

Energy^{PK}

PV DIESEL CONTROLLERS

OUR ENERGY MANAGEMENT , YOUR ENERGY.

KEY FACTS & FIGURES

34+ MW SOLAR

57+ MW GENERATORS

202+ GENERATORS

11 BRANDS OF INVERTERS

166+ INSTALLATIONS



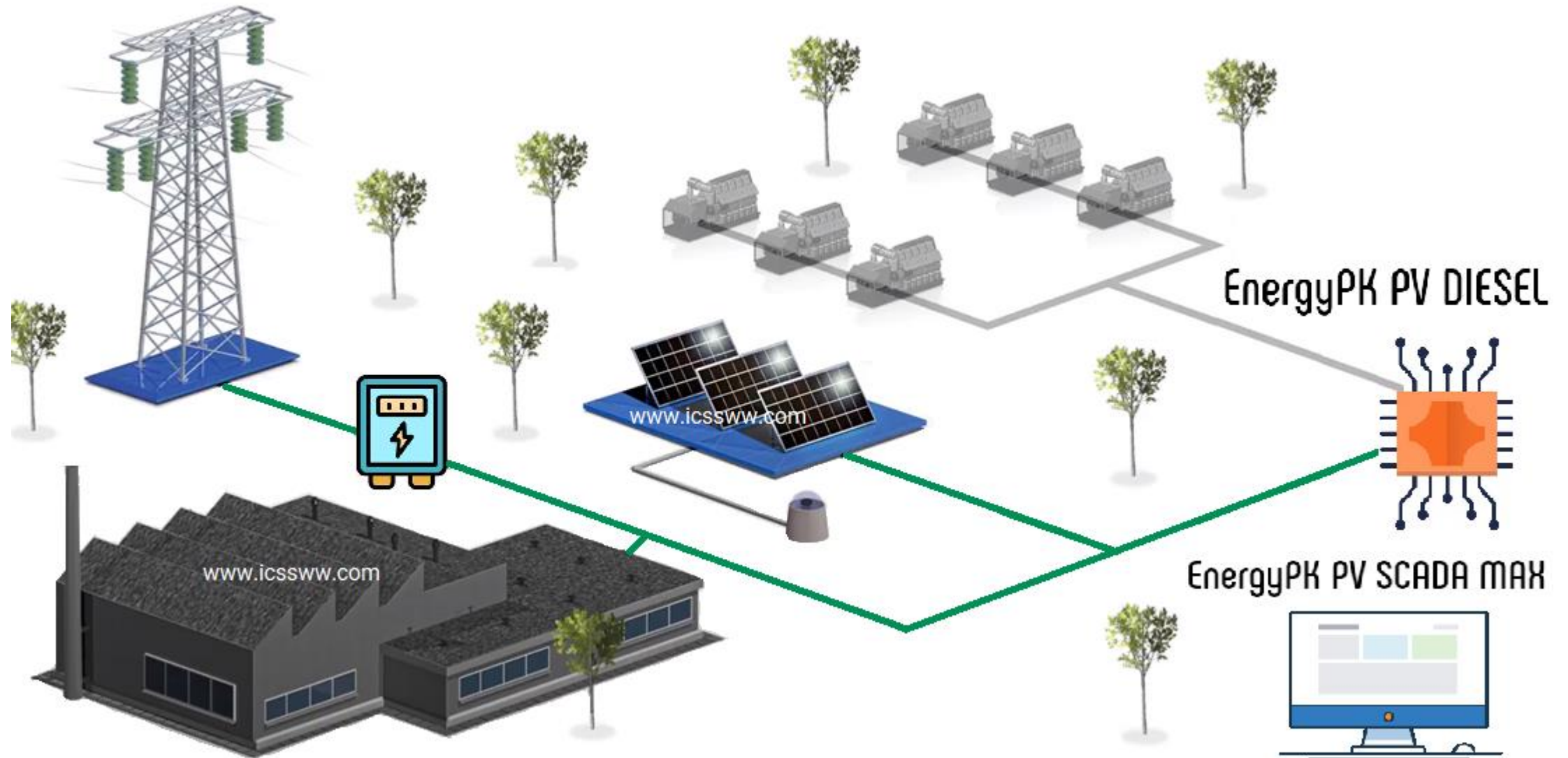
صاف سبز پاکستان



WE STARTED WITH **PAKISTAN** AND
NOW ENABLING PV MICRO GRID
SYSTEMS **WORLDWIDE**

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PV DIESEL CONTROLLERS





Grid functions

- ✓ Zero Export
- ✓ Limited Export
- ✓ Net Metered Connection
- ✓ Sync side power factor improvement



