

Tailor made PV-pumping solutions ensuring
efficient energy and groundwater utilization

Solar technology for off-grid applications

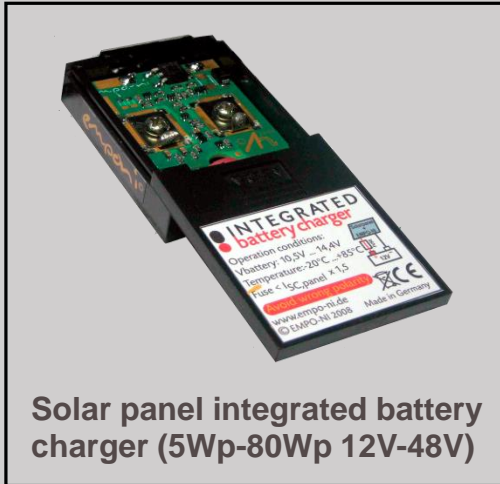
EMPO-NI off-grid solutions – Wernigeroder Strasse 102 – 40595 Düsseldorf – sales@empo-ni.de

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Off-grid technology:

Charging, controlling and driving



Technology MADE in Germany

Produced in Germany and India

SOLAR DIRECT DRIVES:

(SDD1.5kW-425V and SDD5.5kW-850V)
PV-pumping GRAIN MILLING OIL PRESSING EVERYWHERE



ENVIRONMENTAL ROBUSTNESS

RELIABILITY (Sahara tested $T_a < 45^\circ\text{C}$)

CONNECTIVITY (GSM/RMS)

CONTROLLABILITY

integrated GSM (RMS) command / monitoring

PASSIVELY COOLED – no fans / no service

OUTDOOR IP54

driving 3~ induction motors

driving 3~ BLDC motors (custom setups)

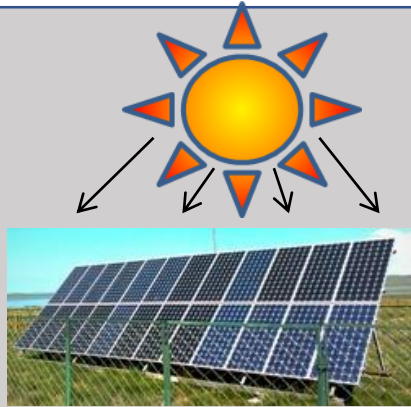


EMPO-NI off-grid solutions MADE IN GERMANY © 2015



SOLAR DIRECT DRIVES:

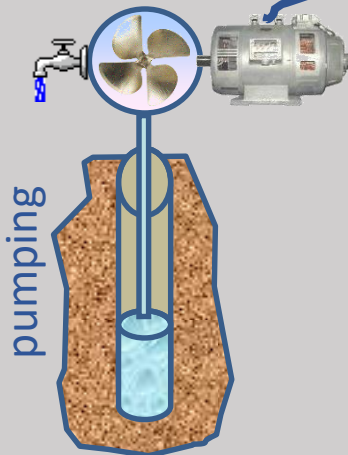
(SDD1.5kW-425V and SDD5.5kW-850V)
Solar in motion...



- PV energy directly for standard 3~ AC motors
- High Efficiency Maximum Power Tracking (MPPT)
Flowmeter input, Energy counter, Pay-as-you-go etc.
- PV array voltage (open loop) = 425V / 850Vmax
- IP54 and PASSIVE COOLING up to $T_{amb} = 45^{\circ}\text{C}$
- GSM option (SDD5.5kW-850V)
- Digital I/O's automatic start function and custom



