UniLynx Inverter Range

Single phase - with transformer - indoor and outdoor cabinets
1.8 – 3.0 – 3.6 – 5.4 kW

The PV system configurator helps users to design and dimension solar energy systems.

The integrated electromechanical DC switch ensures maximum security during servicing.

Three individual PV inputs and three dedicated MPP trackers form the multi DC string input.

Unique versatility

- **Multi DC string input**
  Due to the one to three string input, module mismatch losses and losses from partial shading are greatly reduced; if one string is not functioning optimally, the remaining two strings will continue production unaffected.

- **One inverter for 16 countries**
  All Danfoss inverters can run in 16 different countries and are configured on site. Just select the country at initial set-up and the inverter will configure itself to comply with regulations.

- **Individual/parallel configuration and up to 3 MPP trackers**
  The same inverter can run in both individual and parallel (master/slave) configuration, depending on the configuration of the wiring. If all panels are identical, master/slave is the ideal configuration. When panels are of varying types, if they have different angles or display different operation conditions, individual configuration is ideal, as a designated MPP tracker is appointed for each string. The inverter will automatically detect the wiring and run the appropriate configuration via the auto detection algorithm.

- **5 inch or 6 inch modules and thin film**
  UniLynx comes in two input voltage ranges: High Voltage (HV), dedicated to 5-inch cell modules, and Medium Voltage (MV), dedicated to 6-inch modules. These dedicated input voltage ranges limit power losses and assure the string operating voltage is correct in order for the inverter to optimise total energy output. This transformer inverter also handles thin film modules.

Optimum energy output

- **High MPP tracker efficiency**
  Individual MPP trackers ensure the system always runs at optimum power output regardless of size differences and PV module placement. The accuracy of the MPP trackers has been tested at the Arsenal Research Institute in Vienna as well as in an ISORRIP test, in which representative sample data from a year's irradiation was used to calculate the efficiency. At static irradiation the MPP tracker efficiency is 99.9% (MPP European Efficiency). And at dynamic irradiation the MPP tracker efficiency is 99.4%.

- **Ride Through**
  All Danfoss inverters have a built-in algorithm called Ride Through. This algorithm ensures the inverter stays on grid even during severe grid disturbances. The inverters will only disconnect when AC grid limits set by the authorities are exceeded.

- **Derating function**
  Should the inverter come across conditions of increased grid voltage, increased current levels or too high ambient temperatures, it will limit the output accordingly to protect itself. This derating function means that the inverter will continue producing although conditions exceed inverter limitations. This will increase yield while ensuring the inverter is not damaged, and will in the long run ensure long life.

- **Early start-up and late stop of daily production**
  Danfoss Solar Inverters use a combination of two MPP tracking methods, designed solely to work with both high and low irradiation levels, which ensures power production even with limited sun.

Easy communication and monitoring

- **RS485 communication**
  All inverters can be fitted with RS485 cable system data loggers and webloggers for easy communication and monitoring of the investment.

Safe and easy to install and service

- **Standard connection for DC input and AC output**
  Danfoss inverters cannot be configured wrongly: Just connect the inverter and the auto detection will register the DC-wiring of the inverter and configure accordingly.

- **Integrated DC switch**
  For the protection of the installation engineer and service personnel, our inverters have an integrated DC switch to enable PV power to be disconnected safely. Simply switching off the DC switch is enough to disconnect DC power from the solar modules to the inverter.

- **Servicing on site**
  The Unilynx has a modular PCB design. All inverters have one AC PCB and for each string input a dedicated DC PCB. Each individual PCB can be quickly exchanged on site if necessary.

- **Service tool**
  The software-based Service tool makes service extremely easy, allowing technicians to configure and monitor PV inverters and PV inverter networks, as well as updating software via an RS485 standard communication bus.

