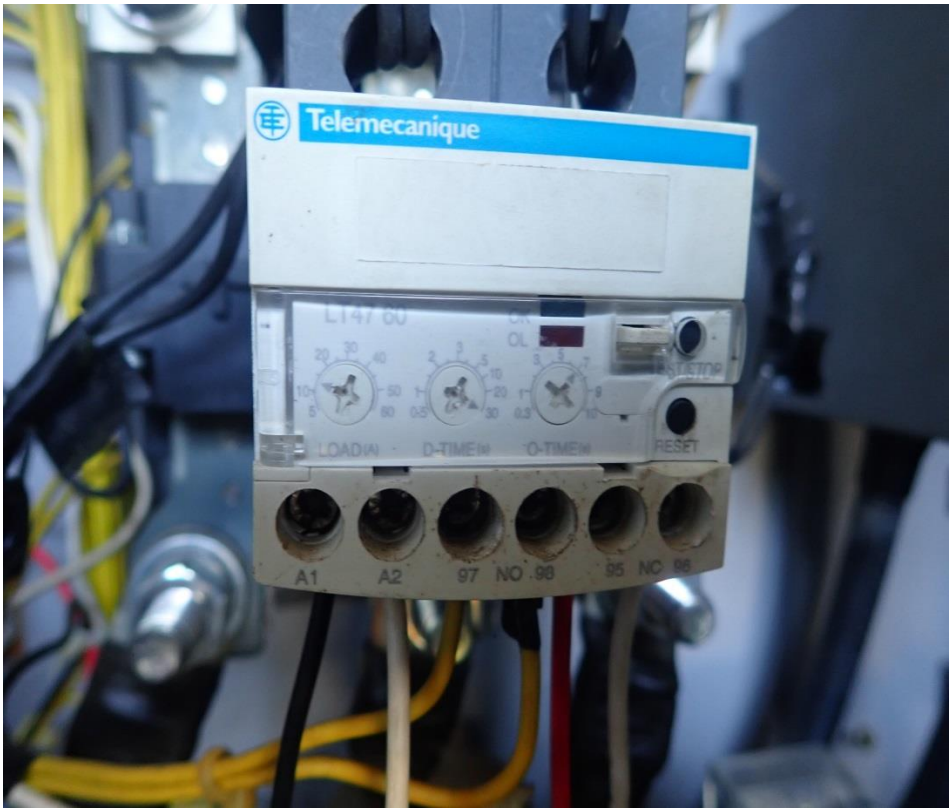
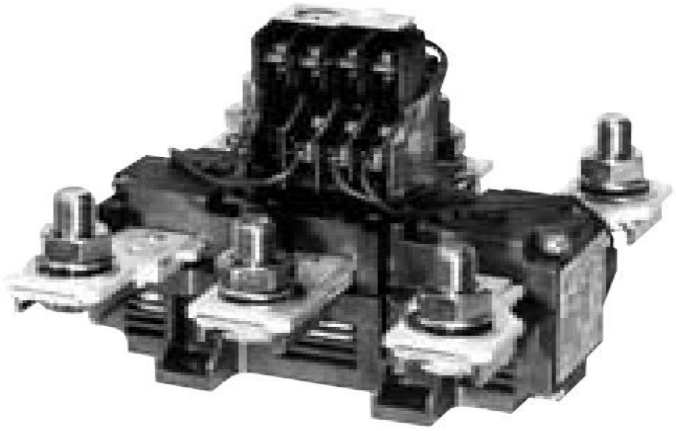
LAMPIRAN

I/ Ib	Konstanta (K)	Setting arus TOR Pada saat disetting %
1	-	100 %
1,05	3,7136	110 %
1,1	3,0455	120 %
1,15	2,6626	130 %
1,2	2,3979	140 %
1,25	2,1972	150 %

