

# DC Drives with external bridge

# TYPACT

## TPD32

■ ■ ■ □ ....Addendum

Convertitori con ponte esterno  
DC Drives with external bridge  
Convertisseurs à pont extérieur  
Konverters mit externer Brücke  
Convertidores con puente externo



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Questo manuale è il complemento, per le taglie dei convertitori da 1010 a 3300 A, del manuale di istruzione TPD32-HI, dove si trovano tutte le informazioni comuni di base anche per queste taglie.

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Este Manual es el complemento para las series de convertidores de 1010 a 3300 A del Manual de Instrucciones TPD32-HE, donde se encontra todas las informaciones comunes basicas tambien para estos modelos.

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# ADDENDUM

## **TPD32...1010 A ... 3300 A converters**

Questo addendum è il complemento del manuale di istruzione TPD 32 i cui dati comuni e le funzioni di regolazione e di controllo valgono anche per le taglie qui descritte. Di seguito sono raccolti solo i i dati specifici che si riferiscono alle taglie dei convertitori con ponte esterno.

The description of converters technical data with external bridge are described in the following addendum. Refer to the TPD32 instruction book for common data and functions.

Cette adjonction est le complément du manuel d'instruction TPD 32 dont les données communes et les fonctions de régulation et de contrôle servent aussi pour les mouflages ci-décrits. De suite vous trouverez seulement les données spécifiques qui se rapportent aux mouflages des convertisseurs à pont extérieur.

Dieses Addendum ergänzt die Betriebsanleitung des TPD 32, dessen gemeinsame Daten und Regelfunktionen auch für die an dieser Stelle aufgeführten Größenordnungen gelten. Im Folgenden werden die spezifischen Daten in Bezug auf die Leistung von Konvertern mit externer Brücke zusammengefaßt.

Esta añadidura complementa el manual de instrucciones TPD 32 cuyos datos comunes y funciones de regulación y control tienen validez aun para las tallas descritas aquí. Más abajo se indican sólo los datos específicos que se refieren a las tallas de los convertidores con puente externo.

### **Technical data**

I convertitori TPD32 di taglia superiore a 1000 2B / 1050 4B non sono in esecuzione compatta ma sono composti da una parte di potenza e da una parte di regolazione collegate tra di loro tramite apposito cavo con connettori. Per le taglie in questione è prevista anche una versione per alimentazione da rete a 690V.

TPD32 converters greater than 1000 2B / 1050 4B comprise a regulation unit (including the field converter) and an external bridge. A 690 V 3ph ac input supply is available. Technical data of these drives with external bridge are contained in the following tables.

Les convertisseurs TPD32 de mouflage supérieur à 1000 2B / 1050 4B ne sont pas en exécution compacte mais ils sont composés d'une partie de puissance et d'une partie de régulation qui sont reliées entre eux par un spécial câble à connecteurs. Pour ces mouflages on a prévu aussi une version pour alimentation par réseau à 690V.

Die Konverter TPD32 mit einer Leistung von über 1000 2B / 1050 4B sind nicht kompakt ausgeführt, sondern bestehen aus einem Leistungs- und einem Regelbereich, die mit einem entsprechenden Kabel mit Verbinder untereinander verbunden sind. Bei den hier behandelten Stromgrößen ist auch eine Version für Netzversorgung zu 690V vorgesehen.

Los convertidores TPD32 de talla superior a 1000 2B / 1050 4B no registran una ejecución compacta, sino constan de una parte de potencia y de otra de regulación conectadas entre ellas mediante un cable apropiado completo de conectores. Para dichas tallas se encuentra disponible también una versión para alimentación de red a 690V.

## Available sizes

Table A.1: Converter sizes for AC input supply up to 500 V, 3ph

Converters	Type		Rated DC current	
	4B	2B	Armature [A]	Field [A]
TPD32-.../...-1200-..		●	1200	40
TPD32-.../...-1500-..	●	●	1500	40
TPD32-.../...-1700-..	●		1700	40
TPD32-.../...-1800-..		●	1800	40
TPD32-.../...-2000-..	●	●	2000	40
TPD32-.../...-2400-..	●	●	2400	70
TPD32-.../...-2700-..	●	●	2700	70
TPD32-.../...-2900-..		●	2900	70
TPD32-.../...-3300-..		●	3300	70

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Table A.2: Converter sizes for AC input supply 690 V, 3ph

Converters	Type		Rated DC current	
	4B	2B	Armature [A]	Field [A]
TPD32-690/...-1010-..			1010	40
TPD32-690/...-1400-..			1400	40
TPD32-690/...-1700-..			1700	40
TPD32-690/...-2000-..			2000	40
TPD32-690/...-2400-..			2400	70
TPD32-690/...-2700-..			2700	70
TPD32-690/...-3300-..			3300	70

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## Supply voltage

Table A.3: Supply voltage

Device series	Power section (Terminals U/V/W)	Field circuit (Terminals U1/V1)	Power supply regulation (Terminals U2/V2)
TPD32-400/...	3 x 230 V $\pm 10$ %* 3 x 400 V $\pm 10$ %*  50/60 Hz $\pm 5$ %		
TPD32-500/...	3 x 230 V $\pm 10$ %* 3 x 400 V $\pm 10$ %* 3 x 440 V $\pm 10$ % 3 x 460 V $\pm 10$ % 3 x 480 V $\pm 10$ % 3 x 500 V $\pm 10$ %  50/60 Hz $\pm 5$ %	1 x 230 V $\pm 10$ %* 1 x 400 V $\pm 10$ %* 1 x 460 V $\pm 10$ %  50/60 Hz $\pm 5$ %	1 x 115 V $\pm 15$ % or 1 x 230 V $\pm 15$ %  50 / 60 Hz $\pm 5$ %
TPD32-690/...	3 x 230 V $\pm 10$ %* 3 x 400 V $\pm 10$ %* 3 x 440 V $\pm 10$ % 3 x 460 V $\pm 10$ % 3 x 480 V $\pm 10$ % 3 x 500 V $\pm 10$ % 3 x 690 V $\pm 10$ %*  50/60 Hz $\pm 5$ %		

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- \* Con i valori di tolleranza riportati si può ottenere una tensione di uscita dell'apparecchio secondo DIN 40 030. Per tolleranze più ampie bisogna ridurre in proporzione il valore della tensione massima di uscita.
- \* With the indicated tolerance values the output voltage complies with the DIN 40 030 standard. With wider tolerances the max output voltage changes accordingly.
- \* Avec les valeurs de tolérance indiquées on peut obtenir une tension de sortie de l'appareil selon DIN 40 030. Pour des tolérances plus grandes il faut réduire proportionnellement la valeur de la tension maximum de sortie.
- \* Mit den angegebenen Toleranzwerten kann eine Ausgangsspannung des Geräts nach DIN 40 030 erzielt werden. Für höhere Toleranzwerte muß der Wert der maximalen Ausgangsspannung proportional verringert werden.
- \* Con los valores de tolerancia indicados se puede obtener una tensión de salida del aparato según DIN 40 030. Para tolerancias mayores hay que reducir proporcionalmente el valor de la tensión máxima de salida.

Table A.4: Armature circuit output voltages

Ac input voltage (Terminals U / V / W)	Output armature voltage $U_{dN}$ (Terminals C/D)	
	2B - Two quadrant converter	4B - Four quadrant converter
3 x 230 V $\pm 10$ %	260 V	240 V
3 x 400 V $\pm 10$ %	470 V	420 V
3 x 440 V $\pm 10$ %	530 V	460 V
3 x 460 V $\pm 10$ %	560 V	480 V
3 x 480 V $\pm 10$ %	580 V	500 V
3 x 500 V $\pm 10$ %	600 V	520 V
3 x 690 V $\pm 10$ %	810 V	720 V

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Table A.5: Field circuit output voltage

AC input voltage (Terminals U1 / V1)	Output field voltage $U_{FN}$ ** (Terminals C1 / D1)	
	Fixed field	Adjustable field
1 x 230 V $\pm 15$ %	200 V	200 V
1 x 400 V $\pm 15$ %	310 V	310 V
1 x 460 V $\pm 10$ %	360 V	360 V

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**NOTE!**

La tensione minima di ingresso per l'alimentazione del circuito di campo è 110VAC.

The minimum AC input voltage supply value for the field circuit is 110VAC.

La tension minimum d'entrée pour l'alimentation du circuit de champ est 110VAC.

Die minimale Eingangsspannung zur Versorgung des Feldkreises beträgt 110VAC.

La tensión mínima en entrada para la alimentación del circuito de campo es 110VAC.

**AC input currents**

Table A.6: AC input current

Converters	Armature AC input current	Field AC input max current	Regulation power supply			
			Card	Power	AC input current at 115 V   at 230 V	
TPD32-690/...-1010-..	860 A	40 A	SW1-31	70 W	1 A	0,5 A
TPD32-.../...-1200-..	1032 A	40 A				
TPD32-690/...-1400-..	1205 A	40 A				
TPD32-.../...-1500-..	1290 A	40 A				
TPD32-.../...-1700-..	1464 A	40 A				
TPD32-.../...-1800-..	1542 A	40 A				
TPD32-.../...-2000-..	1720 A	40 A				
TPD32-.../...-2400-..	2064 A	70 A				
TPD32-.../...-2700-..	2313 A	70 A				
TPD32-.../...-2900-..	2485 A	70 A				
TPD32-.../...-3300-..	2827 A	70 A				

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## Field current resistors

Per ottenere un valore di taratura della corrente diverso da quelli indicati in tabella, utilizzare la seguente formula per calcolare la resistenza da inserire tra i morsetti LA e LB sulla scheda di regolazione. In questo caso è necessario impostare tutti gli switch a zero (OFF).

Setting all dipswitch settings to zero (OFF) allows a custom calculated resistor to be used in terminals LA and LB, on the regulation card, using the formulas listed above.

Pour obtenir une valeur de réglage du courant qui est différente des valeurs indiquées dans le tableau, il faut utiliser la formule suivante pour calculer la résistance à introduire entre les bornes LA et LB sur la fiche de régulation. Dans ce cas il est nécessaire de fixer tous les switch à zéro (OFF).

Um einen Eichwert für den Strom zu erzielen, der nicht in der Tabelle aufgeführt ist, anhand der folgenden Formel den Widerstand berechnen, der zwischen die Klemmen LA und LB auf der Regelplatine eingesetzt werden muß. In diesem Fall müssen alle Switchs auf Null (OFF) gestellt werden.

Para obtener un valor de calibrado de la corriente diferente de los indicados en la tabla, utilizar la siguiente fórmula para calcular la resistencia a insertar entre los bornes LA y LB en la tarjeta de regulación. En este caso se deben plantear todos los switch a cero (OFF).

Table A.7: Field current resistors

The formula is  $R_{LA-LB} [\text{ohm}] = 3332 / \text{field current amps}$

and is valid for model numbers TPD32-.../...-1000... up to TPD32-.../...-2000..., Revision 5.1 and greater.

Field current scale	S14-1	S14-2	S14-3	S14-4	S14-5	S14-6	Equivalent resistance
40A	ON	OFF	ON	OFF	OFF	OFF	83 Ω
20A	ON	OFF	OFF	OFF	OFF	OFF	168 Ω
10A	OFF	ON	OFF	OFF	OFF	OFF	332 Ω

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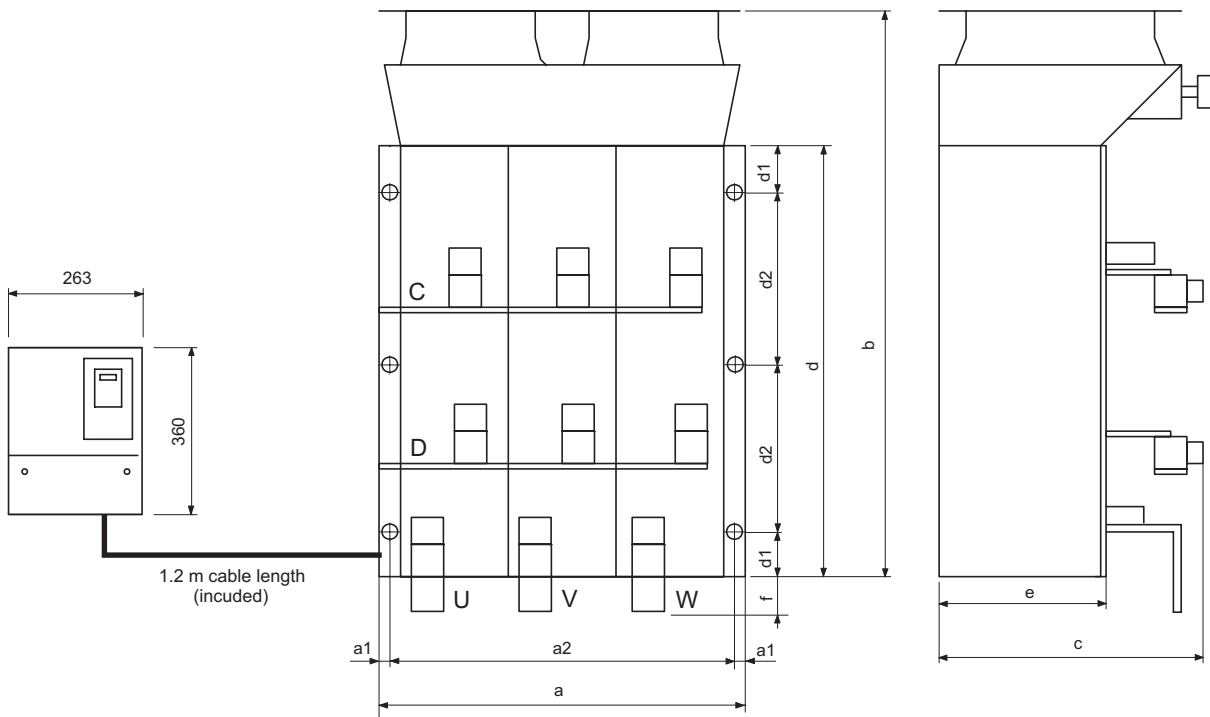
The formula is  $R_{LA-LB} [\text{ohm}] = 1667 / \text{field current amps}$

and is valid for model numbers TPD32-.../...-2400... up to TPD32-.../...-3300..., Revision 5.1 and greater.

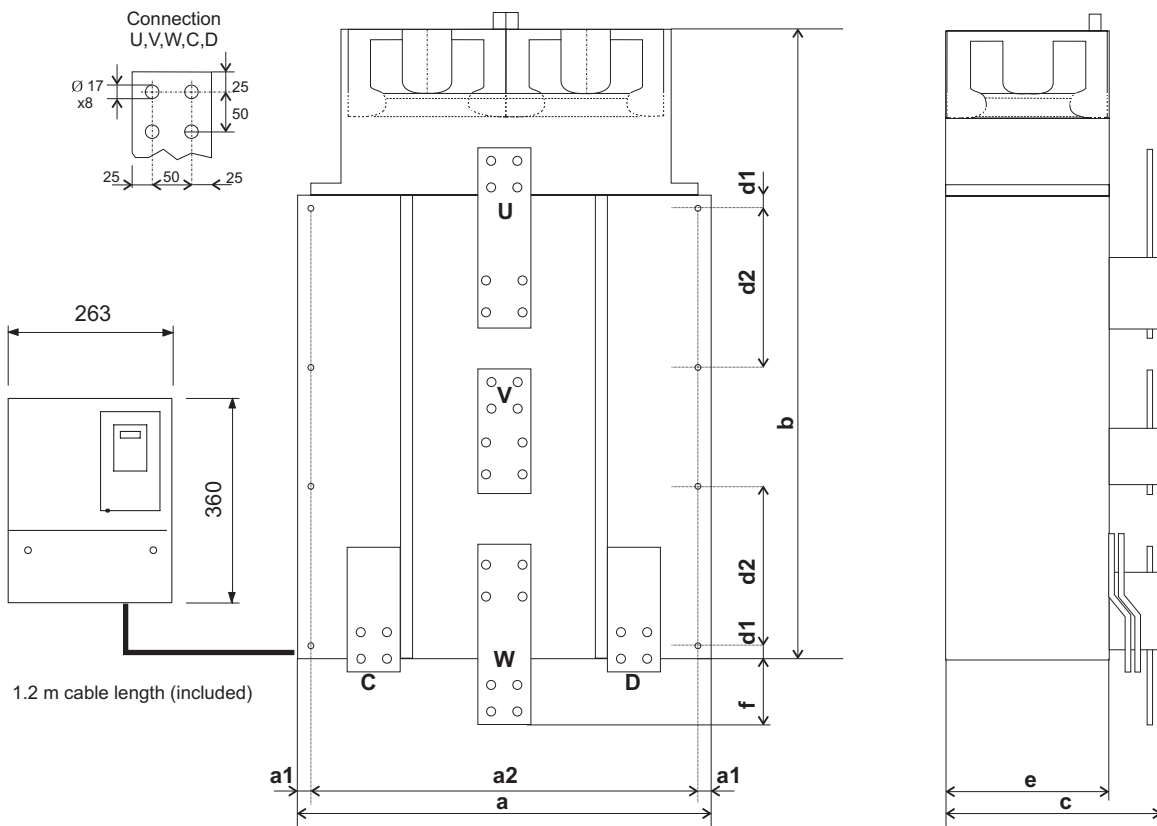
Field current scale	S14-1	S14-2	S14-3	S14-4	S14-5	S14-6	Equivalent resistance
70A	ON	OFF	ON	ON	OFF	OFF	23.8 Ω
46A	OFF	OFF	OFF	ON	OFF	OFF	36.4 Ω
24A	ON	ON	ON	OFF	OFF	OFF	69.2 Ω
14A	OFF	ON	ON	OFF	OFF	OFF	117.6 Ω

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**Mechanical dimensions, weight**



*Fig. A.1: TPD32- ... -2B converter dimensions with external bridge up to 2900 A*



*Fig. A.2: TPD32- ... -2B converter dimensions with external bridge of 3300A*

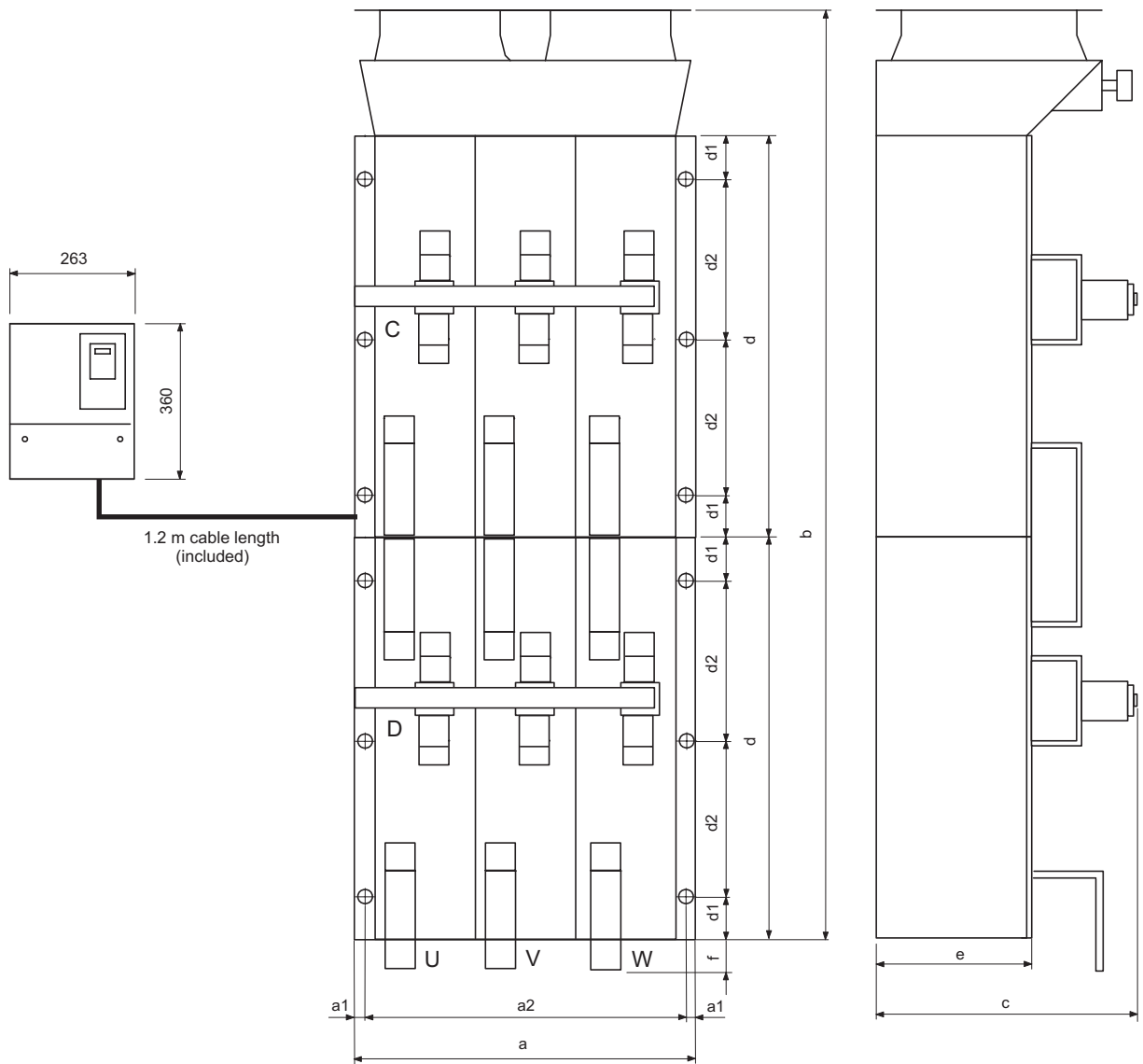


Fig. A.3: TPD32- ... -4B converter dimensions with external bridge

Table A.8: Mechanical dimensions of TPD32...2B converters with external bridge

**TPD32-...-2B**

Type	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	a1 [mm]	a2 [mm]	d1 [mm]	d2 [mm]	Weight [kg]
TPD32-690/810-1010-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-400/470-1200-2B	500	570	275	360	153	75	10	480	50	---	65/8.4
TPD32-500/600-1200-2B	500	570	275	360	153	75	10	480	50	---	65/8.4
TPD32-690/810-1400-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-400/470-1500-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-500/600-1500-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-690/810-1700-2B	620	764	360	550	233	95	10	600	50	225	100/8.4
TPD32-400/470-1800-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-500/600-1800-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-400/470-2000-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-500/600-2000-2B	500	760	275	550	153	95	10	480	50	225	70/8.4
TPD32-690/810-2000-2B	620	764	360	550	233	95	10	600	50	225	100/8.4
TPD32-400/470-2400-2B	620	764	360	550	233	95	10	600	50	225	100/8.4
TPD32-500/600-2400-2B	620	764	360	550	233	95	10	600	50	225	100/8.4
TPD32-690/810-2400-2B	712	775	395	560	255	95	10	692	50	230	140/8.4
TPD32-400/470-2700-2B	712	785	395	660	255	95	10	692	50	280	140/8.4
TPD32-500/600-2700-2B	712	785	395	660	255	95	10	692	50	280	140/8.4
TPD32-690/810-2700-2B	712	775	395	560	255	95	10	692	50	230	140/8.4
TPD32-400/470-2900-2B	712	775	395	560	255	140	10	692	50	230	140/8.4
TPD32-500/600-2900-2B	712	775	395	560	255	140	10	692	50	230	140/8.4
TPD32-400/470-3300-2B	780	1180	420	875	295	125	25	730	25	300	260/8.4
TPD32-500/600-3300-2B	780	1180	420	875	295	125	25	730	25	300	260/8.4
TPD32-690/810-3300-2B	780	1180	420	875	295	125	25	730	25	300	260/8.4

