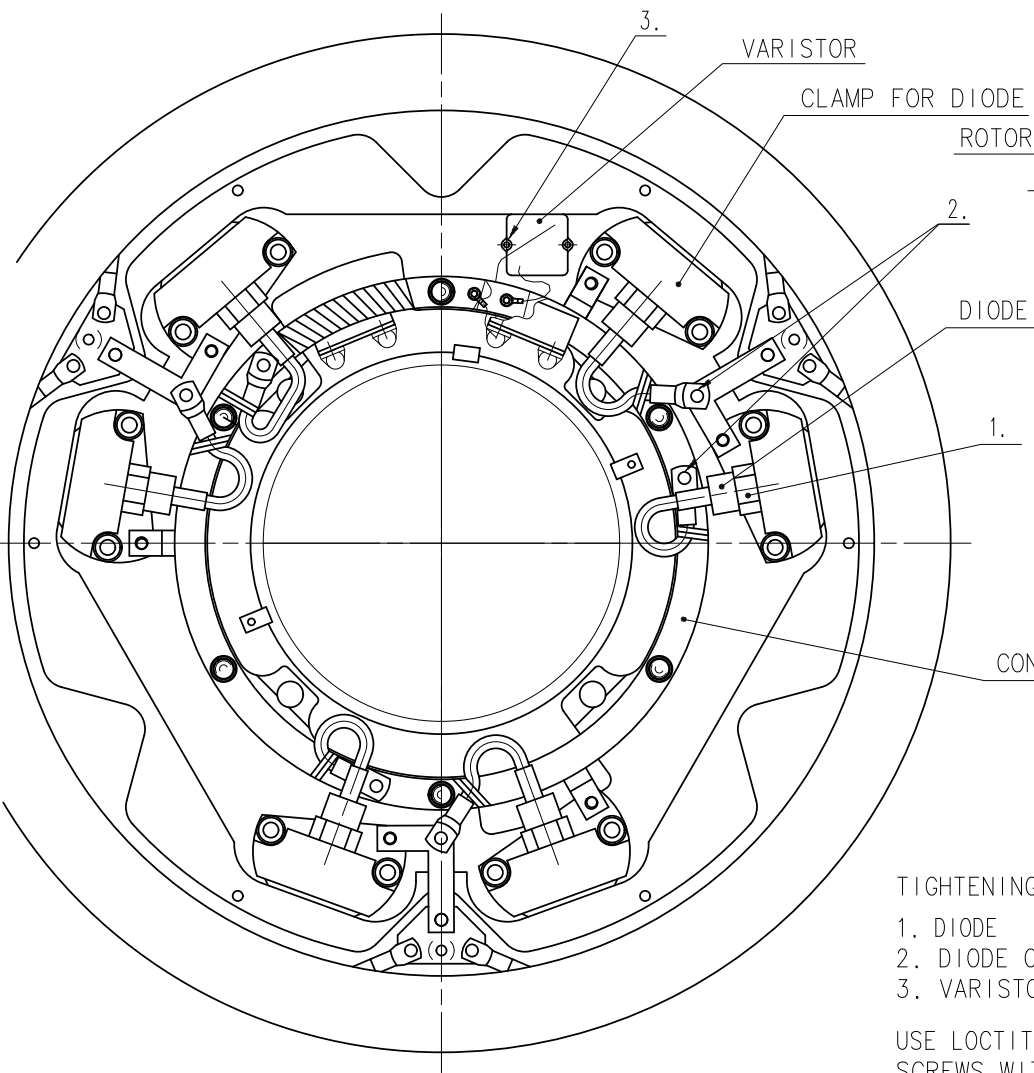


Prepared 2001-04-02 P.HÄYRINEN	Separate part list with separate No. ☐	Title TERMINAL BOX FOR ACCESSORIES B3B	Scale 1:2.5
Reviewed 2001-04-02 OTTELIN	Responsible Department FIDRI/PT	Language fi-en	Sheet A2
Approved 2001-04-02 PARTANEN	Original Dwg	Mounting A	Revision 1/1
Distribution Functional Code ZP	Order No.	Weight Type AMG	Document No. 3AFP 5123634
ABB Oy, Machines, Helsinki		AutoCAD	

