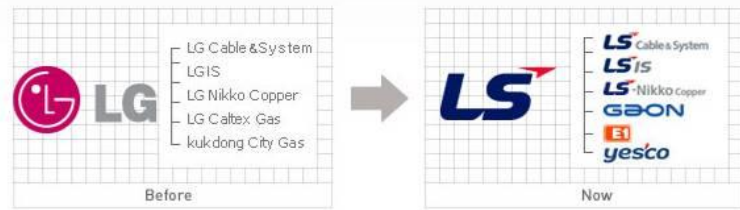


Always with our customers

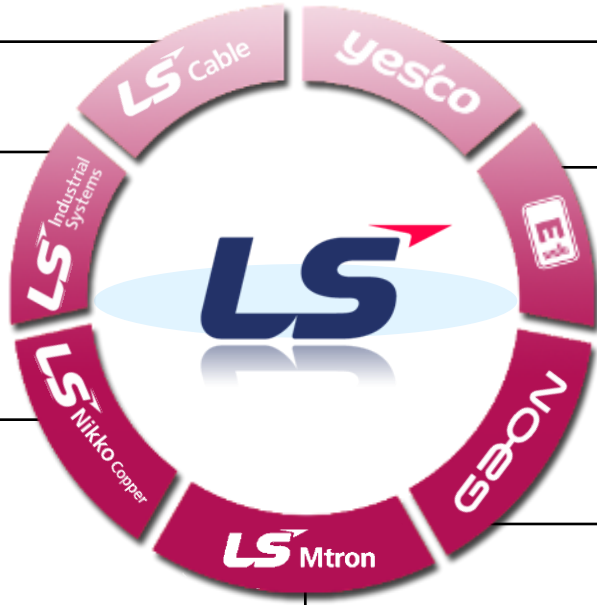


1 Introduction to LS Group



- JS Cable
- GCI
- Alutek
- Pountek
- Kospace
- LS Global

- LS Power Semitech
- LS Mecapion
- Planet
- GRM
- Torecom
- Recytech Korea



- Deltech
- Daesung Electric
- CASCO
- Carbonix
- ACE R&A

- LS Networks
- E1 Container Terminal
- E1 Logistics
- Dongbang City Gas
- Weduss

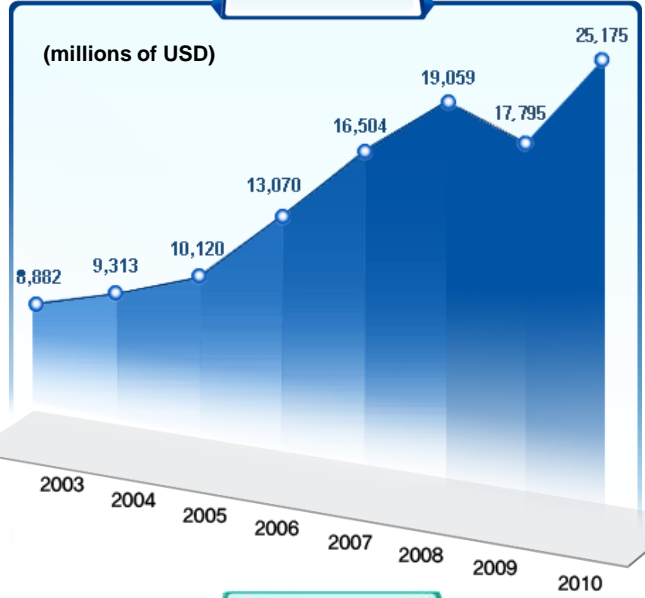
LS Asset Management

- YESCO Service
- Daehan GM
- Hangsung
- Hangsung PCC
- Hangsung Flange
- Woosung G & T
- Li & S
- KJ Motorrad
- OD Camp

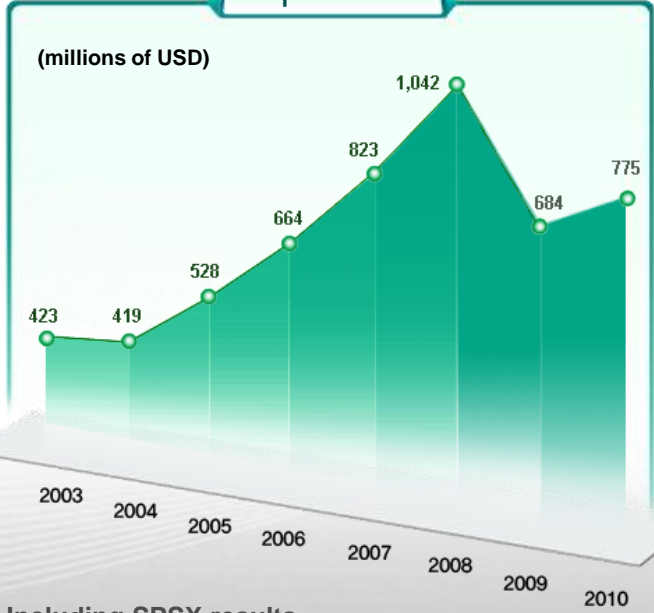
After separating from LG in 2005, LS Group has focused on industrial systems and cables, becoming a global leader of industrial electric, electronics, materials, and energy