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Table A.9: Mechanical dimensions of TPD32...4B converters with external bridge

**TPD32-...-4B**

Type	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	a1 [mm]	a2 [mm]	d1 [mm]	d2 [mm]	Weight [kg]
TPD32-690/720-1010-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-690/720-1400-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-400/420-1500-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-500/520-1500-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-400/420-1700-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-500/520-1700-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-690/720-1700-4B	620	1314	475	550	233	95	10	600	50	225	170/8.4
TPD32-400/420-2000-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-500/520-2000-4B	500	1310	375	550	153	95	10	480	50	225	130/8.4
TPD32-690/720-2000-4B	620	1314	475	550	233	95	10	600	50	225	170/8.4
TPD32-400/420-2400-4B	620	1314	495	550	233	95	10	600	50	225	170/8.4
TPD32-500/520-2400-4B	620	1314	495	550	233	95	10	600	50	225	170/8.4
TPD32-690/720-2400-4B	712	1335	475	560	255	95	10	692	50	230	240/8.4
TPD32-400/420-2700-4B	712	1535	490	660	255	100	10	692	50	280	240/8.4
TPD32-500/520-2700-4B	712	1535	490	660	255	100	10	692	50	280	240/8.4
TPD32-690/720-2700-4B	712	1335	475	560	255	95	10	692	50	230	240/8.4
TPD32-400/420-3300-4B	780	1890	470	1585	315	-	25	730	-	-	435/8.4
TPD32-500/520-3300-4B	780	1890	470	1585	315	-	25	730	-	-	435/8.4
TPD32-690/720-3300-4B	780	1890	470	1585	315	-	25	730	-	-	435/8.4

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## Watt loss and Fans

Table A.10: Watt losses of converters with external bridge

TPD32-...-2B	TPD32-...-4B	Power loss [W]	Fans		
			Voltage [V]	Rated current [A]	Air capacity [m <sup>3</sup> /h]
TPD32-690/810-1010-2B	TPD32-690/720-1010-4B	3500	230	0.4	900
TPD32-400/470-1200-2B	-	3500	230	0.4	900
TPD32-500/600-1200-2B	-	3500	230	0.4	900
TPD32-690/810-1400-2B	TPD32-690/720-1400-4B	4900	230	0.4	900
TPD32-400/470-1500-2B	TPD32-400/420-1500-4B	4900	230	0.4	900
TPD32-500/600-1500-2B	TPD32-500/520-1500-4B	4900	230	0.4	900
-	TPD32-400/420-1700-4B	5200	230	0.4	900
-	TPD32-500/520-1700-4B	5200	230	0.4	900
TPD32-690/810-1700-2B	TPD32-690/720-1700-4B	6700	230	0.6	1450
TPD32-400/470-1800-2B	-	5200	230	0.4	900
TPD32-500/600-1800-2B	-	5200	230	0.4	900
TPD32-400/470-2000-2B	TPD32-400/420-2000-4B	5400	230	0.4	900
TPD32-500/600-2000-2B	TPD32-500/520-2000-4B	5400	230	0.4	900
TPD32-690/810-2000-2B	TPD32-690/720-2000-4B	6800	230	0.6	1450
TPD32-400/470-2400-2B	TPD32-400/420-2400-4B	6800	230	0.6	1450
TPD32-500/600-2400-2B	TPD32-500/520-2400-4B	6800	230	0.6	1450
TPD32-690/810-2400-2B	TPD32-690/720-2400-4B	8000	230	1.3	2600
TPD32-400/470-2700-2B	TPD32-400/420-2700-4B	8700	230	1.3	2600
TPD32-500/600-2700-2B	TPD32-500/520-2700-4B	8700	230	1.3	2600
TPD32-690/810-2700-2B	TPD32-690/720-2700-4B	8700	230	1.3	2600
TPD32-400/470-2900-2B	-	8700	230	1.3	2600
TPD32-500/600-2900-2B	-	8700	230	1.3	2600
TPD32-400/470-3300-2B	TPD32-400/420-3300-4B	9500	230	1.6	2000
TPD32-500/600-3300-2B	TPD32-500/520-3300-4B	9500	230	1.6	2000
TPD32-690/810-3300-2B	TPD32-690/720-3300-4B	9500	230	1.6	2000

TA040gb

## Hardware configuration

Table A.11: Boards on converters with external bridge

Function	Type	Drawing	Converters							
			400...500V 4B		690V 4B		400...500V 2B		690V 2B	
<b>Regulation</b>	R-TPD3G	ESE 2283-1	X	X	X	X	X	X	X	X
<b>Power / Control</b>	FIR4-51	ESE 2333	X	X	-	-	-	-	-	-
	FIR4-51(-2B)	ESE 2335	-	-	-	-	X	X	-	-
	FIR5-61	ESE 2334	-	-	X	X	-	-	-	-
	FIR5-61(-2B)	ESE 2336	-	-	-	-	-	-	X	X
<b>Supply</b>	SW1-31	ESE 2192	X	X	X	X	X	X	X	X
<b>Field</b>	PFC-40/70	ESE 2374	X	X	X	X	X	X	X	X
<b>I/O expansion</b>	TBO-32 (opt.)	ESE 2121	X	X	X	X	X	X	X	X

T1102gb

## Adaptation of the regulation card to the device type (switch S15)

Table A.12: Dip switch S.15 adaptation for converters with external bridge

Type	S15-1	S15-2	S15-3	S15-4	S15-5	S15-6	S15-7	S15-8
TPD32-400/470-1200-2B	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
TPD32-400/470-1500-2B	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/470-1800-2B	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/470-2000-2B	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
TPD32-400/470-2400-2B	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
TPD32-400/470-2700-2B	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
TPD32-400/470-2900-2B	ON	ON	ON	OFF	ON	OFF	OFF	OFF
TPD32-400/470-3300-2B	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
TPD32-500/600-1200-2B	ON	OFF	ON	ON	OFF	OFF	ON	OFF
TPD32-500/600-1500-2B	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/600-1800-2B	ON	ON	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/600-2000-2B	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
TPD32-500/600-2400-2B	ON	OFF	ON	OFF	ON	OFF	ON	OFF
TPD32-500/600-2700-2B	OFF	ON	ON	OFF	ON	OFF	ON	OFF
TPD32-500/600-2900-2B	ON	ON	ON	OFF	ON	OFF	ON	OFF
TPD32-500/600-3300-2B	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
TPD32-690/810-1010-2B	ON	ON	ON	ON	OFF	OFF	OFF	ON
TPD32-690/810-1400-2B	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/810-1700-2B	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/810-2000-2B	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
TPD32-690/810-2400-2B	ON	OFF	ON	OFF	ON	OFF	OFF	ON
TPD32-690/810-2700-2B	OFF	ON	ON	OFF	ON	OFF	OFF	ON
TPD32-690/810-3300-2B	OFF	OFF	OFF	ON	ON	OFF	OFF	ON

TA045ai

Type	S15-1	S15-2	S15-3	S15-4	S15-5	S15-6	S15-7	S15-8
TPD32-400/420-1500-4B	ON	ON	ON	ON	OFF	OFF	OFF	OFF
TPD32-400/420-1700-4B	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/420-2000-4B	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/420-2400-4B	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/420-2700-4B	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
TPD32-400/420-3300-4B	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
TPD32-500/520-1500-4B	ON	ON	ON	ON	OFF	OFF	ON	OFF
TPD32-500/520-1700-4B	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/520-2000-4B	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/520-2400-4B	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/520-2700-4B	ON	ON	OFF	OFF	ON	OFF	ON	OFF
TPD32-500/520-3300-4B	ON	OFF	ON	OFF	ON	OFF	ON	OFF
TPD32-690/720-1010-4B	ON	OFF	ON	ON	OFF	OFF	OFF	ON
TPD32-690/720-1400-4B	OFF	ON	ON	ON	OFF	OFF	OFF	ON
TPD32-690/720-1700-4B	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/720-2000-4B	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/720-2400-4B	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/720-2700-4B	ON	ON	OFF	OFF	ON	OFF	OFF	ON
TPD32-690/720-3300-4B	ON	OFF	ON	OFF	ON	OFF	OFF	ON

TA045bi

## Mains chokes

Table A.13: AC mains choke for converters with external bridge

### AC Mains 3x400 V, 50 Hz

Converters	Mains choke			
	Rated inductance [mH]	Rated current [A]	Saturation current [A]	Frequency [Hz]
TPD32-.../...-1200-..	0,029	1033	2066	50
TPD32-.../...-1500-..	0,023	1292	2583	50
TPD32-.../...-1700-..	0,020	1464	2927	50
TPD32-.../...-1800-..	0,0190	1550	3100	50
TPD32-.../...-2000-..	0,0171	1722	3444	50
TPD32-.../...-2400-..	0,0143	2066	4133	50
TPD32-.../...-2700-..	0,0127	2325	4649	50
TPD32-.../...-2900-..	0,0118	2497	4994	50
TPD32-.../...-3300-..	0,0104	2841	5683	50

TA055gb

### AC Mains 3x460V, 60Hz

Converters	Mains choke			
	Rated inductance [mH]	Rated current [A]	Saturation current [A]	Frequency [Hz]
TPD32-.../...-1200-..	0,027	1033	2066	60
TPD32-.../...-1500-..	0,022	1292	2583	60
TPD32-.../...-1700-..	0,019	1464	2927	60
TPD32-.../...-1800-..	0,0182	1550	3100	60
TPD32-.../...-2000-..	0,0164	1722	3444	60
TPD32-.../...-2400-..	0,0137	2066	4133	60
TPD32-.../...-2700-..	0,0121	2325	4649	60
TPD32-.../...-2900-..	0,0113	2497	4994	60
TPD32-.../...-3300-..	0,0099	2841	5683	60

TA060gb

### AC Mains 3x500 V, 50 Hz

Converters	Mains choke			
	Rated inductance [mH]	Rated current [A]	Saturation current [A]	Frequency [Hz]
TPD32-.../...-1200-..	0,036	1033	2066	50
TPD32-.../...-1500-..	0,029	1292	2583	50
TPD32-.../...-1700-..	0,025	1464	2927	50
TPD32-.../...-1800-..	0,0238	1550	3100	50
TPD32-.../...-2000-..	0,0214	1722	3444	50
TPD32-.../...-2400-..	0,0178	2066	4133	50
TPD32-.../...-2700-..	0,0158	2325	4649	50
TPD32-.../...-2900-..	0,0147	2497	4994	50
TPD32-.../...-3300-..	0,0130	2841	5683	50

TA065gb

## Internal Fuses

Table A.14: Internal fuses on converters with external bridge

Converter type	Quantity	Fuses type
TPD32-400/470-1200-2B	6	170M 5464 800A 660V
TPD32-400/470-1500-2B	6	170M 6464 1000A 660V
TPD32-400/470-1800-2B	6	170M 6466 1250A 660V
TPD32-400/470-2000-2B	6	170M 6466 1250A 660V
TPD32-400/470-2400-2B	6	170M 6467 1400A 660V
TPD32-400/470-2700-2B	12	170M 6462 800A 660V
TPD32-400/470-2900-2B	12	170M 6463 900A 660V
TPD32-400/470-3300-2B	12	170M 6466 1250A 660V
TPD32-500/600-1200-2B	6	170M 5464 800A 660V
TPD32-500/600-1500-2B	6	170M 6464 1000A 660V
TPD32-500/600-1800-2B	6	170M 6466 1250A 660V
TPD32-500/600-2000-2B	6	170M 6466 1250A 660V
TPD32-500/600-2400-2B	6	170M 6467 1400A 660V
TPD32-500/600-2700-2B	12	170M 6462 800A 660V
TPD32-500/600-2900-2B	12	170M 6463 900A 660V
TPD32-500/600-3300-2B	12	170M 6466 1250A 660V
TPD32-690/810-1010-2B	6	170M 5463 700A 660V
TPD32-690/810-1400-2B	6	170M 6463 900A 660V
TPD32-690/810-1700-2B	6	170M 6465 1100A 660V
TPD32-690/810-2000-2B	6	170M 6466 1250A 660V
TPD32-690/810-2400-2B	12	170M 6461 700A 660V
TPD32-690/810-2700-2B	12	170M 6462 800A 660V
TPD32-690/810-3300-2B	12	170M 6466 1250A 660V

Ta070agb

Converter type	Quantity	Fuses type
TPD32-400/420-1500-4B	6	170M 5465 900A 660V
TPD32-400/420-1700-4B	6	170M 6466 1250A 660V
TPD32-400/420-2000-4B	6	170M 6466 1250A 660V
TPD32-400/420-2400-4B	6	170M 6467 1400A 660V
TPD32-400/420-2700-4B	12	170M 6462 800A 660V
TPD32-400/420-3300-4B	12	170M 6466 1250A 690V
TPD32-500/520-1500-4B	6	170M 5465 900A 660V
TPD32-500/520-1700-4B	6	170M 6466 1250A 660V
TPD32-500/520-2000-4B	6	170M 6466 1250A 660V
TPD32-500/520-2400-4B	6	170M 6467 1400A 660V
TPD32-500/520-2700-4B	12	170M 6462 800A 660V
TPD32-500/520-3300-4B	12	170M 6466 1250A 690V
TPD32-690/720-1010-4B	6	170M 6345 700A 1250V
TPD32-690/720-1400-4B	6	170M 6497 900A 1250V
TPD32-690/720-1700-4B	12	170M 5394 500A 1250V
TPD32-690/720-2000-4B	12	170M 6344 630A 1250V
TPD32-690/720-2400-4B	12	170M 6345 700A 1250V
TPD32-690/720-2700-4B	12	170M 6346 800A 1250V
TPD32-690/720-3300-4B	12	170M 6500 1250A 1100V

Ta070bgb



## External fuses for field circuit

Table A.15: External fuses for field circuit

Converter sizes	Rated current	External field fuses		
		Quantity	Europe	USA
1010 ... 2000 A	40 A	2	Z22gR50 (GRD3/50)	A70P50 FWP50
2400 ... 3300 A	70 A	2	S00C+/üf1/80/80A/660V	A70P80 FWP80

Ta075gb

## Control terminals on external bridge

Table A.16: Control terminals on external bridge

Designation	Function	I/Q	Max voltage	Max current
U3, V3	Fan power supply	I	1 x 230 VAC	1.6 A
31 / 32	Contact without potential for fan power supply Open = no power supply	Q	250 VAC	1A AC11
81 / 82	Internal fuses intervention signalling: open = fuse blown	Q	250 VAC	1A AC11

T1103gb

## Replacement parts for converter with external bridge

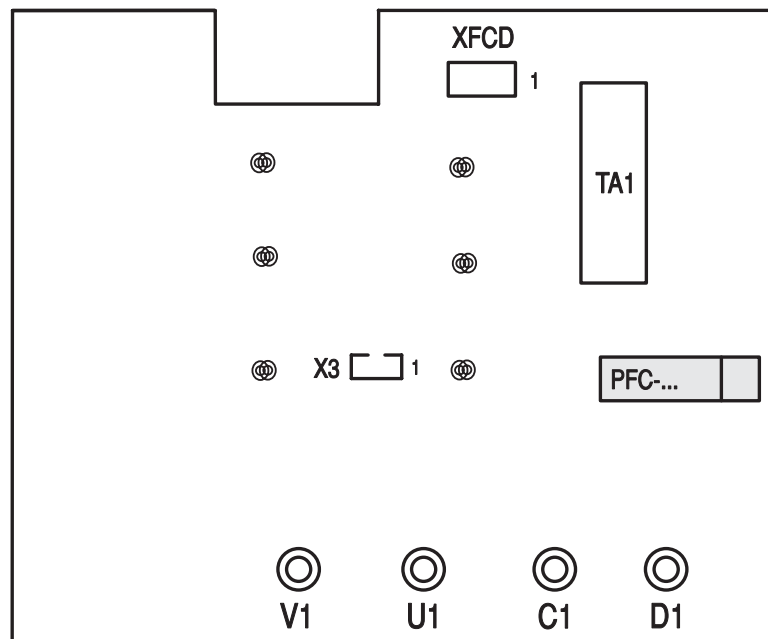


Fig. A.4: Field circuit board PFC-40 and PCF-70

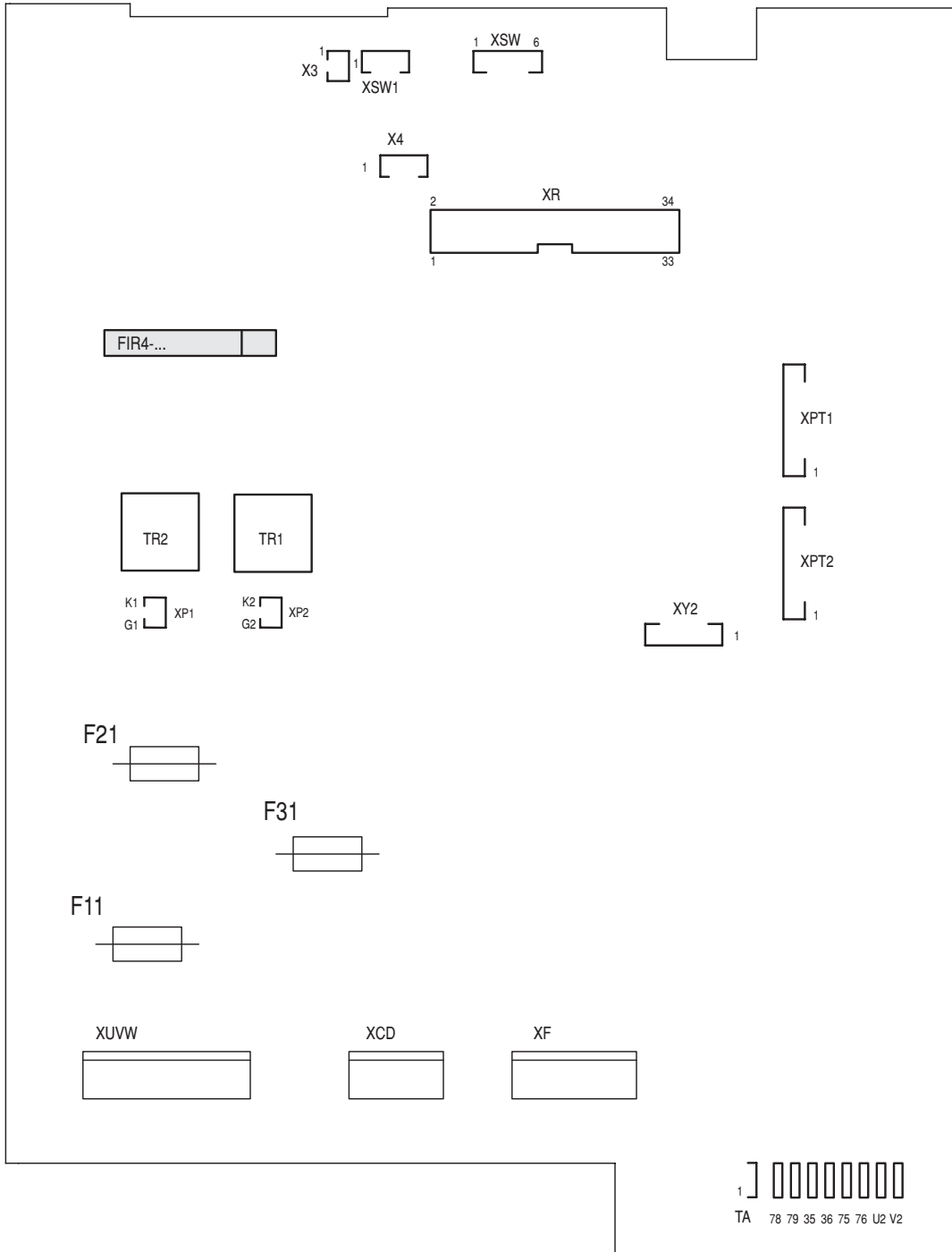


Fig. A.5: Power / driver card FIR4...