Lampiran 1. Tabel hasil nilai kontansta (K) dari tripping time hot curve

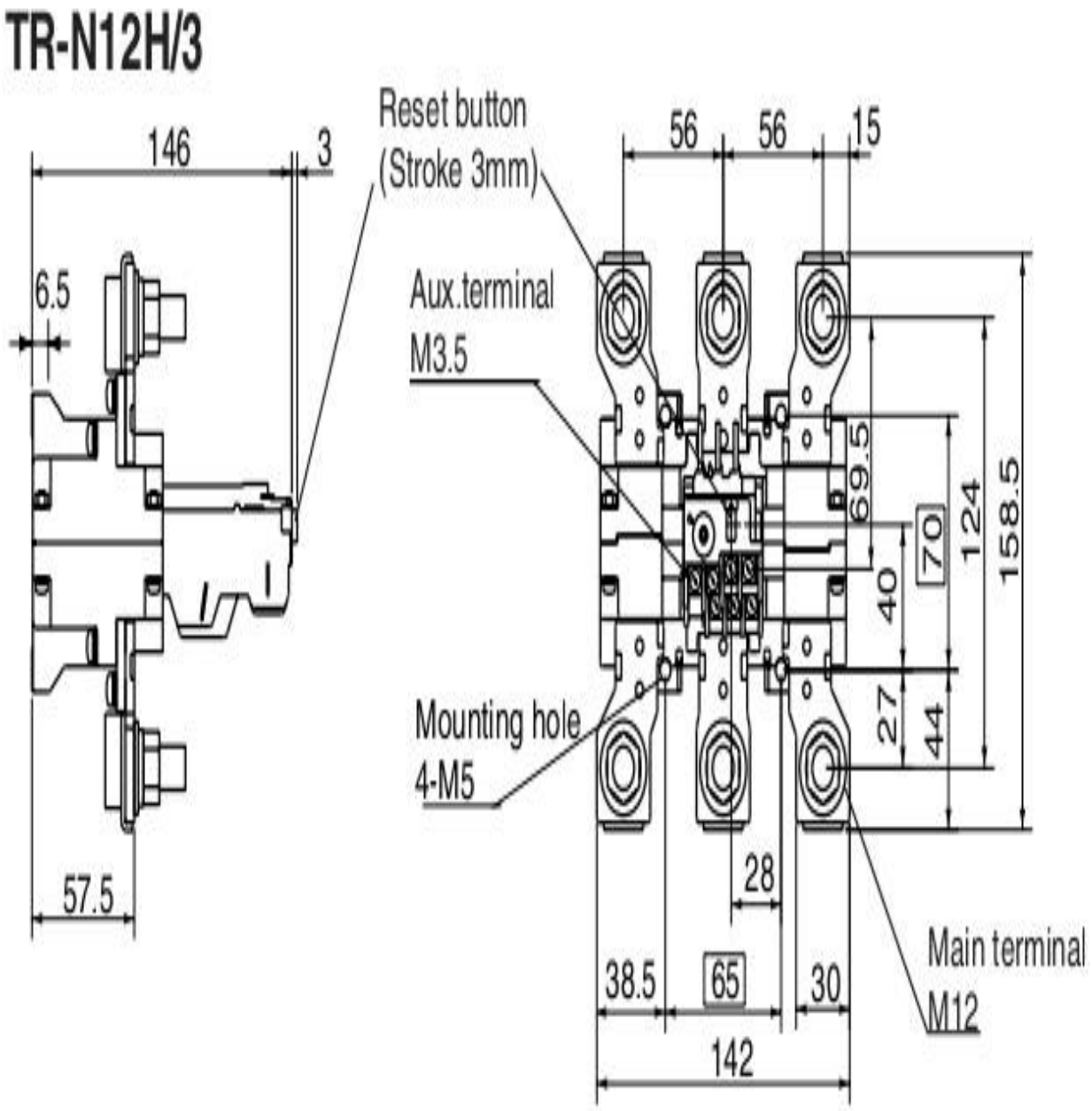


Lampiran 2. Thermal Overload Relay Type LT 4760 M7S

