



ecs

2014 New Zealand Solar Shortform



 **LAPPGROUP**

LS

MOXA

 **wieland**



ecs ENGINEERING COMPUTER SERVICES LTD

ECS is a leading supplier for electrical and automation products across New Zealand.

ECS founded in 1983 is a New Zealand family owned business involving two generations of family. We began by designing and manufacturing automated machinery for a range of industries including dairy production machinery and production machinery for the construction industry. Our relationships with our suppliers such as LAPP KABEL in Germany was initiated through our own demand for high quality products for our production.

Over the last 30 years ECS has evolved from a manufacturing company to a market leading supplier of electrical and automation products. We are now the exclusive distributors in New Zealand for world leading manufacturers such as LAPP KABEL, Wieland Electric, MOXA Networking and LS products.

At ECS we strive to offer the best customer service in the industry. When you phone us you will go straight through to our sales team who are made up of trained electricians and automation engineers. We are

not just order takers, we are able to guide you through our products so you can select the right product to suit your requirements.

In 2012 we moved into a purpose built 2500m² warehouse, specifically designed to suit our requirements. Located in Hamilton where we stock 5000 different parts and over 1 million metres of cable.

With our well established logistics network, we are able to deliver products to customers from Kaitia to Invercargill in just one working day. Linking with our suppliers warehouses around the world, if customers are working overseas we are able to drop-ship directly to site anywhere in the world while handling all the paperwork back here in New Zealand.

ECS is an expanding and adapting company; we are consistently adding new products to our line-up based on customers' requirements. We strive to offer you a complete package for all your electrical and automation requirements.

Free Phone 0800 849 2211

**“we stock
5000 different parts and over
1 million metres of cable.”**



 **LAPP GROUP**

MOXA

 **wieland**

LS



LAPP GROUP

ÖLFLEX®

Your partner for
sunny hours

ÖLFLEX® SOLAR XLS-T 0.6/1kVAC 0.2/1.5kVDC 4 X 4.0

Solar Quick Reference Guide



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Our Partners



LAPP GROUP

The company was founded in 1957 by Oskar Lapp with ÖLFLEX® the first industrially produced signal cable in the world. Today Lapp Cables produces cables and conductors for different industries and markets: mechanical and systems engineering, the automotive industry, MSR technology, electrical and installations engineering, EDC and more.

Lapp Cables products are primarily produced in the Lapp Cables group's own production plants. We currently supply 40,000 standard items from stock. We also develop and produce cables and conductors to customer specifications.

MOXA®

Moxa provides a full spectrum of quality products for industrial networking, computing, and automation, and maintains a distribution and service network that reaches customers in more than 70 countries

Our products have connected over 30 million devices worldwide in a wide range of applications, including factory automation, smart rail, smart grid, intelligent transportation, oil & gas, marine, and mining

By continually improving staff expertise in a variety of technologies and markets, we aim to be the first choice for industrial automation solutions.

LSIS

LSIS is a total solution provider of electric power systems/automations, smart grid solutions and photovoltaic systems. We offer the highest quality and eco-friendly green innovations to our world-wide customers.

Our business includes High Voltage Direct Current Transmission System, Smart grid solutions like AMI and EMS and Electric vehicle core components like EV relay and PCUs. Also, as the first photovoltaic company in Korea, LSIS has developed world's first PV module which can be installed on the surface of water. By providing innovative green components, products and solutions, LSIS is highly contributing to the reduction of world carbon imprint.



wieland

Wieland Electric products set the standards in pluggable connection technology for building automation and automation technology. This achievement makes us one of the technology leaders and leading innovators worldwide.

Wherever energy or signals are distributed, Wieland stands for a green light for innovative ideas. Because: Contacts are green.





ÖLFLEX®

Connection and control cables

ÖLFLEX® POWER AND CONTROL CABLES

ÖLFLEX® is used in machinery, machine tools, system and appliance engineering, measuring, control, heating and air conditioning technologies. For permanent connections or in cable chains, halogen-free or internationally certified, you can choose from our comprehensive range of standard products.



UNITRONIC®

Data Cables

UNITRONIC® DATA COMMUNICATION SYSTEMS

Lapp produces a full range of data cables for fast and secure transfers of large volumes of data. From machine electronics and bus systems to super-fast LAN data networks or highly-versatile applications: We have the data cables you need for virtually any situation.



ETHERLINE®

Industrial Ethernet components

ETHERLINE® DATA COMMUNICATION SYSTEMS

ETHERLINE® include services and security systems incorporating firewall solutions, in addition to distribution components such as switches, routers, cables and plug connectors.



HITRONIC®

Fibre optic cables

HITRONIC® OPTICAL TRANSMISSION SYSTEMS

HITRONIC® fibre optic cables are designed to transfer large volumes of data. Communications media via fibre optics are fast, efficient, and secure. Not even electromagnetic interference can affect HITRONIC® fibre optic cable.



EPIC®

Industrial connectors

EPIC® INDUSTRIAL CONNECTORS

When we talk about secure connections, you can take us at our word. EPIC® industrial connectors produce an absolutely secure connection in combination with ÖLFLEX® cables.



SKINTOP®

Cable Glands

SKINTOP® CABLE GLANDS

SKINTOP® cable glands guarantee secure connections every time. Simply thread the cable and twist. That's all! Your cables are perfectly centered, secured, hermetically sealed, and ready for action. Choose from a wide range of models in plastic or brass.



SILVYN®

Cable protection and guiding systems

SILVYN® PROTECTIVE CABLE CONDUIT SYSTEMS

In many applications cables have to be additionally protected against mechanical and chemical stress. For this type of application, Lapp Group can supply the universal SILVYN® protective cable conduit program.



FLEXIMARK®

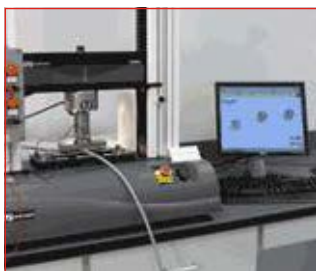
Marking systems

FLEXIMARK® CABLE MARKING PRODUCTS

Labels on single cores, cables, and control cabinets need to remain legible for years to come. This is the best way to keep things well organized and avoid potential problems. From plastic to durable stainless steel, manual or electronic identification, with FLEXIMARK® you can be sure that your labels will last a lifetime.



**LAPP KABEL don't just manufacture
We develop cables and test cables**



LAPP GROUP

Centre for Competence & Testing

The Lapp Group's Center for Competence and Innovation is a key asset in the development of industry leading and innovative solutions for our customers.

Underwriters Laboratories Inc. completed an assessment of our Florham Park, New Jersey facility for the UL Data Acceptance Program as a UL Client Data Program laboratory.

This means the equipment and test methods have been certified to precisely meet the same requirements as at UL test facilities.

We validate designs of high performance Industrial Cables, Industrial Connectors, Strain Relief Cable Glands and Accessories through continuous testing. Some of the testing taking place at our state-of-the-art laboratory include:

FLAME TESTING (USA)

SCOPE

To evaluate flame resistance characteristics of Lapp wire and cable and insure that the products do not propagate flame or spread burning particles within the specified application.

These tests are performed to verify compliance with Lapp Flame Resistance Cable Attributes, Industry Tests and Safety Agency Standards.

TECHNICAL DETAIL

Multiple samples are cut to a specified length and then a Kraft paper flag is applied to each specimen. The samples are hung vertically in the support apparatus within the flame chamber. The test is performed in chamber which is completely sealed and free from any air drafts.

An application of flame is directly applied to the sample in such a manner that flame traverses upward towards the Kraft paper flag. After the specified flame application cycle, the flame is removed for a specific time duration.

This cycle may be repeated several times. Failure occurs if the sample does not self-extinguish, or if falling burning particles ignite the chamber-floor bedding, or if the Kraft paper flag has been burnt.

ENDURANCE TESTING (GERMANY & FRANCE)

SCOPE

To evaluate how flexible cables will perform in permanent flexing installations. This test is used to quality check existing cables, and to develop and test new products before they enter mass production.

Regular flexible (OLFLEX CLASSIC 110) and super flexible (OLFLEX FD, UNITRONIC FD) cables are testing with this process.

TECHNICAL DETAIL

Cables are tested on a variety of linear test rigs which test specific endurance flexing scenarios.

The 5m linear test rig runs cables at a speed of 6m/s and repeats 20,000 times per day.

The 20m linear test rig runs cables at a speed of 6m/s and repeats 5,000 times per day.