1 LS Group has achieved significant growth over the years

Sales



Op. Profit



* Including SPSX results

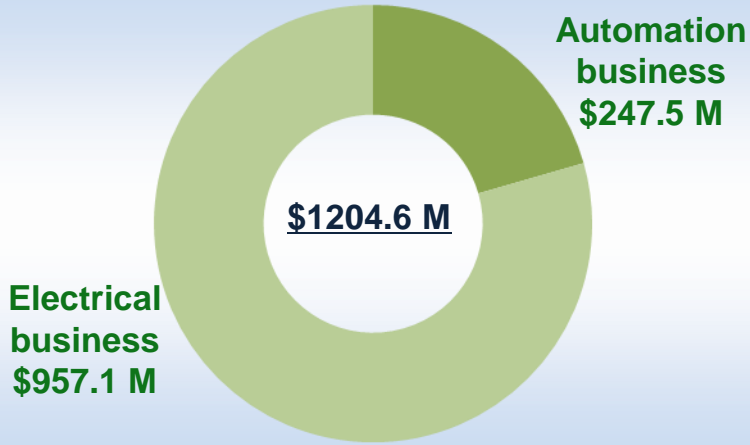
	Domestic	Overseas
Employees	12,528	10,978
Affiliates	47	65
Locations	75	83
Total Assets	15,842	3,328
.....		
Sales	25,175	
Op. Profit	775	

(In millions of USD, As of 2010) including SPSX

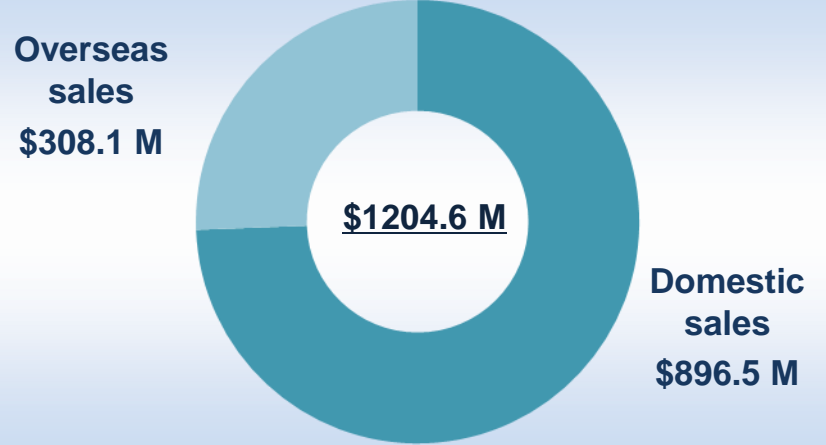


1 LS Industrial Systems – Sales breakdown

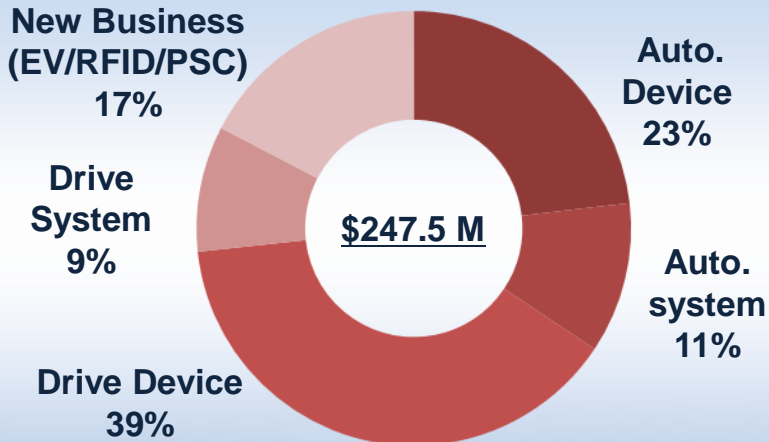
Sales by business (2010)



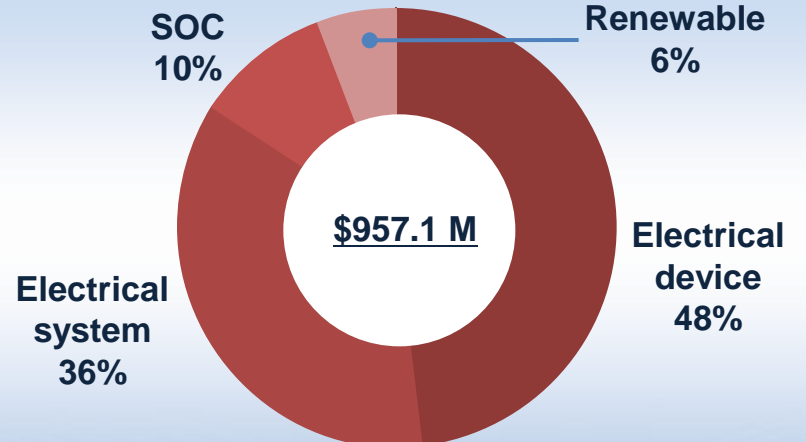
Sales by region (2010)



Automation business – Sales by products (2010)



Electrical business – Sales by products (2010)



1 Electric and automation business only (Metal and China business sales records not included)
 2 Overseas sales of Automation Solution Business only was 62.3 M\$
 3 Currency exchange rate based on 1\$=1,100KRW