ventilation

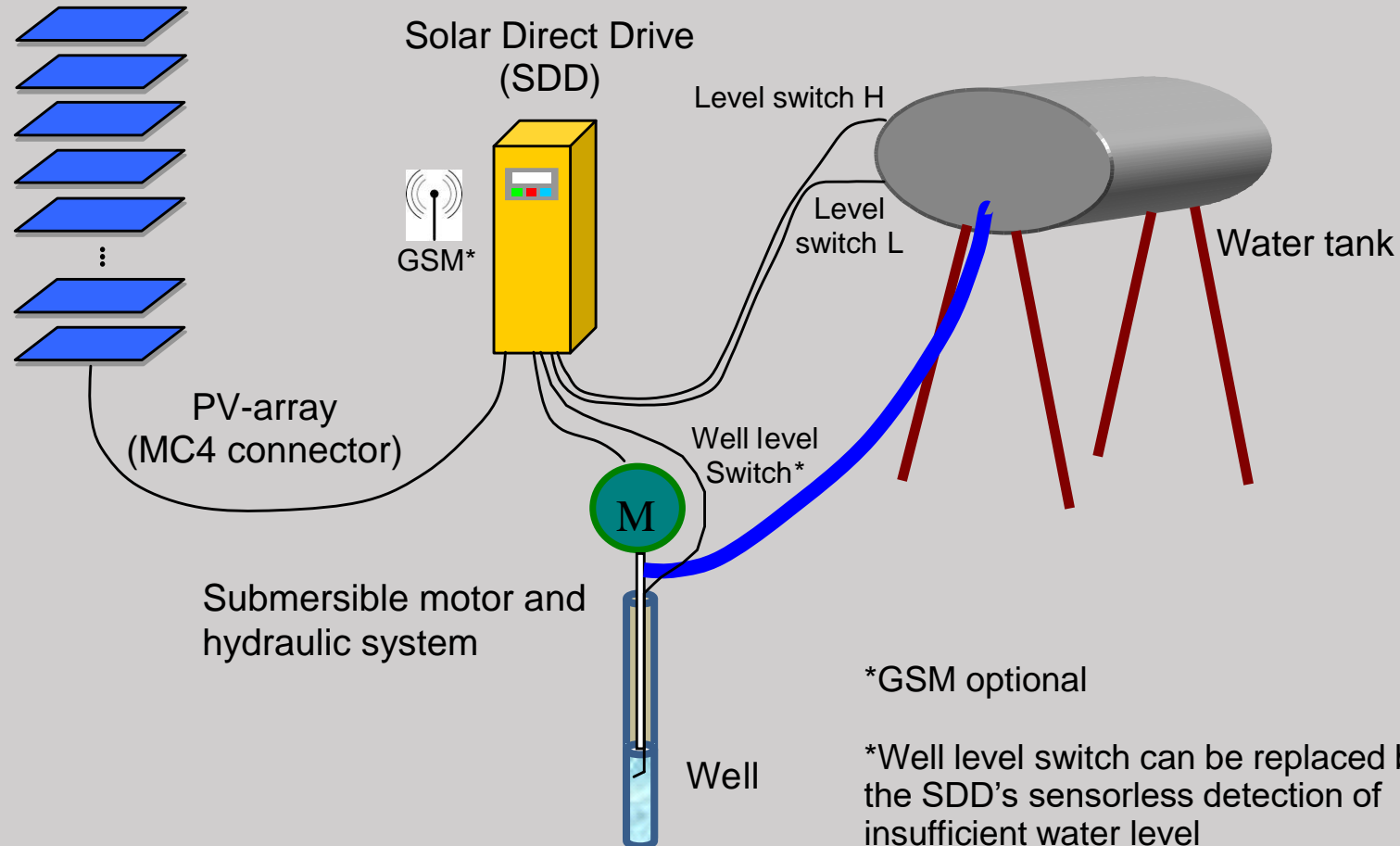


pumping



SOLAR DIRECT DRIVES:

System configuration and PROTECTION: SENSOR, SENSORLESS, GSM, LEVEL SWITCH and more

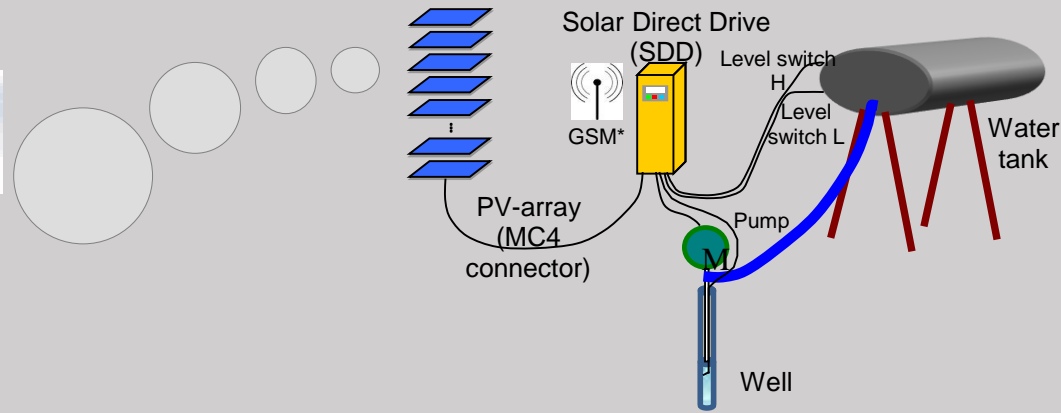


SOLAR DIRECT DRIVES:

REMOTE operation, reporting and commissioning



emponi
off-grid solutions



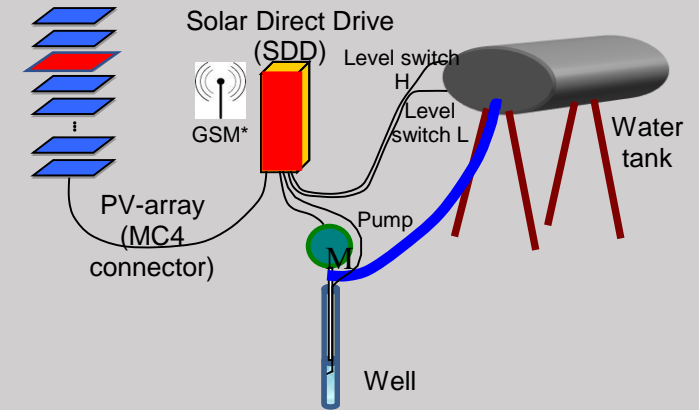
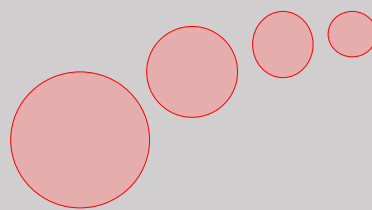
Remote Monitoring System (RMS):