	ULX 1800	ULX 3000	ULX 3600	ULX 5400
Specification:				
Nominal Power DC	1800 W	3000 W	3600 W	5400 W
Max Power DC	1950 W	3200 W	3900 W	5850 W
Max recommended PV power at STC [1]	1950 Wp	3200 Wp	3900 Wp	Outdoor: 5400/5850 Wp Indoor: 5400 Wp
Nominal Power AC	1650 W	2750 W	3300 W	Outdoor: 4600/5000 W Indoor: 4600 W [2]
Max Power AC	1800 W	3000 W	3600 W	5000/5400 W [2]
Max efficiency	93.70 %	94.20 %	94.30 %	94.30 %
Euro efficiency	91.60 %	92.90%	93.40 %	93.40 %
Power factor	0.97 at > 20 % load	0.97 at > 20 % load	0.97 at > 20 % load	0.97 at > 20 % load
Turn on power	20 W	20 W	20 W	20 W
Standby consumption	8 W	8 W	8 W	8 W
Night consumption	< 0.2 W	< 0.2 W	< 0.2 W	< 0.2 W
Voltages:				
Nominal Voltage DC MV	310 V	310 V	310 V	310 V
Nominal Voltage DC HV	430 V	430 V	430 V	430 V
MPP voltage range MV - nominal power	180-350 V	180-350 V	180-350 V	180-350 V
MPP voltage range HV - nominal power	260-500 V	260-500 V	260-500 V	260-500 V
MAX DC voltage MV Individual/Parallel	450/410 V	450/410 V	450/410 V	450/410 V
MAX DC voltage HV Individual/Parallel	600/550 V	600/550 V	600/550 V	600/550 V
Turn on voltage DC MV	125 V	125 V	125 V	125 V
Turn on voltage DC HV	250 V	250 V	250 V	250 V
Turn off voltage DC MV	100 V	100 V	100 V	100 V
Turn off voltage DC HV	200 V	200 V	200 V	200 V
AC voltage range	230 ± 15% V	230 ± 15% V	230 ± 15 % V	230 ± 15 % V
Grid frequency	50 ± 5 Hz	50 ± 5 Hz	50 ± 5 Hz	50 ± 5 Hz
Currents:				
Max current DC MV	10 A	2 x 10 (20) A*	2 x 10 (20) A*	3x10 (30) A*
Max current DC HV	7 A	2x7 (14) A	2x7 (14) A	3x7 (21) A*
Nominal current AC	7.2 A	12 A	14.5 A	Outdoor: 20/22 A / Indoor: 20 A
Max current AC	8 A	13 A	15.5 A	23 A
Distortion (THD%)	< 5 %	< 5 %	< 5 %	< 5 %
Other:				
Dimensions (L,W,H)	Outdoor: 489x434x192 mm / Indoor: 369x386x188 mm	Outdoor: 618x434x192 mm / Indoor: 498x386x188 mm	Outdoor: 618x434x192 mm / Indoor: 498x386x188 mm	Outdoor: 747x434x192 mm / Indoor: 631x386x188 mm
Weight	Outdoor: 17 kg / Indoor: 14 kg	Outdoor: 20 kg / Indoor: 20 kg	Outdoor: 20 kg / Indoor: 20 kg	Outdoor: 23 kg / Indoor: 23 kg
Acoustic Noise level	Outdoor: 55 dB(A) / Indoor: 45 dB(A)	Outdoor: 55 dB(A) / Indoor: 45 dB(A)	Outdoor: 55 dB(A) / Indoor: 45 dB(A)	Outdoor: 55 dB(A) / Indoor: 45 dB(A)
Operation temperature range	-25- - +60 °C	-25- - +60 °C	-25- - +60 °C	-25 - - +60 °C
MPP Tracker	1	2	2	3
MPP efficiency (static)	99.9 %	99.9 %	99.9 %	99.9 %
Overload operation	Change of operating point	Change of operating point	Change of operating point	Change of operating point
Grid surveillance	U/f window & impedance monitoring	U/f window & impedance monitoring	U/f window & impedance monitoring	U/f window & impedance monitoring
Mounting recommandation	Wall bracket	Wall bracket	Wall bracket	Wall bracket
IP	IP 21/ IP 54	IP 21/ IP 54	IP 21/ IP 54	IP 21/ IP 54
Isolation monitoring	included	included	included	included
Galvanic Isolation	Transformer	Transformer	Transformer	Transformer
Serial Communication	RS485	RS485	RS485	RS485
Display	Display	Display	Display	Display
DC switch	DC switch	DC switch	DC switch	DC switch
Parallel string operation	Parallel string operation /Autodetection	Parallel string operation /Autodetection	Parallel string operation /Autodetection	Parallel string operation /Autodetection
Normative references:				
Directive LVD	73 / 23 / EC	73 / 23 / EC	73 / 23 / EC	73 / 23 / EC
Directive EMC	2004 / 108 / EC	2004 / 108 / EC	2004 / 108 / EC	2004 / 108 / EC
Safety	EN 50178	EN 50178	EN 50178	EN 50178
EMC immunity	EN 61000-6-1	EN 61000-6-1	EN 61000-6-1	EN 61000-6-1
	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
	EN 61000-4-13, -14, -28	EN 61000-4-13, -14, -28	EN 61000-4-13, -14, -28	EN 61000-4-13, -14, -28
	EN 60146-1	EN 60146-1	EN 60146-1	EN 60146-1
EMC emission	EN 61000-6-3	EN 61000-6-3	EN 61000-6-3	EN 61000-6-3
	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4	EN 61000-6-4
Utility Interference	EN 61000-3-2, -3	EN 61000-3-2, -3	EN 61000-3-2, -3	EN 61000-3-11, -12
Functional safety, Anti-islanding	DIN VDE 0126-1-1	DIN VDE 0126-1-1	DIN VDE 0126-1-1	DIN VDE 0126-1-1
CE	Yes	Yes	Yes	Yes
Utility characteristics	IEC 61727, EN 50160	IEC 61727, EN 50160	IEC 61727, EN 50160	IEC 61727, EN 50160
Italy	DK5940	DK5940	DK5940	DK5940
Spain	RD1663	RD1663	RD1663	RD1663

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*Max. 16 A per string
1) For fixed systems with semi optimal conditions
2) Depending on country setting