The 55m linear test rig runs cables at a speed of 5m/s and repeats 1,500 times per day.

Failure occurs if any conductor in the cable loses electrical continuity during the test. Cables are disassembled/dissected after the test to check how specific materials performed to check any wear and tear to the internal of the cable.

Independantly Tested

Certificates, our international quality certificate

Almost all of our products are certified, as is our company. Certification is always awarded by an independent authority.

In doing so, all the quality-relevant factors are thoroughly examined, in particular, reliability, safety and possible danger, health-hazard or environment aspects.

Certificates are both quality certificates as well as certificates of non-objection and technical "passports" for international use.



Distributing Quality Solar Products all over New Zealand

ÖLFLEX Solar Cable

PV1-F APPROVED (IN ACCORDANCE WITH NEW AS/NZS 5033 STANDARDS)



Construction

Flexible Class 5 fine wire stranding, copolymer insulation, tinned copper conductor. LAPP Solar cable is tested and approved for PV1-F requirements.

Temperature Rating

• -40 to 120

Test Voltage

• 3000V

Special Features

- Designed for long outdoor lifespan
- Small Cable OD
- Excellent weather and UV resistance
- Metre marked on sheath

Part No.	Cores	Conductor	Conductor Colours	Cable OD
Single Core				
23177s	1	4mm	White	5.2mm
23178	1	6mm	White	5.8mm
Twin Core				
23995s	2	4mm	Red / Blue	12mm x 5.2mm
23997	2	6mm	Red / Blue	12mm x 5.8mm

ÖLFLEX Earth Cable

EARTH CABLE WITH AN EXTRA UV RESISTANT SHEATH



Construction

Flexible Class 5 fine wire stranding, copolymer insulation, tinned copper conductor.

Temperature Rating

• -40 to 120

Test Voltage

• 3000V

Special Features

- Designed for long outdoor lifespan
- Small Cable OD
- Excellent weather and UV resistance
- Metre marked on sheath

Part No.	Cores	Conductor	Conductor Colours	Cable OD
Single Core				
25814s	1	4mm	Earth	6mm
25823s	1	6mm	Earth	7.1mm



ÖLFLEX H07RN-F Rubber Series

HEAVY DUTY FLEX WITH COLOURED CORES



LAPP KABEL H07RN-F Heavy Duty Rubber

Construction

Flexible Class 5 fine wire stranding, rubber inner insulation material and black neoprene rubber outer sheath.

Minimum Bending Radius

- Flexing: 6 x cable OD
- Fixed: 6 x cable OD

Temperature Rating

- Flexing: -25 to 60
- Fixed: -25 to 60

Nominal Voltage

- 450/750V (flexible use)
- 600/1000V (fixed and protected)

Part No.	Conductor Size	Description	Conductor Colours	OD
2 core (no earth)				
3808220	0.75mm	2 core	Blue, Brown	6mm
3808221	1mm	2 core	Blue, Brown	7mm
3807121	1.5mm	2 core	Blue, Brown	9.5mm
3807122	2.5mm	2 core	Blue, Brown	11.5mm
3807123	4mm	2 core	Blue, Brown	13mm
3 core (2 core + earth)				
3808230	0.75mm	2 core + earth	Blue, Brown, Green/Yellow	7mm
3808231	1mm	2 core + earth	Blue, Brown, Green/Yellow	7.5mm
3807141	1.5mm	2 core + earth	Blue, Brown, Green/Yellow	10.5mm
3807142	2.5mm	2 core + earth	Blue, Brown, Green/Yellow	11.9mm
3807143	4mm	2 core + earth	Blue, Brown, Green/Yellow	13.9mm
3807144	6mm	2 core + earth	Blue, Brown, Green/Yellow	14.4mm
4 core (3 core + earth)				
3807161	1.5mm	3 core + earth	Brown, Black, Grey, Green/Yellow	11.3mm
3807162	2.5mm	3 core + earth	Brown, Black, Grey, Green/Yellow	13.4mm
3807163	4mm	3 core + earth	Brown, Black, Grey, Green/Yellow	15.4mm
3807164	6mm	3 core + earth	Brown, Black, Grey, Green/Yellow	17.3mm
5 core (4 core + earth)				
3807181	1.5mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	12.7mm
3807182	2.5mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	15.2mm
3807183	4mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	17.6mm
3807184	6mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	18.8mm
16001093 / 3807185	10mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	28mm
16001113 / 3807186	16mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	31.9mm
16001133 / 3807187	25mm	4 core + earth	Brown, Black, Grey, Blue, Green/Yellow	37.5mm



2 core (no earth)



3 core (2 core + earth)



4 core (3 core + earth)



5 core (4 core + earth)

INFO - Solar Cable

AS/NZS 5033:2012 - 4.3.6.2 (g)

All DC cables must now meet PV1-F testing requirements. PV1-F cable requirements are detailed in the TUV Reinland testing standard PfG 1169/08.2007. LAPP KABEL XLR-R Solar cable is independently tested by TUV to prove it meets the requirements of PV1-F.

INFO - Earth Cable

AS/NZS 5033:2012 - 4.3.6.2 (a)

If cables are exposed to the sun they must be UV resistant. For our solar earth we extrude a solar sheath over the top for extra UV resistance. For areas not exposed to direct sunlight, our V90HT is suitable.

ÖLFLEX V90HT Appliance Wire

TINNED CONDUCTORS WITH 1000V RATING



Construction

• Flexible Class 5 fine wire stranding,
PVC insulation, tinned copper
conductor.

Temperature Rating

• -20 to 105

Nominal Voltage

• 600/1000V

Test Voltage

• 3000V











100m Spools

Conductor	0.5mm ²	0.75mm ²	1mm ²	1.5mm ²	2.5mm ²	4mm ²	6mm ²	10mm ²	16mm ²
Cable OD	2.55mm	2.75mm	2.95mm	3.25mm	3.7mm	4.3mm	4.9mm	6.5mm	8.4mm
Green//Yellow	3801000	3801010	3801020	3801030	3801040	3801050	3801060	3801070	
Black	3801001	3801011	3801021	3801031	3801041	3801051	3801061	3801071	3801081
Red	3801004	3801014	3801024	3801034	3801044	3801054	3801064	3801074	3801084
White	3801005	3801015	3801025	3801035	3801045	3801055	3801065	3801075	
Blue	38010014	38010114	38010214	38010314	38010414	38010514	38010614	3801072	3801082
Brown	3801003	3801013	3801023	3801033	3801043	3801053			3801083
Grey	3801006	3801016	3801026	3801036	3801046				
Orange	3801009	3801019	3801029	3801039	3801049				
Violet	3801007	3801017	3801027	3801037	3801047				
Pink	3801008	3801018	3801028	3801038					
Yellow	38010011	38010111	38010211	38010311	38010411				

STANDARD V90 ON LARGER SPOOL SIZES

Conductor	0.75mm ²	1mm ²	1mm ²	1.5mm ²	2.5mm ²	2.5mm ²	4mm ²	6mm ²	10mm ²
Spool Size	1000m	500m	1000m	500m	200m	500m	200m	200m	200m
Green//Yellow								3801060s	
Black	3801011s	3801021ss		3801031s	3801041ss		3801051s	3801061s	3801071s
Red	3801014s	3801024ss		3801034s	3801044ss	3801044s	3801054s	3801064s	3801074s
White	3801015s	3801025ss		3801035s	3801045ss		3801055s	3801065s	3801075s
Blue		38010214ss	38010214s	38010314s					
Brown				3801033s		3801043s			
Green				38010312s					

CURRENT RATINGS FOR V90HT APPLIANCE WIRE

Conductor cross-sectional area	Unenclosed						Enclosed		Single Phase Voltage Drop
	Spaced		Spaced from surface		Touching		Conduit in air		
									
mm²	A	A	A	A	A	A	A	A	mV/A/m
1	18	18	18	15	14	14	14	12	54
1.5	23	22	23	19	18	18	14	15	34.6
2.5	33	32	32	28	25	25	18	22	18.9
4	44	42	43	36	34	34	24	29	11.7
6	56	54	54	46	44	44	33	37	7.9
10	76	74	74	64	59	59	42	52	4.7
16	101	98	98	85	79	79	58	68	2.9

These ratings are based on an ambient air temperature of 30° C, and an ambient soil temperature of 15° C at 0.5m depth.

INFO - For V90HT Appliance Wire

AS/NZS 5033:2012 - 4.3.6.2 (c)

All cables used must be flexible (for example our fine stranded V90HT). Conduit wire is not allowed to be used.