Vision

- » LS IS vision is to grow into a business that provides leading solutions to its customers and contributes to the community, and its officers and employees may realize their dreams

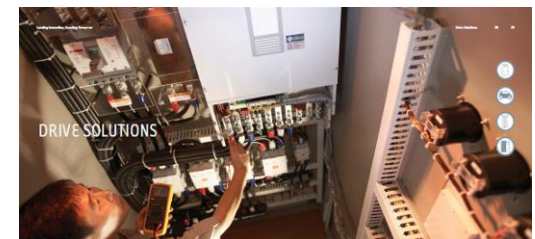
Company history

- » • Jul. 1974 Establishment of Lucky Packing Co., Ltd.
- Feb. 1995 Company name changed to LG Industrial Systems
- Nov. 1999 Completion of electricity power plant in Vietnam
- Dec. 2001 Establishment of a trading company in Shanghai, China
- Mar. 2005 Company name changed to LS Industrial Systems, Co., Ltd.
- **Nov. 2006 Recipient of Korean Quality Grand Award**
- Feb. 2007 Founding of LS Industrial Systems (ME) FZE in Dubai, UAE
- Sep. 2008 Recipient of Best Korean Company Award
- Oct. 2008 Opening of China R&D Center in Shanghai
- Aug. 2009 Awarded Asian best distribution equipment company by F-S
- **Oct. 2011 Top 100 innovative companies by Thomson-Reuters**

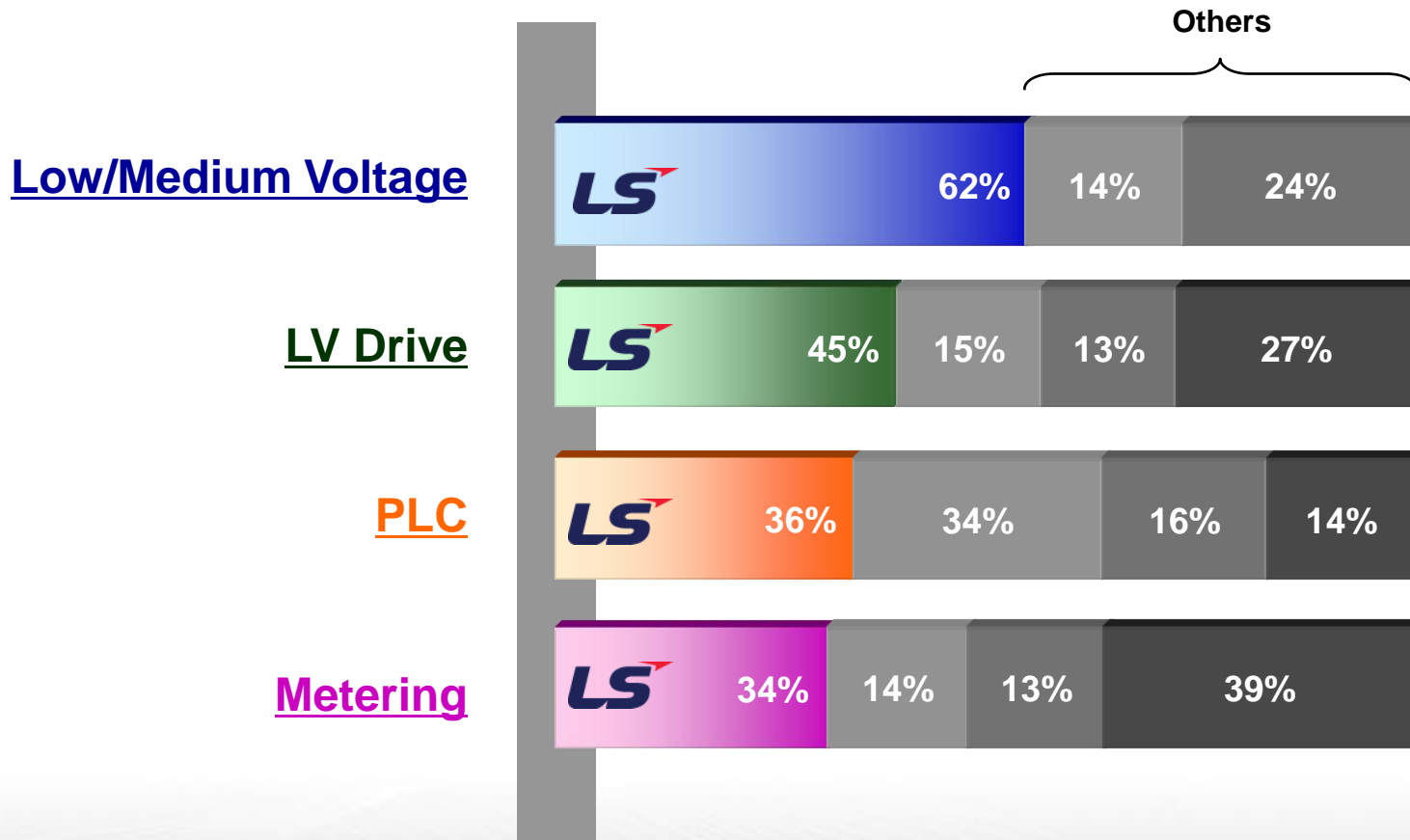
Business areas

» Main business areas

Electric Power Solutions/ Automation Solutions/ Transportation Systems/ Wireless Telecommunication/ Green Business (Smart Grid, Electric Vehicle components, RFID/USN, CIPOS, LED, etc.)