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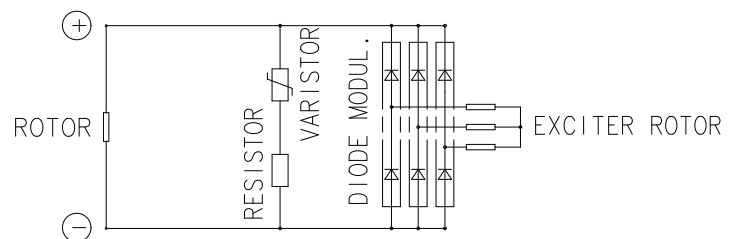
Symbols for roughness according to ISO 1302 .
9AD4 431

General tolerances for linear and angular dimensions and geometrical tolerances:
Referential standards 9AD4 422 , DIN 71687.1, DIN 71687.2



TIGHTENING TORQUES:
1. DIODE 35-40 Nm
2. DIODE CABLES 44 Nm
3. VARISTOR TO BASE 5 Nm

USE LOCTITE 243 LOCKING LIQUID IN SCREWS WITHOUT MECHANICAL LOCKING



D	UPDATED	2002-05-03	SAPE	MISA	MISA
Rev	Change	Date	Prep.	Rev.	Appr.

Prepared 2001-01-05 J.KOKKI	Separate part list with separate No. ☐	Title EXCITER ROTOR WITH DIODE BRIDGE, 6-DIODE	Scale 1:5
Reviewed 2001-01-05 M.SALMI	Responsible department FIDRI/PTD	Original dwg	Language EN
Approved 2001-01-05 J.SHIBUTANI	Distribution PO	Functional code SD	Order No.
		Weight	Type GF_140
		Mounting	Size A4
		Document No. 3AFP 5122424	Revision D
			Sheet 1/1