AS/NZS 5033:2012 - 4.3.6.2 (e)

Using Tinned cables is recommended.

ÖLFLEX TPR90-Switchboard Flex

HIGHLY FLEXIBLE RUBBER POWER CABLE



Construction - TPR90

- Super Flexible Class 6 bare copper
Double insulated:
- TPR rubber inner insulation material and UV Resistant
 - TPR rubber outer sheath
 - Excellent water resistance properties

Minimum Bending Radius

- Flexing: 15 x cable OD
- Fixed: 5 x cable OD

Temperature Rating

- TPR90 : -30 to 90
- NSGAFOU : -40 to 90

Construction - NSGAFOU

Flexible Class 5 tinned copper. Double insulated: 3GI3 rubber inner insulation material and UV Resistant 5GM3 rubber outer sheath.

Test Voltage

- TPR90 : 3500V
- NSGAFOU : 6000V

Water Submergibility









- TPR90: HD22.16.S1

Part No	Conductor	Cable OD
Black TPR90 - Bare Copper		
3801782	10 mm ²	9mm
3801783	16 mm ²	10.2mm
3801784	25 mm ²	11.9mm
3801785	35 mm ²	13.2mm
3801786	50 mm ²	14.8mm
3801787	70 mm ²	16.5mm
3801788	95 mm ²	18.9mm
3801789	120 mm ²	20.8mm
3801790	150 mm ²	23mm
3801791	185 mm ²	25.3mm
3801792	240 mm ²	28.5mm
3801793	300 mm ²	31.7mm
3801794	400 mm ²	36.6mm
3801795	500 mm ²	40.7mm
Black NSGAFOU - Tinned Copper		
1600304	10 mm ²	11mm
1600305	16 mm ²	13mm
1600306	25 mm ²	15mm
1600307	35 mm ²	16.5mm
1600308	50 mm ²	18mm
1600309	70 mm ²	20.5mm
1600310	95 mm ²	24mm
Green / Yellow - Single Insulated		
3801522	16 mm ²	8.2mm
3801523	25 mm ²	10mm
3801524	35 mm ²	11.4mm
3801525	50 mm ²	12.5mm
3801526	70 mm ²	15.2mm
3801527	95 mm ²	17mm
3801528	120 mm ²	18.2mm



**Stocked Right Here In NZ
with NO CUTTING FEES**

CURRENT RATINGS FOR TPR90 SWITCHBOARD FLEX

Conductor cross-sectional area	Unenclosed				Enclosed				Single Phase Voltage Drop
	Spaced		Spaced from surface		Touching		Conduit in air		
									
mm²	A	A	A	A	A	A	A	A	mV/A/m
10	92	89	90	76	72	72	72	64	4.67
16	121	121	121	101	95	95	95	86	2.94
25	165	160	160	138	127	127	127	121	1.87
35	204	198	193	171	160	160	160	138	1.36
50	253	242	237	209	193	193	193	171	1.01
70	319	308	303	264	248	248	242	209	0.71
95	396	385	374	330	308	308	286	253	0.53
120	462	451	435	385	358	358	341	297	0.43
150	534	517	495	446	413	413	385	341	0.36
185	627	605	572	517	479	479	440	391	0.31
240	748	726	682	616	572	572	523	462	0.26
300	869	847	792	715	671	660		534	0.23
400	1012	990	924	836	781	770		616	0.21
500	1188	1155	1067	957	902	891		715	0.2

These ratings are based on an ambient air temperature of 30° C, and an ambient soil temperature of 15° C at 0.5m depth.

Multi Contact MC4

THE LARGEST SELLING SOLAR CONNECTOR IN THE WORLD MC4

Multi-Contact

MC



Female Connectors



Male Connectors



Branch / Y Connectors



Panel Mounts for enclosures

Part No.	Type	Conductor Size	Cable OD	Notes
Female Connectors				
MC-320014	Female	4mm ² & 6mm ²	3-6 mm	Recommended for LAPP Solar cable
MC-320016	Female	4mm ² & 6mm ²	5.5-9 mm	
Male Connectors				
MC-320015	Male	4mm ² & 6mm ²	3-6 mm	Recommended for LAPP Solar cable
MC-320017	Male	4mm ² & 6mm ²	5.5-9 mm	
Branch / Y Connectors				
MC-320018	1 x Male / 2 x Female			
MC-320019	2 x Male / 1 x Female			
Panel Mounts for enclosures				
MC-320056	Female Panel-mount	4mm ² & 6mm ²		
MC-320057	Male Panel-mount	4mm ² & 6mm ²		

Multi Contact Adapter Cables and Pre-harnessed Leads

FOR ADAPTATION AND CONNECTION OF SOLAR INSTALLATION PRODUCTS

Multi-Contact

MC



Part No.	Description	Length	Cable Size
Adapter Cables (MC3 to MC4)			
MC-326096	MC3 Male to MC4 Female	200mm	4mm ²
MC-326097	MC3 Female to MC4 Male	200mm	4mm ²
Harnessed Leads (MC4)			
PV-XPMC4PV1F4/1M	MC4 Male to MC4 Female	1m	4mm ²
PV-XPMC4PV1F4/2M	MC4 Male to MC4 Female	2m	4mm ²
PV-XPMC4PV1F4/5M	MC4 Male to MC4 Female	5m	4mm ²
PV-XPMC4PV1F4/8M	MC4 Male to MC4 Female	8m	4mm ²
PV-XPMC4PV1F4/10M	MC4 Male to MC4 Female	10m	4mm ²
PV-XPMC4PV1F4/12M	MC4 Male to MC4 Female	12m	4mm ²
PV-XPMC4PV1F4/15M	MC4 Male to MC4 Female	15m	4mm ²
PV-XPMC4PV1F6/1M	MC4 Male to MC4 Female	1m	6mm ²
PV-XPMC4PV1F6/2M	MC4 Male to MC4 Female	2m	6mm ²
PV-XPMC4PV1F6/5M	MC4 Male to MC4 Female	5m	6mm ²
PV-XPMC4PV1F6/8M	MC4 Male to MC4 Female	8m	6mm ²
PV-XPMC4PV1F6/10M	MC4 Male to MC4 Female	10m	6mm ²
PV-XPMC4PV1F6/12M	MC4 Male to MC4 Female	12m	6mm ²
PV-XPMC4PV1F6/15M	MC4 Male to MC4 Female	15m	6mm ²

Multi Contact Tools & Accessories

FOR IMPLEMENTATION OF SOLAR INSTALLATION PRODUCTS

Multi-Contact

MC



Part No.	Description
MC-32.6020.19100	MC4 Crimp tool
MC-320024	Assembly spanners for MC4 connectors
LAPP-21920120	Strip tool for Solar cables



INFO - Multi Contact MC4

AS/NZS 5033:2012 - 4.3.7 (k)

Solar connectors can only be mated with the same type from the same manufacturer. If your panels have original MC4 (Multi-Contact-Series 4) connectors, then you must use the same type during your installation. If you do not know what brand you have on the panels, then you need to cut them off and put new ones on.

- Features**
- IP67 waterproof
 - 32A for 4mm, 40A for 6mm
 - TUV Approved

WARNING
New AS/NZS 5033 standards does not allow interconnection with different brands



Female Connectors



Male Connectors



Assembly Tool

Part No.	Description
Female Connectors	
WIE-96.111.0053.1	Female Solar Housing (cable OD's from 5-7mm)
WIE-02.125.8202.8	Female Contact for 4mm Conductor Cables
WIE-02.125.8302.8	Female Contact for 6mm Conductor Cables
Male Connectors	
WIE-96.112.0053.1	Male Solar Housing (cable OD's from 5-7mm)
WIE-05.545.2202.8	Male Contact for 4mm Conductor Cables
WIE-05.545.2302.8	Male Contact for 6mm Conductor Cables
Assembly Tool	
WIE-99.630.0000.0	Solar Crimp Tool (includes removal tool)
WIE-05.502.1753.0	Spanner for tightening connectors
LAPP-44428995	Die for Wieland tool to allow for MC4 crimps
LAPP-44428996	Locator for Wieland tool to allow for MC4 crimps



gesis AC Solar Connectors

GESIS® RST CONNECTION SYSTEM FOR MICRO-INVERTORS



Features

- 3 pole IP68 Connector System
- Preassembled components
- IP68 protection for a fast and safe installation
- On-site field wiring aswell as preassembled leads in a variety of lengths
- Resulting cable lengths repeat from system to system
- AC side can be installed similarly to the traditional DC module to module interconnection method
- Wieland RST connectors can be found on most of the world's leading micro inverters

Note

Each micro inverter plugs into a Wieland RST Distribution Block, and the Distribution Blocks are connected using either the 1m, 2m or in some cases the 5m Wieland RST extension cables.