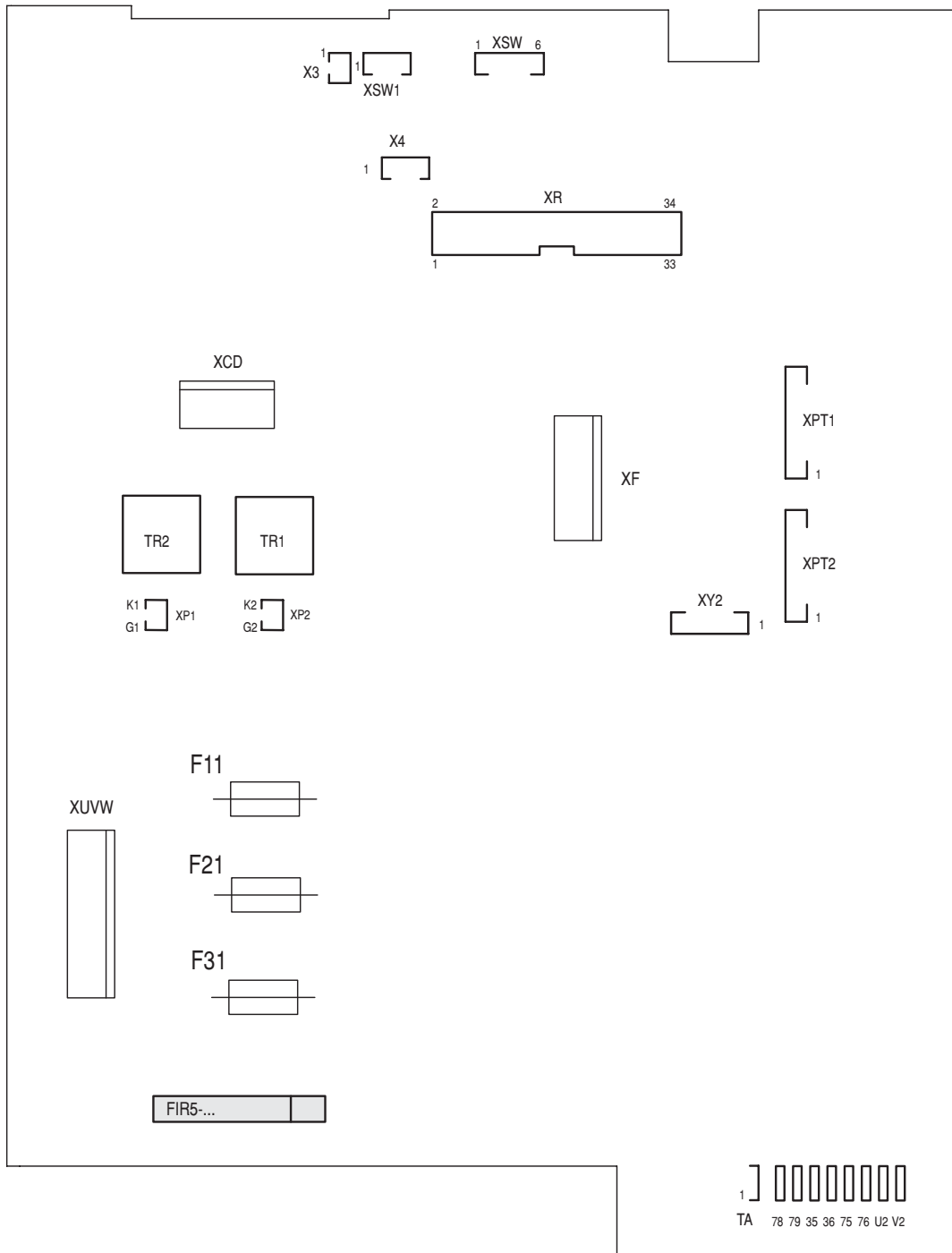
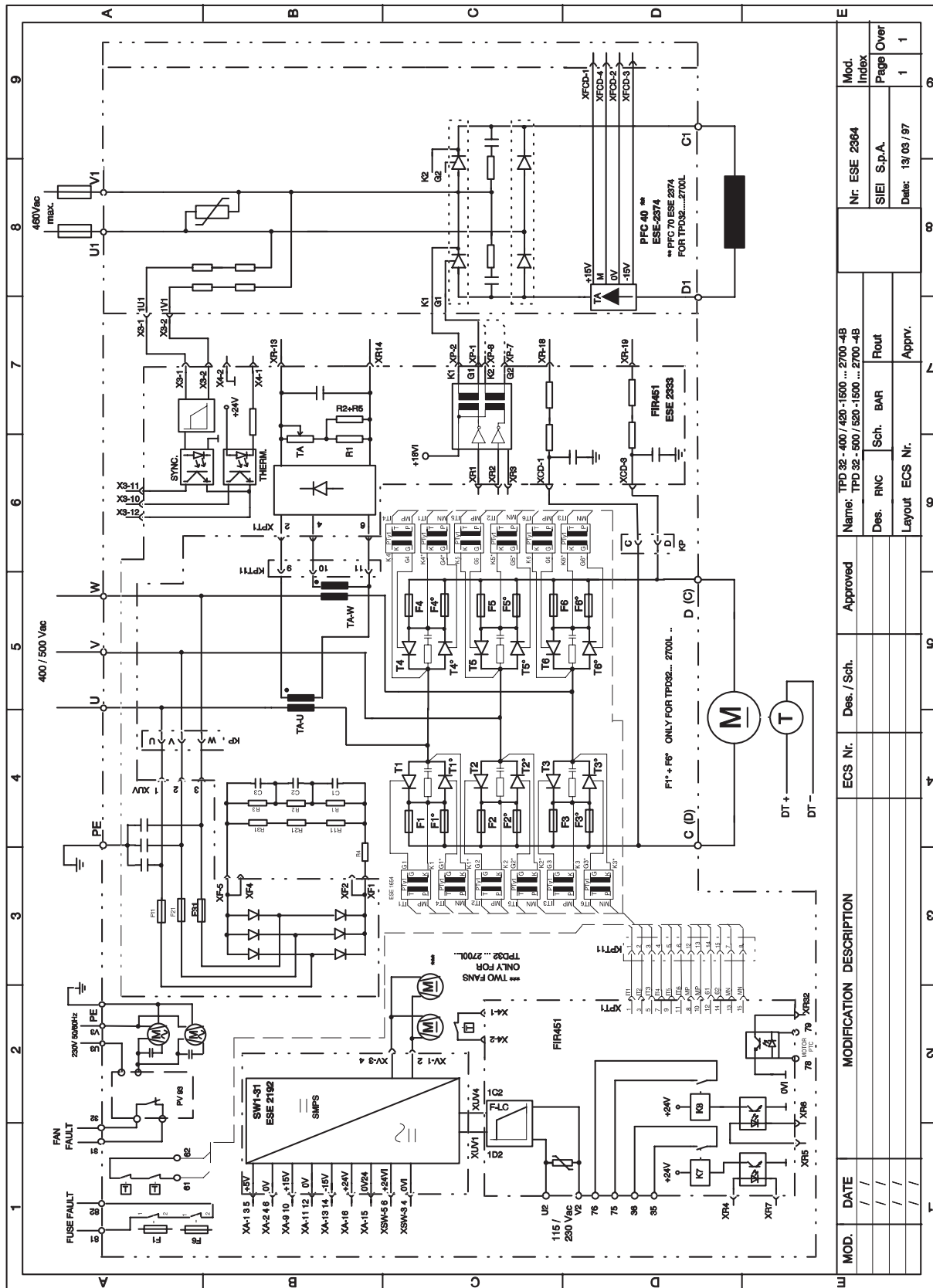
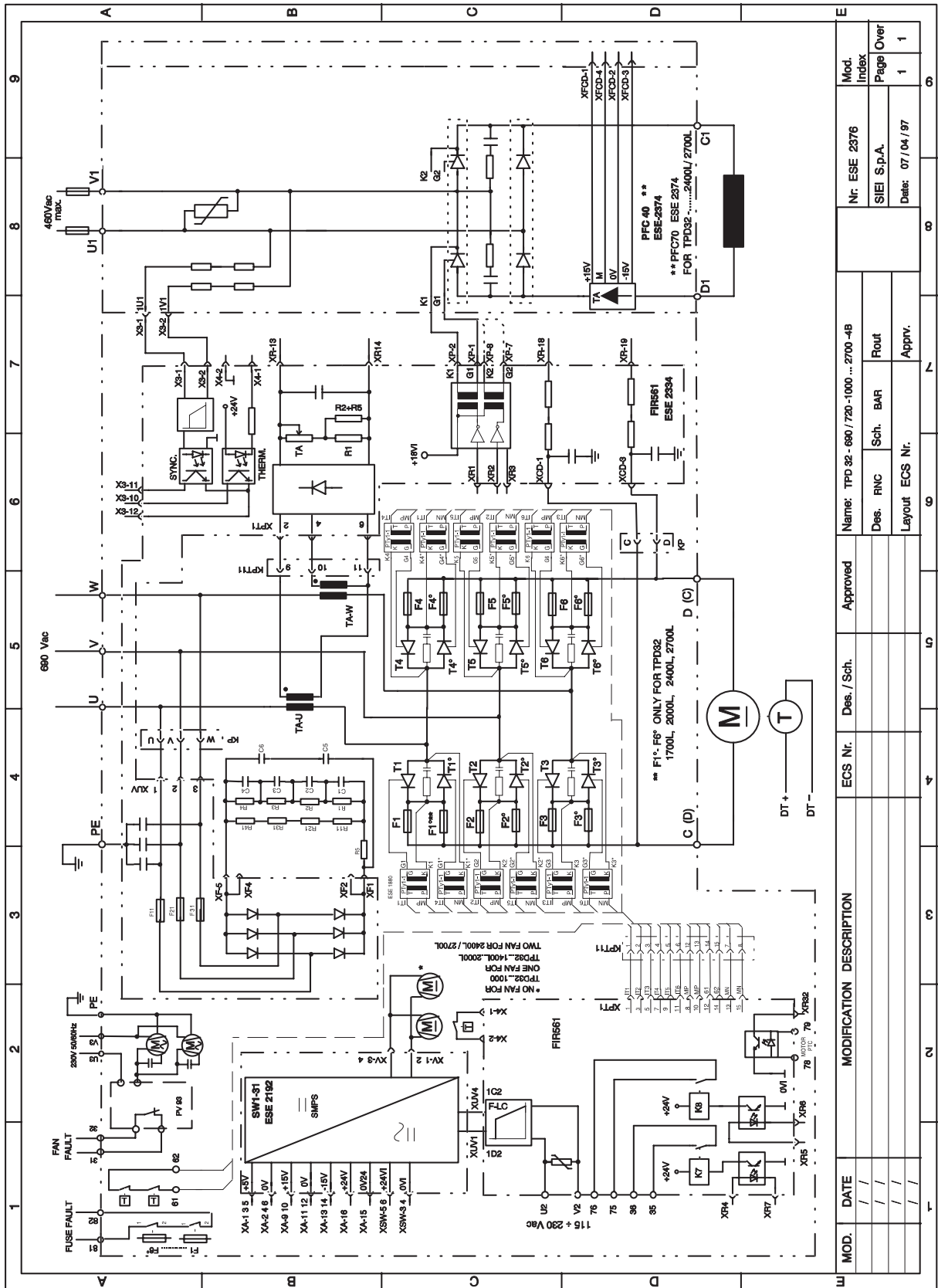


Fig. A.6: Power / driver card FIR5-...

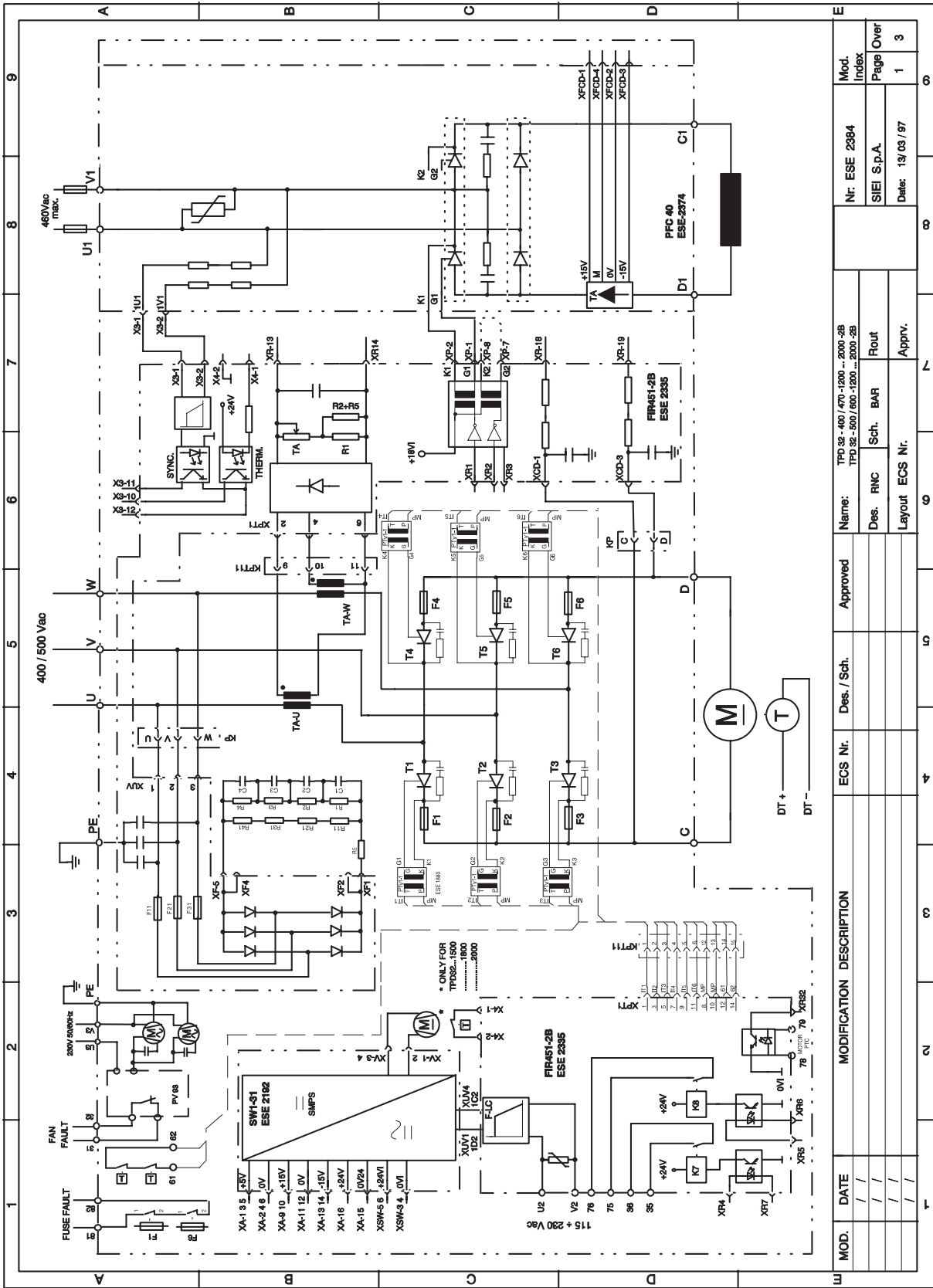
# Blocks diagram for converter with external bridge



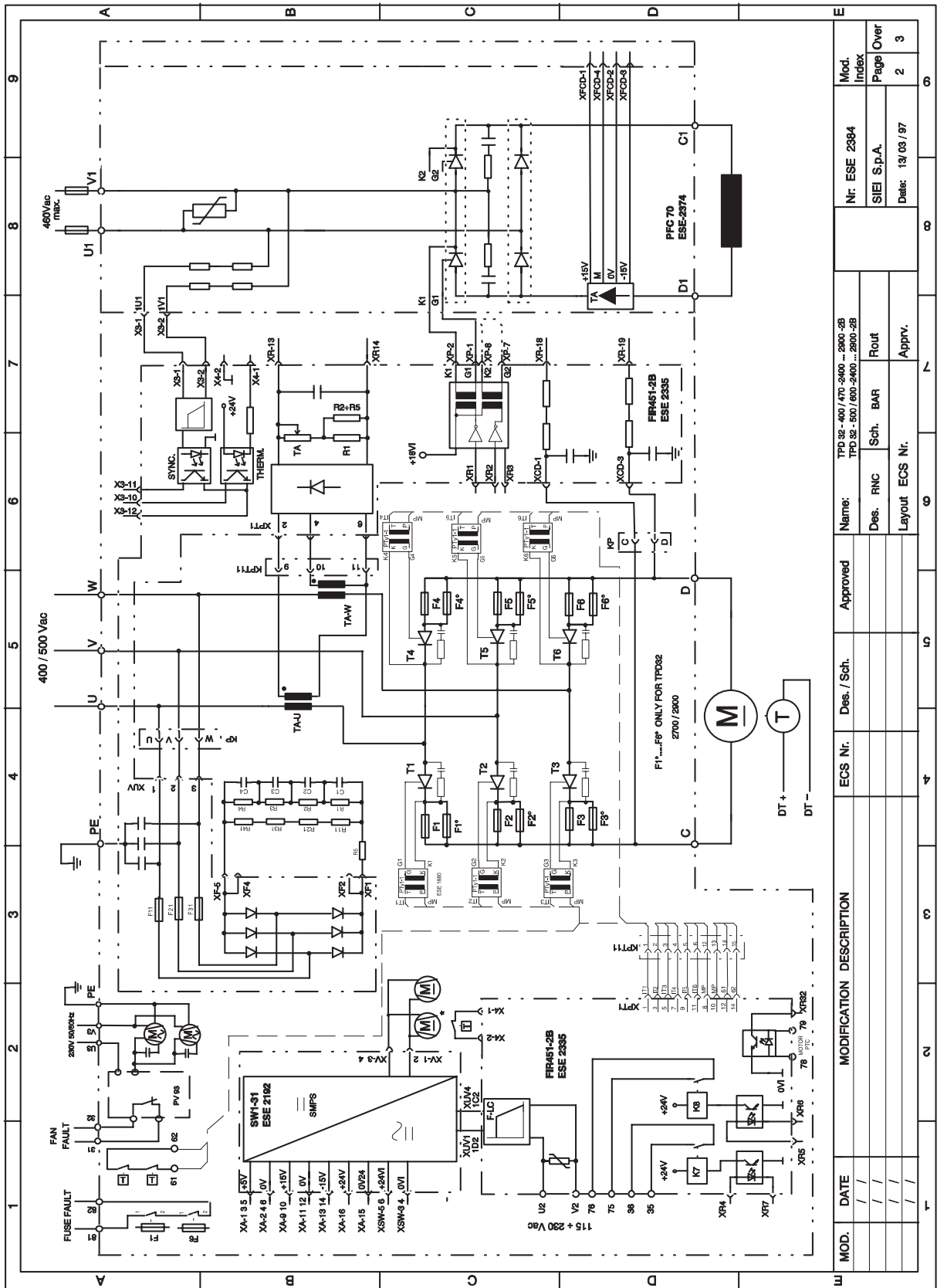
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						TPD 32 - 400 / 420 - 1500 ... 2700 - 4B	ESE 2364	
						TPD 32 - 500 / 520 - 1500 ... 2700 - 4B	SIEI S.p.A.	
						Layout	Date:	
						ECS Nr.	Apprv.	
						Des.	RNC	
						Sch.	BAR	
						Rout		
						Page		
						Over		
						1		
						1		



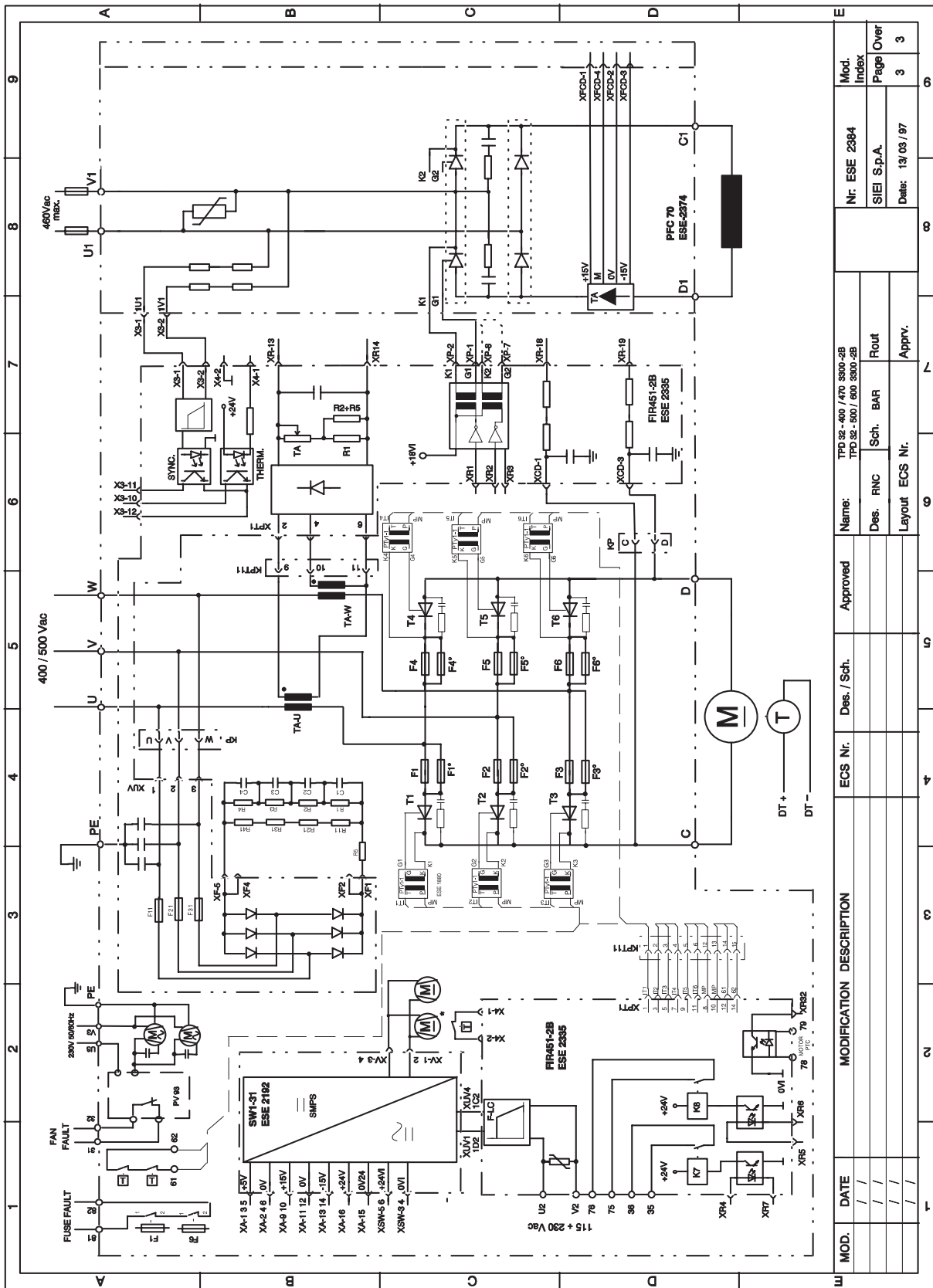
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									Des. RNC	Sch. BAR	Route	Page Over							



MOD. DATE		MODIFICATION DESCRIPTION			ECS Nr.	Des. / Sch.	Approved	Name:	Nr. ESE 2384		Mod. Index
/	/							TPD 32-400/470-1200-2000-2B TPD 32-500/600-1200-2000-2B	SIEI S.p.A.	Page	Over
/	/							Des. RNC Sch. BAR Rout	Date: 13/03/97	1	3
/	/							Layout ECS Nr.	Apprv.		