Domestic Market Share



2 Proven track record with top-tier consumers

DRIVE SOLUTIONS



LS VFD are widely used for energy saving, torque control, air conditioning and other purposes by different kinds of manufacturers



AUTOMATION SOLUTIONS



LS PLC and HMI are used for process control and system monitoring to maximize productivity for various automobile manufacturers and system integrators



ELECTRIC POWER SOLUTIONS















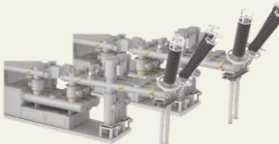




LS switchgear and components have been supplied to worldwide electric company and industrial area for stable and safe power supply



1 LS Industrial Systems – Business areas and products

	<p>Green Biz</p>	<p>Smart Grid</p> <ul style="list-style-type: none"> • Smart Consumer • Smart Renewable • Smart Transportation • Smart Power IT Solution 	<p>EV Solutions</p> <ul style="list-style-type: none"> • EV Components Solution • EV Charging Solution 	<p>Power Semiconductor</p> <ul style="list-style-type: none"> • IGBT Module • MOSFET Module • Diode Module • Module for Automotive 	<p>Photovoltaic System</p> <ul style="list-style-type: none"> • Photovoltaic System • Photovoltaic Module • Photovoltaic Inverter 	<p>LED</p>
	<p>Electric Power Solutions</p>	<p>Low voltage</p> <ul style="list-style-type: none"> • MCB • Molded Case Circuit Breaker • GFCI Breakers • Air Circuit Breakers • Contactor & Relay • Manual Motor Starters • EMPR 	<p>Medium voltage</p> <ul style="list-style-type: none"> • Vacuum Circuit Breakers • Vacuum Interrupters • Vacuum Contactors • Power Fuses • Ring Main Unit • Load Break Switch 	<p>High voltage</p> <ul style="list-style-type: none"> • Gas Insulated Switchgear • Power Transformer • HVDC 	<p>Protection Relay & Measurement Device</p> <ul style="list-style-type: none"> • X-GIPAM • GIPAM-2000/2200 • DPR • IMC-III • GIMAC 	
	<p>Automation Solutions</p>	<p>RFID/USN</p> <ul style="list-style-type: none"> • RFID/USN Solutions • Library Products • Pharmaceuticals Products • Apparel Products • Readers & Antennas • Tags • USN • Peripheral Devices 	<p>PLC</p> <ul style="list-style-type: none"> • XGT Series • XGB Series • GLOFA-GM Series • MASTER-K Series 	<p>Remote I/O</p> <ul style="list-style-type: none"> • Samrt I/O <p>HMI</p> <ul style="list-style-type: none"> • XGT panel • XGT InfoU 	<p>Process Automation</p> <ul style="list-style-type: none"> • Distributed Control System • Tele-metering/Tele-control 	
	<p>Drive Solutions</p>	<p>Variable Frequency Drive (AC Drive)</p> <ul style="list-style-type: none"> • Medium Voltage VFD • Softstarter • Starvert Series 	<p>Photovoltaic System</p> <ul style="list-style-type: none"> • Photovoltaic Inverter 			
	<p>Transportation System SOC</p>	<p>ITS</p> <ul style="list-style-type: none"> • FTMS (Freeway Traffic Management System) • UTIS (Urban Transport Information Systems) • DSRC (Dedicated Short Range Communication) • ATES (Automatic Traffic Enforcement System) • Fare Collection Solution 	<p>Railway System Solutions</p> <ul style="list-style-type: none"> • E&M Turnkey Business • Signaling Solution • Communication Solution • PSD 			

2 LSIS offers best quality products with wide assortments

	Power Distribution			Industrial Control		
	VCB	ACB	MCCB	MCB	MC & OLR	MMS
LV / MV						
	<ul style="list-style-type: none"> • AC 4.76~40.5kV • Up to 4,000A • Up to 50kA • KEMA, CESI 	<ul style="list-style-type: none"> • AC 635V • Up to 5,000A • Up to 130kA • UL 1066 	<ul style="list-style-type: none"> • AC 600V • Up to 800A • Up to 65kA • UL 489 • UL 508/SCCR 	<ul style="list-style-type: none"> • AC 400V • Up to 125A • Up to 10kA • UL 1077 	<ul style="list-style-type: none"> • AC 690V • Up to 800A • UL 508 	<ul style="list-style-type: none"> • AC 690V • Up to 150A • Up to 100kA • UL 508
Automation	Drive Solution		Automation Solution		Power Semiconductor	
	VFD (LV)	VFD (MV)	PLC	HMI	PSC module	
						