20A Inline socket



20A Inline plug



20A Distribution block



25A Inline socket



25A Inline plug



Protective Male Cover (20A & 25A)



Protective Female Coverover (20A & 25A)



20A male to female lead (2.5mm2 H07RNF)



25A male to female lead (4mm2 H07RNF)

Part No.	Description	Notes
20A Inline socket		
96.031.4053.1	6-10mm cable OD	
96.031.4153.1	10-14mm cable OD	
20A Inline plug		
96.032.4053.1	6-10mm cable OD	
96.032.4153.1	10-14mm cable OD	
20A Distribution block		
96.030.0153.1		3 x female and 1 x male
25A Inline socket		
96.031.4154.3	10-14mm cable OD	
96.031.4554.3	13-18mm cable OD	
25A Inline plug		
96.032.4154.3	10-14mm cable OD	
96.032.4554.3	13-18mm cable OD	
Protective Male Cover (20A & 25A)		
99.416.6205.2		Suits male
Protective Female Coverover (20A & 25A)		
99.414.6205.2		Suits female
20A male to female lead (2.5mm2 H07RNF)		
96.233.1030.1	1 metre	
96.233.2030.1	2 metre	
96.233.5030.1	5 metre	
25A male to female lead (4mm2 H07RNF)		
96.834.1030.3	1 metre	
96.834.2030.3	2 metre	
96.834.4030.3	4 metre	

EPIC Solar 4 Connectors

CONNECTORS FOR SOLAR PANELS



Benefits

- Low contact-resistance for efficient power transmission
- Crimp connection for field mounting
- Suitable for various ÖLFLEX® SOLAR cables

Application range

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

Product features

- 4mm connector system
- UL pending

Suitable cables

- EPIC® SOLAR XLR-R

Suitable tools

- EPIC® SOLAR TOOL



SOLAR 4 Female Field-Mountable



Male field-mountable

Part No.	Description	Cross-section (mm²)	Cable Clamping Range (mm)	Rated current (A)	PU
SOLAR 4 Female Field-Mountable					
4448022	SOLAR 4 F 2.5 mm²	2.5	4.5 - 6.5	22	100
4448023	SOLAR 4 F 4mm²	4.0 - 6.0	5.0 - 7.2	30	100
Male field-mountable					
4448020	SOLAR 4 M 2.5 mm²	2.5	4.5 - 6.5	22	100
4448021	SOLAR 4 M 4mm²	4.0-6.0	5.0 - 7.2	30	100

EPIC Solar Tools

SPECIALTY TOOLS FOR EPIC® SOLAR 4 INDUSTRIAL CONNECTORS



Application Range

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

Product features - EPIC® SOLAR TOOL CSC

- Multi- functional die for cutting, stripping and crimping with just one tool
- Locator for the safe and accurate positioning of the crimping contacts

Product features - EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2,5mm², 4mm² and 6mm²
- Locator for the safe and accurate positioning of the crimping contacts,

Suitable cables

- EPIC® SOLAR XLR-R Page

Suitable Connectors

- EPIC® SOLAR MC4



Crimptool



Multi-functional die CSC



Crimping die

Part No.	Description	Cross-section (min) in mm²	Cross-section (max) in mm²
Crimptool			
11147000	Crimptool		1
Multi-functional die CSC			
44428992	SOLAR TOOL CSC Die 4mm²	4	1
44428993	SOLAR Tool CSC Die 6mm²	6	1
44428994	SOLAR TOOL LOC 4, 6mm² 4.00	6	1
Crimping die			
44428995	SOLAR Tool DIE 2.5, 4, 6mm² 2.50	6	1
44428996	SOLAR Tool LOC 2.5, 4, 6mm² 2.50	6	1



DIN Rail Terminals - 2 Pole Screw

2 POLE SCREW TERMINALS



	WT 2,5	WT 4	WT 6	WT 10	WT 16	WKN 35/U	WKN 70/U
	2.5mm	4mm	6mm	10mm	16mm	35mm	70mm
Grey Terminal	58.503.0055.0	58.504.0055.0	58.506.0055.0	57.510.0055.0	58.516.0055.0	57.535.0155.0	57.570.0155.0
Grey End Plate	07.313.2555.0	07.313.2555.0	07.313.2555.0	07.313.2555.0	07.313.2755.0	Fully Enclosed	Fully Enclosed
Partition Plate	07.313.2655.0	07.313.2655.0	07.313.2655.0	07.313.2655.0			
Blue Terminal	58.503.0055.6	58.504.0055.6	58.506.0055.6	58.510.0055.6			
Earth Terminal	58.503.9055.0	58.504.9055.0	58.506.9055.0	58.510.9055.0	58.516.9055.0		
Earth End Plate	07.313.2555.0	07.313.2555.0	07.313.2555.0	07.313.2555.0	07.313.2755.0		

DIN Rail Terminals - 2 Pole Screw - Jumper Options

FOR SCREW AND SPRING CLAMP TERMINALS



	2.5mm	4mm	6mm	10mm	16mm
2 Way	Z7.280.6227.0	Z7.261.1227.0	Z7.282.5227.0	Z7.283.8227.0	Z7.284.4227.0
3 Way	Z7.280.6327.0	Z7.261.1327.0	Z7.282.5327.0		
4 Way	Z7.280.6427.0	Z7.261.1427.0	Z7.282.5427.0		
5 Way	Z7.280.6527.0	Z7.261.1527.0	Z7.282.5527.0		
10 Way	Z7.280.7027.0	Z7.261.2027.0	Z7.282.6027.0		

Multi-tier Terminals

DOUBLE & SINGLE DECK SCREW TERMINALS



	Double/Deck		Single Deck	
	WKN 2,5 E/U 2.5mm (4 Pole)	WT 4 E 4mm (4 Pole)	WT 4 D1/2 4mm (3 Pole)	WT 4 D2/2 4mm (4 Pole)
Grey Terminal	57.403.7055.0	58.504.7055.0	58.504.5055.0	58.504.5155.0
Grey End Plate	07.312.1755.0	07.313.3355.0	07.313.2955.0	07.313.3155.0
Grey Partition Plate	07.312.1855.0	07.313.2855.0	07.313.2855.0	07.313.2855.0
Grey Top Deck Jumpers	Z7.280.2227.0	Z7.261.1227.0	Z7.261.1227.0	Z7.261.1227.0
Earth Terminal		58.504.9255.0	58.504.9355.0	58.504.9155.0
Earth End Plate		07.313.3355.0	07.313.2955.0	07.313.3155.0

Features

- Compatible with both screw and spring clamp terminals
- Low MOQ's - Comes as strips of 10 characters
- 2.5mm size will also fit on 4mm terminals



Part No.	Type
Number Sequences (2.5mm Terminals)	
04.242.5053.0	Blank
04.845.0153.0	1 to 10
04.845.0253.0	11 to 20
04.845.0353.0	21 to 30
04.845.0453.0	31 to 40
04.845.0553.0	41 to 50
04.845.0653.0	51 to 60
04.845.0753.0	61 to 70
04.845.0853.0	71 to 80
04.845.0953.0	81 to 90
04.845.1053.0	91 to 100
04.855.0853.0	L1, L2, L3, N, PE (x2)
Numbers Sequences (4mm Terminals)	
04.242.6053.0	Blank
04.846.0153.0	1 to 10
04.846.0253.0	11 to 20
04.846.0353.0	21 to 30
04.846.0453.0	31 to 40
04.846.0553.0	41 to 50
04.846.0653.0	51 to 60
04.846.0753.0	61 to 70
04.846.0853.0	71 to 80
04.846.0953.0	81 to 90
04.846.1053.0	91 to 100
04.856.0853.0	L1, L2, L3, N, PE (x2)
Numbers	
04.841.1150.0	1 (x10)
04.841.1250.0	2 (x10)
04.841.1350.0	3 (x10)
04.841.1450.0	4 (x10)
04.841.1550.0	5 (x10)
04.841.1650.0	6 (x10)
04.841.1750.0	7 (x10)
04.841.1850.0	8 (x10)
04.841.1950.0	9 (x10)
04.841.2050.0	0 (x10)
04.841.7450.0	+ (X10)
04.841.7550.0	- (X10)