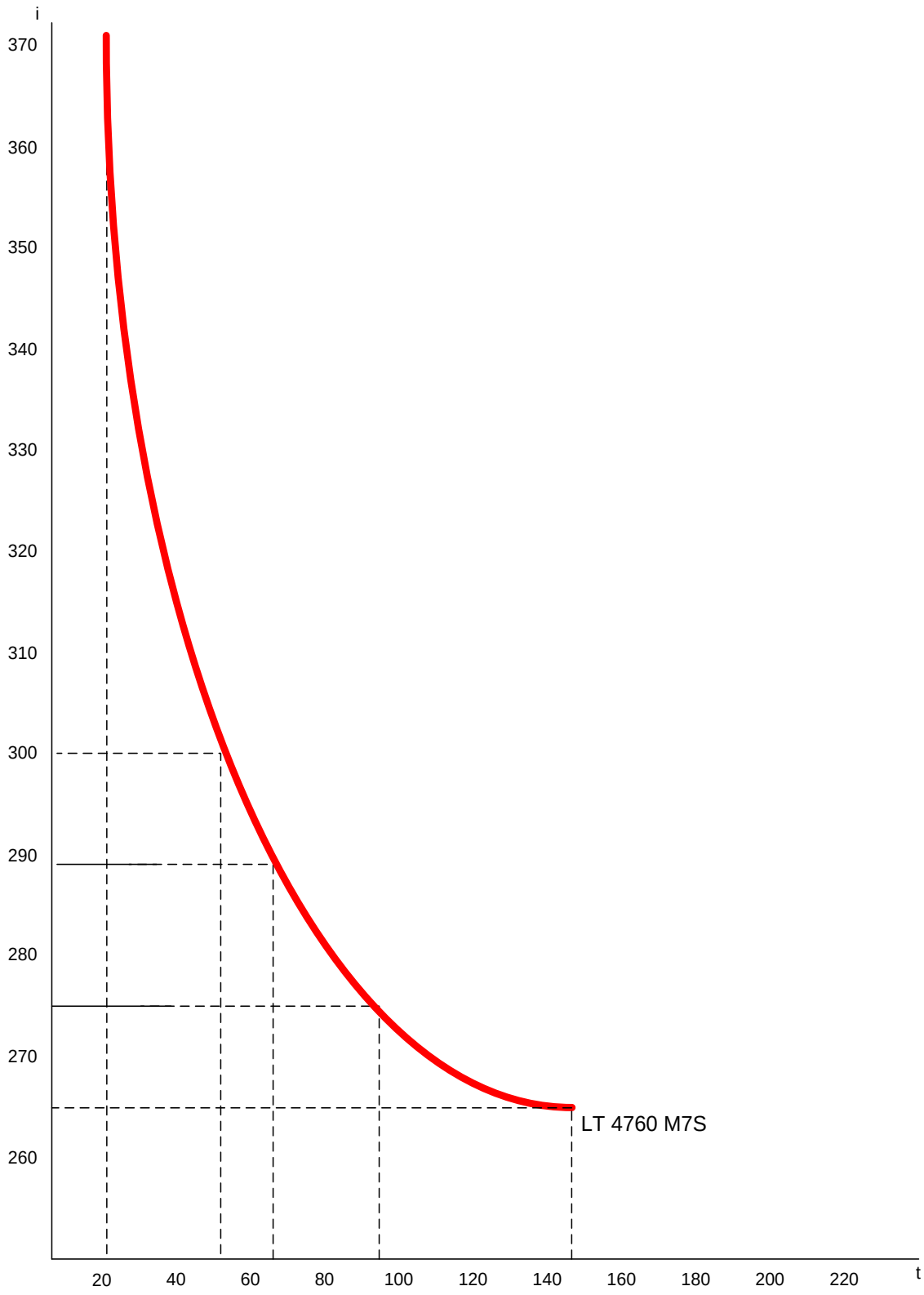


TR-N12H/3

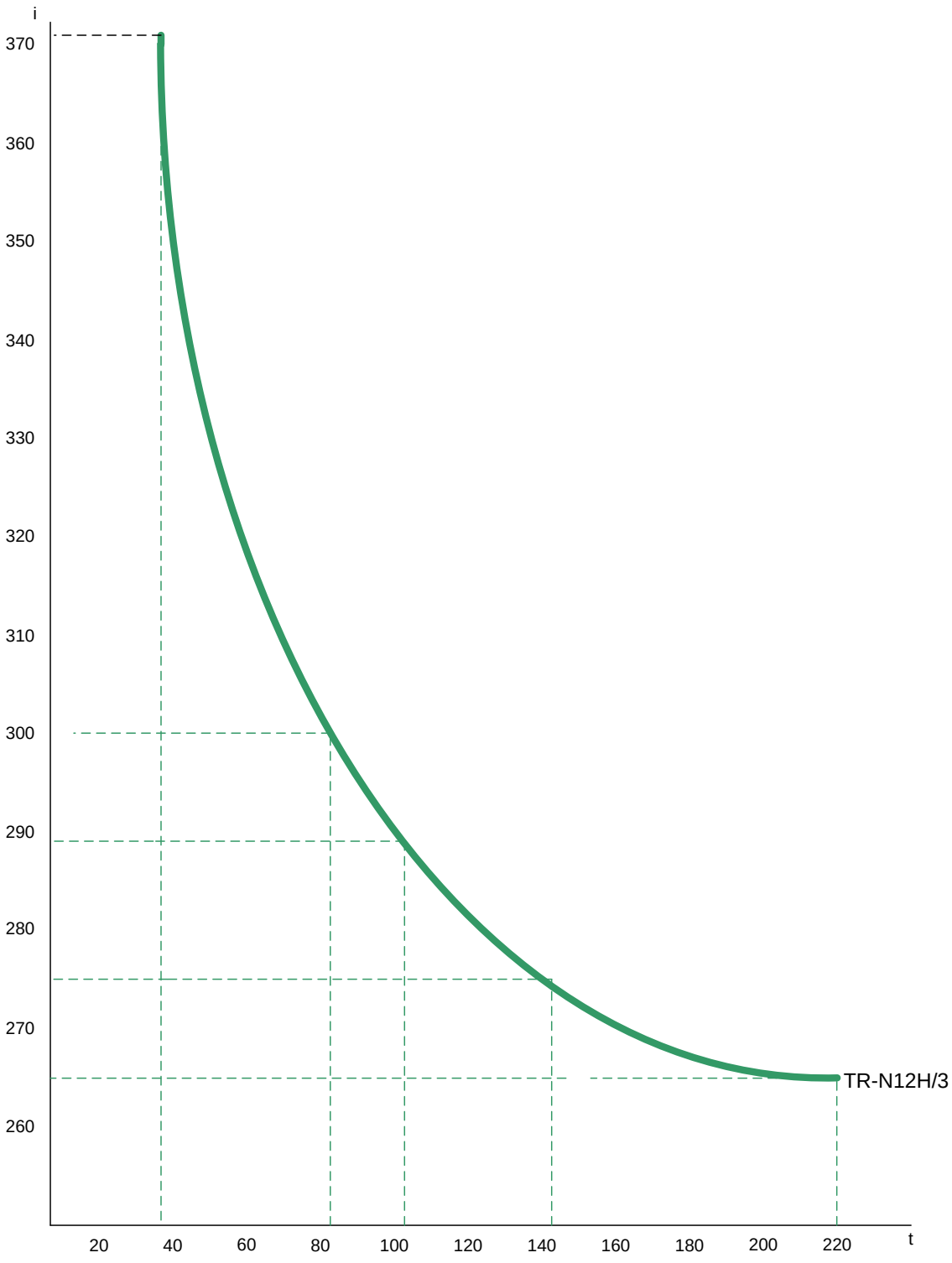
Lampiran 3. Thermal Overload Relay Type TR-N12H/3