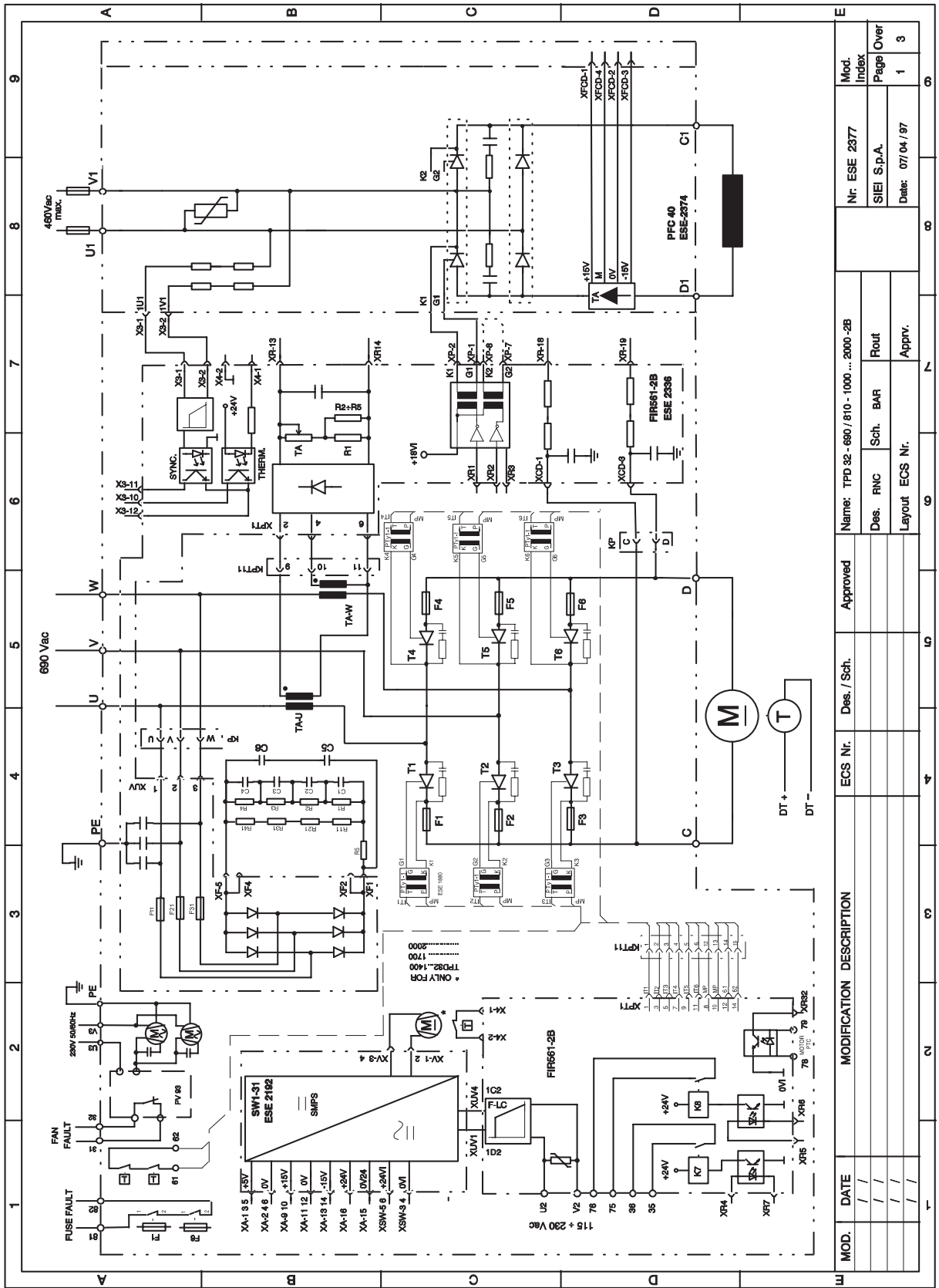


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/	/					TPD 32 - 500 / 600 - 2400 ... 2800 - 2B	SIEI S.p.A.	
/	/							Page Over
/	/							2
/	/							3
Layout ECS Nr.:							Apprv.	
Des. RNC							Sch. BAR	Rout
ECS Nr.								
Date:							13/03/97	

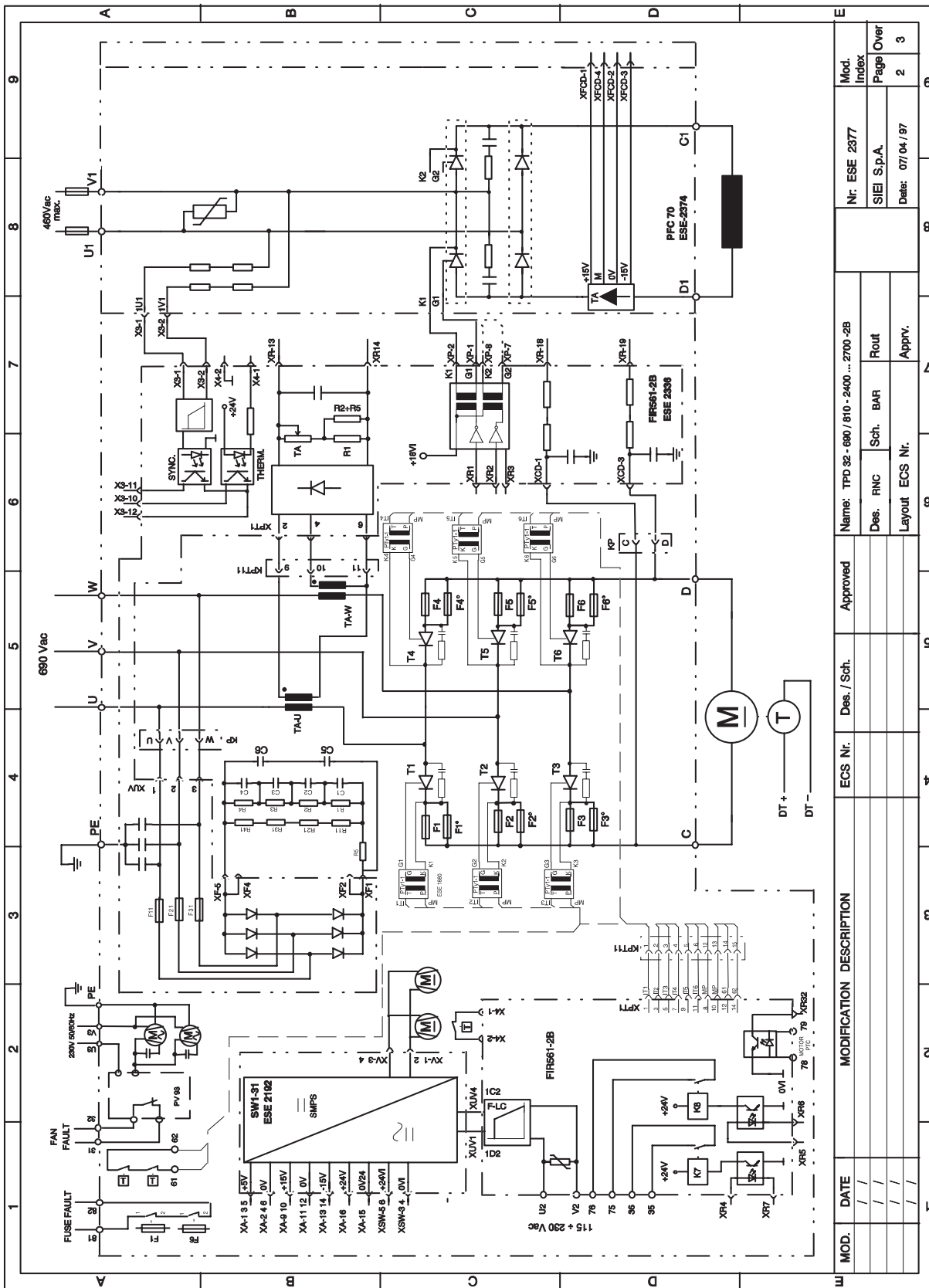


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/	/	/	/										TPD 32-500 / 600 3300-2B				
/	/	/	/										Des. RNC	Sch. BAR	Rout	SIEI S.p.A.	Page Over
/	/	/	/										Layout ECS Nr.	Apprv.		Date: 13/03/97	3 3

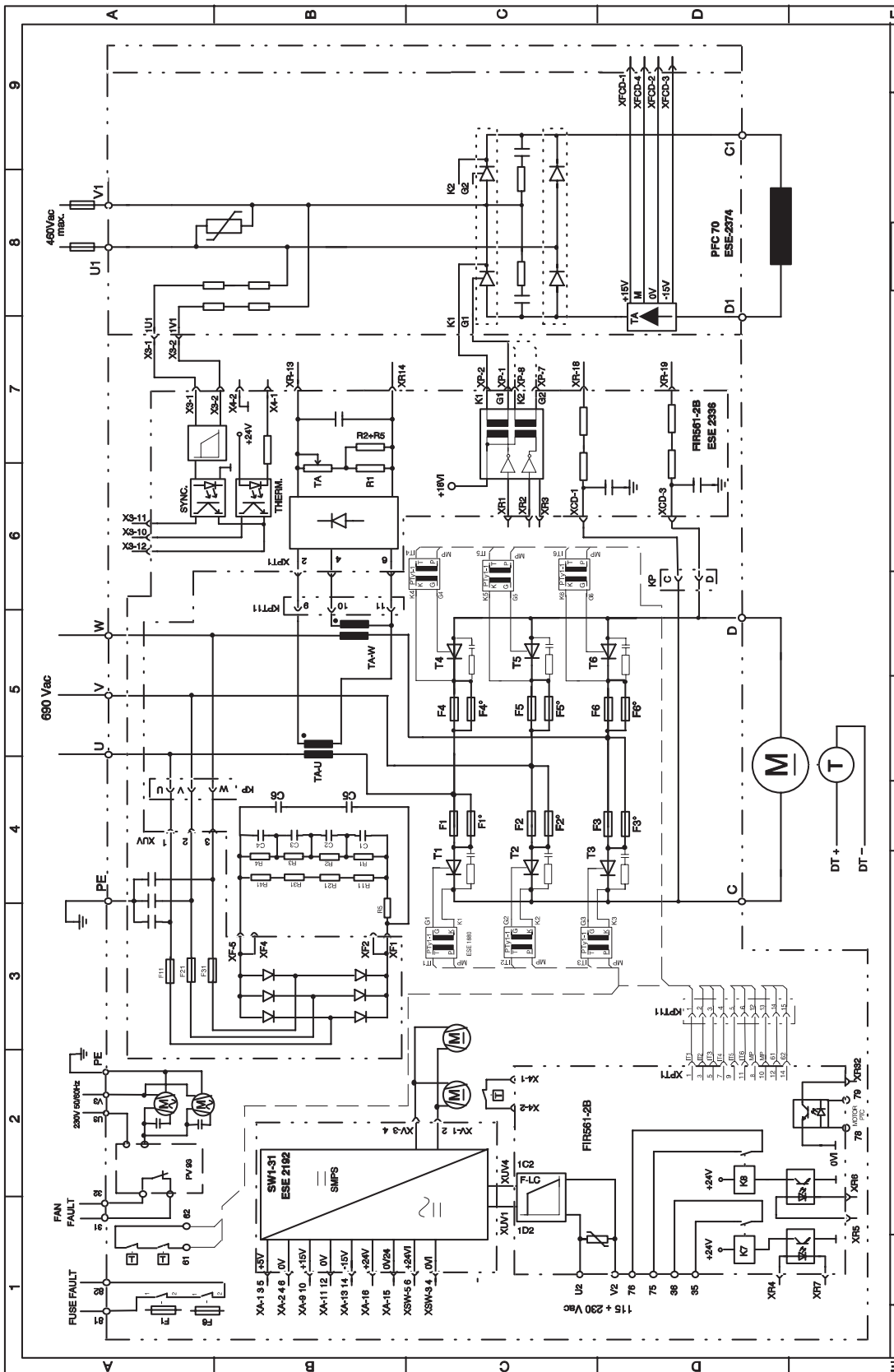




MOD.		DATE	MODIFICATION DESCRIPTION				ECS Nr.	Des. / Sch.	Approved	Name: TPD 32 - 660 / 610 - 1000 ... 2000 -2B				Nr. ESE 2377	Mod. Index
		/ /							Des. RNC	Sch. BAR	Rout				
		/ /							Layout ECS Nr.	Apprv.					
		/ /													
		/ /													
		/ /													
		/ /													
		/ /													
		/ /													
		/ /													
		/ /													
		/ /													

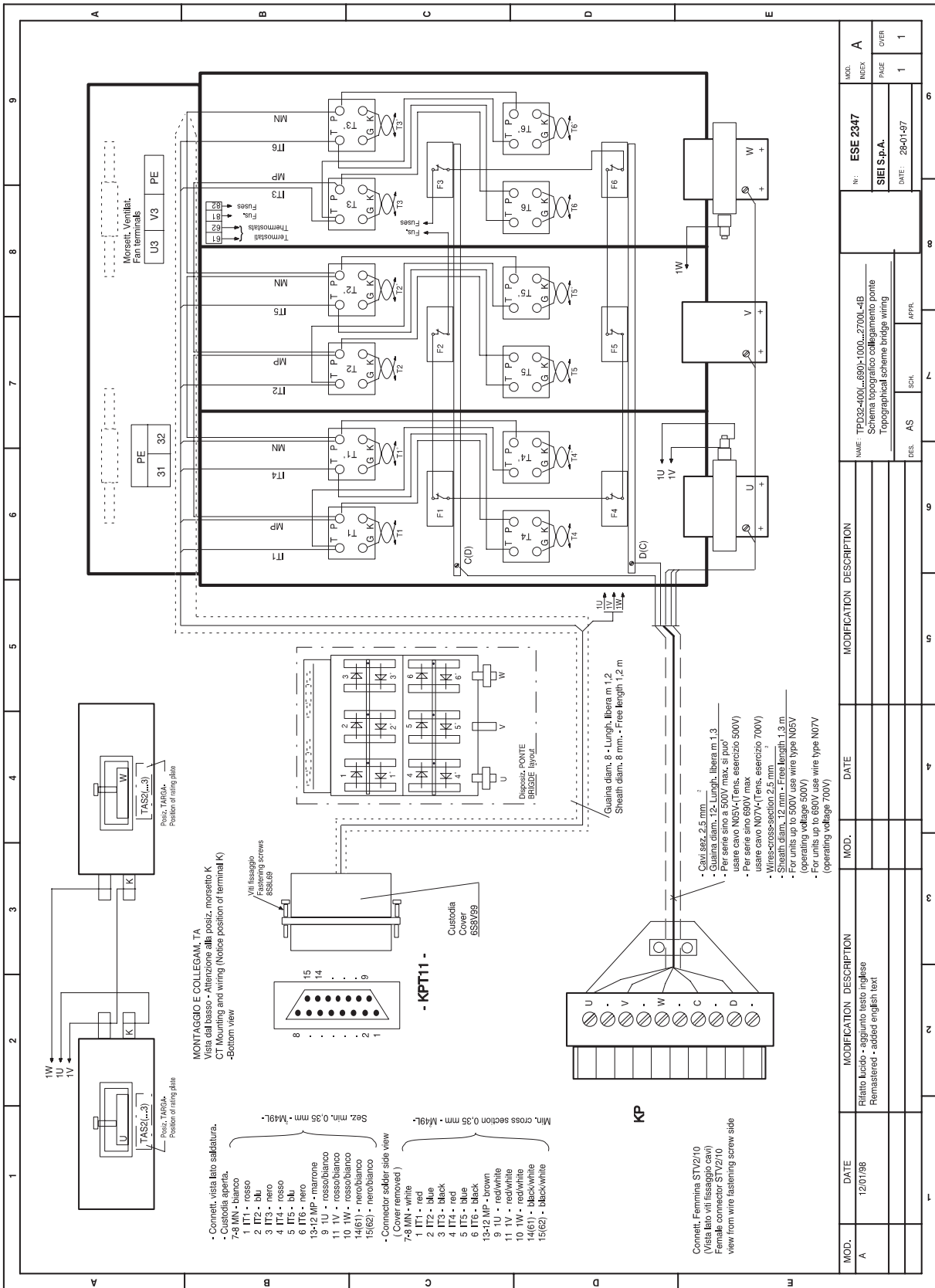


MOD.		DATE		MODIFICATION DESCRIPTION				ECS Nr.		Des. / Sch.		Approved		Name: TPD 32 - 680 / 910 - 2400 ... 2700 -2B		Nr. ESE 2377		Mod. Index		



MODIFICATION DESCRIPTION		ECS Nr.		Des. / Sch.		Approved		Name: TPD 02-600/810-300-2B		Nr. ESE 2377		Mod. Index	
MOD.	DATE							Des.	RNC	Sch.	BAR	Fruit	Page
								Layout	ECS Nr.	Apprv.			Over
/	/												3
/	/												3
/	/												3
/	/												3

# External bridge wiring



MOD.	DATE	MODIFICATION DESCRIPTION	MOD.	DATE	MODIFICATION DESCRIPTION
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INDEX	MOD.	INDEX
1	ESE 2347	A

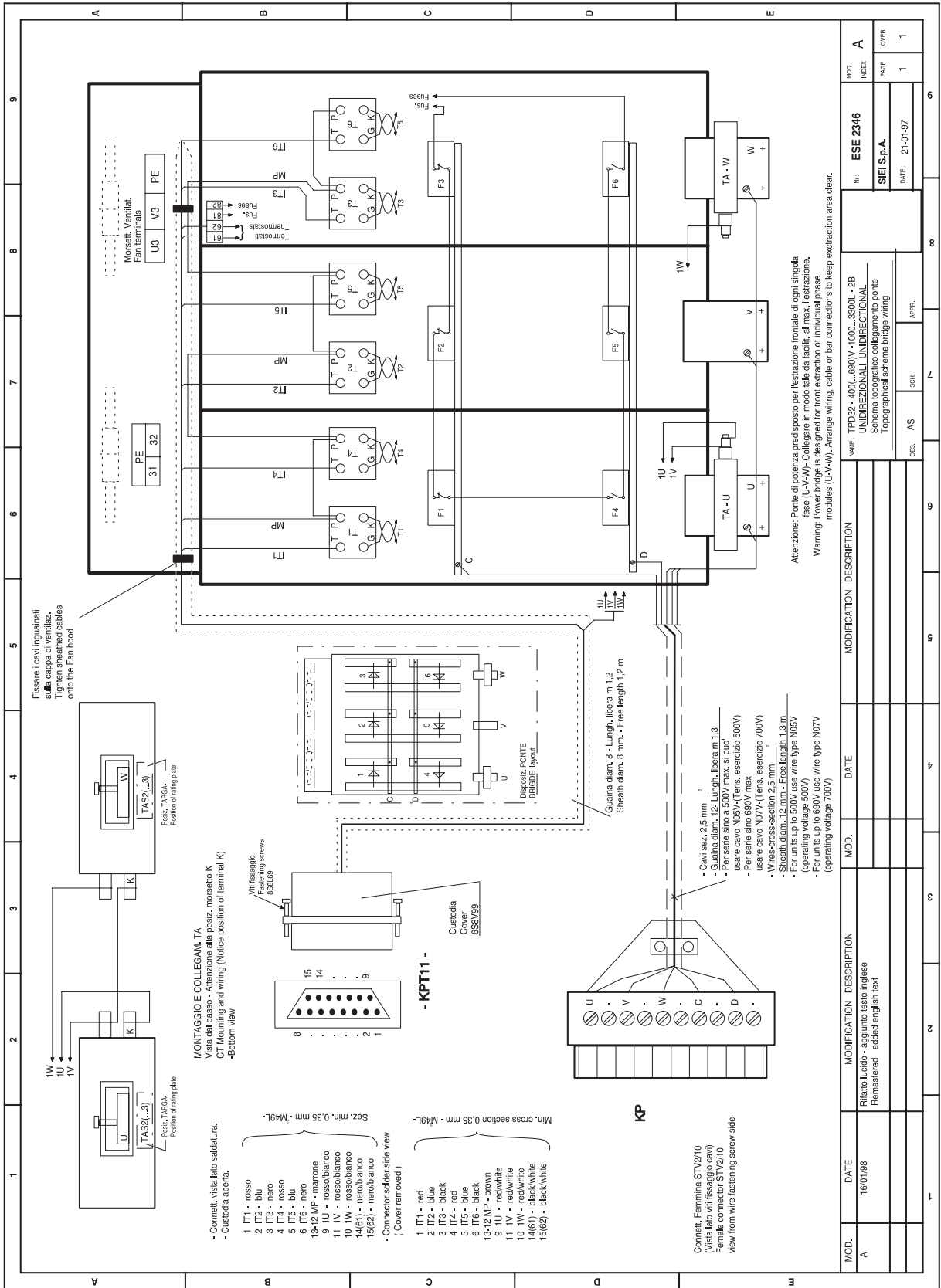
OVER	PAGE	DATE
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DES.	SCH.	APPL.
AS		

NAME	TPD32-400...690...100...2700L-4B
Schema topografico collegamento ponte	
Topographical scheme bridge wiring	



MOD.	DATE	MOD.	DATE	MOD.	DESCRIPTION
A	16/01/98				Rilicito lucido - aggiunto testo inglese Remastered - added english text

INDEX	PAGE	OVER
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№	ESE 2346
SEI S.p.A.	
DATE:	21-01-97