Part No.	Type
Letters	
04.841.2250.0	A (x10)
04.841.2350.0	B (x10)
04.841.2450.0	C (x10)
04.841.2550.0	D (x10)
04.841.2650.0	E (x10)
04.841.2750.0	F (x10)
04.841.2850.0	G (x10)
04.841.2950.0	H (x10)
04.841.3050.0	I (x10)
04.841.3150.0	J (x10)
04.841.3250.0	K (x10)
04.841.3350.0	L (x10)
04.841.3450.0	M (x10)
04.841.3550.0	N (x10)
04.841.3650.0	O (x10)
04.841.3750.0	P (x10)
04.841.3850.0	Q (x10)
04.841.3950.0	R (x10)
04.841.4050.0	S (x10)
04.841.4150.0	T (x10)
04.841.4250.0	U (x10)
04.841.4350.0	V (x10)
04.841.4450.0	W (x10)
04.841.4550.0	X (x10)
04.841.4650.0	Y (x10)
04.841.4750.0	Z (x10)

Wieland Terminal Accessories

DIN RAIL, END STOPS AND OPERATING TOOL



End Clamps



Screwdriver



Din Rail

Part No.	Type
End Clamps	
Z5.523.9353.0	End Clamp (snap-on)
Z5.522.8553.0	End Clamp (screw-on with metal foot)
69.920.1053.0	End Clamp (snap-on with label marker)
Screwdriver	
06.502.4000.0	Screwdriver for 2.5mm, 4mm and 6mm
Din Rail	
98.300.1000.0	35mm x 7.5mm Slotted Din Rail (2m)

Kraus & Naimer DC Isolators

IP67 DC RATED ISOLATORS



Features

- Simple Design
- Voltage Rating: 1500Vdc
- IP67
- UV Resistant
- Lockable off position

Conductor Sizes

- 4mm² Flexible
- 6mm² Class 2
- 6mm² Flexible with Ferrule



PV-110348987



PV-110457907



PV-110363011

Isolator Current Ratings

Rated Current (A)	Number of Series Contacts	Total Voltage DC V (1.2 x Voc Array)
DC21B A	3	6
25	240	480
25	330	660
25	420	840
25	510	1000
23	600	1200
19	690	1380
14	900	1500
12	1000	1500
9	1100	1500
7	1200	1500

Part No.	Description	Manufacturer	Dimensions	Knockout Entries
Box Mounted				
PV-110348987	DC Isolator in standard box	Kraus & Naimer	132 x 85 x 64	4 x M12 2 x m20 (Threaded)
PV-110457907	DC Isolator in new large box	Kraus & Naimer	190 x 100 x 93	6 x M25
Din Mounted				
PV-110363011	DIN Mounted DC Isolator Switch	Kraus & Naimer	76 x 45 (4 pole spaces)	N/A

Noark DC MCB

NON-POLARISED DC, K TYPE FOR PV SYSTEMS



Current Rating (A)	K Curve
2 Pole - 500Vdc	
10	88067
16	88068
20	88069
25	88070
32	88131
40	88132
50	88133
63	88134
2 Pole - 1000Vdc	
10	88075
16	88076
20	88077
25	88078
32	88139
40	88140
50	88141
63	88142
Locking Device	
	PV-86218



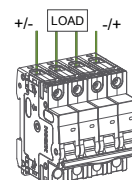
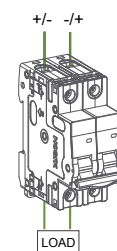
2 Pole - 500Vdc



2 Pole - 1000Vdc



Locking Device



INFO - For Noark MCBs

AS/NZS 5033:2012 – Figure B4.

The voltage rating of MCB's and Isolators must be 2x the string voltage (Voc). ie for a 400V system your MCB's and Isolators need to be at least 800V rated.

NOARK Array DC Isolator

1000V 32A IP67 DC ISOLATOR

NOARK

Features

- Standard IEC/EN60947-3
- Poles 4 Poles
- Voltage up to 1000VDC
- Current up to 32A
- Insulation Voltage 1200VDC
- IP Protection IP67/IP66
- Knockout entries 8xM12;8xM20;8xM25
- Other Lockable in OFF position
- with padlock, UV resistant,
- Non-polarised

Description

The Noark non-polarised DC Isolator for Photovoltaic applications consists of 2 x 2 pole switches, each capable of switching under load a maximum of 1000V DC.

The IP67 enclosure is UV resistant and has numerous entries for easy cable entry.



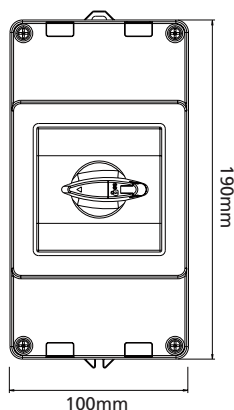
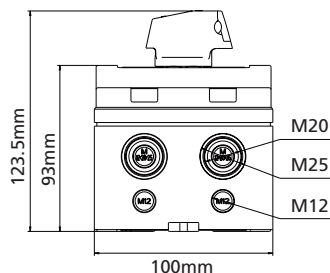
INFO - For DC Isolator

Opening Instructions

You must remove the rotary handle before the box can be opened.

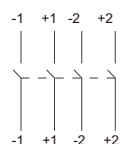
Part No.	Description	Manufacturer	Dimensions	Knockout Entries
Box Mounted				
PV-90946	DC Isolator in new large box	Noark	190x 100 x 93	8xM12 8xM20 8xM25

DC21-B	Configuration	300V	375V	400V	425V	450V	500V	600V	750V	800V	850V	900V	1000V
1 Pole	2 Strings	32	27.5	25	22.5	20	16	10	7.5	6	5	4	3
2 Pole	1 String	32	32	32	32	32	32	32	25	25	16	16	16
4 Pole	1 String	32	32	32	32	32	32	32	32	32	32	32	32

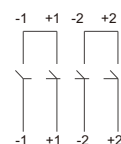


Wiring Diagram

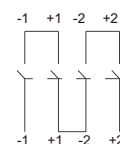
1 Pole



2 Pole

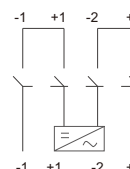
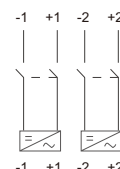


4 Pole

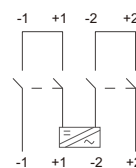
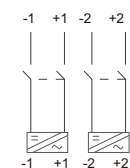


Configuration

Non separated (TL) Inverter



Separated (Transformer) Inverter



PV Power Enclosures

IP65 ENCLOSURES FOR STRING COMBINING AND ISOLATING



Features

- Material: ASA (special outdoor rated plastic)
- IP65
- UV Resistant
- Optional locking device

Part No.	Poles	w x h x d	Rows
PV-N4D	4	127 x 200 x 120	1 Row
PV-N8D	8	200 x 200 x 120	1 Row
PV-N12D	12	318 x 258 x 142	1 Row
PV-N24D	24	318 x 383 x 142	2 Rows
PV-N36D	36	318 x 507 x 142	3 Rows
PV-Lockdp	Optional lock for enclosures		



Ventilation Plugs

IP68 PLUGS TO REDUCE CONDENSTION



Features

Pressure equaliser to prevent condensation within IP rated enclosures.

IP Ratings

- IP66
- IP67
- IP69K

Fire Rating

- Body - Flameproof Polyamide PA6
- Internal - High quality, breathable & watertight PES-membrane

Temperature Rating

- -40 to +110 °C

Part No.	Dimensions
PV-ZB5054	M12 x 1,5 with nut

PV Power DC Fusing for String Boxes

REQUIRED WHEN INSTALLING 3 OR MORE PV STRINGS



Features

- Fuses are PV rated, specially designed for Photovoltaic systems
- Fuse holder is the same profile as a standard MCB
- Fuse holder has LED blow indication



Fuses



Fuse Holders



Part No.	Current Rating (A)
Fuses	
30F2PV	2
30F6PV	6
30F8PV	8
30F10PV	10
30F12PV	12
30F15PV	15
30F20PV	20
Fuse Holders	
85500	Single Pole Fuse Holder
85515	Double Pole Fuse Holder

INFO - For DC Fusing

AS/NZS 5033:2012 - 4.3.9.1

PV Power fuses are specifically designed so they will blow at the rated current (gPV). Regular fuses have too large a tolerance and should not be used for string protection.