	<ul style="list-style-type: none"> • 1Ø 240V:0.1~3hp • 3Ø 240V:0.1~100hp • 3Ø 480V:0.5~1250hp • 3Ø 575V:7.5~150hp • V/F, Sensorless, Vector control 	<ul style="list-style-type: none"> • 3/4/6/10 kV • 200kVA ~11,000kVA • Sensorless Vector control 	<ul style="list-style-type: none"> • Redundancy & high performance • Distributed I/O • Ladder & IEC language 	<ul style="list-style-type: none"> • 5~15" touch screen • 65,536 colors • Offline program simulation 		
HV	GIS			Power TR		
						
	<ul style="list-style-type: none"> • 362kV • Up to 8,000A • Up to 63kA 	<ul style="list-style-type: none"> • 245kV • Up to 4,000A • Up to 50kA 	<ul style="list-style-type: none"> • 72.5~170kV • Up to 4,000A • Up to 50kA 	<ul style="list-style-type: none"> • 25.8~36kV • Up to 3,150A • Up to 40kA 	<ul style="list-style-type: none"> • 72~550kV • Up to 800MVA • IEC 60076 / ANSI(IEEE) C57 	<ul style="list-style-type: none"> • 3.3~36kV • Up to 15MVA

2 LSIS has own power testing lab for quality assurance (PT&T)

LSIS has invested over \$50 million to build own power testing lab, PT&T. PT&T is operating high-power laboratory, high-voltage laboratory, reliability testing laboratory and calibration laboratory to aid technical development in product performance and reliability through its sound technical background and impartial operation in testing and evaluation process.

PT&T, as a KOLAS-accredited testing & calibration laboratory, would continue its contribution to promote technical development and competence of electrical industry.
(KEMA, UL, CESI, ASTA - Mutual Certification Agreement Signed)



Short-circuit generator

- 2 pole 3 phase
- 18kV(Y), 10.4kV(D)
- Rated capacity : 85MVA
- Short circuit capacity : 1603MVA(t=0s)
- 50/60Hz
- 3,000/3,600rpm
- Exciting voltage : 131Vdc



Short circuit test

- Short circuit making & breaking test
- Short time & peak withstand current test

Switching test

- Load current switching test
- Capacitor bank switching test
- Capacitor current switching test
- Small inductive current switching test

2 LSIS global manufacturing footprint



LS IS Beijing R&D Center



Dalian LS factory, China



Cheong-ju #1, #2 Factory



Cheon-an Factory



Wuxi LS factory, China



Busan Factory



LS IS Shanghai
China R&D Center



LS-VINA IS, manu-
facturing site in Vietnam




R&D centers, South Korea

- Convergence Technology R&D Center
- Electro Technology R&D Center
- Automation R&D Center
- Power Testing & Technology Institute

- Global manufacturing footprints and top-notch R&D centers allows LSIS to produce global top level products with unparalleled cost competitiveness

3 Air Circuit Breakers (ACB)

PRODUCT LINE-UP

Spec.	UAS-D		UAH-E					UAH-G				
Frame Size [AF]	800AF	1600AF	800AF	1600AF	2000AF	2500AF	3200AF	3200AF	4000AF	5000AF		
Rated current Range [A]	400~800A	800~1600A	400~800A	800~1600A	1000~1200A	1200~2500A	1600~3200A	1600~3200A	2000~4000A	2500~5000A		
Max. rated voltage [V]	254 / 508 / 635V											
No. of Poles	3P, 4P											
Impulse withstand voltage	U _{imp} = 12kV (According to IEC60947-2)											
Withstand current	65kA		85kA					100kA				
Interrupting Ratings, I _{cu} [kA]	635Vac		65kA		85kA					100kA		
	508Vac		85kA		100kA					130kA		
	254Vac		85kA		100kA					130kA		
Reference Standard	UL 1066											
Max. total breaking time					50 ms			50 ms				
Max. closing time					80 ms			90 ms				
Mechanical life [operations]	12,500		10,000					5,000				
Electrical life [operations]	2,800		1,000					1,000				
Dimension, W*H*D, 3P [inch]	13.15*16.93*16.02		16.22*16.93*16.02					30.91*18.11*16.02				
Weight, 3P [lbs]	154		214~326					489				
Outline view												

3 Molded Case Circuit Breakers (MCCB)

PRODUCT LINE-UP

Spec.		TD125U		TS250U		TS400U		TS800U	
Frame Size (AF)		125		250		400		800	
Rated current In [A]		15~125		150~250		300, 350, 400		500, 600, 700, 800	
No. of Poles		2P, 3P							
Rated operational voltage, Ue AC [V]		600							
Interrupting Ratings, Icu [kA]		NU	HU	NU	HU	NU	HU	NU	HU
AC 50/ 60Hz	240 V	50	100	50	100	50	100	50	100
	480 V	35	65	35	65	35	65	35	65
	600 V	10	14	10	18	14	20	18	25
Reference Standard		UL 489							
Trip unit (Thermal-magnetic)	Fixed-thermal Fixed-magnetic	0		0		0		0	
	Adjustable-thermal Fixed-magnetic	0		0		0		0	
	Adjustable-thermal Adjustable-magnetic	-		0		0		0	
	Molded case switch	0		0		0		0	
Mechanical life [operations]		4,000		5,000		5,000		3,000	
Electrical life @600Vac [operations]		4,000		1,000		1,000		500	
Basic dimension, W*H*D 3P [inch]		3.54 * 6.46 * 3.39		4.13 * 7.01 * 3.39		5.51 * 11.50 * 4.33		8.27 * 16.85 * 5.31	
Weight 3P [lbs]		2.65		4.19		12.57		29.98	
Accessory	AX,AL,SHT,UVT	0		0		0		0	
	E, F-Handle	0		0		0		0	
	M.Interlock	0		0		0		0	
	Lock Device 2중	0		0		0		0	

