

	1	2	3	4	5	6	7	8	9
A	Single Line Diagram – Power Circuit								
B									
C									
D									
E									
F									
G									

	Transformer/Power Supply
	Generator
	Air Circuit Breaker
	Molded Case Circuit Breaker
	Current Transformer
	Power Contactor
	Control Circuit Fuse
	Capacitor
	Power Meter
	Reactive Power Compensator
	Transfer Switch Interlock
	Distribution Board
	(MOV) Surge Protection Device

The diagram illustrates a power distribution system. At the top, three feeders labeled L1, L2, and L3 (with Thai text 'แหล่งจ่าย' above) supply power to a busbar. This busbar is connected to a circuit breaker (CB1). The output of CB1 is connected to a distribution board (OR1). From OR1, the power is distributed to three motor loads (U1, V1, W1) and three more motor loads (U2, V2, W2). The motor loads are connected through a series of contactors (MC1, MC2, MC3) and interlocks. The contactors are labeled MC1 Line, MC2 Delta, and MC3 Star. The interlocks are labeled OR1, MC1, MC2, and MC3. The motor loads are labeled U1, V1, W1 and U2, V2, W2, with Thai text 'มอเตอร์' (motor) below each set.

แสดงแบบ

Control Panel 523S

- MCCB 3P, C Curve,
- Icu25kA@415V IEC 60947-2
- Magnetic Contactor 115%
- AC-3 Rated IEC 60947-5-1
- Overload Relay 3elements
- M/A resettable IEC 60947-4
- 3x1A Control Fuse
- Terminal for external control

Total Tech Solution Co.,
Ltd

Inspection and Approval

List of contents

Load Schedule

Single Line Diagram – Control Circuit

This diagram illustrates the control circuit for a motor system, organized into a grid with columns 1 through 9 and rows A through G. The circuit starts with three phase lines (Ph1, Ph2, Ph3) and a Control Fuse (1A x3) in column 1. These lines pass through a Voltage Protection Relay (VPR) in column 2, which is configured for d/dt, L1, L2, L3, and Com (11) settings. The relay is protected by a SW1 switch and a PR bypass switch. The circuit then branches into several parallel paths. The first path includes a 97 OR1 98 switch and a MT1 Volt-Amp meter. The second path includes a PL3 Overload relay and a PL1 Normal Voltage relay. The third path includes a 96 OR1 95 switch and a PL2 Run relay. The fourth path includes a 21 MC3 22 switch and a 21 MC2 22 switch. The fifth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The sixth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The seventh path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The eighth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The ninth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The tenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The eleventh path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twelfth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The fourteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The fifteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The sixteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The seventeenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The eighteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The nineteenth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twentieth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-first path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-second path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-third path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-fourth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-fifth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-sixth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-seventh path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-eighth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The twenty-ninth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirtieth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirty-first path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirty-second path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirty-third path includes a 14 MC1 13 switch and a 14 MC1 13 switch. The thirty-fourth path includes a 14 MC1 13 switch and a 14 MC1 13 switch. 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The one hundredth path includes a 14 MC1 13 switch and a 14 MC1 13 switch.

แสดงแบบ
Control Panel 523S
 -MCCB 3P, C Curve,
 Icu25kA@415V IEC 60947-2
 -Magnetic Contactor 115%
 AC-3 Rated IEC 60947-5-1
 -Overload Relay 3elements
 M/A resettable IEC 60947-4
 -3x1A Control Fuse
 -Terminal for external
 control