Miniature Circuit Breakers & Residual Current Devices

BKN / BKN-b / BKN-c / BKH / BKP / BFN /
RKN / RKN-b / RKS / RKS-b / RKP / 32KGR / 32GRh / BS



LS Miniature Circuit Breakers 6kA

BKN - 6KA SERIES



Current Rating (A)	C Curve	D Curve
1 Pole		
1	LS-06110070R0	LS-06110099R0
2	LS-06110071R0	LS-06110100R0
3	LS-06110072R0	LS-06110101R0
4	LS-06110073R0	LS-06110102R0
6	LS-06110074R0	LS-06110103R0
10	LS-06110075R0	LS-06110104R0
16	LS-06110076R0	LS-06110105R0
20	LS-06110077R0	LS-06110106R0
25	LS-06110078R0	LS-06110107R0
32	LS-06110079R0	LS-06110108R0
40	LS-06110080R0	LS-06110109R0
50	LS-06110081R0	LS-06110110R0
63	LS-06110082R0	LS-06110111R0
2 Pole		
1	LS-06120213R0	
2	LS-06120214R0	
3	LS-06120215R0	
4	LS-06120216R0	LS-06120292R0
6	LS-06120217R0	LS-06120293R0
10	LS-06120218R0	LS-06120294R0
16	LS-06120219R0	LS-06120295R0
20	LS-06120220R0	LS-06120296R0
25	LS-06120221R0	LS-06120297R0
32	LS-06120222R0	LS-06120298R0
40	LS-06120223R0	LS-06120299R0
50	LS-06120224R0	LS-06120300R0
63	LS-06120225R0	LS-06120301R0
3 Pole		
6	LS-06130054R0	LS-06130083R0
10	LS-06130055R0	LS-06130084R0
16	LS-06130056R0	LS-06130085R0
20	LS-06130057R0	LS-06130086R0
25	LS-06130058R0	LS-06130087R0
32	LS-06130059R0	LS-06130088R0
40	LS-06130060R0	LS-06130089R0
50	LS-06130061R0	LS-06130090R0
63	LS-06130062R0	LS-06130091R0
Jumper Bars		
LS-70211413001	BUSBAR BB101 for 1P - 63A Rated - Length 1m	
LS-70211413003	BUSBAR BB201 for 2P - 63A Rated - Length 1m	
LS-70211413005	BUSBAR BB301 for 3P - 63A Rated - Length 1m	
LS-70211413009	End Cap for BB 1P	
LS-70211413010	End Cap for BB 2P	
LS-70211413044	End Cap for BB 3P	
Auxiliary Feedback		
LS-06150002R0	Auxiliary Feedback	6A rated



BB 101



1 Pole



BB 201



2 Pole



BB 301



BKN 3P

3 Pole



Auxiliary Feedback

LS Miniature Circuit Breakers 10kA

BKN-B - 10KA SERIES



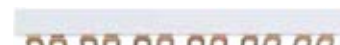
Current Rating (A)	C Curve	D Curve
1 Pole		
2	LS-06110174R0	
4	LS-06110176R0	
6	LS-06110177R0	LS-06110255R0
10	LS-06110178R0	LS-06110256R0
16	LS-06110179R0	LS-06110257R0
20	LS-06110180R0	LS-06110258R0
25	LS-06110181R0	LS-06110259R0
32	LS-06110182R0	LS-06110260R0
40	LS-06110183R0	LS-06110261R0
50	LS-06110184R0	LS-06110262R0
63	LS-06110185R0	LS-06110263R0
2 Pole		
2	LS-06110200R0	LS-06110278R0
4	LS-06110202R0	LS-06110280R0
6	LS-06110203R0	LS-06110281R0
10	LS-06110204R0	LS-06110282R0
16	LS-06110205R0	LS-06110283R0
20	LS-06110206R0	LS-06110284R0
25	LS-06110207R0	LS-06110285R0
32	LS-06110208R0	LS-06110286R0
40	LS-06110209R0	LS-06110287R0
50	LS-06110210R0	LS-06110288R0
63	LS-06110211R0	LS-06110289R0
3 Pole		
6	LS-06110216R0	LS-06110294R0
10	LS-06110217R0	LS-06110295R0
16	LS-06110218R0	LS-06110296R0
20	LS-06110219R0	LS-06110297R0
25	LS-06110220R0	LS-06110298R0
32	LS-06110221R0	LS-06110299R0
40	LS-06110222R0	LS-06110300R0
50	LS-06110223R0	LS-06110301R0
63	LS-06110224R0	LS-06110302R0
Jumper Bars		
LS-70211413002	BUSBAR BB102 for 1P - 63A Rated - Length 1m	
LS-70211413004	BUSBAR BB202 for 2P - 63A Rated - Length 1m	
LS-70211413006	BUSBAR BB302 for 3P - 63A Rated - Length 1m	
LS-70211413009	End Cap for BB 1P	
LS-70211413010	End Cap for BB 2P	
LS-70211413044	End Cap for BB 3P	
Auxiliary Feedback		
LS-06150012R0	Auxiliary Feedback	6A rated



BB 102



1 Pole



BB 202



2 Pole



BB 302



3 Pole



Auxiliary Feedback

Chassis

PAN ASSEMBLY FOR LS MCB'S



Features

Chassis used in switchboards and distribution boxes for quick connection of the LS MCB's. Using chassis' reduces the need for jumper wires and allow for the easy addition of MCBs in future.

Application

- Suitable for LS 6 & 10kA MCB's

Part No.	Description
LS-TPA-24-POLE-ES	24 Pole MCB Chassis for LS MCB
LS-TPA-36-POLE-ES	36 Pole MCB Chassis for LS MCB
LS-TPA-48-POLE-ES	48 Pole MCB Chassis for LS MCB
LS-TPA-60-POLE-ES	60 Pole MCB Chassis for LS MCB
LS-TPA-72-POLE-ES	72 Pole MCB Chassis for LS MCB



RCCB**RESIDUAL CURRENT CIRCUIT BREAKERS****Features**

- Type A - NZ Standard
- Rated for 6000 operations

Rated Residual Current

- 30mA

Current off time

- < 0.1s

Part No.	Type	Current Rating
2 Pole		
LS-06220450R0	RKN-A	40A
LS-06220453R0	RKN-A	63A
4 Pole		
LS-06220462R0	RKN-A	40A
LS-06220465R0	RKN-A	63A



2 Pole



4 Pole

RCBO**RESIDUAL-CURRENT CIRCUIT BREAKER WITH OVERLOAD PROTECTION****Features**

- 18mm Wide
- 2 Pole Switching

Rating

- 6kA

Rated Residual Current

- 10mA and 30mA

Current off time

- <= 0.1 sec



Part No.	Type	Current Rating
30mA		
LS-06221062R0	RKC-A	6A
LS-06221063R0	RKC-A	10A
LS-06221064R0	RKC-A	16A
LS-06221065R0	RKC-A	20A
LS-06221066R0	RKC-A	25A
10mA		
LS-06221057R0	RKC-A	10A
LS-06221058R0	RKC-A	16A
LS-06221059R0	RKC-A	20A

Main Switches**MAIN ISOLATION SWITCHES****Features**

- Up to 63A: 20,000 Operations
- 80A+ : 10,000 Operations

Dimensions

- 1 Pole : 17.8mm
- 2 Pole : 35.6mm
- 3 Pole : 53.4mm

Part No.	Type	Current Rating
1 Pole		
LS-06110083R0	BKD	63A
LS-06110084R0	BKD	80A
LS-06110085R0	BKD	100A
2 Pole		
LS-06120247R0	BKD	63A
LS-06120248R0	BKD	80A
LS-06120248R0	BKD	100A
3 Pole		
LS-06130063R0	BKD	63A
LS-06130065R0	BKD	100A



LS MCCB

MOULDED CASE CIRCUIT BREAKERS SUITABLE FOR AC AND DC APPLICATIONS



Part No.	Current Rating	Lug Hole Size	Trip Unit
Frame Size 100A / 50kA@415V			
LS-0105011500	40A	M8	FMU
LS-0105011600	50A	M8	FMU
LS-0105011700	63A	M8	FMU
LS-0105011800	80A	M8	FMU
LS-0105011900	100A	M8	FMU
Frame Size 160A / 50kA@415V			
LS-0105025900	125A	M8	ATU
LS-0105025800	160A	M8	ATU
Frame Size 250A / 50kA@415V			
LS-0105022900	200A	M8	ATU
LS-0105023000	250A	M8	ATU
Frame Size 400A / 65kA@415V			
LS-0108005100	400A	M10	ETS33
LS-0108006300	630A	M10	ETS33
Frame Size 800A / 65kA@415V			
LS-0111002300	800A	M12	ETS43