3 Miniature Circuit Breakers (MCB)

PRODUCT LINE-UP

Spec.	BKN	BKN-b	BKN-c	BKH	BKP	BKD
Protection	Overload & short circuit					Isolator
Rated current(A)	1,2,3,4,6,10,16,20,25,32,40,50,63A			63,80,100,125A	3,6,10,16,20,25,32A	40,50,63,80,100,125A
Breaking capacity(kA)	6	10	6	10	4.5	-
Poles	1p, 1p+N, 2p, 3p, 3p+N, 4p			1p, 2p, 3p, 3p+N, 4p	1p+N	1p, 2p, 3p, 4p
Characteristic	B, C, D curve			C, D curve	B, C, D curve	-
Electrical endurance	6,000	8,000	6,000	6,000	20,000	10,000~20,000
Terminal	Lug	Lug	Lug & Screw	Lug	Lug	Lug
Approval	UL 1077, KEMA, SEMKO, SABS, GOST, SNI, SIRIM, INGCER, CQC					
Outline view						

3 Motor Starters (MS)

PRODUCT LINE-UP

Spec.	MMS-32S	MMS-32H	MMS-63S	MMS-63H	MMS-100S	MMS-100H
Ampere frame	32AF		63AF		100AF	
Rated current	6, 9, 12, 18A	9, 12, 18, 22A	32, 40A	50, 65A	75, 85A	120, 150A
Rated breaking capacity(415Vac)	15~100kA	50~100kA	25~100kA	50~100kA	50kA	75~100kA
Insulation voltage	690V		1000V			
Impulse voltage	6kA		8kA			
Reference Standard	UL508 / IEC 60947-2,4					
Current range	0.1~32A		6~63A		11~100A	
Handle type	Toggle	Rotary				
Outline view						

3 Contactor & Overload relays





PRODUCT LINE-UP

Spec.	18AF	22AF	40AF	65AF	100AF	150AF	225AF	400AF	800AF
Contactors	MC-6a, 9a, 12a, 18a	MC-9b, 12b, 18b, 22b	MC-32a, 40a	MC-50a, 65a	MC-75a, 85a, 100a	MC-130a, 150a	MC-185a, 225a	MC-265a, 330a, 400a	MC-500a, 630a, 800a
Rated current	6, 9, 12, 18A	9, 12, 18, 22A	32, 40A	50, 65A	75, 85A	120, 150A	185, 225A	265, 330, 400A	500, 630, 800A
Insulation voltage	690V			1000V					
Type II	150kA@ 415V Max.								
Overload relays	MT-12	MT-32	MT-32	MT-63	MT-100	MT-150	MT-225	MT-400	MT-800
Current range	0.1~18A	0.1~40A	0.1~40A	4~65A	7~100A	34~150A	65~240A	85~400A	200~800A
Trip class	Class 10,20								