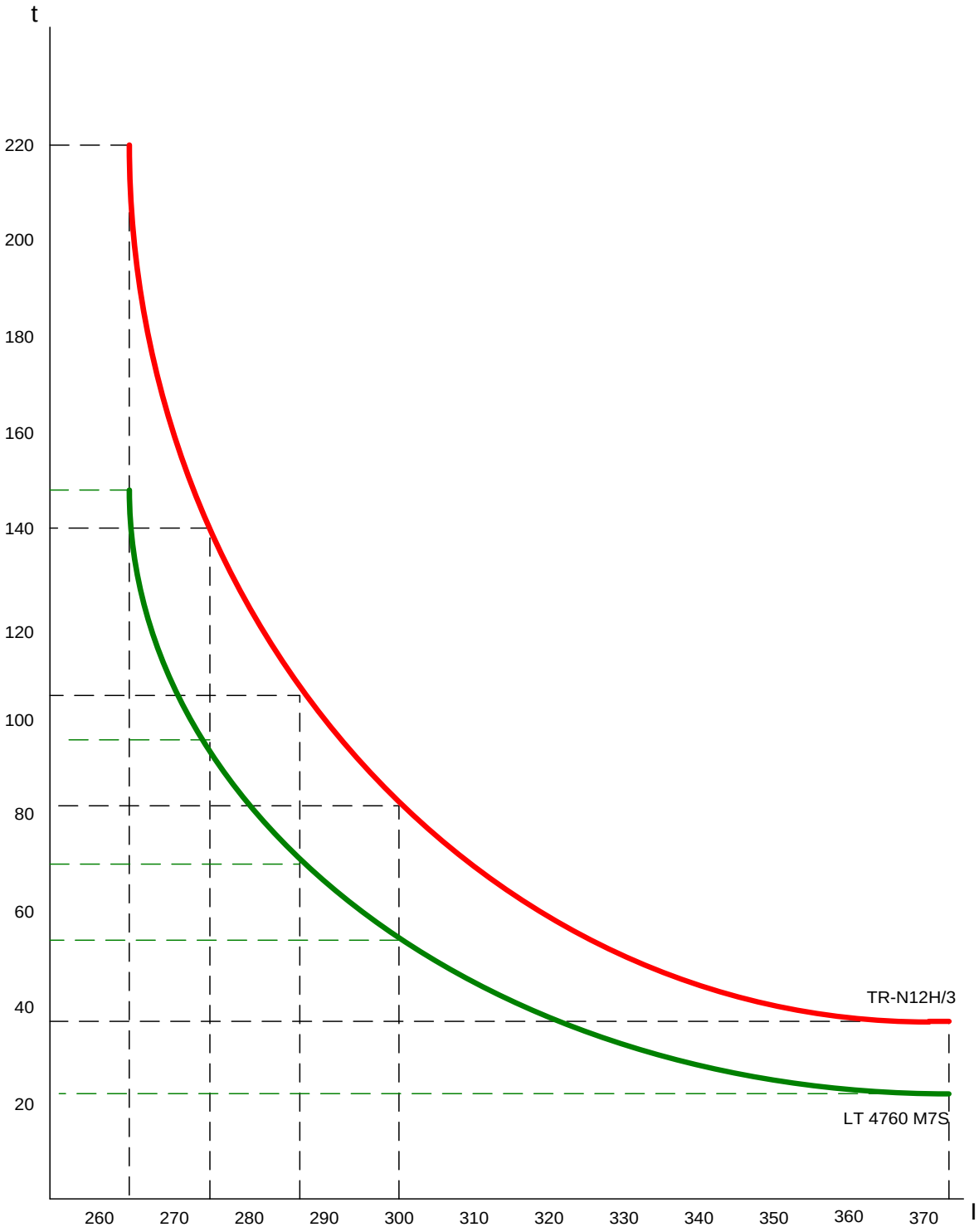
Lampiran 4. Rincian bagian dari TOR type TR- N12H/3



Lampiran 5. Kurva TOR Type LT 4760 M7S



Lampiran 6. Kurva TOR Type TR – N12H/3



Lampiran 7. Kurva perbandingan temperature normal type TR – N12H/3 dan type LT 4760 M7

On-contactor mounting	3-element	TR-N5/3 (TR80BDW)		TR-N6/3 (TR1CBDW)	TR-N7/3 (TR1FBDW)	TR-N8/3 (TR1JBDW)	TR-N10/3 (TR2CBDW)	TR-N12/3 (TR4ABDW)		TR-N14/3 (TR8ABDW)
	2-element	TR-N5 (TR80BNW)		TR-N6 (TR1CBNW)	TR-N7 (TR1FBNW)	TR-N8 (TR1JBNW)	TR-N10 (TR2CBNW)	TR-N12 (TR4ABNW)		TR-N14 (TR8ABNW)
Separate mounting	3-element	–		TR-N6H/3 (TR1CBDW)	–	–	TR-N10H/3 (TR2CBDH)	TR-N12H/3 (TR4ABDH)		TR-N14H/3 (TR8ABDH)
	2-element	–		TR-N6H (TR1CBNW)	–	–	TR-N10H (TR2CBNH)	TR-N12H (TR4ABNH)		TR-N14H (TR8ABNH)
Contactor to be combined		SC-N4	SC-N5	SC-N6	SC-N7	SC-N8	SC-N10	SC-N11	SC-N12	SC-N14
Ampere setting range (A)	Code B	18 – 26	18 – 26							
	E	24 – 36	24 – 36							
	F	28 – 40	28 – 40							
	G	34 – 50	34 – 50							
	J	45 – 65	45 – 65	45 – 65	45 – 65					
	L	53 – 80	53 – 80	53 – 80	53 – 80					
	M		65 – 95	65 – 95	65 – 95	65 – 95				
	I		85 – 105							
	N			85 – 125	85 – 125	85 – 125	85 – 125			
	P			110 – 160*	110 – 160	110 – 160	110 – 160	110 – 160	110 – 160	
	R					125 – 185	125 – 185	125 – 185	125 – 185	
	S						160 – 240	160 – 240	160 – 240	
	T							200 – 300	200 – 300	
	U								240 – 360	240 – 360
	V								300 – 450	300 – 450
	W									400 – 600

Notes: • TR-N10/3 to N14/3 types are provided with CTs.
• Max. setting ranges of these starters are as shown in the table on the right.
• When ordering the thermal overload relays for starter use, select the applicable setting range.
( ): Basic ordering code (When ordering phase-loss protective type, enter the version code E instead of D)
*: Separate mounting only