Generator functions

- ✓ Compatible with Gas & Diesel Generators
- ✓ Satisfies minimum generator loading
- ✓ Reverse power protection
- ✓ Integration with multiple Generators



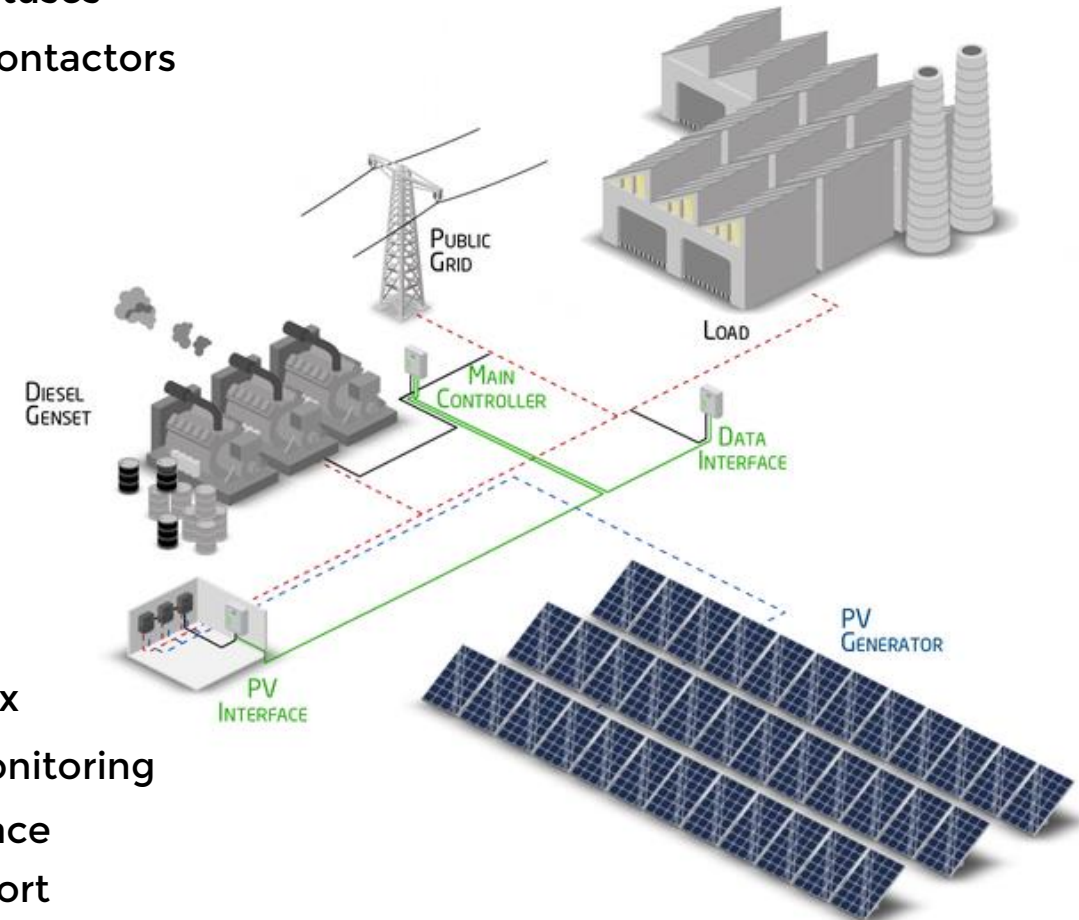
Inverter functions

- ✓ Compatible with all major brands
- ✓ Integration with cluster controllers
- ✓ Direct integration with inverters
- ✓ Integration with multiple brands of inverters on same site



Design Features

- ✓ Flexible
- ✓ Master Slave architectures
- ✓ Digital inputs for statuses
- ✓ Digital outputs for contactors



Monitoring

- ✓ Mobile Apps
- ✓ LAN Monitoring
- ✓ Real time energy mix
- ✓ Remote desktop monitoring
- ✓ Touch screen interface
- ✓ 24/7 technical support