4 VFD / AC Motor Drive

PRODUCT LINE-UP

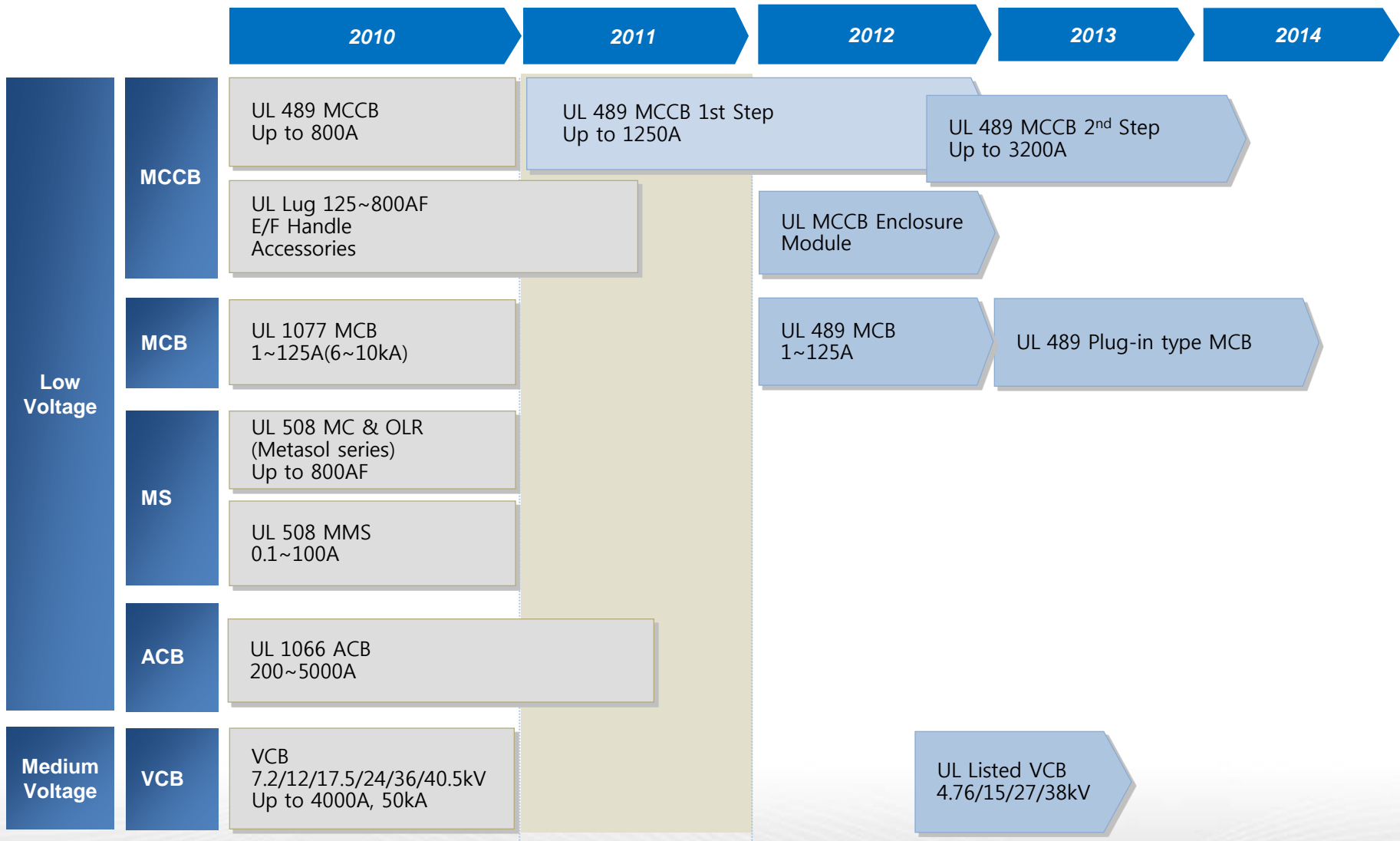
	LV Drive			MV Drive
	Compact	Standard	Premium	
Product	 <p>iE5 iC5</p>	 <p>iG5A iP5A</p>	 <p>iS7 iV5</p>	 <p>LSMV Drive</p>
Motor rating	<p>iE5</p> <ul style="list-style-type: none"> • 1 Phase 240V 0.1~0.5hp • 3 Phase 240V 0.1~0.5hp <p>iC5</p> <ul style="list-style-type: none"> • 1 Phase 240V 0.5~3hp • 3 Phase 240V 0.5~1hp 	<p>iG5A</p> <ul style="list-style-type: none"> • 1 Phase 240V 0.5~2hp • 3 Phase 240V/400V 0.5~30hp <p>iP5A</p> <ul style="list-style-type: none"> • 3 Phase 240V 7.5~30hp • 3 Phase 480V 7.5~700hp • 3 Phase 600V 7.5~150hp 	<p>iS7</p> <ul style="list-style-type: none"> • 3 Phase 240V 1~100hp • 3 Phase 480V 1~500hp <p>IP54 Enclosure</p> <ul style="list-style-type: none"> • 3 Phase 240V 1~30hp • 3 Phase 480V 1~30hp <p>iV5</p> <ul style="list-style-type: none"> • 3 Phase 240V 3~50hp • 3 Phase 480V 3~500hp 	<p>LSMV Drive</p> <ul style="list-style-type: none"> • 3kV : 200~3,700kVA • 4kV : 300~4,700kVA • 6kV : 400~7,500kVA • 10kV : 600~11,000kVA
Application	Centrifugal Separator, Packing Processing Machine, Elevator Door, Industrial Washing Machine, Knitting Machine	Hoist (traction), Metal, Ejector, Stirring, Extruder, Conveyor, Compressor, Fan, Pump, Parking Facility (Puzzle)	Paper, Steel, Crane (traction), Elevator, Press, Parking Facility (tower), Machine Tools	Fan, Pump, Blower