Frame Size 100A / 50kA@415V

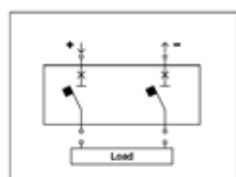


Frame Size 160A / 50kA@415V

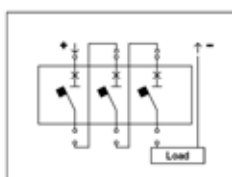


Frame Size 250A / 50kA@415V

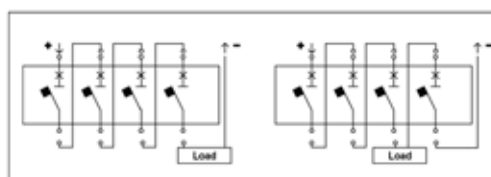
Exemplary circuit diagrams



DC500V (2P)



DC750V (3P)



DC1000V (4P)

LS Auxiliaries

FOR MOULDED CASE CIRCUIT BREAKERS



Auxiliaries

Part No.	Switch Type	Suitable Models	Type
Auxiliaries			
LS-83011171701	AX	ALL	Indication for remote monitoring of ON/OFF
LS-83011171702	AL	ALL	Trip Alarm Indication

LS Terminal Covers

FOR MOULDED CASE CIRCUIT BREAKERS



Short Cover	Longer Cover	Suitable Models
Terminal Covers		
LS-64621172011 (ITS 23)	LS-64621172016 (ITL 23)	TS100, 160, 250
LS-64621173011 (ITS 33)	LS-64621173013 (ITL 33)	TS400, 630
LS-64621174011 (ITS 43)	LS-64621174013 (ITL 43)	TS800



Terminal Covers

PV Power DC Fusing for High Current

FUSE DISCONNECTS FOR UP TO 160A



Fuses NH00 Type



Fuse Holders

Part No.	Current Rating (A)
Fuses NH00 Type	
PV-66920080	80A
PV-66920100	100A
PV-66920160	160A
Fuse Holders	
PV-713	3 pole disconnect (holds 3 NH00 fuses)

PV Power Cable Ties

STAINLESS STEEL CABLE TIES WITH EPOXY COATING



Features

- These stainless steel cable ties have an epoxy coating on the outside so they are easier on your hands, and less likely to cut into the cables/conduits.
- 316 Grade Stainless Steel (Head and Body)
- In accordance with 5033 nylon cable ties are no longer suitable

Part No.	Description
PV-TS1-4-46200-316C	4.6 x 200mm 316 SS with Epoxy Coating
PV-TS1-4-46360-316C	4.6 x 360mm 316 SS with Epoxy Coating
LAPP-83250022	Cable tie tightening and cutting gun
LAPP-83250023	Replacement head for tool



INFO - For SS Cable Ties

AS/NZS 5033:2012 - 4.3.6.3.1

Plastic cable ties (even if located under the array) should not be used as they will not last in outdoor installations. Stainless Steel cable ties will last forever.

PV Power Cable Clips

STAINLESS STEEL CABLE CLIPS WITH EPOXY COATING



Features

- Clip on to the back of PV modules
- 304 Grade Stainless Steel
- Very quick option for securing cables

Part No.	Description
PV-ACC	1 or 2 cables, Cable OD from 5mm to 5.8mm



Marley Heavy Duty uPVC Solar Conduit

FOR SOLAR POWER INSTALLATIONS



Features

- Conforms with AS/NZS 2053:5
- Meets the requirements of AS/NZS 5033:2012
- Best Environmental Practice Certified
- Compatible with a full range of Marley uPVC fittings
- 100% Recyclable
- Proudly New Zealand Made



Rigid



Corrugated

Product Number	Description	Diameter	Length
Rigid			
PV-Rigid-25-4m	Grey Heavy Duty uPVC SOLAR Rigid Conduit - Comes with Solar Markings	25mm	4m
PV-Rigid-32-4m	Grey Heavy Duty uPVC SOLAR Rigid Conduit - Comes with Solar Markings	32mm	4m
Corrugated			
PV-Flex-25-50m	Grey Heavy Duty uPVC SOLAR Corrugated Conduit - Comes with Solar Markings	25mm	50m
PV-Flex-32-25m	Grey Heavy Duty uPVC SOLAR Corrugated Conduit - Comes with Solar Markings	32mm	25m



INFO - For Conduit

AS/NZS 5033:2012 - 4.3.6.3.2

PV cables run within buildings must be in heavy duty conduit in accordance with AS/NZS 2053.1. Regular electrical conduit is only medium duty. Our solar conduit (both Rigid and Corrugated) are HD compliant.



AS/NZS 5033:2012 - 4.3.6.2 (b)

If exposed to the environment conduit must be AS/NZS 2053.1 compliant and marked with the letter 'T'. Our solar conduit (both Rigid and Corrugated) are marked "T".

SKINTOP Nylon Cable Glands

THREADED NYLON GLANDS FOR USE IN CONTROL CABINETS



Construction

- Special Polyamide (nylon plastic) for harsh applications

Protection

- IP68 - 5 bar
- IP69K

Temperature Rating

- Static: -40 to 100
- Cable Moving: -20 to 100



Size	Clamping Range	Thread Length	Packet Size	Size	Gland	Locknut
Nylon metric thread cable gland						
M16	4.5 to 10mm	8	100	M16	53111210	53119110
M20	7 to 13mm	9	100	M20	53111220	53119120
M25	9 to 17mm	10	50	M25	53111230	53119130
M32	11 to 21mm	10	25	M32	53111240	53119140

SKINTOP DIX multi-inserts

GLAND INSERTS WITH MULTIPLE CABLE HOLES



Part No.	For Gland	Number of Holes	Hole Size
Multiple Hole Inserts			
53320260	M20	2	6 mm
53325260	M25	2	6 mm
53325350	M25	3	5 mm
53325360	M25	3	6 mm
53325370	M25	3	7 mm
53325450	M25	4	5 mm
53325540	M25	5	4 mm
53325640	M25	6	4 mm
53332270	M32	2	7 mm
53332280	M32	2	8 mm
53332290	M32	2	9 mm
53332380	M32	3	8 mm
53332470	M32	4	7 mm
53332560	M32	5	6 mm
53332650	M32	6	5 mm
53332840	M32	8	4 mm
53332850	M32	8	5 mm
53332940	M32	9	4 mm
53340480	M40	4	8 mm
53340580	M40	5	8 mm
53340590	M40	5	9 mm
53340670	M40	6	7 mm
53340860	M40	8	6 mm
53340969	M40	9	6.9 mm
53350166	M50	16	6 mm
53350680	M50	6	8 mm
Solid Inserts for Sealing			
54113010	M16	Solid	Solid
54113020	M20	Solid	Solid
54113030	M25	Solid	Solid
54113040	M32	Solid	Solid



Standard Dix inserts for multiple cables



Sealing Pins

PINS FOR SEALING OFF UNUSED HOLES

Item No.	Pin Diameter	Length
53100005	5 mm	11 mm
53100006	6 mm	14 mm

INFO - For Dix Inserts

Water entering Rooftop isolators are one of the most common problems reported with PV installations. You should never penetrate the isolator box using screws (always use the external mounts provided 4.4.4.5 (d)). You should never use silicon to seal cable entries, use rubber SKINTOP DIX inserts.

FLEXIMARK PT Collar Marking

FLEXI-PRINT LABELS



Flexi-Print Label Construction

- Halogen Free polyester. Resistant against oils, water, common chemicals and UV Resistant

Feature

- The label inserts are compatible with other common collar brands available
- The inserts come on A5 sheets and can be printed with standard Laser printers
- There is no need to purchase a special printer
- Two colours per sheet: Yellow on one side, White on the other



Part No.	Description	Suitable App Wire (V90)	Suitable Control Cable (110)	Cable Ø	Pack Size
15mm Clear Holders					
61823000	PT 02/15		0.25 to 1.5mm ²	1.3 to 3mm	200
61823010	PT 10/15	0.5 to 1.5mm ²	1.5 to 4mm ²	2.5mm to 5mm	200
61823020	PT 20/15	2.5 to 6mm ²	2.5 to 16mm ²	4mm to 10mm	100
61823030	PT 30/15	10 & 16mm ²	16mm ² +	8mm to 16mm	50
21mm Clear Holders					
61823040	PT 02/21		0.25 to 1.5mm ²	1.3 to 3mm	200
61823050	PT 10/21	0.5 to 1.5mm ²	1.5 to 4mm ²	2.5mm to 5mm	200
61823060	PT 20/21	2.5 to 6mm ²	2.5 to 16mm ²	4mm to 10mm	100
61823070	PT 30/21	10 & 16mm ²	16mm ² +	8mm to 16mm	50

Item No.	Item Description	Side 1	Side 2	Suitable Holders	Labels / A5 Sheet	Pack Size
83254680	Laser Printable Label	Yellow	White	Both 15 & 21mm	48	1 sheet (A5)

FLEXIMARK LCK Wrap-Around Labels

FOR OVERALL CABLE MARKING



Flexi-Print Label Construction

- Halogen Free polyethylene.