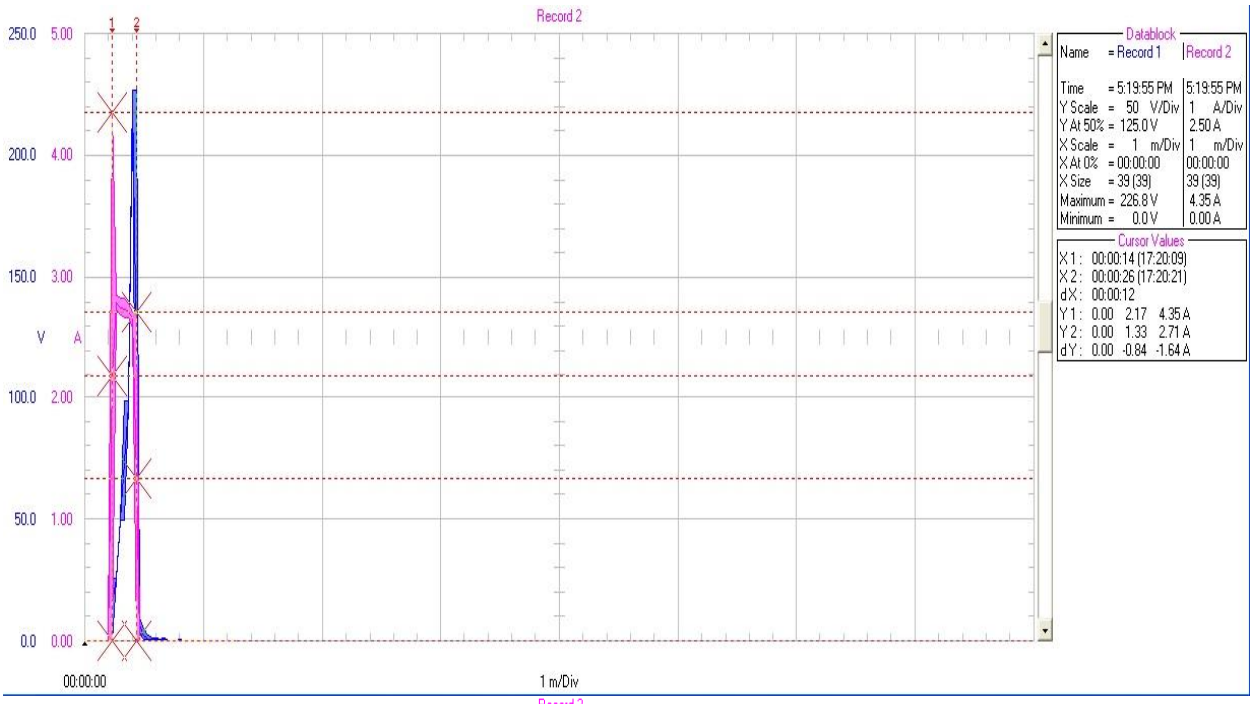
Motor starter	Maximum applicable heater range (A) 200–240V	380–440V
SW-03/3H	7–11	6–9
SW-4-0/3H	12–18	12–18
SW-N1/3H	24–36	24–36
SW-N2S/3H	34–50	34–50
SW-N4/3H	53–80	53–80
SW-N6/3H	85–125	85–125

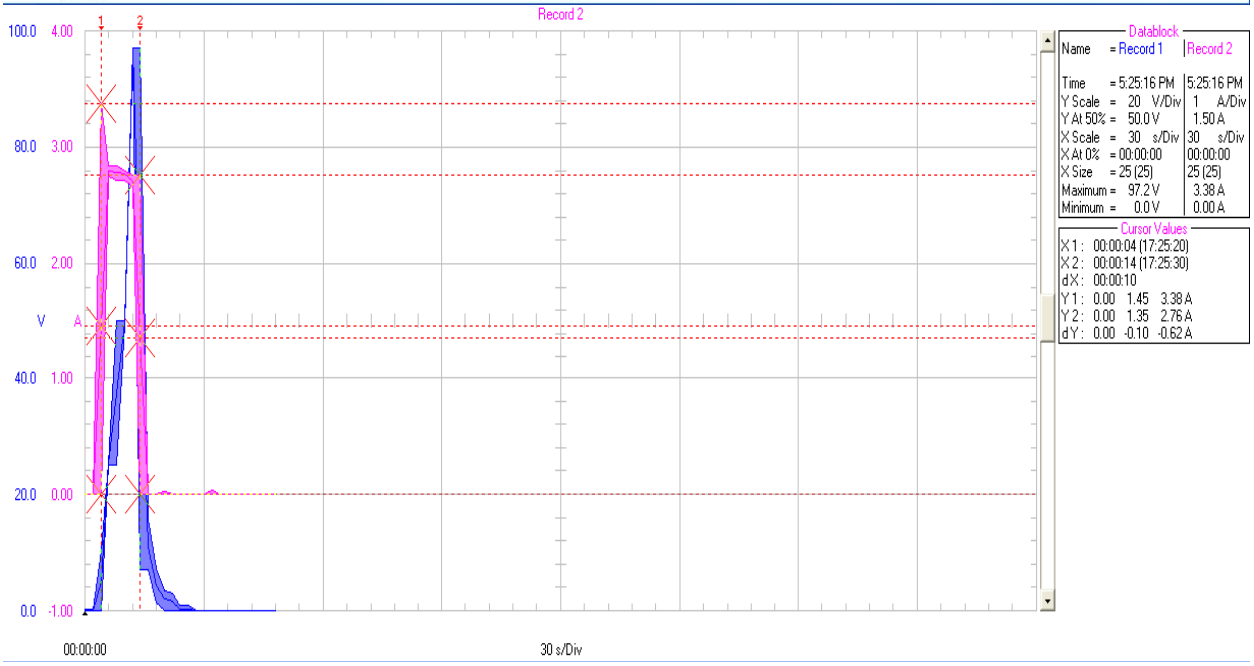
Lampiran 8. Ampere setting range pada TOR type TR – N12H/3