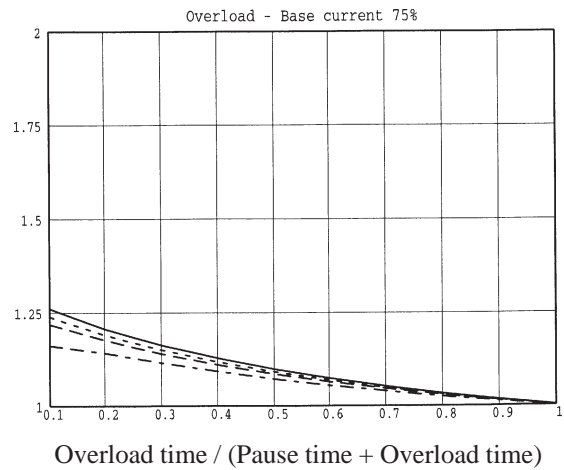
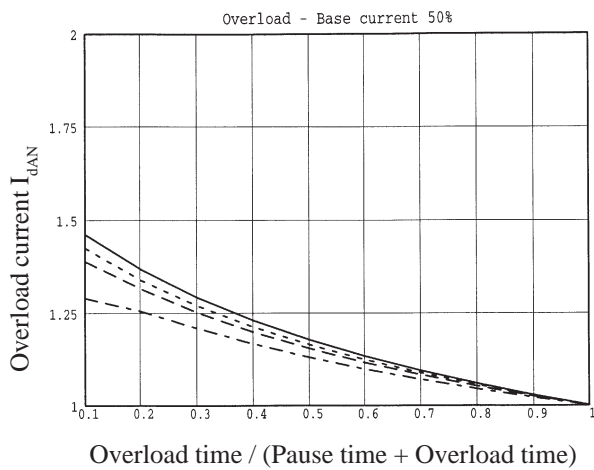
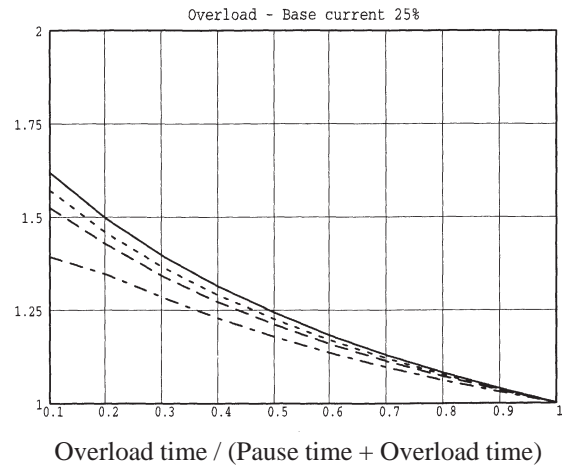
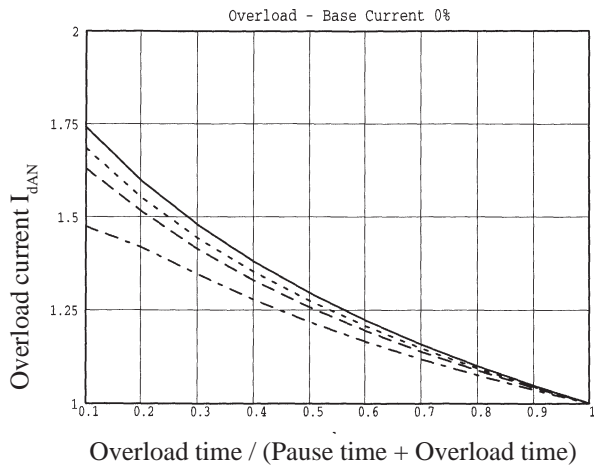
NAME:	TPD32 - 400...690V - 1000...3300L - 2B
UNIDIREZIONALI UNIDIRECTIONAL	
Schema topografico collegamento ponte	
Topographical scheme bridge wiring	

DES.	AS	APPL.
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MOD.	INDEX	PAGE	OVER
A	A	1	1

# Admissible overload for converters with external bridge

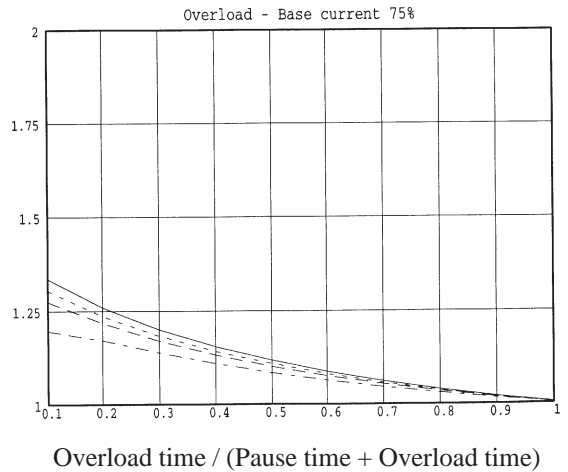
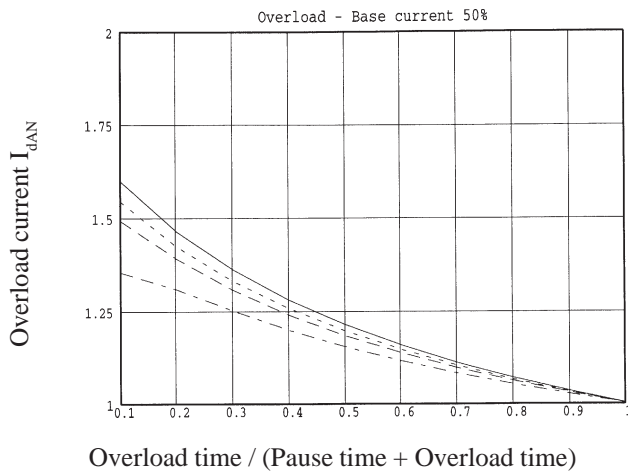
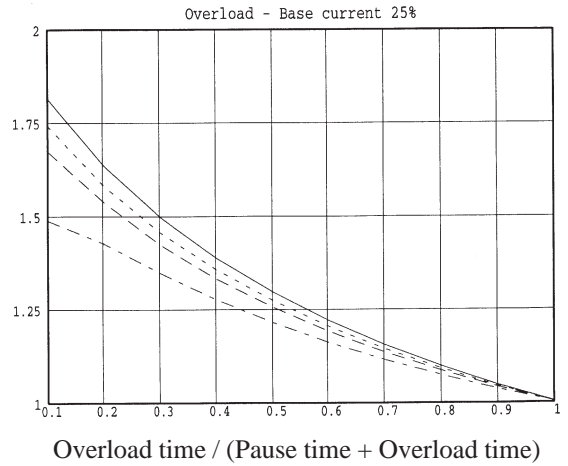
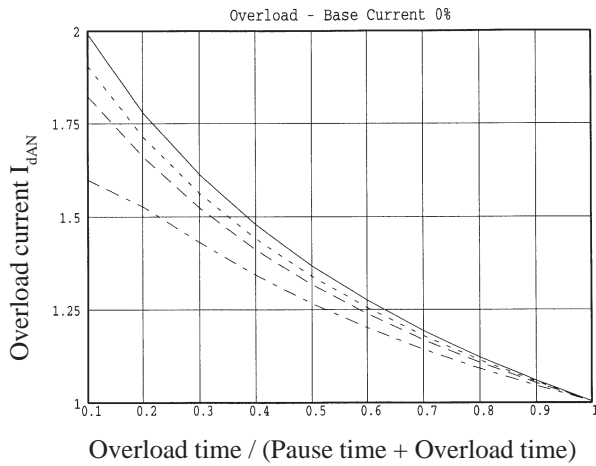
## TPD32-690/810-1010-2B



— = 10 s.
..... = 20 s.
- - - = 30 s.
- . - . = 60 s.

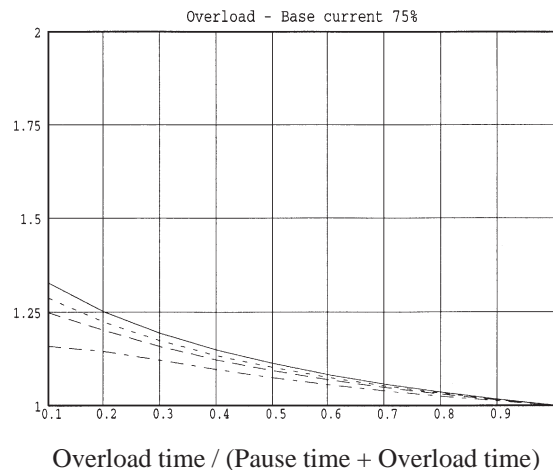
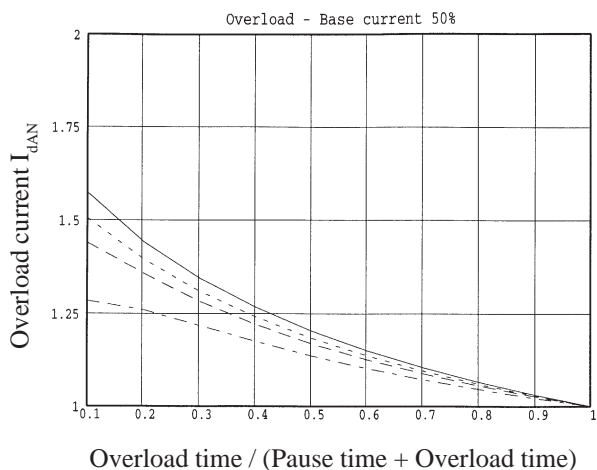
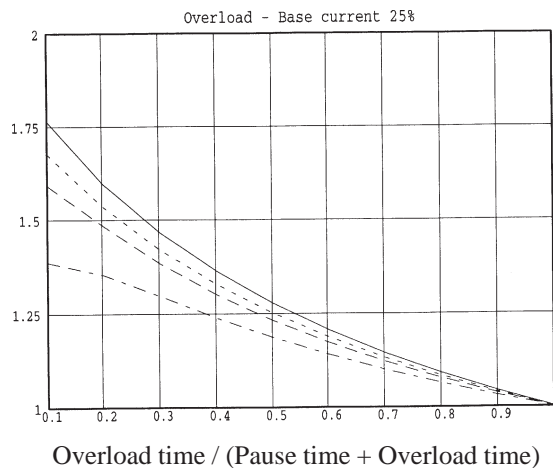
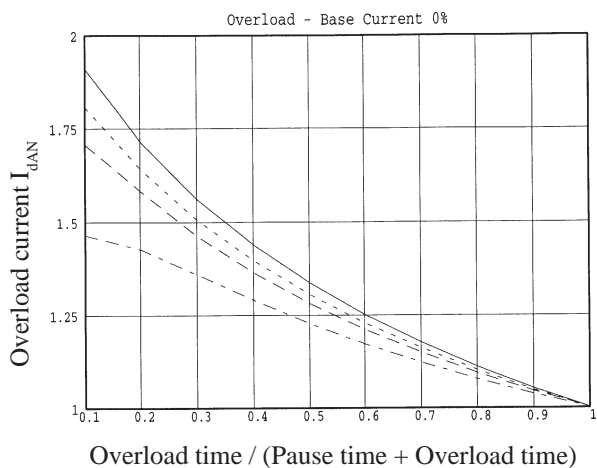
# TPD32-400/470-1200-2B

# TPD32-500/600-1200-2B



— = 10 s.
..... = 20 s.
- - - = 30 s.
- . - . = 60 s.

# TPD32-690/810-1400-2B

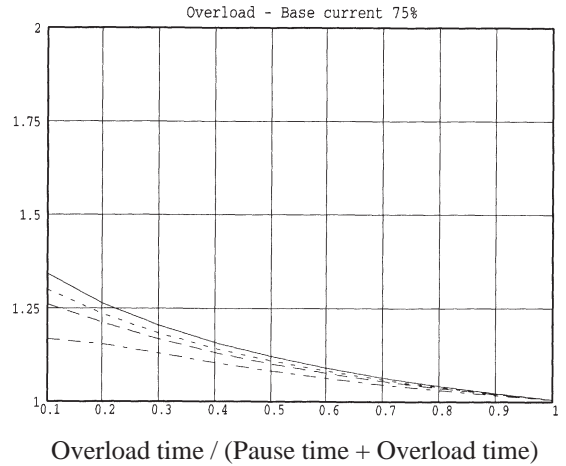
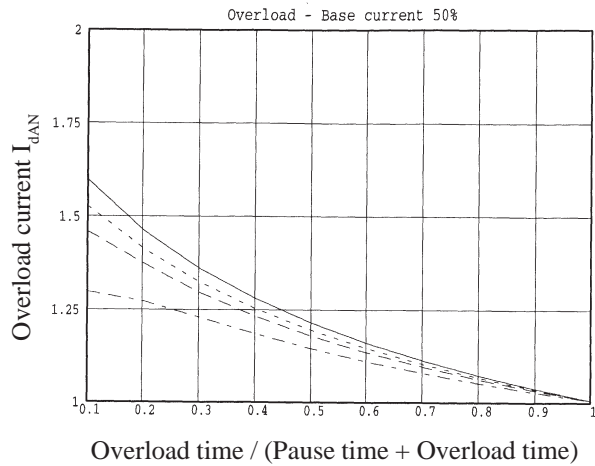
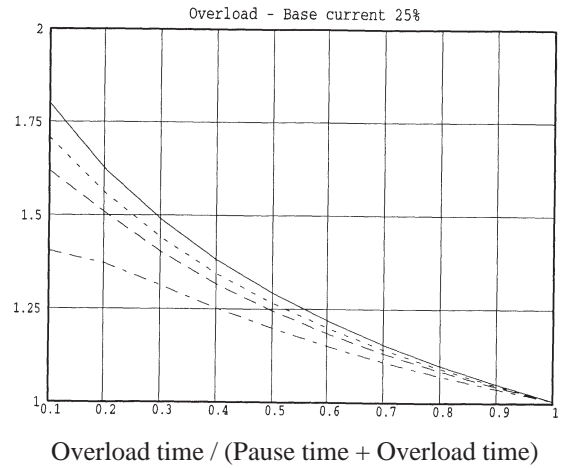
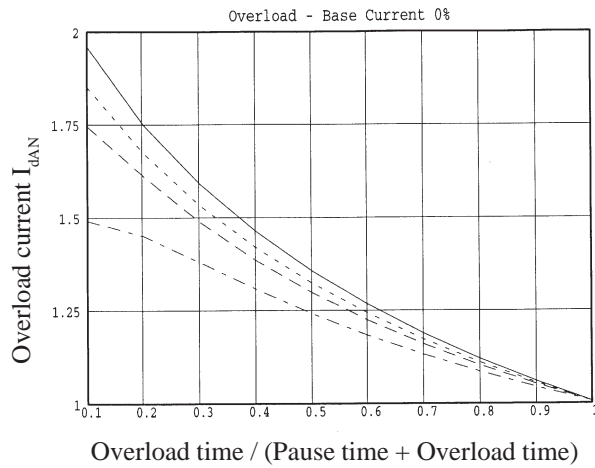


= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.



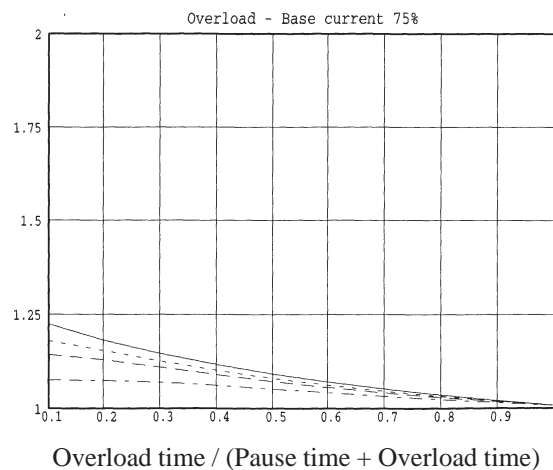
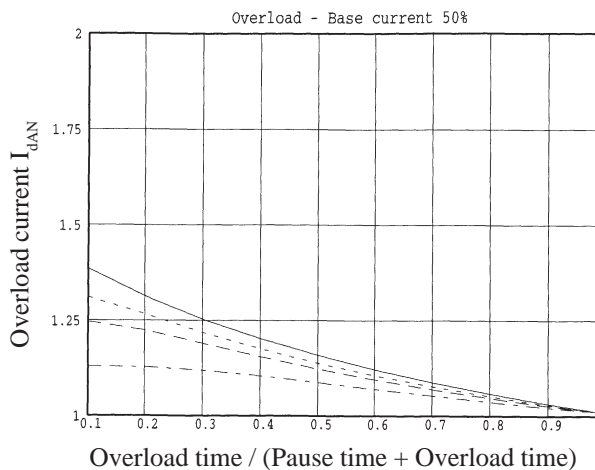
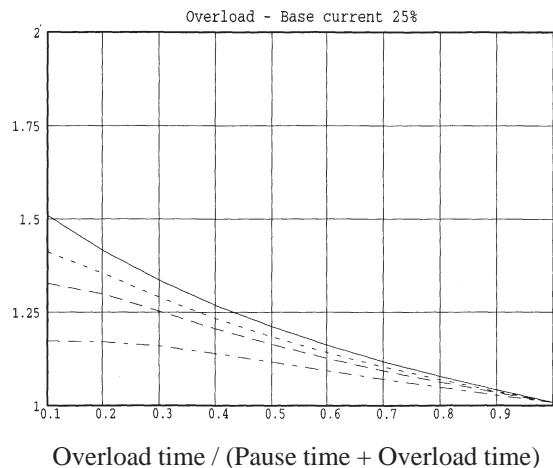
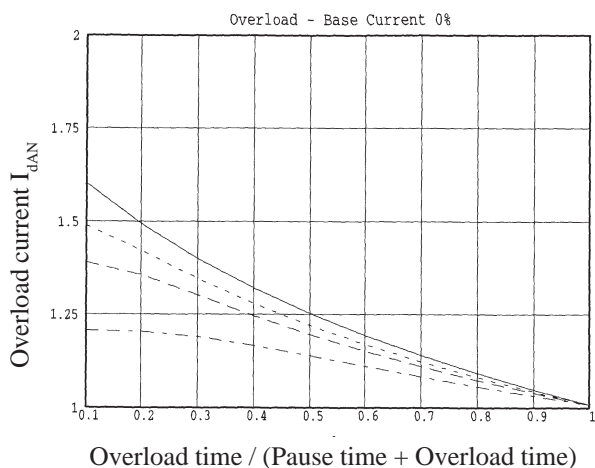
## TPD32-400/470-1500-2B

## TPD32-500/600-1500-2B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

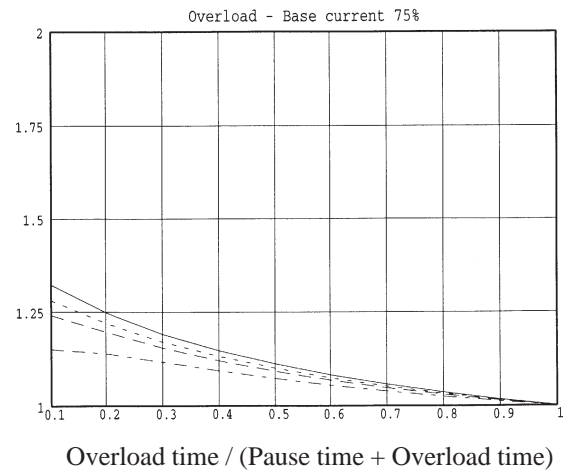
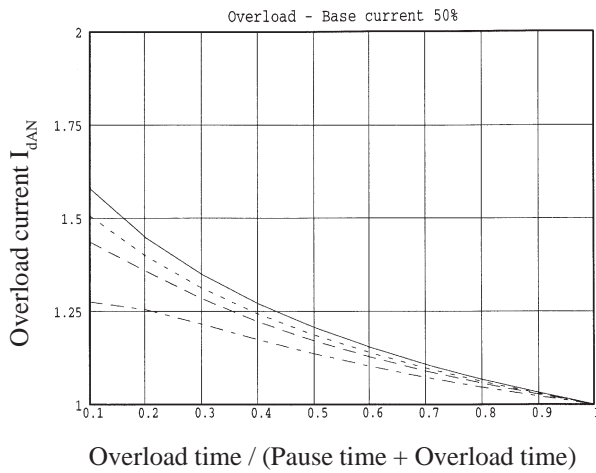
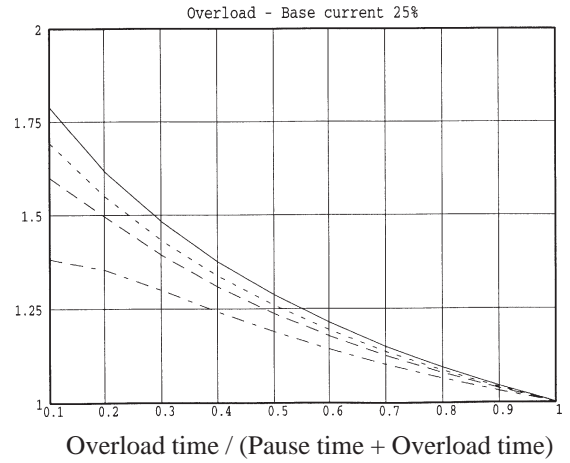
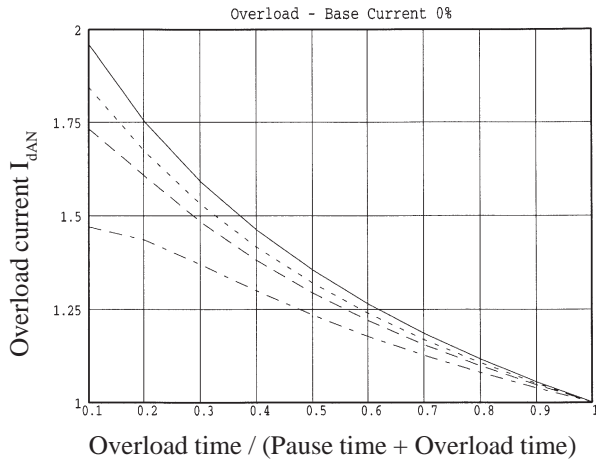
# TPD32-690/810-1700-2B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

# TPD32-400/470-1800-2B

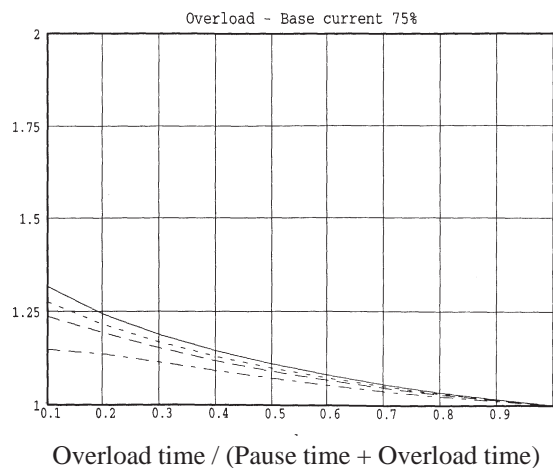
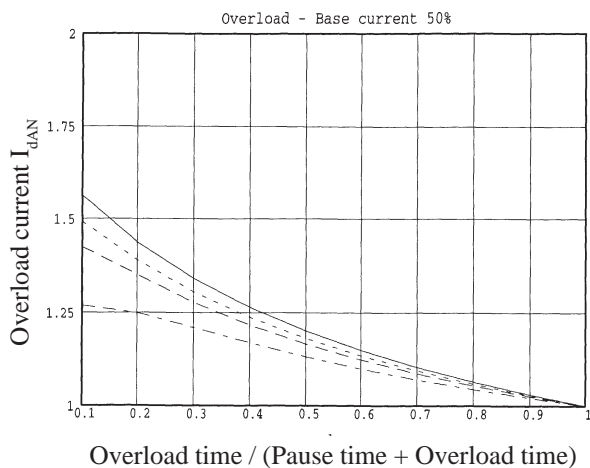
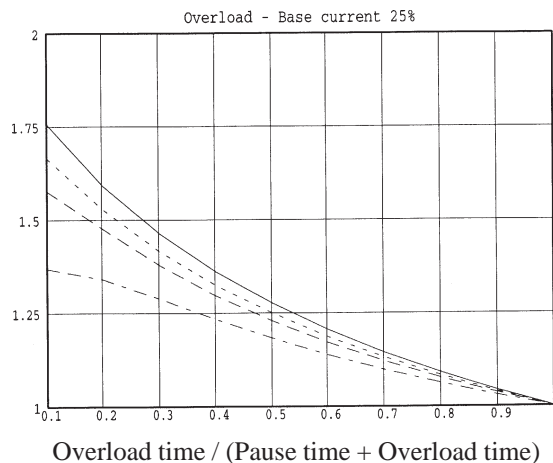
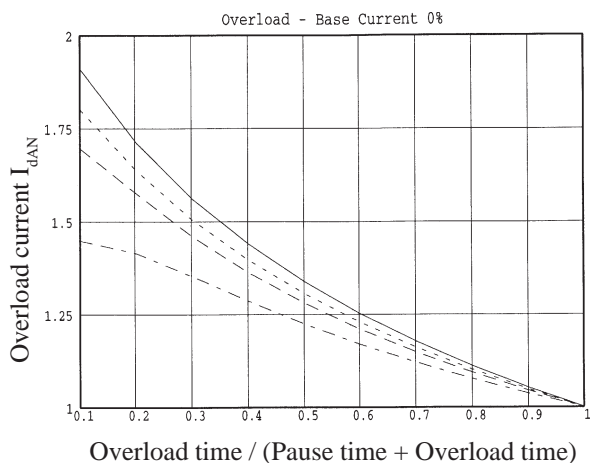
# TPD32-500/600-1800-2B



— = 10 s.
..... = 20 s.
- - - = 30 s.
- . - . = 60 s.