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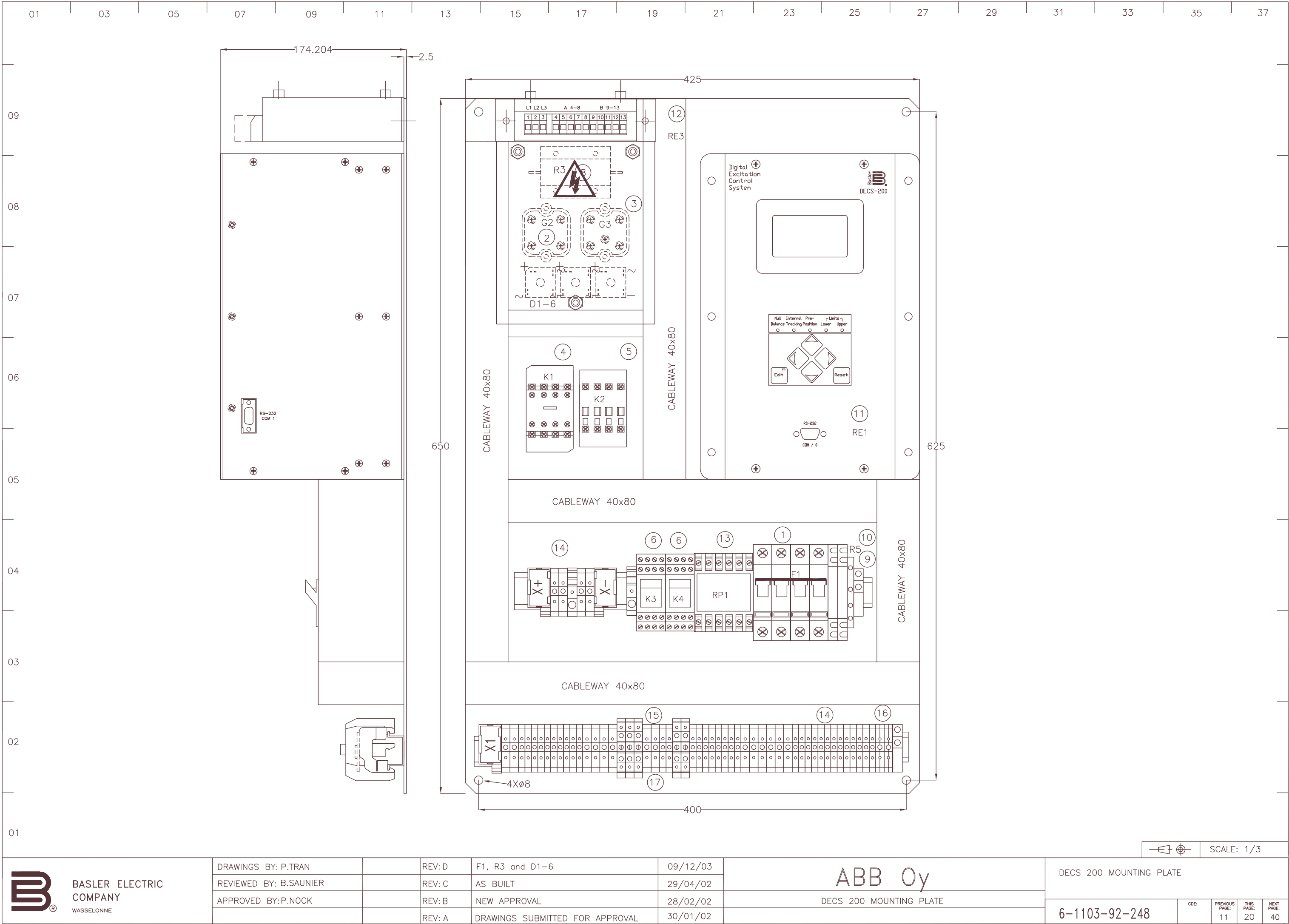
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01	03	05	07	09	11	13	15	17	19	21	23	25	27	29	31	33	35	37
BASLER B TECHNICAL DRAWINGS												MOUNTING PLATE 425(LENGHT)x650(HEIGHT)x175(WIDLH)mm GALVANIZED MOUNTING CHASSIS						
												POWER REQUIERMENTS: VOLTAGE SENSING: 3xUn/3x110Vac (Y-Y) 15VA CURRENT SENSING: 1xIn/1A(b-phase) 15va EXCITATION POWER: 56...277V @ ____VA CONTROL POWER: 24Vdc (internal)						
												POWER OUTPUT GENERATOR FIELD: NOMINAL VOLTAGE: 125V MAX. NOMINAL CURRENT: 15A MAX.						
												WIRING: ALL WIRING TO CONFORM TO THE FOLLOWING UNLESS OTHERWISE SPECIFIED ON SCHEMATICS: PT WIRE SIZE: 1.5mm ² CT WIRE SIZE: 2.5mm ² CONTROL WIRE SIZE: 1.5mm ² MULTICOLOR WIRE MARKERS ON EACH END OF WIRE						