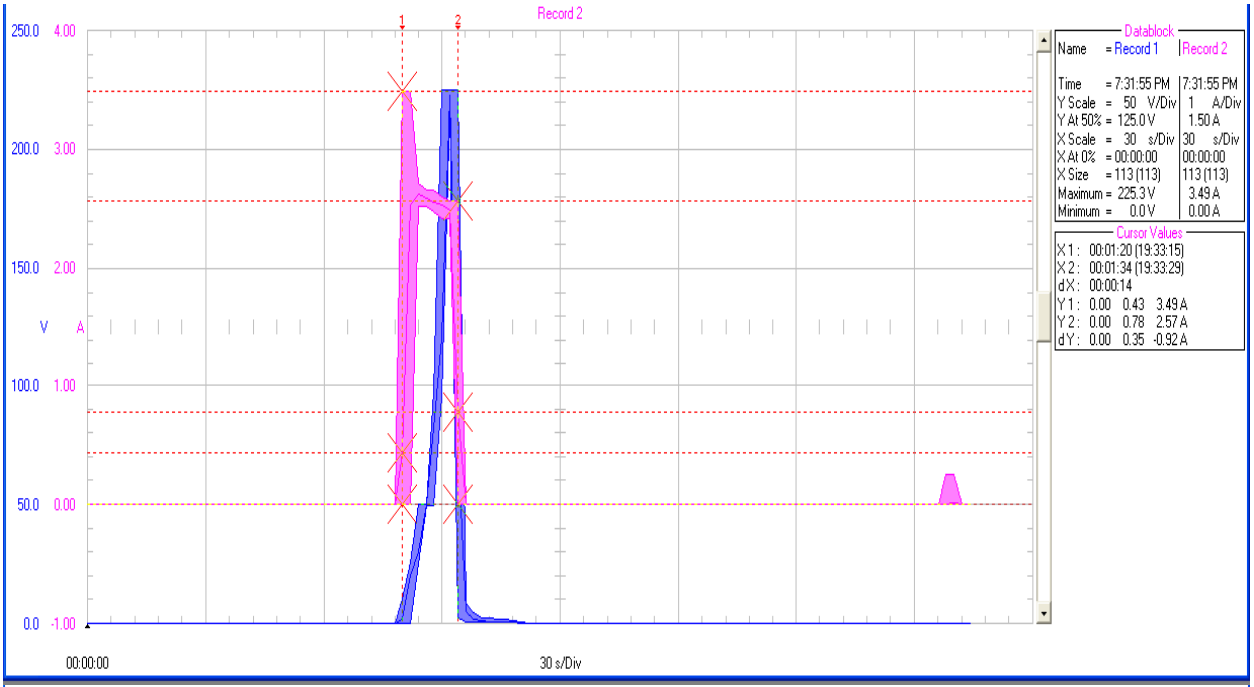
■ Mass/Standard and quick operating types

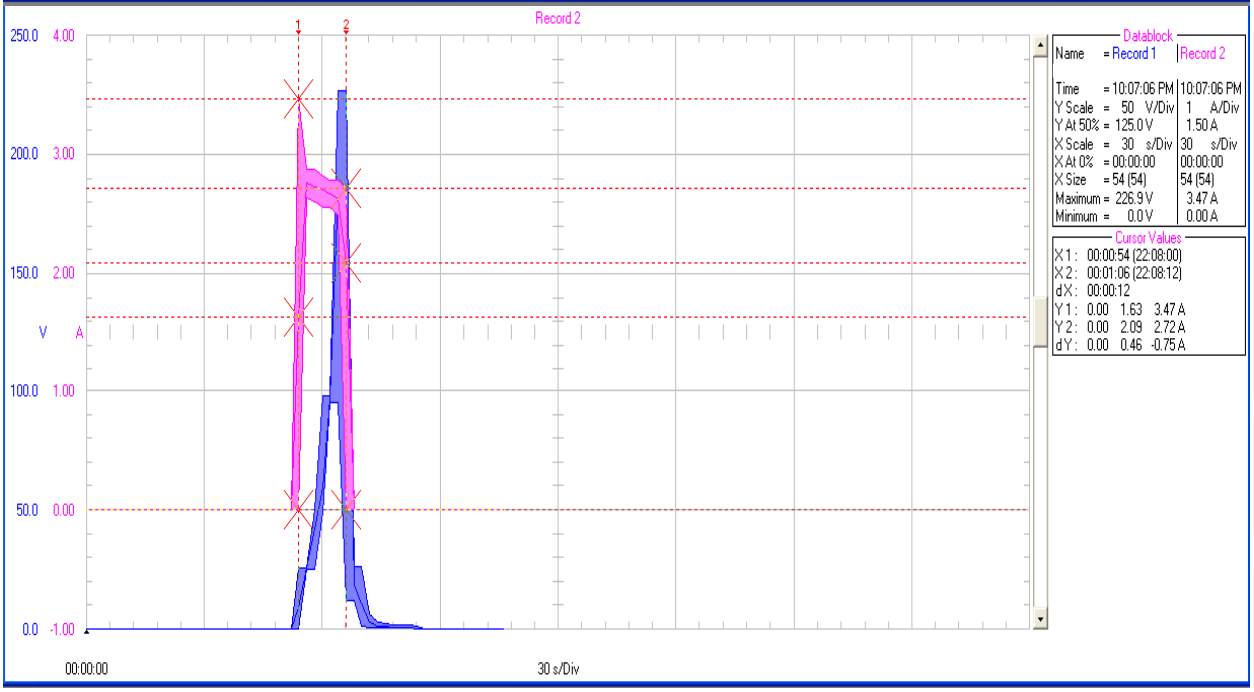
On-contactor mounting Type	Mass	Separate mounting Type	Mass	On-contactor mounting Type	Mass	Separate mounting Type	Mass
TR-0N	0.09kg	TR-0NH	0.13kg	TR-N7	0.61kg		
TR-0N/3	0.10kg	TR-0NH/3	0.14kg	TR-N7/3	0.61kg	–	
TR-0NQ	0.10kg						
TR-5-1N	0.11kg	TR-5-1NH	0.16kg	TR-N8	1.2kg		
TR-5-1N/3	0.12kg	TR-5-1NH/3	0.17kg	TR-N8/3	1.2kg	–	
TR-5-1NQ	0.12kg						
TR-N2, N2/3	0.2kg	TR-N2H	0.29kg	TR-N10	1.85kg	TR-10NH	1.5kg
TR-N2Q	0.2kg	TR-N2H/3	0.29kg	TR-N10/3	1.85kg	TR-10NH/3	1.5kg
TR-N3, N3/3	0.27kg	TR-N3H, N3H/3	0.38kg	TR-N12, N12/3	2.3kg	TR-12NH, 12NH/3	2.25kg
TR-N3Q	0.27kg						
TR-N5, N5/3	0.27kg	–		TR-N14, N14/3	3.5kg	TR-14NH, 14NH/3	4kg
TR-N5Q	0.27kg						
TR-N6, N6/3	0.61kg	TR-N6H, N6H/3	0.67kg	–		–	