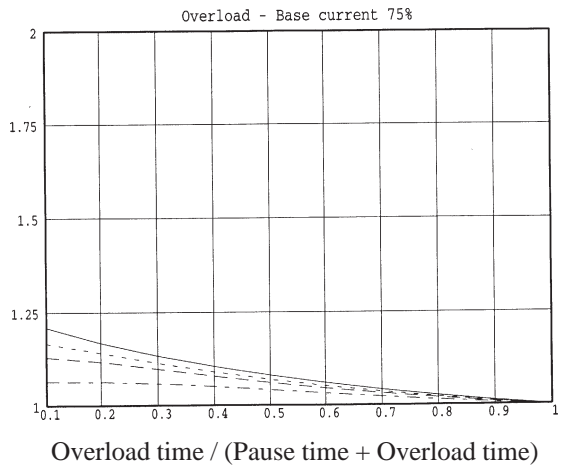
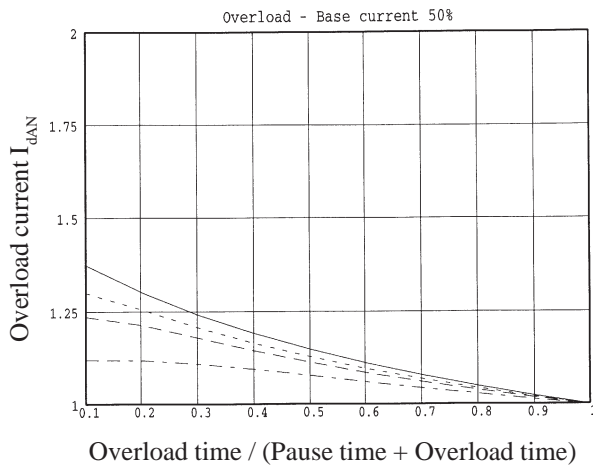
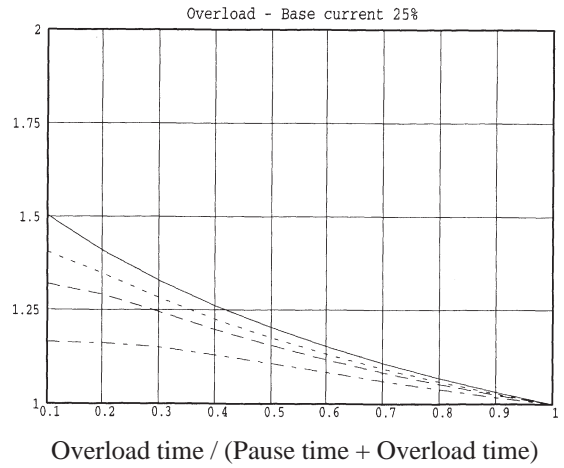
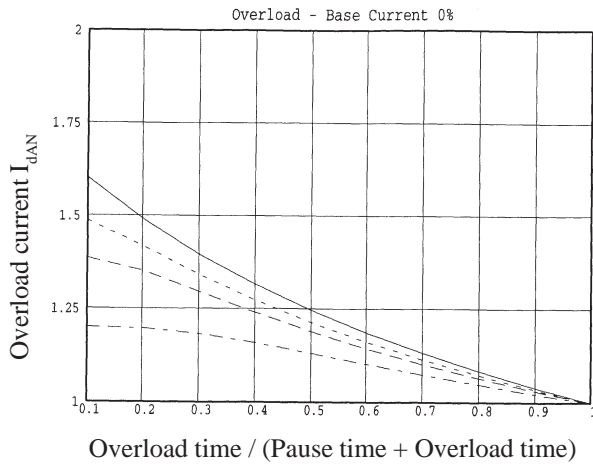
# TPD32-400/470-2000-2B

# TPD32-500/600-2000-2B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

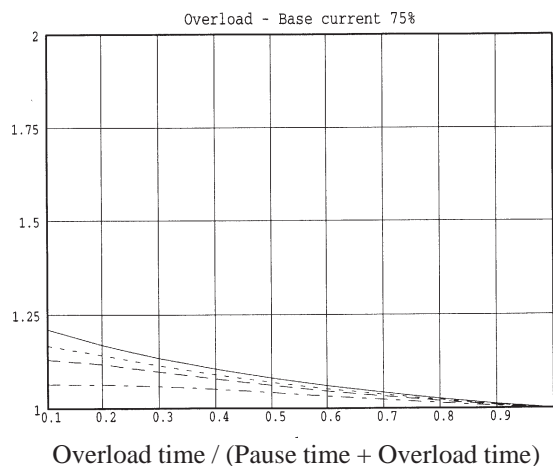
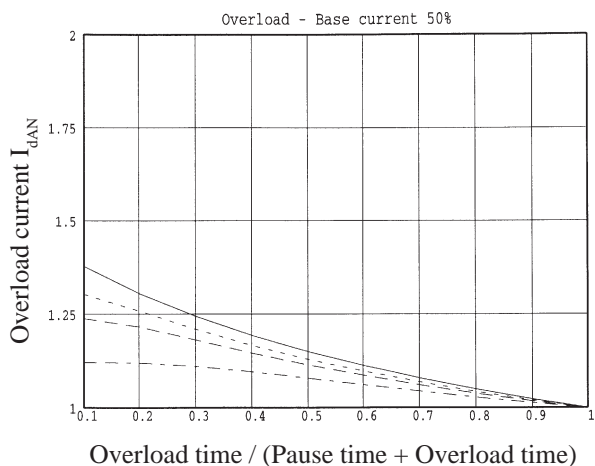
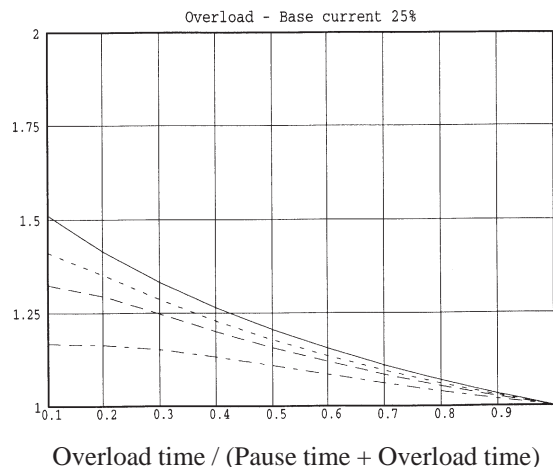
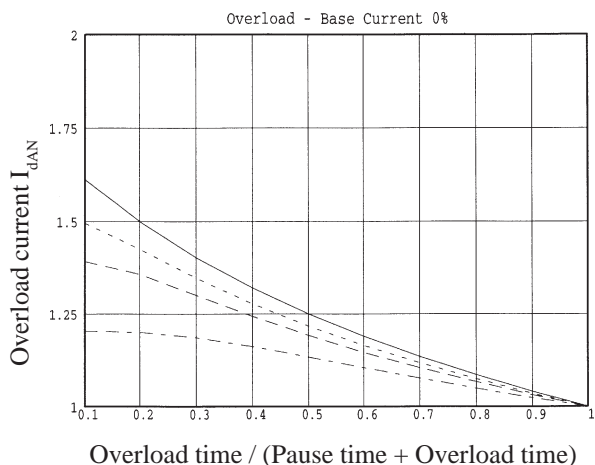
# TPD32-690/810-2000-2B



— = 10 s.
..... = 20 s.
- - - = 30 s.
- . - . = 60 s.

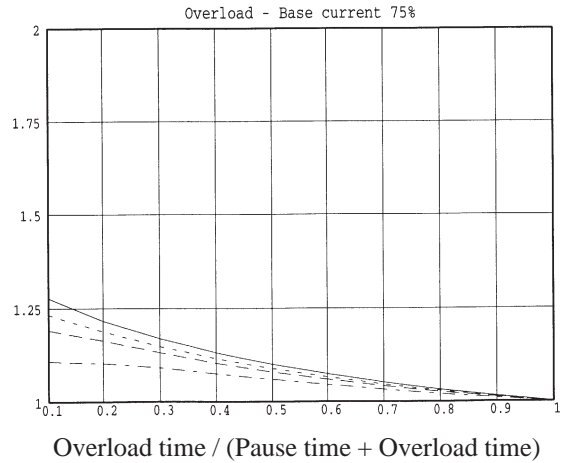
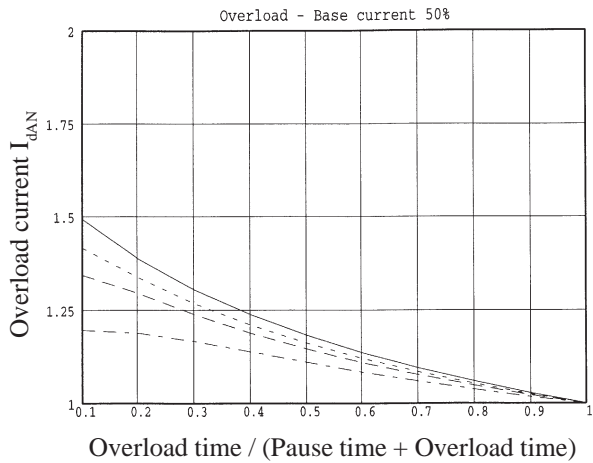
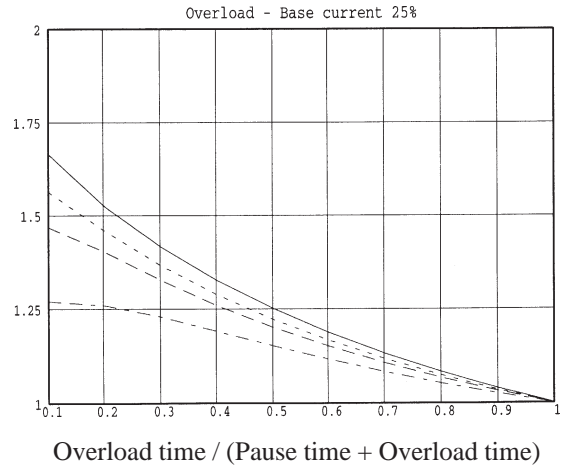
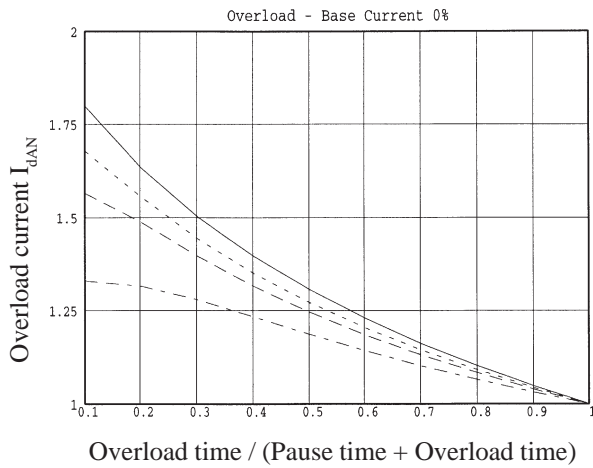
# TPD32-400/470-2400-2B

# TPD32-500/600-2400-2B



= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.

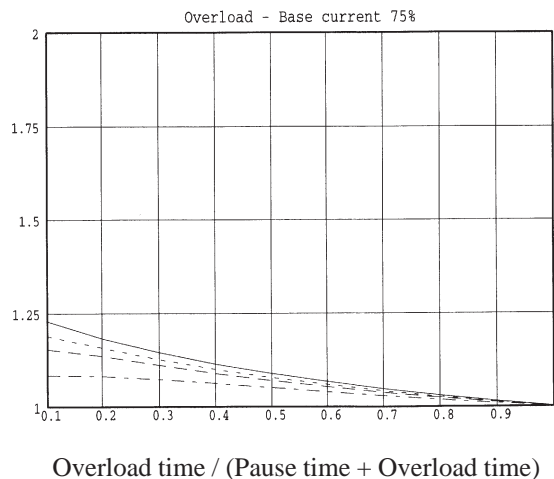
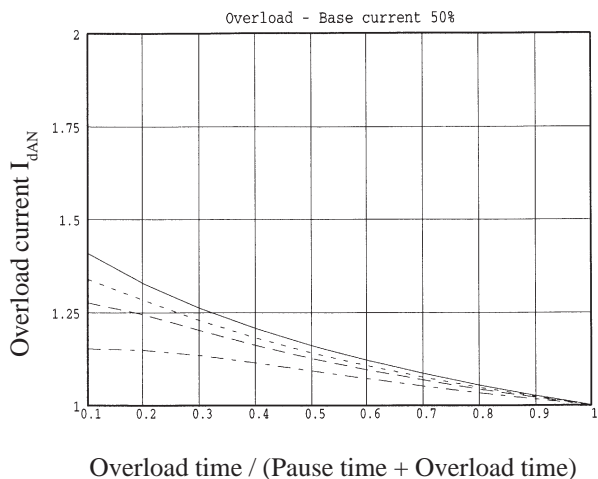
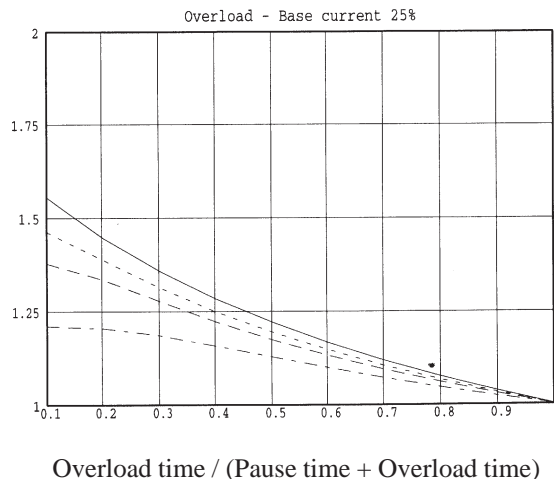
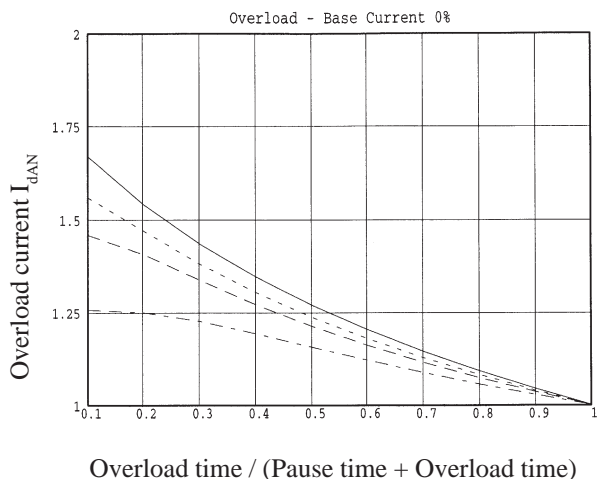
# TPD32-690/810-2400-2B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

# TPD32-400/470-2700-2B

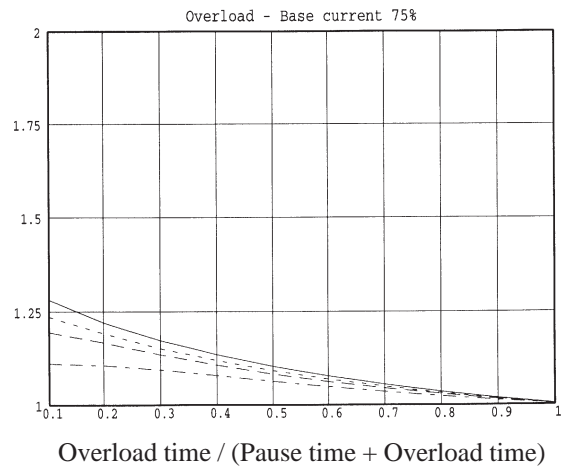
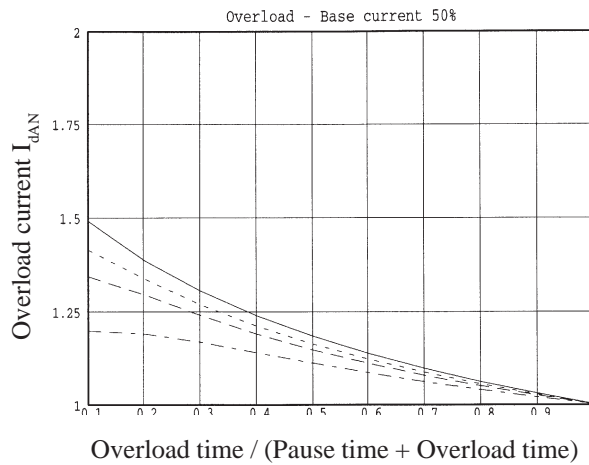
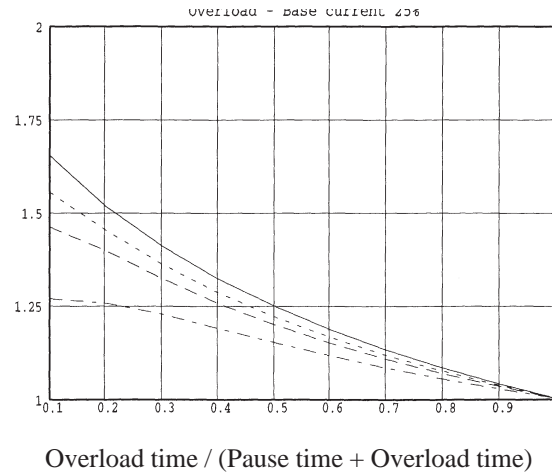
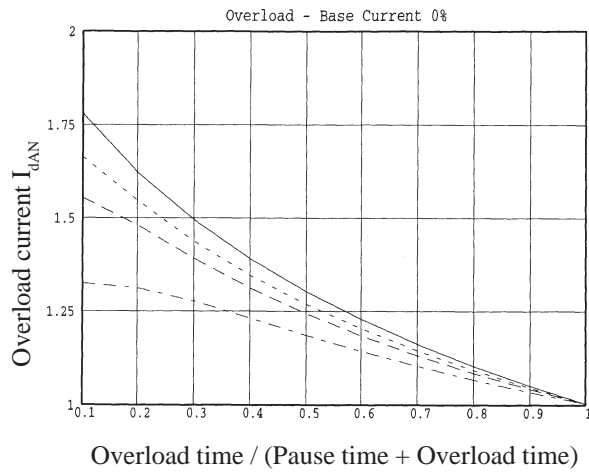
# TPD32-500/600-2700-2B



= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.