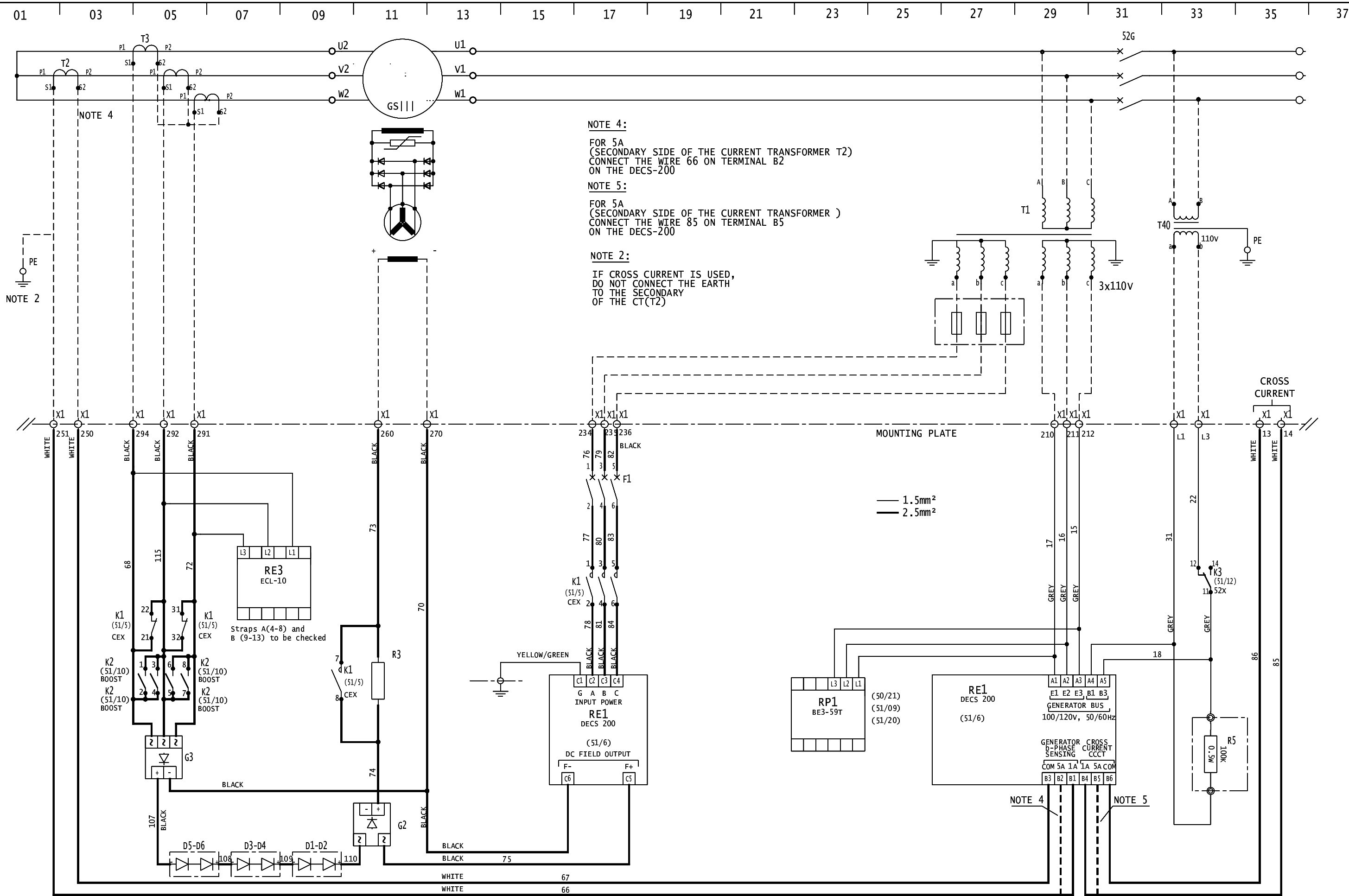
B BASLER ELECTRIC COMPANY WASSELONNE	DRAWINGS BY: P.TRAN		REV: H	FOLIOS 40, 50 & 51	21/12/04	ABB OY	COVER SHEET		
	REVIEWED BY: B.SAUNIER		REV: G	FOLIO40	20/09/04				
	APPROVED BY: P.NOCK		REV: F	FOLIOS 50 & 52	27/04/04	DECS 200 MOUNTING PLATE			
			REV: E	FOLIO 53	29/03/04		6-1103-91-248		
							PROJECT No.	FOLIO:	I

01	03	05	07	09	11	13	15	17	19	21	23	25	27	29	31	33	35	37																																																																					
				ALTERNATEUR SYNCHRONE, TRIPHASE				THREE PHASE SYNCHRONOUS GENERATOR								ENROULEMENT D'EXCITATION				EXCITATION WINDING								RESISTANCE / RESISTOR								TERRE / EARTH GROUND								BORNE / TERMINAL BLOCK POINT								FOLIO / COLONNE (CONTINUATION)				PAGE / COLUMN (CONTINUATION)																															
				TARNIFORMATEUR TRIPHASE Y/Y (ETOIE/ETOILE)				THREE PHASE TRANSFORMER Y/Y (STAR/STAR)								TRANSFORMATEUR DE COURANT				CURRENT TRANSFORMER								TERMINAL BLOCK								SENSING TERMINAL BLOCK								CONTACTEUR				CONTACTOR COIL								RELAIS				RELAY COIL								DISJONCTEUR / CIRCUIT BREAKER								CONTACT DE RELAY / RELAY CONTACT (FORM C)								DIODE DE PUISSANCE / POWER DIODE			
				CABLE BLINDE				SHIELDED WIRE								CONDENSATEUR				CAPACITOR								PRISE DE PUISSANCE / POWER PLUG + SOCKET								VARISTANCE / VARISTOR								TRANSFORMATEUR MONOPHASE				SINGLE PHASE TRANSFORMER								PONT REDRESSEUR				RECTIFER BRIDGE								FUSIBLES				FUSES								EMISSION TRIGGER				BOBINE A EMISSION			