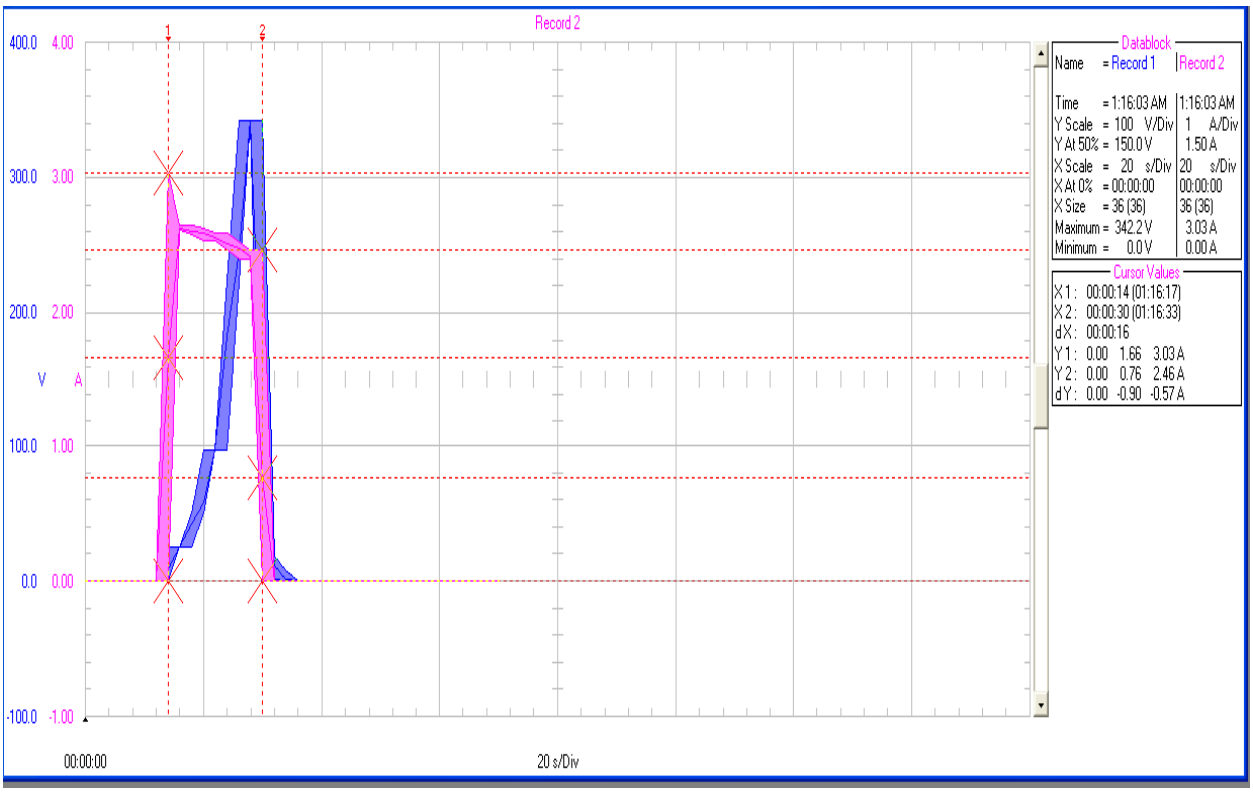
Lampiran 9. Masa beban operasi pada TOR type TR- N12H/3


Record 2
250.0 5.00
200.0 4.00
150.0 3.00
V A
100.0 2.00
50.0 1.00
0.0 0.00
00:00:00
1 m/Div
Datablock
Name = Record 1 | Record 2
Time = 5:19:55 PM | 5:19:55 PM
Y Scale = 50 V/Div | 1 A/Div
Y At 50% = 125.0 V | 2.50 A
X Scale = 1 m/Div | 1 m/Div
X At 0% = 00:00:00 | 00:00:00
X Size = 39 (39) | 39 (39)
Maximum = 226.8 V | 4.35 A
Minimum = 0.0 V | 0.00 A
Cursor Values
X1: 00:00:14 (17:20:09)
X2: 00:00:26 (17:20:21)
dX: 00:00:12
Y1: 0.00 2.17 4.35 A
Y2: 0.00 1.33 2.71 A
dY: 0.00 -0.84 -1.64 A