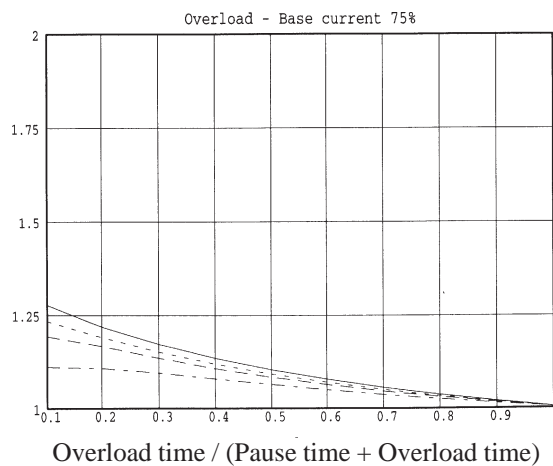
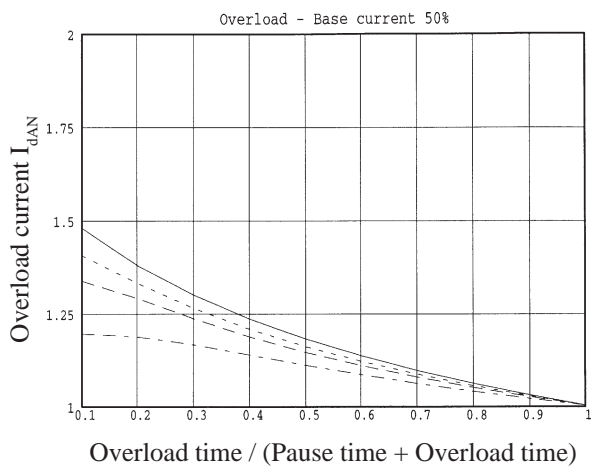
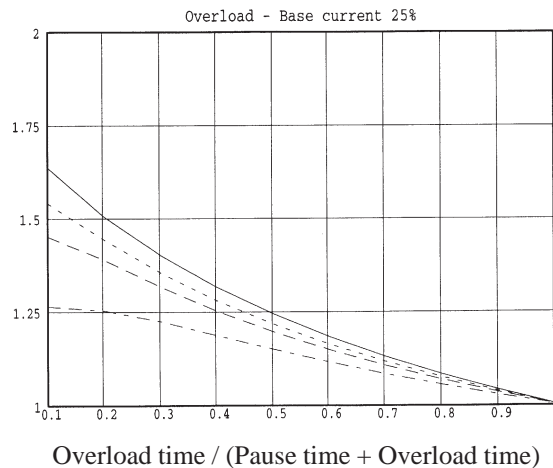
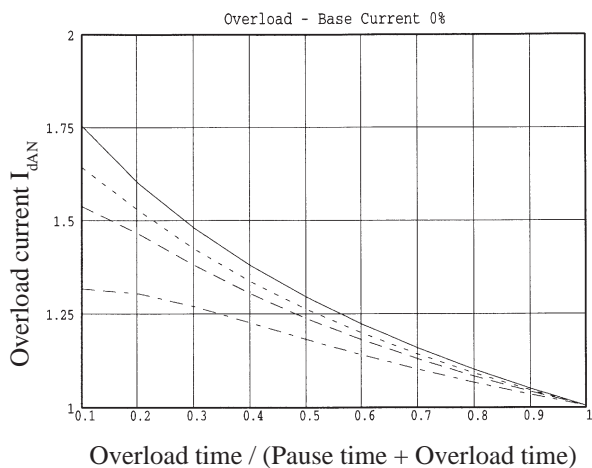
# TPD32-690/810-2700-2B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

# TPD32-400/470-2900-2B

# TPD32-500/600-2900-2B

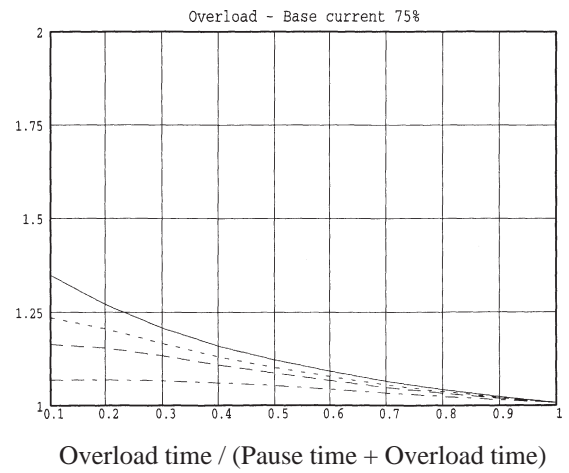
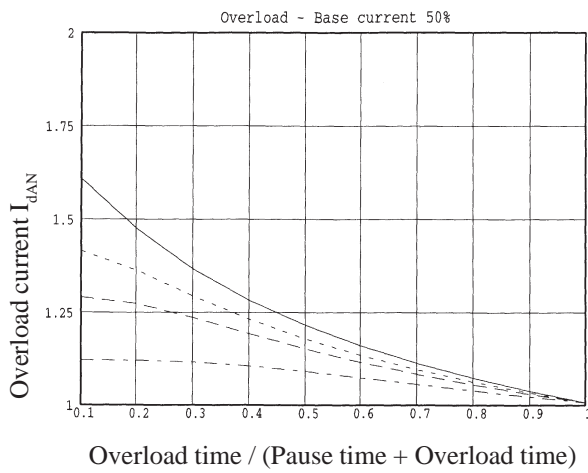
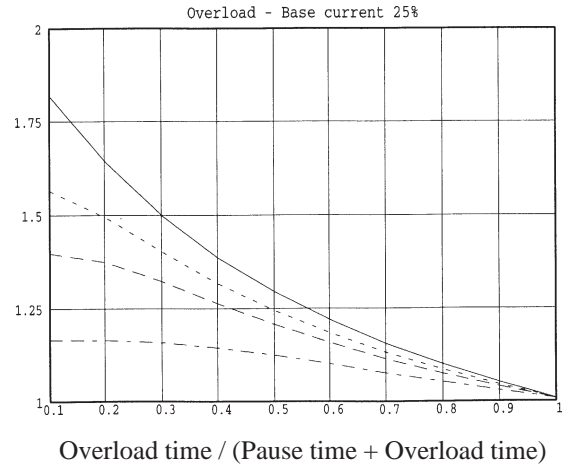
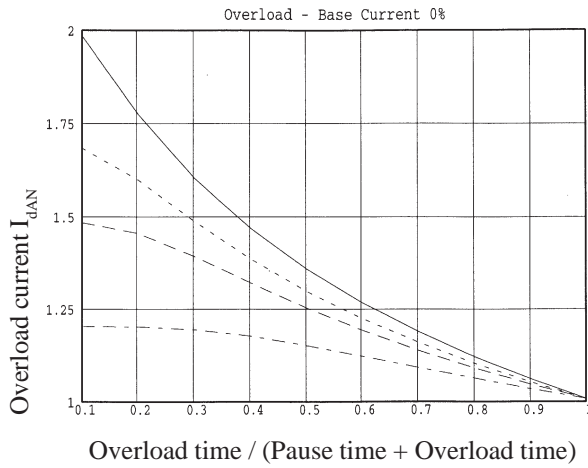


= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.

# TPD32-400/470-3300-2B

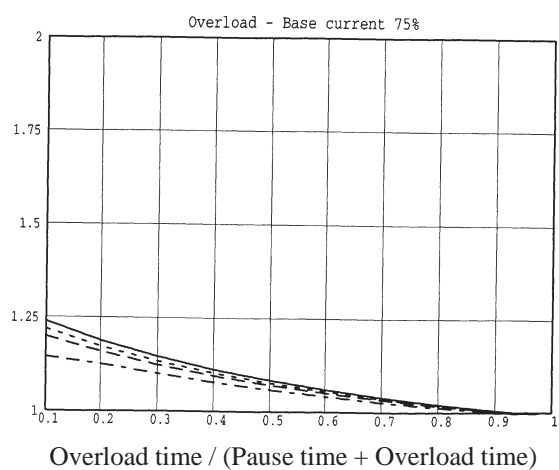
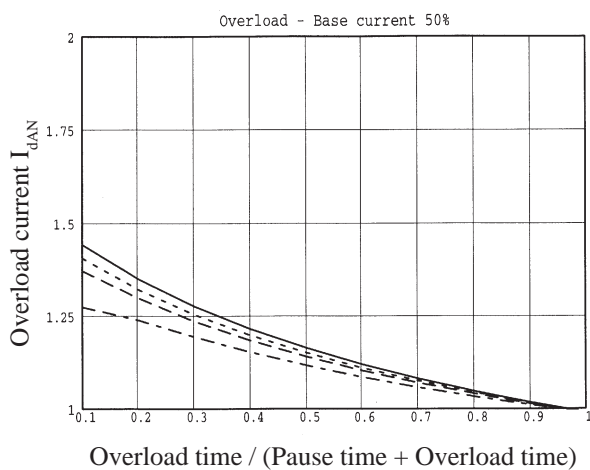
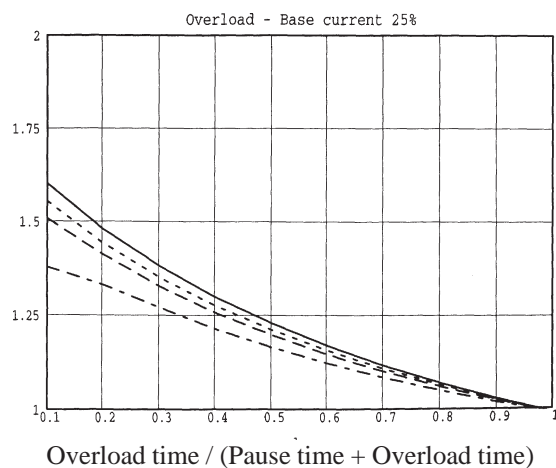
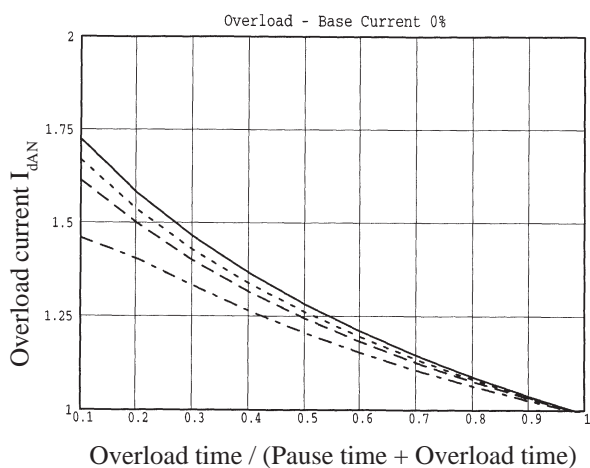
# TPD32-500/600-3300-2B

# TPD32-690/810-3300-2B



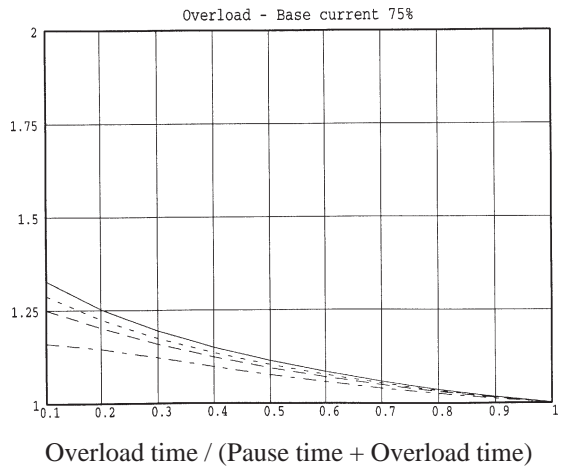
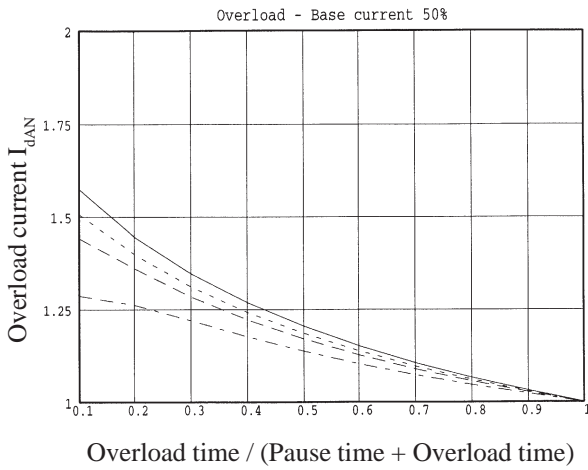
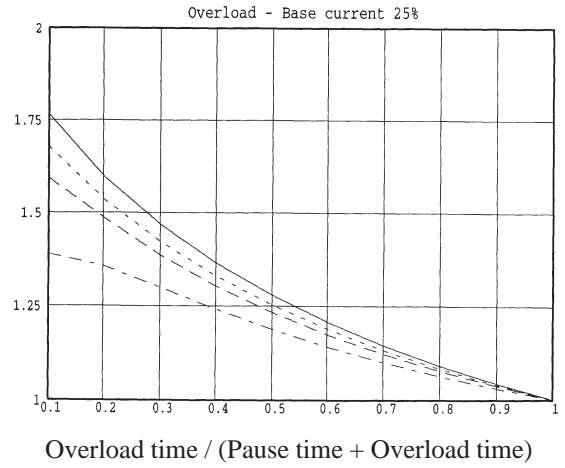
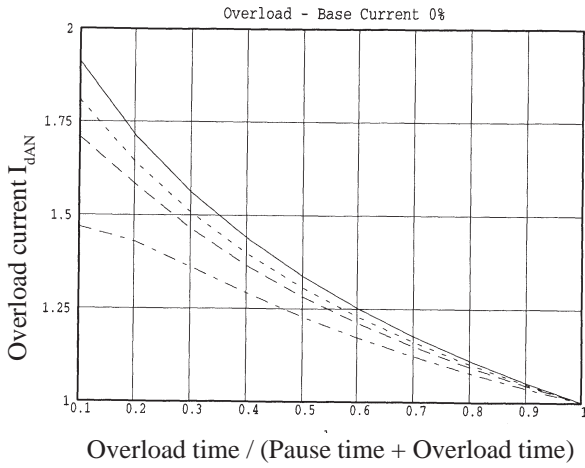
— = 10 s.      ..... = 20 s.      - - - - = 30 s.      - . - . = 60 s.

# TPD32-690/720-1010-4B



= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.

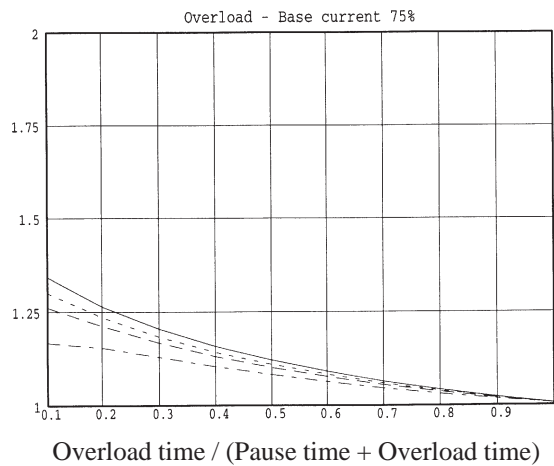
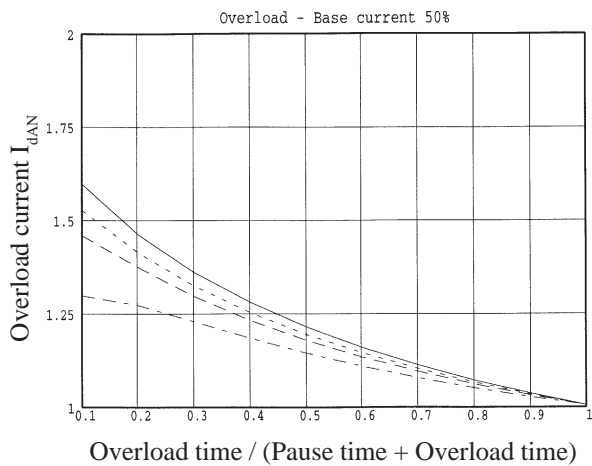
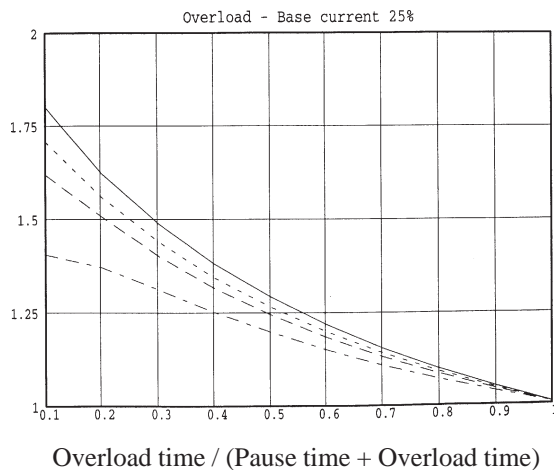
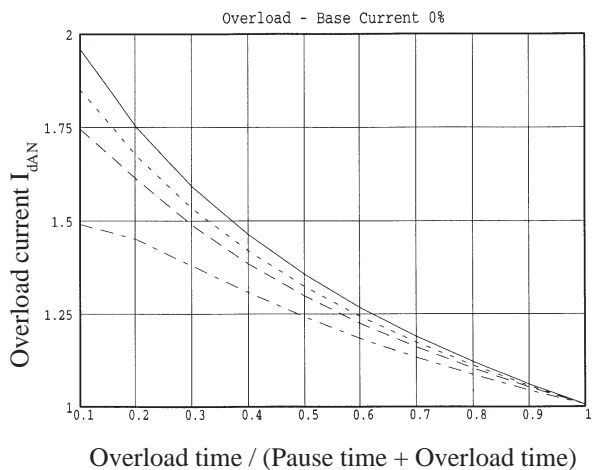
# TPD32-690/720-1400-4B



— = 10 s.
..... = 20 s.
----- = 30 s.
- . - . = 60 s.

# TPD32-400/420-1500-4B

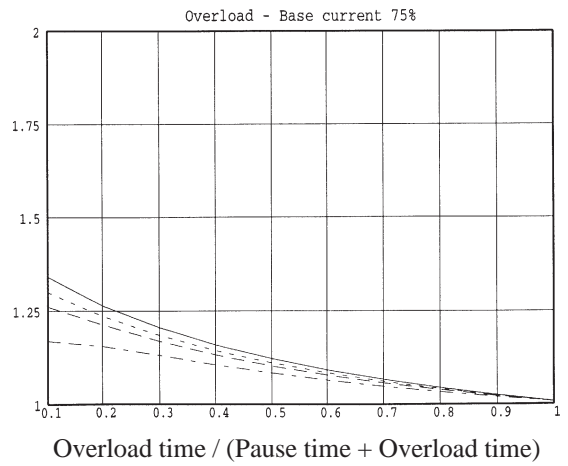
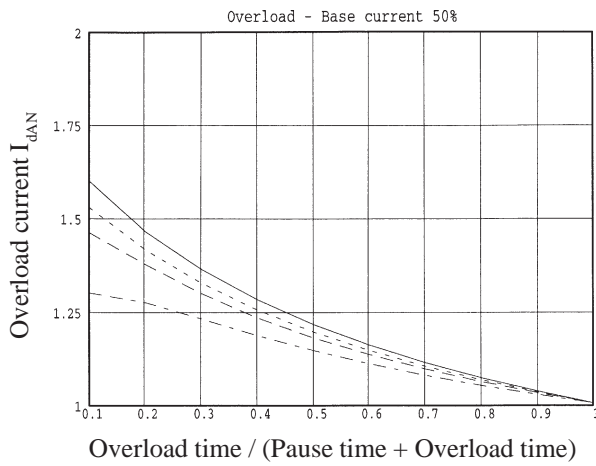
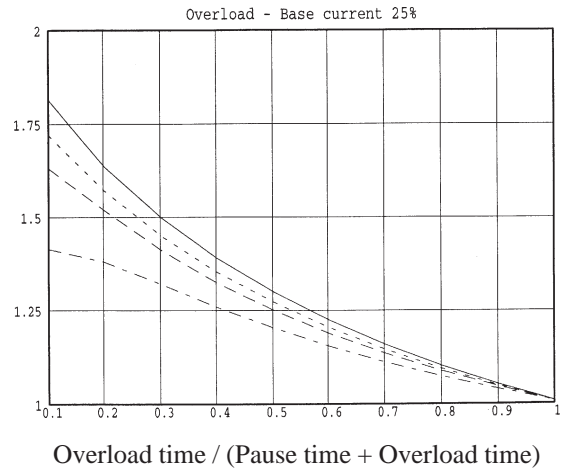
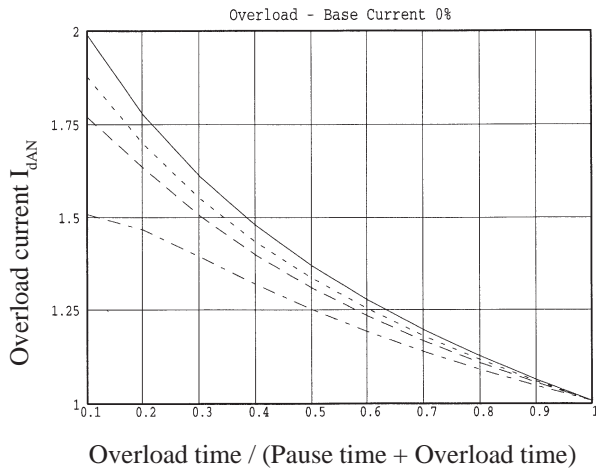
# TPD32-500/520-1500-4B



= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.

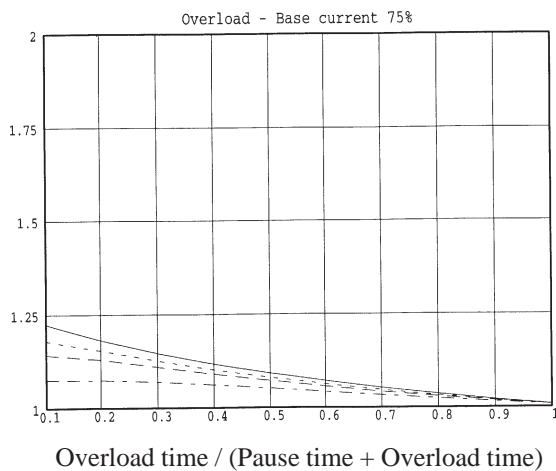
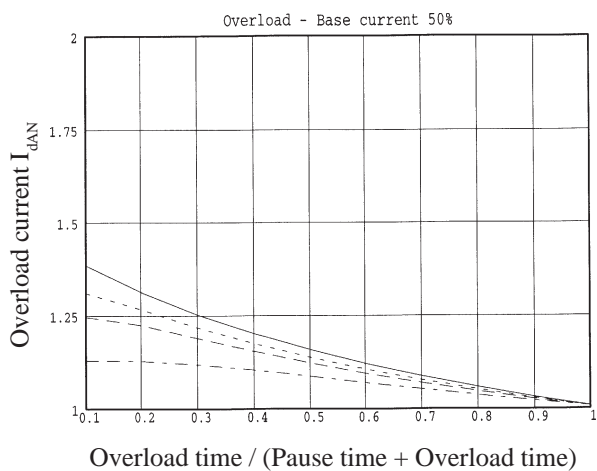
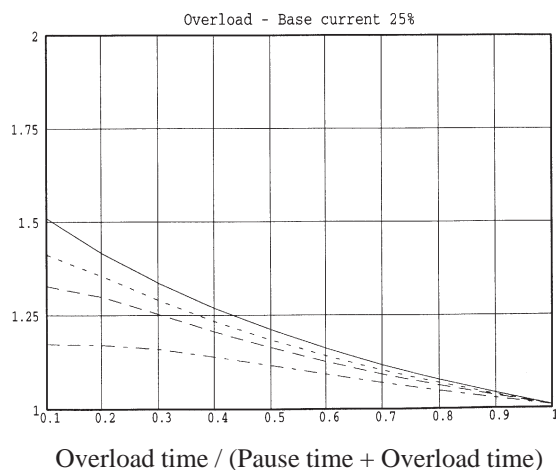
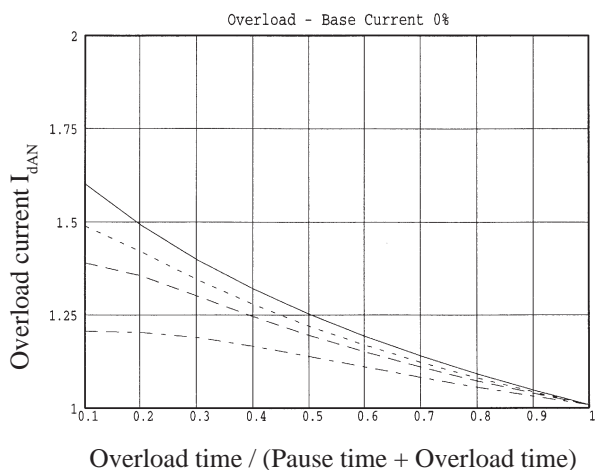
# TPD32-400/420-1700-4B

# TPD32-500/520-1700-4B



— = 10 s.
..... = 20 s.
- - - = 30 s.
- . - . = 60 s.