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 BASLER ELECTRIC COMPANY WASSELONNE	DRAWINGS BY: P.TRAN		REV: D	F1, R3 and D1-6	09/12/03	ABB Oy DECS 200 MOUNTING PLATE	DECS 200 MOUNTING PLATE			
	REVIEWED BY: B.SAUNIER		REV: C	AS BUILT	29/04/02					
	APPROVED BY: P.NOCK		REV: B	NEW APPROVAL	28/02/02					
			REV: A	DRAWINGS SUBMITTED FOR APPROVAL	30/01/02		6-1103-92-248			
							CDE:	PREVIOUS PAGE: 11	THIS PAGE: 20	NEXT PAGE: 40



BASLER ELECTRIC
COMPANY
WASSELONNE

DRAWINGS BY: P.TRAN
REVIEWED BY: B.SAUNIER
APPROVED BY: P.NOCK

REV: H F1 WIRING
REV: F WIRING DECS-200
REV: D F1, R3 and D1-D6
REV: C AS BUILT

21/12/04
27/04/04
09/12/03
29/04/02

ABB Oy

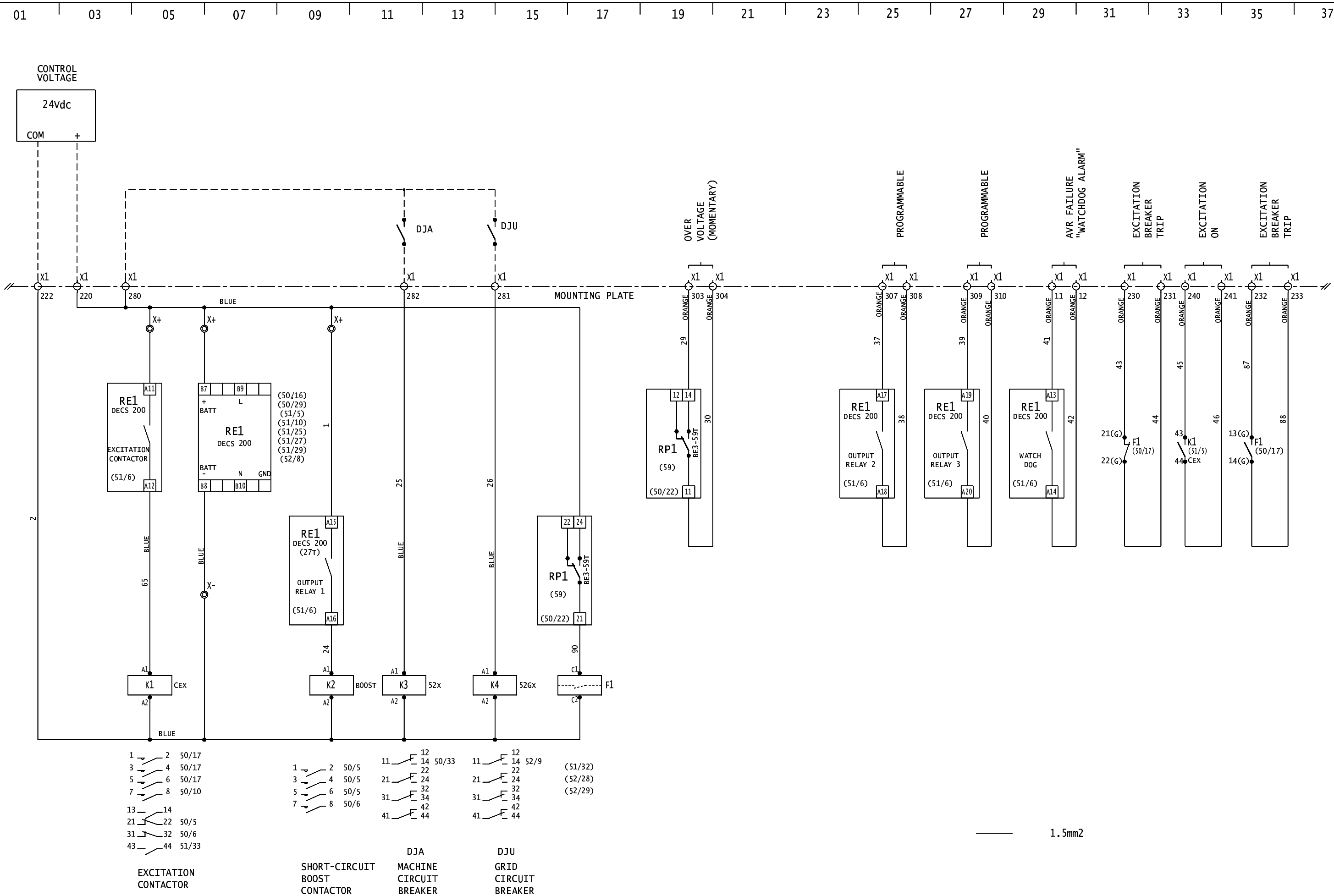
DECS 200 MOUNTING PLATE

POWER AND SENSING CIRCUIT

6-1103-91-248

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BASLER ELECTRIC
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WASSELONNE

DRAWINGS BY: P. TRAN

REVIEWED BY: B. SAUNIER

APPROVED BY: P. NOCK

REV: H

REV: D

REV: C

REV: A

F1 WIRING

F1, R3 and D1-6

AS BUILT

DRAWINGS SUBMITTED FOR APPROVAL

21/12/04

09/12/03

29/04/02

30/01/02

ABB Oy

DECS 200 MOUNTING PLATE

CONTROL CIRCUIT (1/2)

6-1103-91-248

CDE:

PREVIOUS

PAGE:

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PAGE:

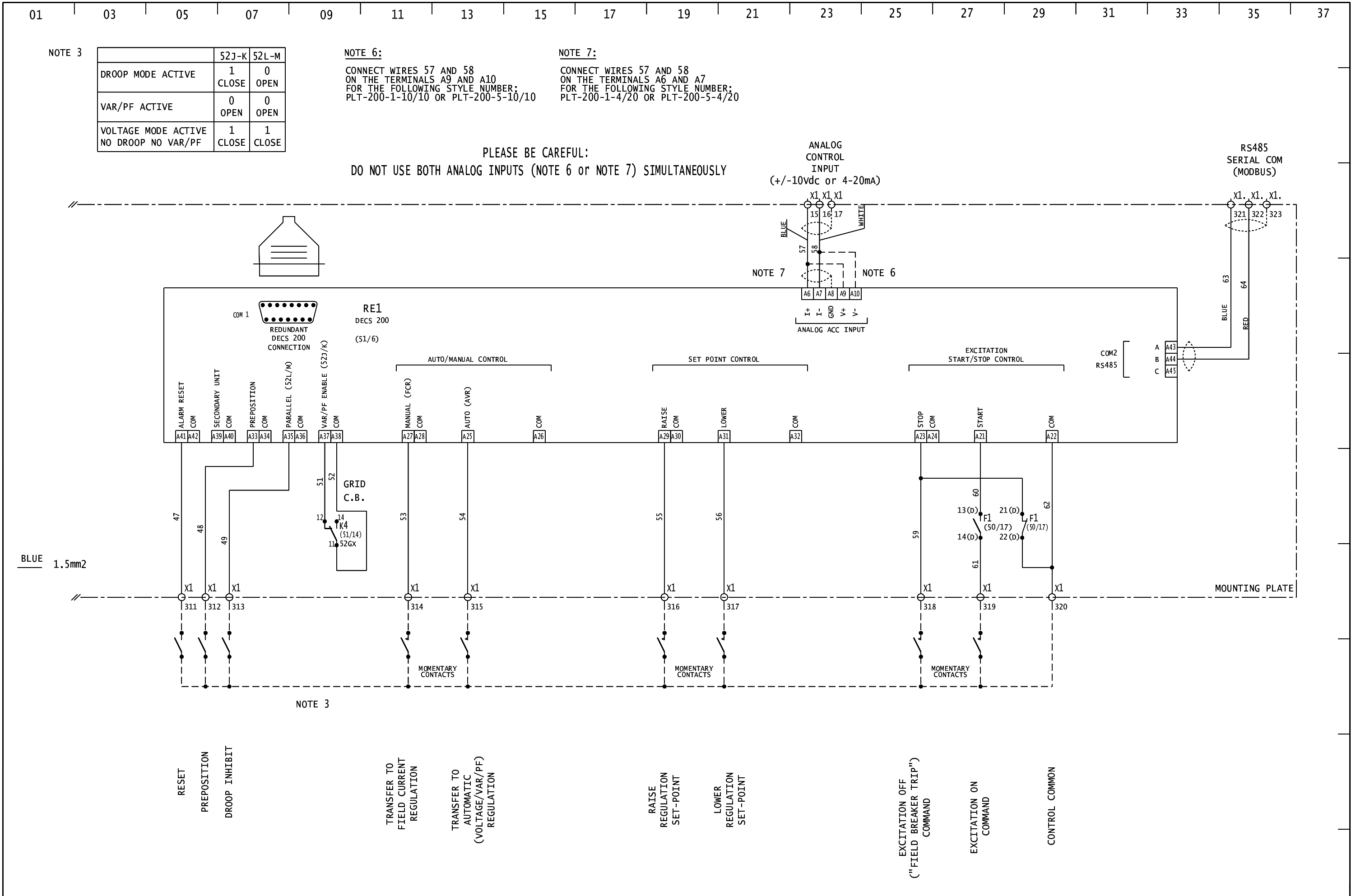
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NEXT