TECHNICAL SPECIFICATIONS

Certificates	CE	CE Marked
	UL	cULus Listed
	ATEX	ATEX Zone 2/22 category 3 G/D
Standards		EN55032: 2015 + AC: 2016, Class B
		CISPR 32: 2015
		EN 55022: 2010+AC: 2011 Class B
		EN 61000-3-2: 2014
		EN 61000-3-3: 2013
		AS/NZS CISPR 22: 2009+A1: 2010
		EN 55024: 2010+A1: 2015
		IEC 61000-4-2 Ed. 2.0: 2008
		IEC 61000-4-3 Ed. 3.2: 2010
		IEC 61000-4-4 Ed. 3.0: 2012
		IEC 61000-4-5 Ed. 3.1: 2014+A1: 2017
		IEC 61000-4-6 Ed. 4.0: 2013
		IEC 61000-4-8 Ed. 2.0: 2009
		IEC 61000-4-11 Ed. 2.1: 2004 +A1: 2017
Processor		32-Bit RISC 600Mhz
RTC		Built-in
Memory	Flash	128 MB
	RAM	128 MB
Display	Display	7" TFT
	Backlight Type	LED
	Backlight Life Time	> 30,000 hrs
	Colors	16.7 M
	LCD Viewing Angle (T/B/L/R)	80/60/80/80
Touch Panel	Type	4-wire Resistive Type
	Accuracy	Active Area Length (X) +-2% Width (Y) +- 2%
Power	Input Power	24+-20%VDC
	Power Isolation	Built-in
	Power Consumption	400mA@24VDC
	Voltage Resistance	500VAC (1min)
	Isolation Resistance	Exceed 50Ω at 500VDC
	Vibration Resistance	10 to 25Hz (X, Y, Z direction 2G 30 minutes)
	Protection Structure	UL Type 4X (indoor use only) / NEMA4/IP65 Compliant Front Panel
Environment	Storage Temperature	-20 ~ 60 °C
	Operating Temperature	0 ~ 50 °C
	Relative Humidity	10% ~ 90% non-condensing

TECHNICAL SPECIFICATIONS

Standards	IEC 61000-4-2	
	IEC 61000-4-3	
	IEC 61000-4-4	
	IEC 61000-4-5	
	IEC 61000-4-6	
	IEC 61000-4-8	
	IEC 61000-4-11	
	IEC 61010-1	
AC / DC power supply	Nominal voltage	80... 270 VAC
	Frequency	50 Hz
	Consumption	6... 18 VA
	Installation category	Cat III 300V
Voltage measurement circuit	Nominal voltage	3 x 230 V / 400 V ~ (± 20 %)
	Frequency range	45... 65 Hz
	Impedance	> 1.7 MΩ
	Overvoltage	1.2 in continuous, 2 in Instantaneous (1 min)
Current measurement circuit	Nominal current	1 A / 5 A ~
	Impedance	< 20 mΩ
	Overcurrent	1.2 In continuous, 10 In Instantaneous (5s)
	V, A	0.2%
	Power, Energy	0.5 %
Digital inputs	Type (quantity)	Potential-free contact (2)
	Insulation	3.5 kV rms
	Maximum short-circuit current	4 mA
Physical Characteristics	Envelope	pc + abs
	IP Protection degree	Front: IP 54, Back: IP 20
	Dimensions	96 x 96 x 41.5 mm
Environmental conditions	Operating temperature	-10 ... + 60 °C
	Storage temperature	-20 ... +70 °C
	Relative humidity	5 ... 95%
	Maximum height	2000 m

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SUNGROW
Clean power for all



Growatt
powering tomorrow



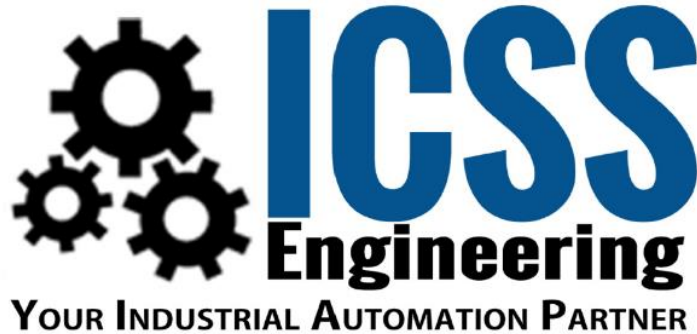
solis
inverters



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