

SOLUTION 2000



Power Transmission & Distribution





Being Created by Diversified Industrial Electricity Technology

Stabilized Power Supply and Maximization of Energy Efficiency Where there is industry and electricity, LS Industrial Systems always stands by your side. The modular designed and type tested L. V Motor Control Center type SOLUTION 2000 satisfies the ever-increasing demand for high performance, high reliability, safe operation and versatility required in industrial facilities.

- Single and/or double (back to back) front construction.
- Variable width wire way up to 400 mm with protection against accidental touch.
- Combination of fixed and withdrawable units within the same cubicle.
- 3 ratings of plug-in contacts, 250A, 400A and 600A.
- Fully insulated riser busbar front barrier assembly.
- Protection against accidental touch of energized parts (IP20) without the need of automatic shutters.
- Accessible from front to the compartment for the modules and cabling way.
- Easy and simple rearrangement of module according to the operational requirements without danger and switching-off the switchboard.
- Can be equipped with up to 13 basic modules for motor control and 26 modules for MCCB up to 100A rating.



TECHNICAL DATA

Standard		Type tested LV switchgear and controlgear assembly(TTA) IEC 439-1 BS EN 60 439-1 AS 3439-1 Other national codes on request							
Rated voltage		600V AC							
Rated frequency		50/60Hz							
Main hushan	Rated current	Up to 5000A (above 3000A double busbar)							
Main busbar (3/4poles)	Rated short time withstand current(1s)	Up to 80kA							
(0/40003)	Peak withstand current	Up to 176kA							
Vertical bushes	Rated current	1000A, 1500A							
(3/4poles)	Rated short time withstand current(1s)	Up to 80kA							
(Peak withstand current	Up to 176kA							
Vertical control bar (2poles, up to 4poles)	Rated current	80A at 380V							
Arcing due to interna	al fault	Tested according to the AS 3439-1, appendix EE							
Degree of protection		IP 40 for casing IP 20 for compartment							
Overall dimension		Height : 2300mm/ 2200mm Width : 1000mm/ 900mm Depth : 650mm / 1000mm(Duplex)							
Thickness of materia	al	Frame : 2.3mm Door / Cover : 1.6mm (2.3mm as option) Top and side plate : 1.6mm							
Coating		Frame : LH-AH086-1 / Dark blue Door/Cover : LH-RANTONE 420C / Light Yellow Unit and others : hot dip galvanized steel							
Wiring		Main : KIV 3.5mm ² as a minimum with black color Control : KIV 1.25mm ²							
Name plate		Material : Acrylic Letter : Gothic, Black Background : White							

MAIN BUSBAR

Main busbars are mounted at the upper and/or middle part of the cubicle. Main busbar compartment is structurally isolated from unit compartment and cable way to ensure safety.

VERTICAL BUSBAR

The vertical riser covered with arc proof is in the rear of module compartment. The plug-in openings finger proof can be covered with automatic shutters as option.

Α	Phase (A,B,C)	Neutral (N)	Earth (PE)
1000	75×10	40×10	40×10
1600	100×10	40×10	40×10
2000	2-75×10	75×10	50×10
2500	2-100×10	75×10	50×10
3150	2×(2-75×10)	2-50×10	50×10
4000	2×(2-100×10)	2-75×10	50×10
5000	2×(2-100×10)	2-75×10	50×10

MAIN BUSBAR SIZE (mm²)

VERTICAL BUSBAR SIZE (mm²)

Α	Phase (A,B,C)	Neutral (N)	Earth (PE)
1000	72×6	40×6	40×6
1500	72×6+40×6	40×6	40×6





Main and vertical busbar compartment



UNIT

The height of drawable unit ranges from minimim 150mm to maximum 1050mm. The height is increased by 150mm pitches. MCCB, electro-magnetic switches, motor protection relay, auxiliary relays, timer, CT, ZCT, and fuses are placed at the point of unit while main circuit's draw-out plug and control power plug, safety shutter opening guide are situated in the rear. Main circuit's secondary draw-out plug and control plug are installed on the right side of unit.



Internal view



View into the cable compartment

View into



Control and indication Operation and indication elements are mounted on the front plate of the unit

UNIT POSITION







SERVICE POSITION

Main circuit's primary and secondary draw-out plugs, control power plug, control circuit draw-out connector are connected to the power source and load side components while the unit locking device is in the locked position. If locking is not effected securely, the unit might have been positioned incorrectly.

TEST POSITION

Only control power plug and control circuit draw-out connector are connected to the control power source for the test operation. In this position, all output control signals can be checked through the control circuit connector.

DRAW-OUT POSITION

Main circuit's primary and secondary draw-out plugs, control power plug, control circuit drawout connector are disconnected in this position. The unit can be completely drawn-out from the cubicle.