PAGE:

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 BASLER ELECTRIC COMPANY WASSELONNE	DRAWINGS BY: P.TRAN		REV: F	WIRING DECS-200	27/04/04	ABB Oy	CONTROL CIRCUIT (2/2)					
	REVIEWED BY: B.SAUNIER		REV: D	F1, R3 and D1-6	09/12/03							
	APPROVED BY: P.NOCK		REV: C	AS BUILT	29/04/02		DECS 200 MOUNTING PLATE	6-1103-91-248	CDE:	PREVIOUS PAGE: 51	THIS PAGE: 52	NEXT PAGE: 53
			REV: A	DRAWINGS SUBMITTED FOR APPROVAL	30/01/02							

INTERNAL

CUSTOMER

TERMINAL

X1

41	EX	11	(51/29)	AVR FAILURE "WATCHDOG ALARM"
42	EX	12	(51/30)	
86		13	(50/35)	CROSS CURRENT COMPENSATION
85		14	(50/35)	
57		15	(52/23)	
58		16	(52/23)	ANALOG CONTROL INPUT
		17	(52/23)	
17		210	(50/29)	GENERATOR VOLTAGE SENSING
16		211	(50/29)	
15		212	(50/30)	
1		220	(51/3)	+24V DC
2		222	(51/2)	COMMON
43	EX	230	(51/31)	EXCITATION BREAKER TRIPPED
44	EX	231	(51/32)	
87	EX	232	(51/35)	EXCITATION BREAKER TRIPPED
88	EX	233	(51/36)	
76	M	234	(50/17)	
79	M	235	(50/17)	EXCITATION POWER
82	M	236	(50/17)	
45	EX	240	(51/33)	EXCITATION ON
46	EX	241	(51/34)	
67		250	(50/3)	B-PHASE METERING CT
66		251	(50/2)	
73	M	260	(50/11)	EXCITATION FIELD
70	M	270	(50/12)	
1		280	(51/4)	
26		281	(51/14)	GRID C.B. CONTACT
25		282	(51/12)	MACHINE C.B. CONTACT
72		291	(50/6)	
115		292	(50/5)	COMPOUND CT'S
68		294	(50/4)	
31		L1	(50/32)	BUS VOLTAGE SENSING
22		L3	(50/33)	
29	EX	303	(51/19)	OVER VOLTAGE (MOMENTARY)
30	EX	304	(51/20)	
37	EX	307	(51/25)	DECS 200 RELAY 2 PROGRAMMABLE
38	EX	308	(51/25)	
39	EX	309	(51/27)	DECS 200 RELAY 3 PROGRAMMABLE
40	EX	310	(51/28)	
47		311	(52/5)	RESET
48		312	(52/6)	PREPOSITION
49		313	(52/7)	DROOP INHIBIT
53		314	(52/12)	TRANSFER TO FIELD CURRENT REGULATION
54		315	(52/13)	TRANSFER TO FIELD AUTOMATIC (VOLTAGE/VAR/PF) REGULATION
55		316	(52/19)	RAISER REGULATION SETPOINT
56		317	(52/20)	LOWER REGULATION SETPOINT
59		318	(52/26)	EXCITATION OFF (FIELD BREAKER TRIP) COMMAND
61		319	(52/27)	EXCITATION ON (FIELD BREAKER TRIP) COMMAND
62		320	(52/29)	CONTROL COMMON