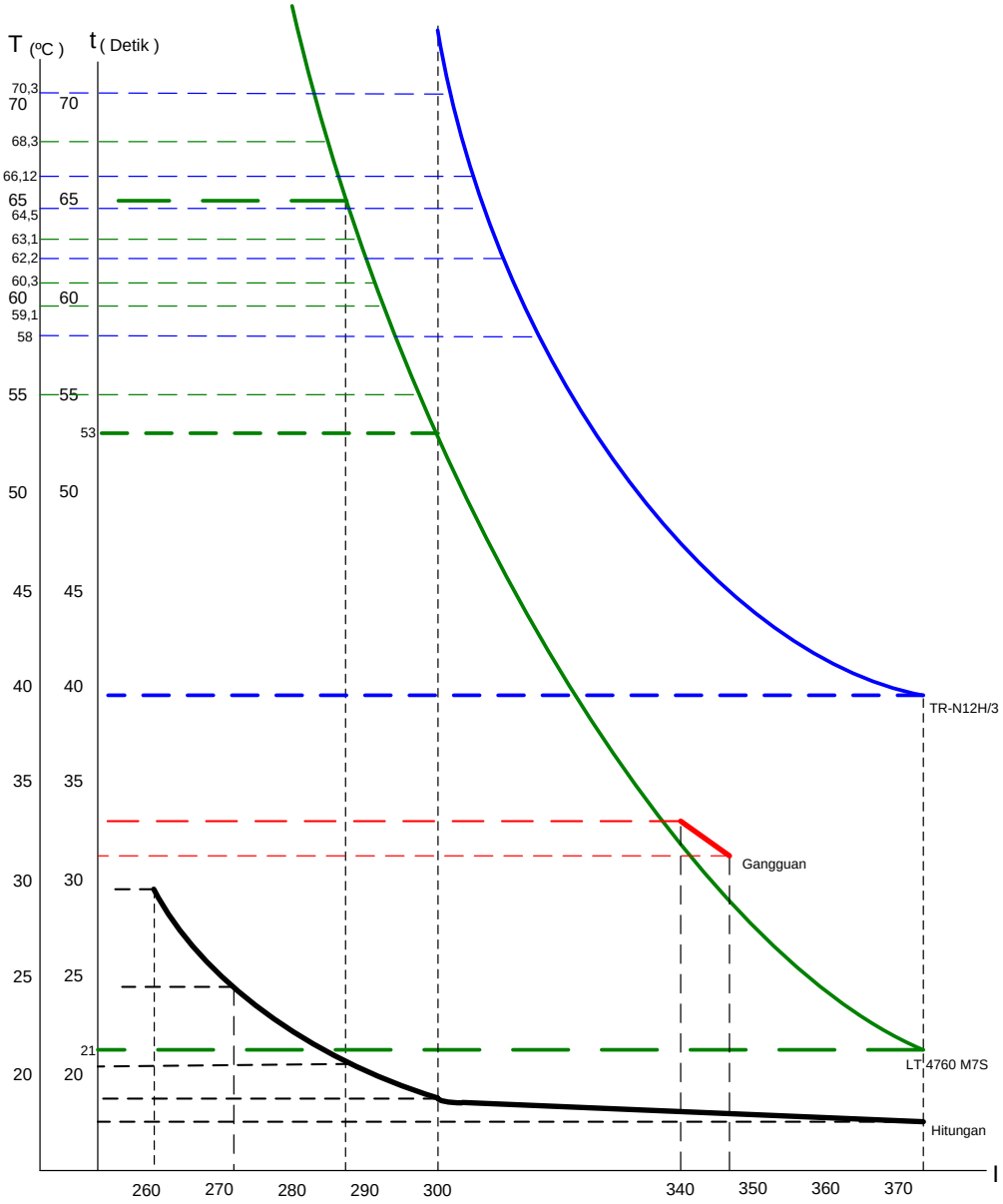

Record 2
100.0 4.00
80.0 3.00
60.0 2.00
V A
40.0 1.00
20.0 0.00
0.0 -1.00
00:00:00
30 s/Div
Datablock
Name = Record 1 | Record 2
Time = 5:25:16 PM | 5:25:16 PM
Y Scale = 20 V/Div | 1 A/Div
Y At 50% = 50.0 V | 1.50 A
X Scale = 30 s/Div | 30 s/Div
X At 0% = 00:00:00 | 00:00:00
X Size = 25 (25) | 25 (25)
Maximum = 97.2 V | 3.38 A
Minimum = 0.0 V | 0.00 A
Cursor Values
X1: 00:00:04 (17:25:20)
X2: 00:00:14 (17:25:30)
dX: 00:00:10
Y1: 0.00 1.45 3.38 A
Y2: 0.00 1.35 2.76 A
dY: 0.00 -0.10 -0.62 A


Record 2
1
2
250.0 4.00
200.0 3.00
150.0 2.00
V A
100.0 1.00
50.0 0.00
0.0 -1.00
00:00:00
30 s/Div
Datablock
Name = Record 1 | Record 2
Time = 7:31:55 PM | 7:31:55 PM
Y Scale = 50 V/Div | 1 A/Div
Y At 50% = 125.0 V | 1.50 A
X Scale = 30 s/Div | 30 s/Div
X At 0% = 00:00:00 | 00:00:00
X Size = 113 (113) | 113 (113)
Maximum = 225.3 V | 3.49 A
Minimum = 0.0 V | 0.00 A
Cursor Values
X1: 00:01:20 (19:33:15)
X2: 00:01:34 (19:33:29)
dX: 00:00:14
Y1: 0.00 0.43 3.49 A
Y2: 0.00 0.78 2.57 A
dY: 0.00 0.35 -0.92 A


Record 2
1
2
250.0 4.00
200.0 3.00
150.0 2.00
V A
100.0 1.00
50.0 0.00
0.0 -1.00
00:00:00
30 s/Div
Datablock
Name = Record 1 | Record 2
Time = 10:07:06 PM | 10:07:06 PM
Y Scale = 50 V/Div | 1 A/Div
Y At 50% = 125.0 V | 1.50 A
X Scale = 30 s/Div | 30 s/Div
X At 0% = 00:00:00 | 00:00:00
X Size = 54 (54) | 54 (54)
Maximum = 226.9 V | 3.47 A
Minimum = 0.0 V | 0.00 A
Cursor Values
X1: 00:00:54 (22:08:00)
X2: 00:01:06 (22:08:12)
dX: 00:00:12
Y1: 0.00 1.63 3.47 A
Y2: 0.00 2.09 2.72 A
dY: 0.00 0.46 -0.75 A



Lampiran 10.Grafik data starting motor IDF ketika trip



Lampiran 11. Kurva perbandingan temperature TOR type LT 4760 M7S & TOR type TR-N12H/3