① Vertical busbar

the unit compartment

- ② Power plug for line side
- ③Neutral busbar
- (4) Power plug for neutral
- (5) Fixed-power plug for load side
- $\textcircled{\sc b}$ Movable power plug for load side
- ⑦ Control power busbar
- ⑧Control power plug
- (9) Plug for control circuit
- ① Socket for control circuit
- ① Draw-out unit

STARTER ARRANGEMENT



- **1** Module base plate
- **2** Position locking device
- **3** Power plug (line side)
- 4 Power plug (load side)
- **(5)** 24-pole control plug, connected in cable compartment
- 6 4-pole control power plug, connected to the control busbars
- **7** Cover for operation and indication

VIEW OF FRONT COVER 3 (4 0.75KW +F47 -PP-501B-M01 ING PUMP FOR DISSOL TANK 2 FAUL WT02E-PP-212/A-M01 PUMP FOR 1'ST THICKENER UNDER FLOW +F28 6 POWER FAUL TEST +F49 WTO1E-AT-521-M01 AGITATOR FOR NaSH DISSOLUTION TANK

- **1** MCCB operating handle (Pad lockable in OFF-position)
- **2** Position locking device
- **3** Operation and indication plate
- 4 Draw-out handle

OVERALL VIEW



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- 1 Basic frame
- 2 Bottom plate
- 3 Channel base
- 4 Cable compartment partition
- 5 Upper front cover plate
- 6 Lower front cover plate
- 7 Door for cable compartment
- 8 Main busbars
- 9 Vertical busbars
- 10 Vertical busbar clamp

- (11) Partition plate
- 12 Door
- 13 Arc proof barrier
- 14 Finger proof barrier
- (15) Plug for control circuit
- (16) Socket for control circuit
- 17 Power plug for line side
- (18) Power plug for neutral
- (19) Power plug for load side(600A)
- 20 Power plug for load side(250A)

- (21) Power plug for load side(125A)
- 22 Sleeve for cable protection
- 23 Module
- 24 Front cover
- 25 Draw-out handle
- 26 Insulator power busbar
- 27 Control power busbar
- 28 Top plate
- 29 Lifting lug
- 30 Safety shutter

STANDARD SPECIFICATION CODE











BASIC INSTALLATION DRAWING OF SOLUTION 2000 MCC



NOTE

- 1. A side plate is installed at the end of the line-up.
- 2. The installation of MCC having bottom cable entries requires foundation with an opening of a cable duct.
- 3. The horizontal tolerance of the level should not exceed ± 1 mm over length of 1 meter.
- 4. The MCC can be welded or screwed to the foundation frame.
- 5. The maximun number of cubicles for transportation is 2.

		Remarks	 Unit size is inclusive of 2 auxiliary relays (NOTE 3) If NEMA size is applied to electror-magnetic contactor, the unit size can be changed. 																					
	Wire used	(mm²)						5.5	(3.5)							8			38			2×60 2×100		7 > 100
		۲-A							(nnc)zu				H3(450)				H4(600)			H5(750)		(nnc)nL		
	UNIT SIZE	Reversible								(nnc)zu							(0C+)CU		H4(600)		H5(750)		He/onn	(nnc)nL
		NON- Reversible							14 (4 50)					H2(300)					H3(450)		H4(600)		H5(750)	
	CT	CT (15VA)			5:5			10:5 15:5		0.01	20:5	30:5	50:5			75:5		150:5		200:5	300.5	0.000	400:5	
	A-	Ammeter Scale			0~5			010	0~10		ci~∩	0~20	0~30	0~50		0~75		0~100		0~150	0~200	0.200		0~400
	Thermal	Relay					TU EN							TH-1015N				TH-20N	GTH-100	CTH 1ED		GTH-220		GTH-400
	Mag	Contactor					CH-5	SMC-20P					CH-6N SMC-25P	CH-7.5N SMC-35P	CH-10N	SMC-50P	CH-15N SMC-65P	SMC-80P	GMC-100	GMC-125	GMC-150	GMC-220	CMC_200	
	MCCB	Type									ABL 53a	or	ABL 103a						ABL 203a			ABH 403a		
2.44	Rated	Current	0.5~0.8	0.8~1.7	1.3~1.9	1.7~2.8	2.7~3.9	3.8~4.9	5.3~7.5	7.6~9.3	9~11	12~15	18~22	24~29.3	30~34	35~42	48~56	59~67	70~80	89~108	117~134	141~196	195~223	235~268
	pacity(kW)	220V		0.2	•	0.4/0.54	0.75	1.1	1.5	2.2	•	3.7	5.5	7.5		11	15	18.5	22	30	37	45/55		75
	Motor cap	440V	0.2	0.4/0.54	0.75	1.1	1.5	2.2	3.7	•	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90/110	125	150

STANDARD UNIT APPLICATION TARI F

NOTE

The table is based on E-class insulation, 4 Pole closed-type low-voltage cage motor.
 MCCB model can be changed according to breaking capacity of the system (The standard table is based on 65kA)
 Applies to cases where there is no control transformer and there is two auxiliary relays.

Leader in Electrics & Automation



- · For your safety, please read user's manual thoroughly before operating
- · Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
 Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

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Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

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