Inspection and Approval

Load Schedule

	1	2	3	4	5	6	7	8	9	
A	Layout and Dimensions									Customer
B	ไฟลัดแล่มมี Run แสดงสถานะจ่ายไฟ ไฟลัดแล่มมี Normal Voltage แสดงสถานะไฟฟ้าปกติ (กรณีผิดปกติคือ ไฟตก (UV) ไฟเกิน (OV) ไฟขาด เฟส (PhF) หมุนกลับทาง (SEQ)) ไฟลัดแล่มมี Over load แสดงสถานะโอเวอร์โหลดรีเลย์ทริป จาก มอเตอร์ดึงกระแสเกิน ซีล็คเตอร์สวิตช์ Man Off Auto Manual สั่งการด้วยสวิตช์หน้าตู้ Off ปิด Auto สั่งการด้วยสวิตช์ภายนอก สวิตช์กด Start กดเพื่อเริ่มทำงาน สวิตช์กด Stop กดเพื่อหยุดทำงาน ดิจิตอลมิเตอร์ CH-72 แสดงแรงดัน Voltage เฟส2-3 และกระแส Ampere เฟส3 ย่านการวัด 500V/120A -3 Phase 1A Control Fuse -Area for Add-on(s) 25.00 35.00 Voltage Protection Relay SUP-03A (Phase Protector) Default Tripping Characteristic (Adjustable) -Overvoltage: 440V -Undervoltage: 340V -Phase Unbalance: 25% -Phase Sequence Check -Tripping time: 5s -Automatic/Manual Reset -LCD Voltage/Tripping indicator Contactor Schneider LC1E12 AC-3 rating: 25A@440VAC short-time withstand current: 105A@10s IEC 60947-4-1 Overload Relay Schneider LRE12 (5.5-8A) 3 Elements Manual/Automatic reset IEC 60947-4-1 MCB Nano PMD42 Icu6kA@415VAC Thermal trip: 10A Magnetic trip: 6In EN/IEC 60898-1 มอก. 909-2548									แสดงแบบ Control Panel 523S -MCCB 3P, C Curve, Icu25kA@415V IEC 60947-2 -Magnetic Contactor 115% AC-3 Rated IEC 60947-5-1 -Overload Relay 3elements M/A resettable IEC 60947-4 -3x1A Control Fuse -Terminal for external control
D										Manufacturer Total Tech Solution Co., Ltd 571 ซ.กาญจนาภิเษก 8 แขวงบางแค เขตบางแค กทม. 10160 ผู้รับผิดชอบงาน ธนาธิป ชุ่มมงคล 063-909-5000
E										
F										Inspection and Approval
G										
	Load Schedule									List of contents

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C	Star-Delta Starter Control Panel									แสดงแบบ Control Panel 523S -MCCB 3P, C Curve, Icu25kA@415V IEC 60947-2 -Magnetic Contactor 115% AC-3 Rated IEC 60947-5-1 -Overload Relay 3elements M/A resettable IEC 60947-4 -3x1A Control Fuse -Terminal for external control																																																																																																																																																																				
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ตารางที่ 4-2
ขนาดต่ำสุดของสายดินของบริภัณฑ์ไฟฟ้า

พิกัดหรือขนาดปรับตั้งของ เครื่องป้องกันกระแสเกินไม่เกิน (แอมแปร์)	ขนาดต่ำสุดของสายดินของบริภัณฑ์ไฟฟ้า (ตัวนำทองแดง) (ตร.มม.)
20	2.5
40	4
70	6
100	10
200	16
400	25
500	35
800	50
1000	70
1250	95
2000	120
2500	185
4000	240
6000	400

หมายเหตุ : หากความยาวของวงจรย่อยเกิน 30 เมตร ให้พิจารณาขนาดสายดินของ
บริภัณฑ์ไฟฟ้า โดยคำนึงถึงค่า earth fault loop impedance ของวงจร ที่แสดง
ในภาคผนวก ก

ตารางที่ 5-22

ขนาดกระแสของสายไฟฟ้าตัวนำทองแดงแกนเดียวหุ้มฉนวนพีวีซี มอก.11-2553 สำหรับขนาดแรงดัน (U_0/U) ไม่
เกิน 450/750 โวลต์ อุณหภูมิตัวนำ 70 °C อุณหภูมิโดยรอบ 40 °C เดินบนฉนวนลูกถ้วยในอากาศ

ลักษณะการติดตั้ง	กลุ่มที่ 4	
รูปแบบการติดตั้ง		
รหัสชนิดเคเบิลที่ใช้งาน	60227 IEC 01, 60227 IEC 10, NYY	
ขนาดสาย (ตร.มม.)	ขนาดกระแส (แอมแปร์)	
4	30	37
6	39	48
10	56	67
16	78	92
25	113	127
35	141	157
50	171	191
70	221	244
95	271	297
120	315	345
150	365	397
185	418	453
240	495	535
300	573	617
400	692	741