Feature

- Quick and cost effective cable marking system
- Very low profile system which is useful for running pre-marked cables through conduit
- Labels can be printed with Laser printers



Part No.	Description	Printable Size	Suitable Cable OD	Labels / Sheet	Pack Size
83256144	Wrap around label (LCK35)	25mm x 19mm	6 to 12mm	40	1 sheet (A4)
83256146	Wrap around label (LCK40)	25mm x 25.4mm	8 to 22mm	24	1 sheet (A4)
83256148	Wrap around label (LCK45)	25.5mm x 25.4mm	8 to 37mm	16	1 sheet (A4)



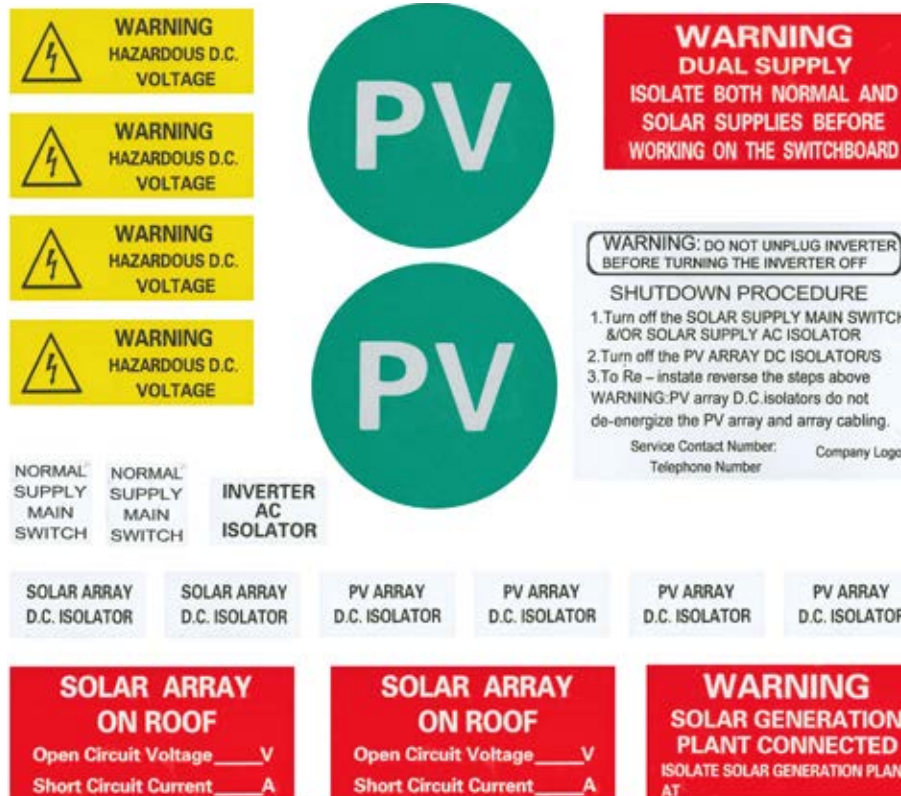
PV Power Solar PV Label Kit

20PC LABEL KIT FOR PV SOLAR APPLICATIONS



Features

- Pre-Printed
- UV Resistant
- Water Resistant
- Self Adhesive Backing

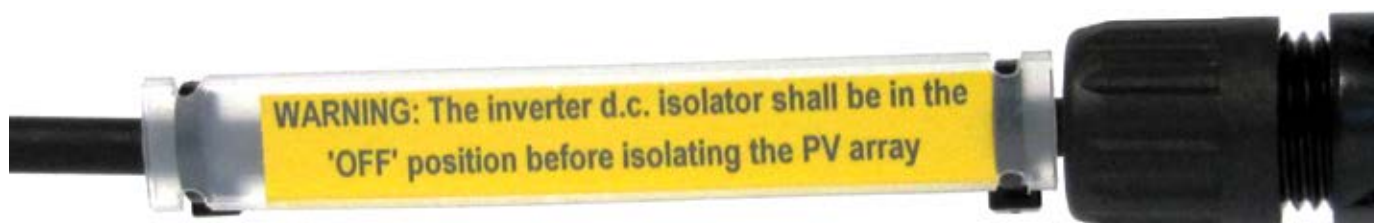


Part No.	Pack Size
PV-Sticker2	20

SOLAR ARRAY D.C. ISOLATOR	SOLAR ARRAY D.C. ISOLATOR	PV ARRAY D.C. ISOLATOR	PV ARRAY D.C. ISOLATOR	PV ARRAY D.C. ISOLATOR	PV ARRAY D.C. ISOLATOR
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PV Power Warning Label for Solar

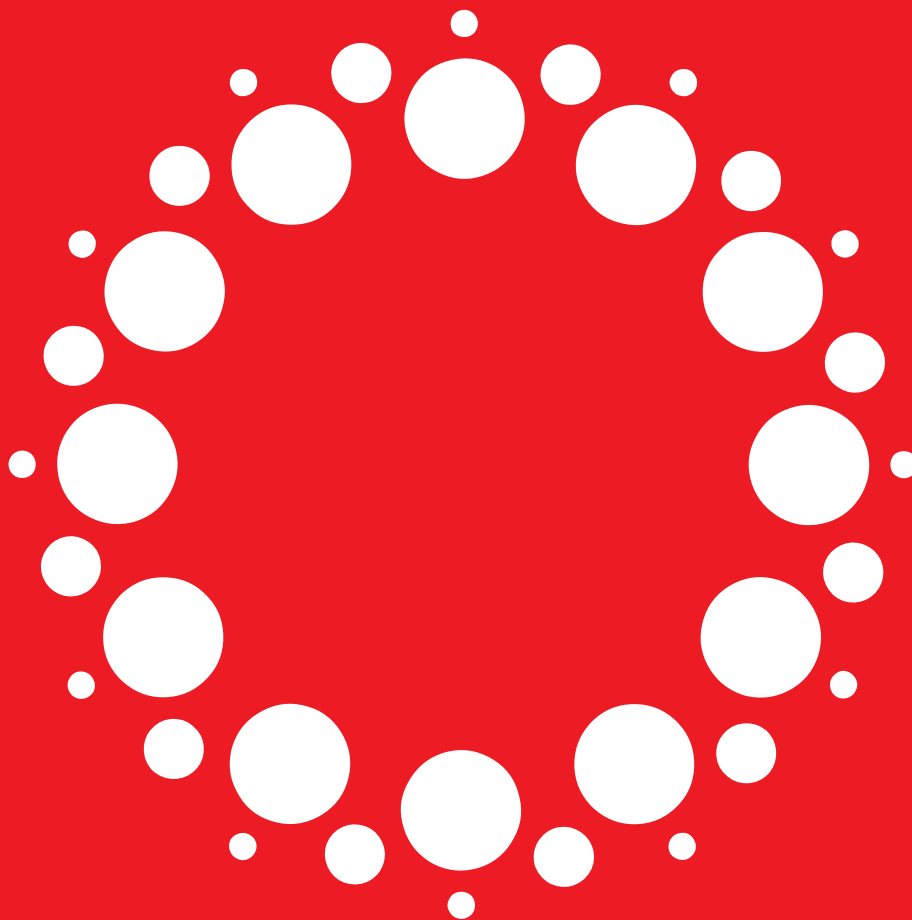
CUSTOM PRE-PRINTED WARNING LABELS FOR DC ISOLATION



Features

- Pre-Printed
- UV Resistant
- Water Resistant
- Includes Cable Ties

Part No.	Pack Size
PV-Sticker3	1



LAPP GROUP

LS

MOXA



wieland



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