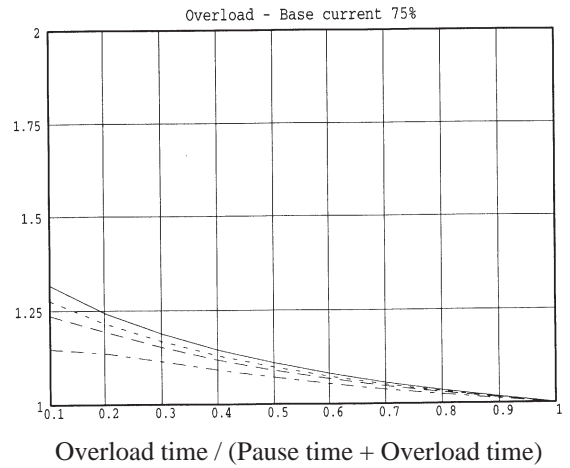
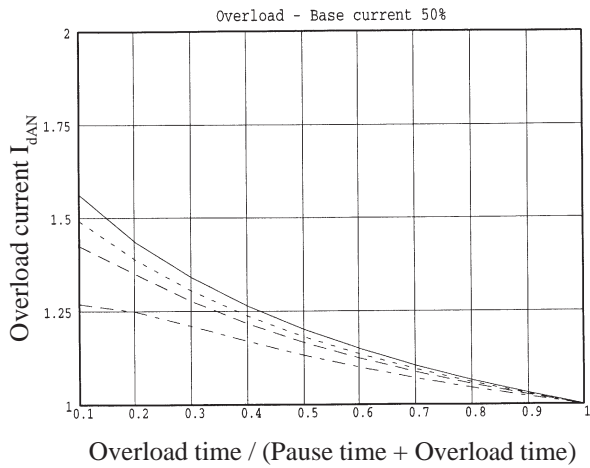
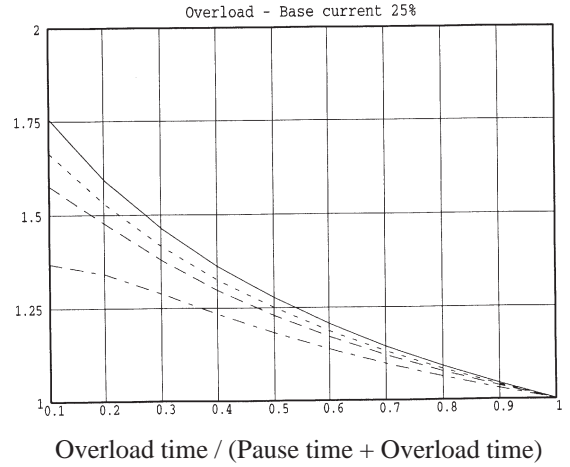
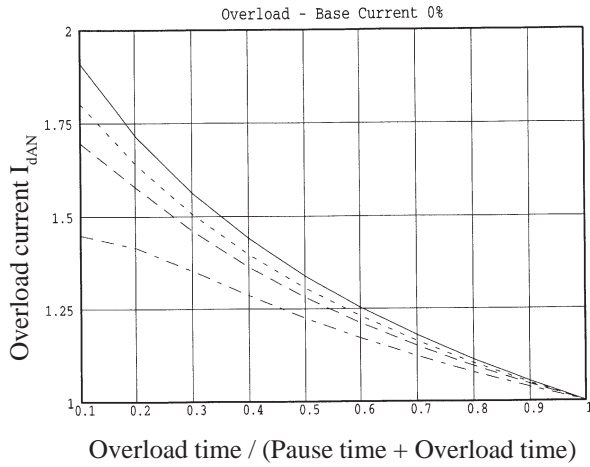
# TPD32-690/720-1700-4B





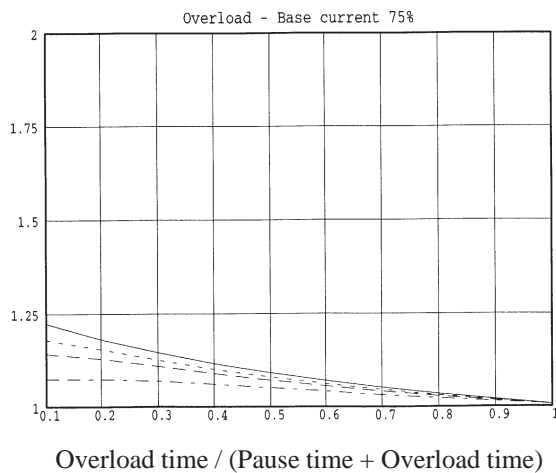
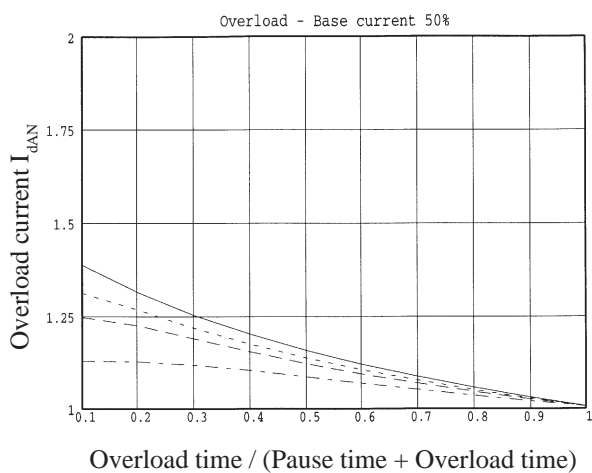
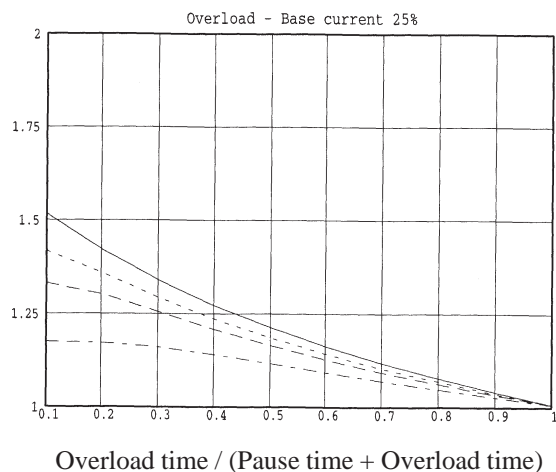
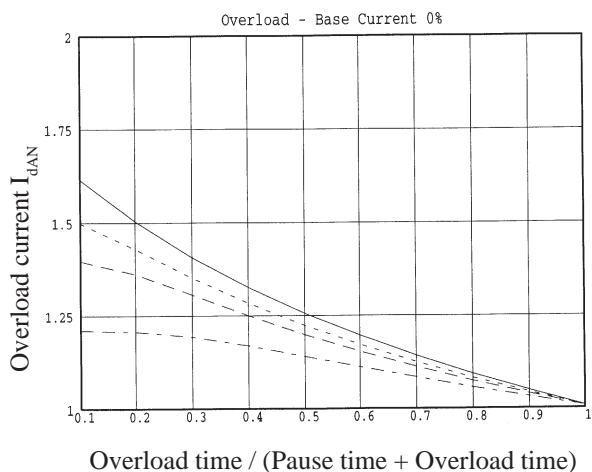
# TPD32-400/420-2000-4B

# TPD32-500/520-2000-4B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

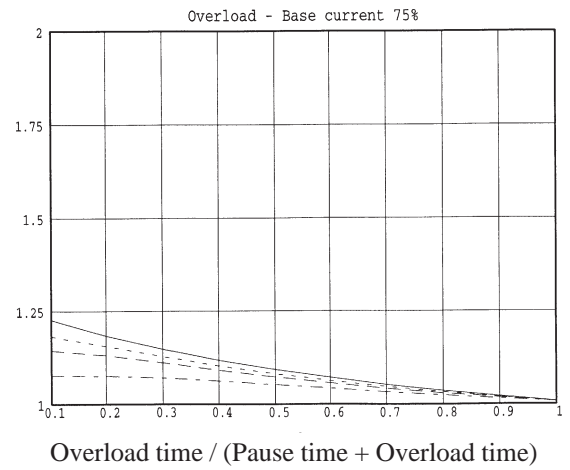
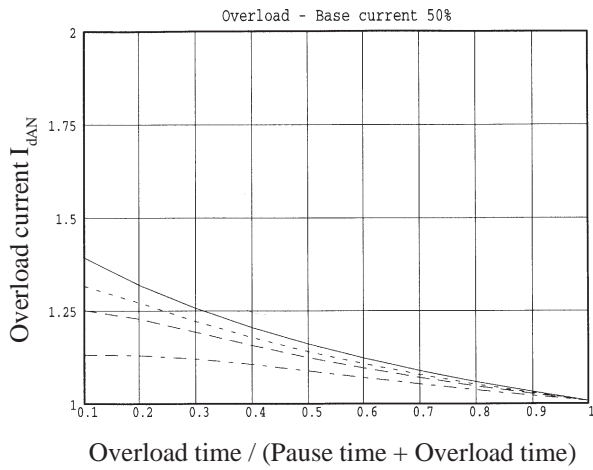
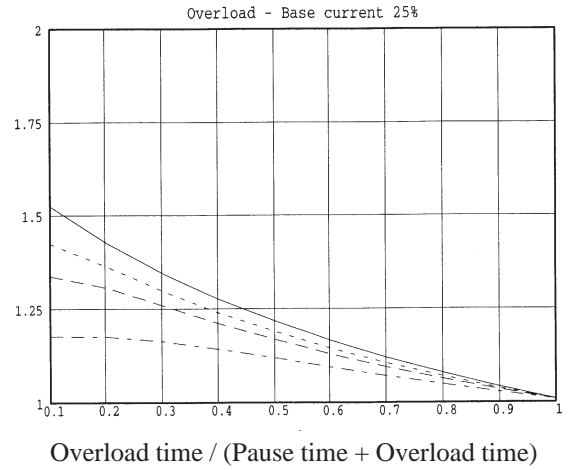
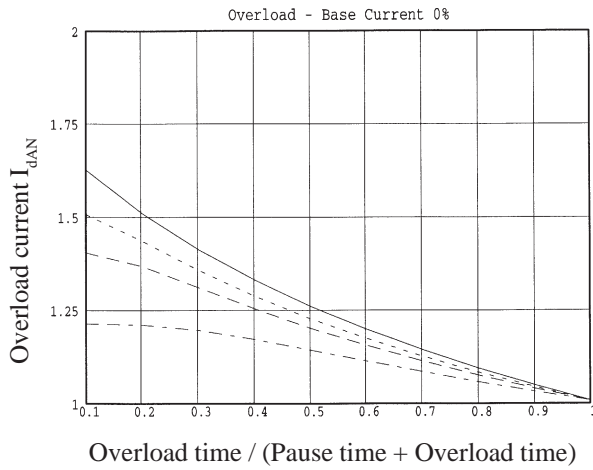
# TPD32-690/720-2000-4B



= 10 s.    
  = 20 s.    
  = 30 s.    
  = 60 s.

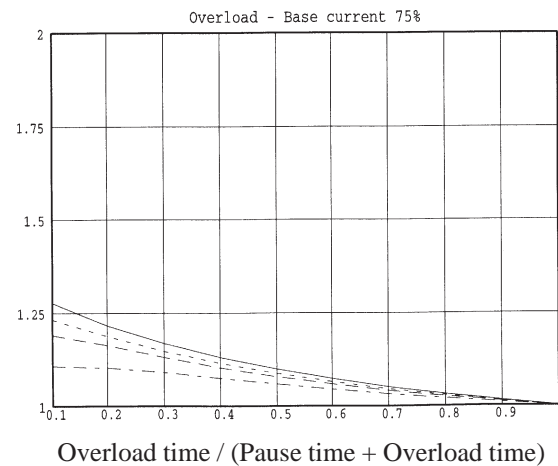
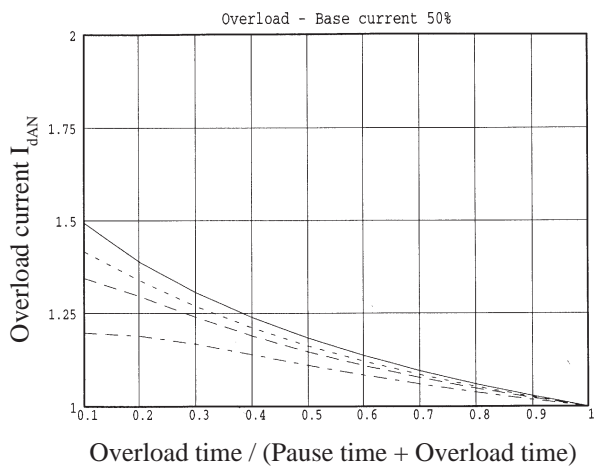
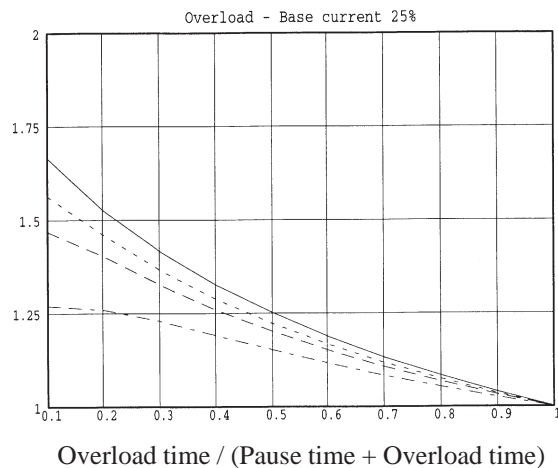
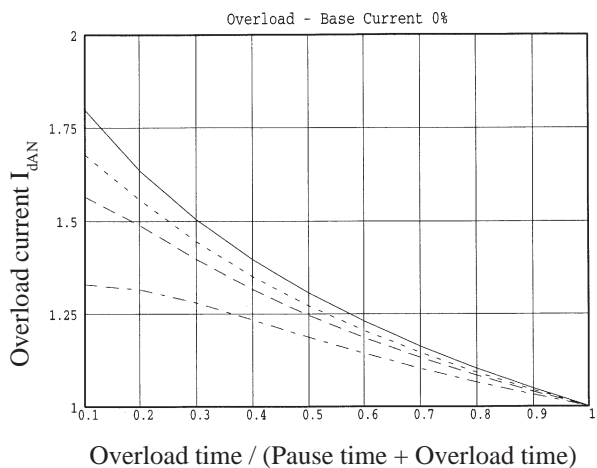
# TPD32-400/420-2400-4B

# TPD32-500/520-2400-4B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

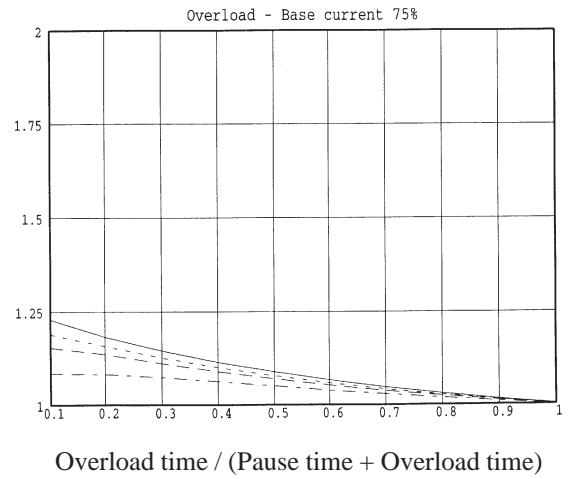
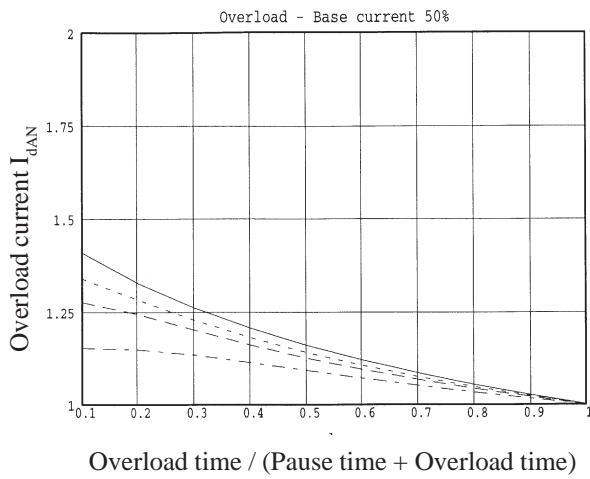
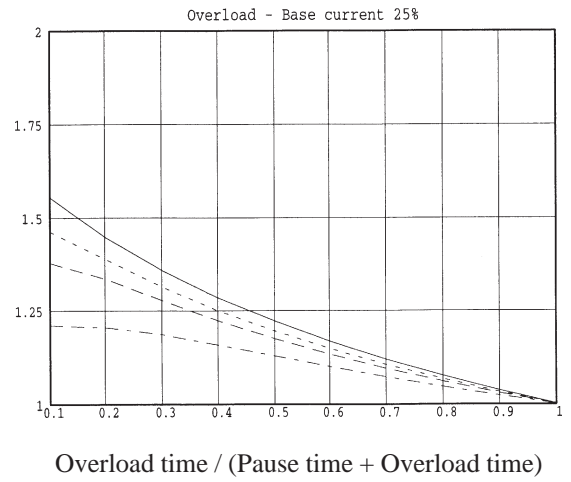
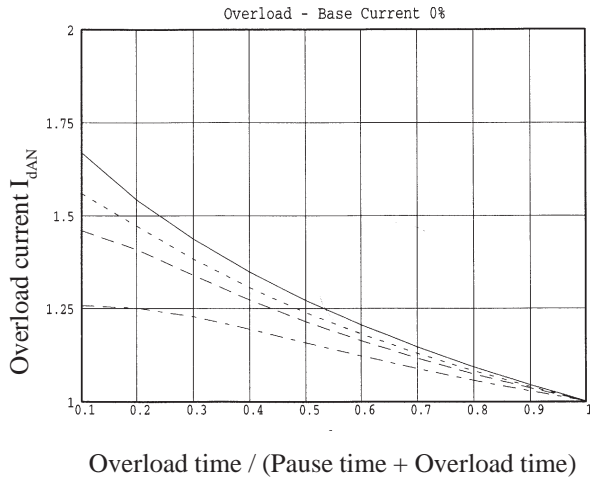
# TPD32-690/720-2400-4B



= 10 s.    
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  = 30 s.    
  = 60 s.

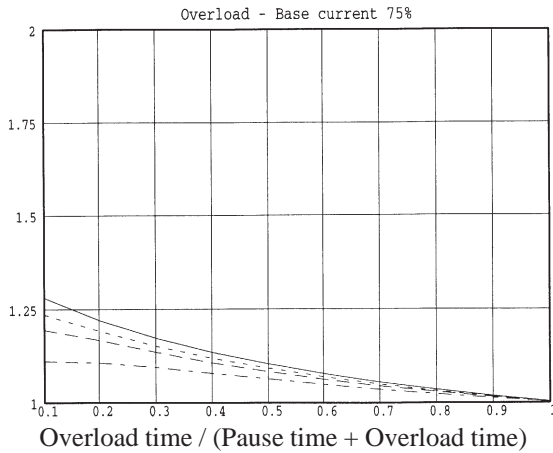
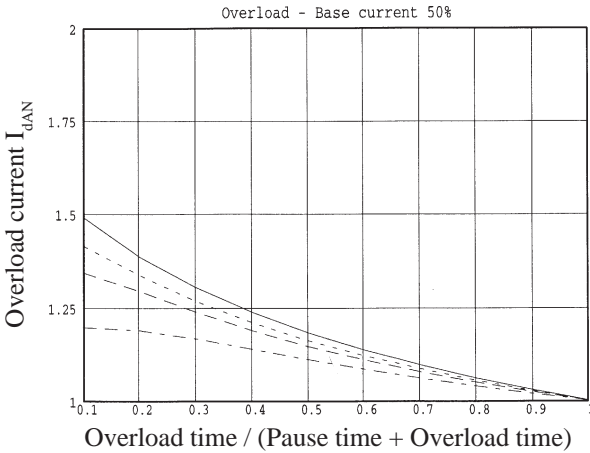
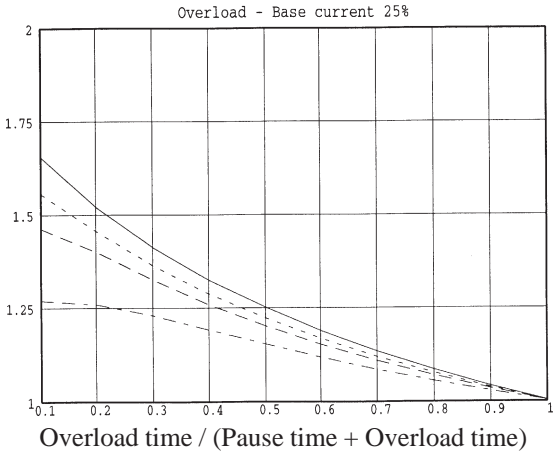
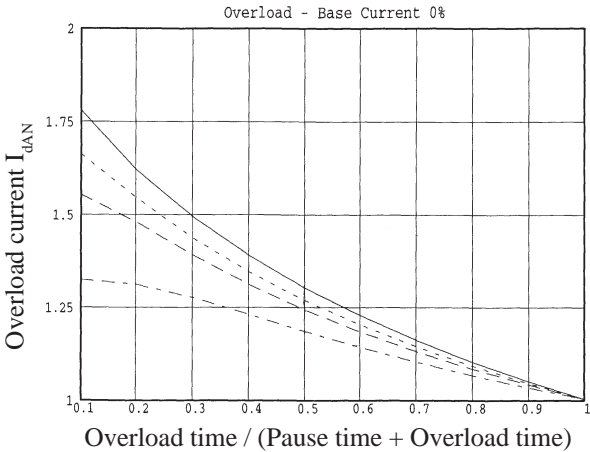
# TPD32-400/420-2700-4B

# TPD32-500/520-2700-4B



= 10 s.     
  = 20 s.     
  = 30 s.     
  = 60 s.

# TPD32-690/720-2700-4B





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