LEGEND
M - TESTABLE TERMINAL
EX - POWERED EXTERNALLY (ORANGE TERMINAL)



BASLER ELECTRIC
COMPANY
WASSELONNE

DRAWINGS BY: P.TRAN		REV: E	CORRECTION	29/03/04
REVIEWED BY: B.SAUNIER		REV: D	F1, R3 and D1-6	09/12/03
APPROVED BY: P.NOCK		REV: C	AS BUILT	29/04/02
		REV: A	DRAWINGS SUBMITTED FOR APPROVAL	30/01/02

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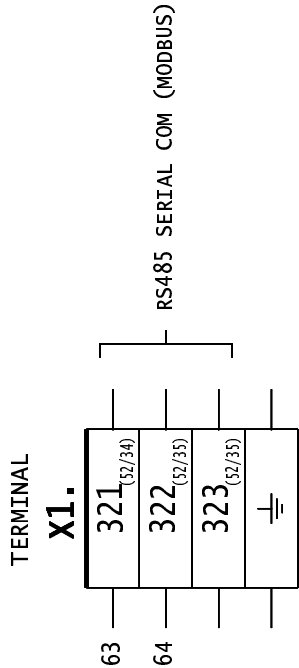
DECS 200 MOUNTING PLATE

AUXILIARY TERMINALS (1/2)

6-1103-91-248

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SUMMARY			MODIFICATION																				
FOLIO	TITLE 1	TITLE 2	REV.	VISA	DATE	REV.	VISA	DATE	REV.	VISA	DATE	REV.	VISA	DATE	REV.	VISA	DATE	REV.	VISA	DATE	REV.	VISA	DATE
11	DEFINITION OF SYMBOLS		A	P.TRAN	30/01/02	C	AKO	29/04/02															
20	DECS 200 CUSTOM MOUNTING PLATE		A	P.TRAN	30/01/02	B	AKO	28/02/02	C	AKO	29/04/02	D	GR	09/12/03									
40	EQUIPMENT LIST		A	P.TRAN	30/01/02	B	AKO	28/02/02	C	AKO	29/04/02	D	GR	09/12/03	G	MP	20/09/04	H	GR	21/12/04			
50	POWER AND SENSING CIRCUIT		A	P.TRAN	30/01/02	C	AKO	29/04/02	D	GR	09/12/03	F	AKO	27/04/04	H	GR	21/12/04						
51	CONTROL CIRCUIT (1/2)		A	P.TRAN	30/01/02	C	AKO	29/04/02	D	GR	09/12/03	H	GR	21/12/04									
52	CONTROL CIRCUIT (2/2)		A	P.TRAN	30/01/02	C	AKO	29/04/02	D	GR	09/12/03	F	AKO	27/04/04									
53	AUXILIARY TERMINALS (1/2)		A	P.TRAN	30/01/02	C	AKO	29/04/02	D	GR	09/12/03	E	FE	29/03/04									
54	AUXILIARY TERMINALS (2/2)		A	P.TRAN	30/01/02	C	AKO	29/04/02															
BASLER ELECTRIC COMPANY WASSELONNE		DRAWINGS BY: P.TRAN		REV: H	FOLIOS 40, 50 & 51	21/12/04	ABB OY		SUMMARY														
		REVIEWED BY: B.SAUNIER		REV: G	FOLIO40	20/09/04																	
		APPROVED BY: P.NOCK		REV: F	FOLIOS 50 & 52	27/04/04			DECS 200 MOUNTING PLATE														
				REV: E	FOLIO 53	29/03/04				6-1103-91-248			PROJECT NO.	FOLIO:									
														II									

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