PRODUCT LINE-UP

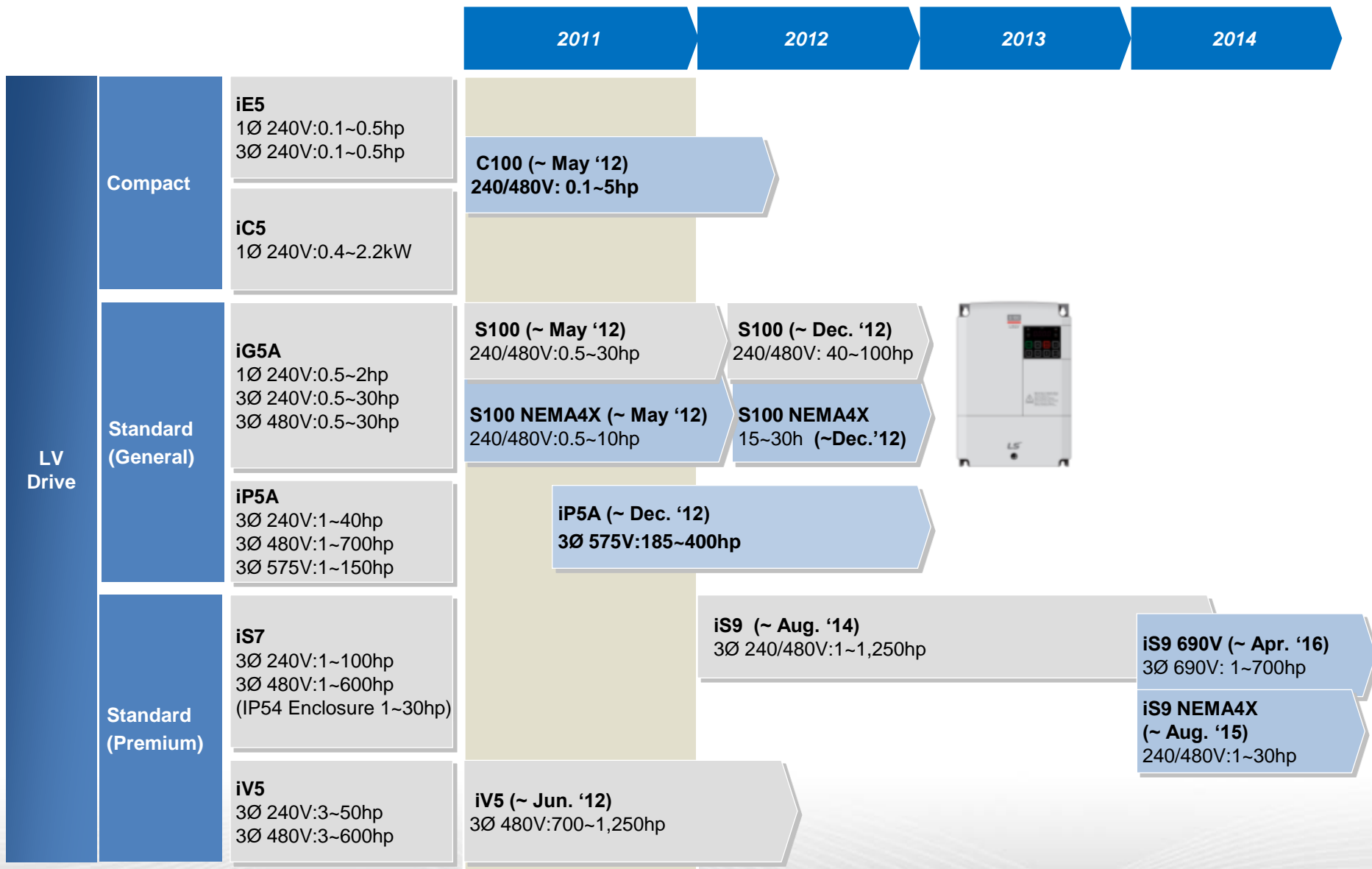
	Large • Medium		Small • Micro		
	Redundancy	High Performance	Compact	Slim	Distributed I/O
Product	 <p>XGR</p>	 <p>XGK/XGI</p>	 <p>XBC/XEC</p>	 <p>XBM</p>	 <p>Smart I/O</p>
Specification	<ul style="list-style-type: none"> • Processing speed: 42ns/sec • I/O Device point: 131,072 • IEC 61131-3 standard language • Switching over time: 4.3 ~ 22 ms 	<ul style="list-style-type: none"> • Processing speed: 28ns/sec • I/O Device point: 131,072 • Dedicated/IEC 61131-3 • Standard language 	<ul style="list-style-type: none"> • Processing speed: 83ns/sec • I/O point: 384 • Dedicated/IEC 61131-3 • Standard language 	<ul style="list-style-type: none"> • Processing speed: 160ns/sec • I/O point: 256 • Dedicated language 	<ul style="list-style-type: none"> • Block type: 32 points • Expansion type: 256 points • Profibus-DP, DeviceNet, • Modbus/TCP, EtherNet/IP
Application	Water treatment, Chemical processing, Power generation, Steel Processing, Process automation	General purpose factory automation <ul style="list-style-type: none"> • FPD (Flat Panel Display) • Automotive 	Simple machinery <ul style="list-style-type: none"> • Press machine • Packing machine • Refrigerator • Etc. 	Simple machinery <ul style="list-style-type: none"> • Press machine • Packing machine • Refrigerator • Etc. 	Automotive, FPD (Flat Panel Display), Water treatment, Distributed automation system

5 Electric product roadmap

Complete
 On progress
 Plan



5 Automation product roadmap



2 Strong commitment to North American market

1985 Jan 1985
Gold Star Cable (Former body of LS Cable) started exporting optical fibers to the U.S., becoming the very first Korean company ever to export cables to the U.S.



2006 Dec 2006
LS IS signed technology share agreement with Impinj

Dec 2006
LS Cables entered into U.S. automotive component industry (\$34 million)



2007 Oct 2007
LS IS has acquired shares of Impinj, RFID manufacturer



2008 Aug 2008
LS Cables acquired a global leading wire & cable manufacturer, Superior Essex



2009 Sep 2009
LS IS, signed an MOU with an American AMI Communication (Smart Grid) Company

June 2011
LS IS has announced North American market as its top priority market for global expansion

2011 May 2011
LS Cables, opened a electrical cable manufacturing facility in the United States





LS Industrial Systems
Leader in **Electrics** & **Automation**