- .Start & Stop the Solar Direct Drive
- .Control over actual and total performance
- .Energy counter, Flowmeter input
- .Operation parameter: Hours, DC voltage, DC current, heatsink temperature, motor speed etc.
- .Error information: Short circuit, over temperature, over voltage, low well water level etc.
- .Startmodes: Auto start, Digital in etc.
- .RUN timer and STOP timer read / write
- .SDD configuration commissioning messages



SOLAR DIRECT DRIVES:

REMOTE ALARM: Anti-theft protection (patent pending)



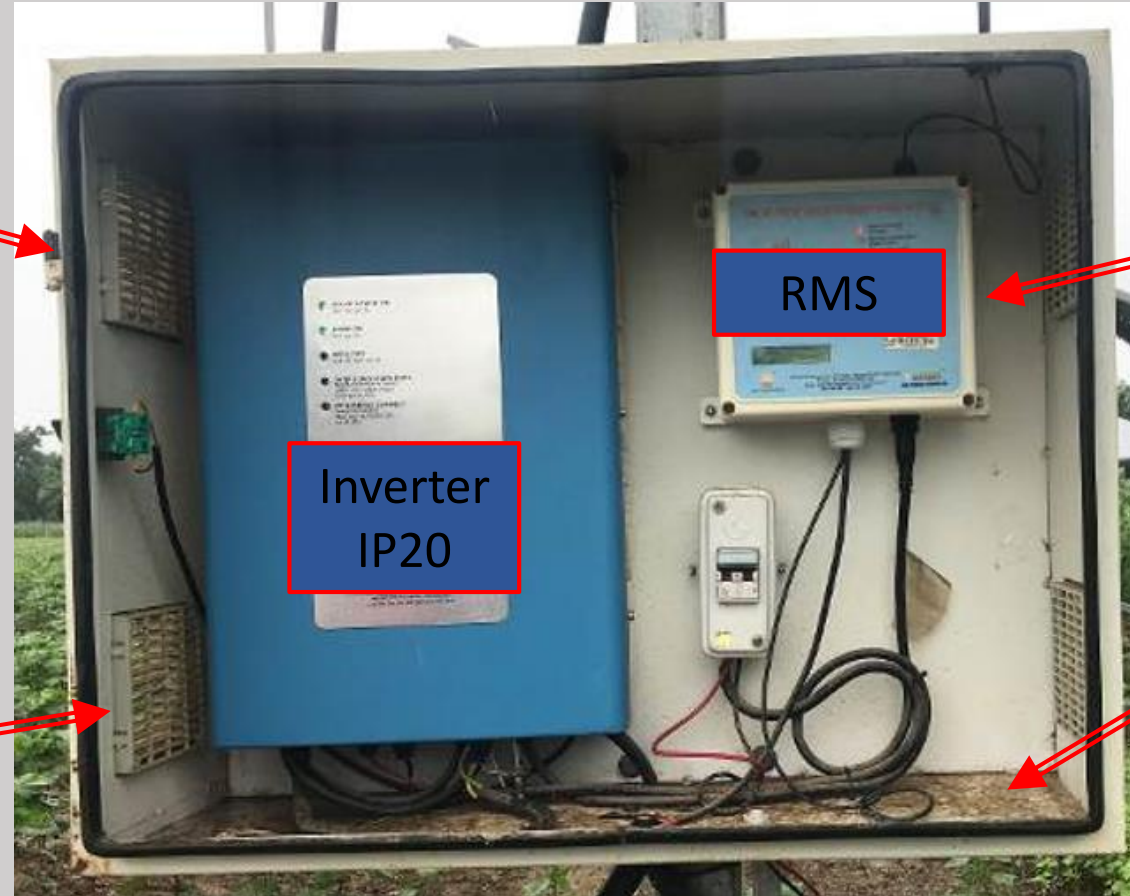
Remote Alarm System (RAS):

- Detects removal of a PV-panel
- Detects short circuiting of a PV-panel
- Detects removal of the Solar Direct Drive
- Patent pending
- Available Q1/2020



SOLAR DIRECT DRIVES:

The industrial standard solution



Air inlet
(no IP54)
(blocked by dust)

Remote
Monitoring
System
separately

Inverter
IP20

Cabinet IP54
(before inserting vents)

Particle and
humidity inside
(!)



SOLAR DIRECT DRIVES:

OPTIMIZED solution versus industrial standard solutions





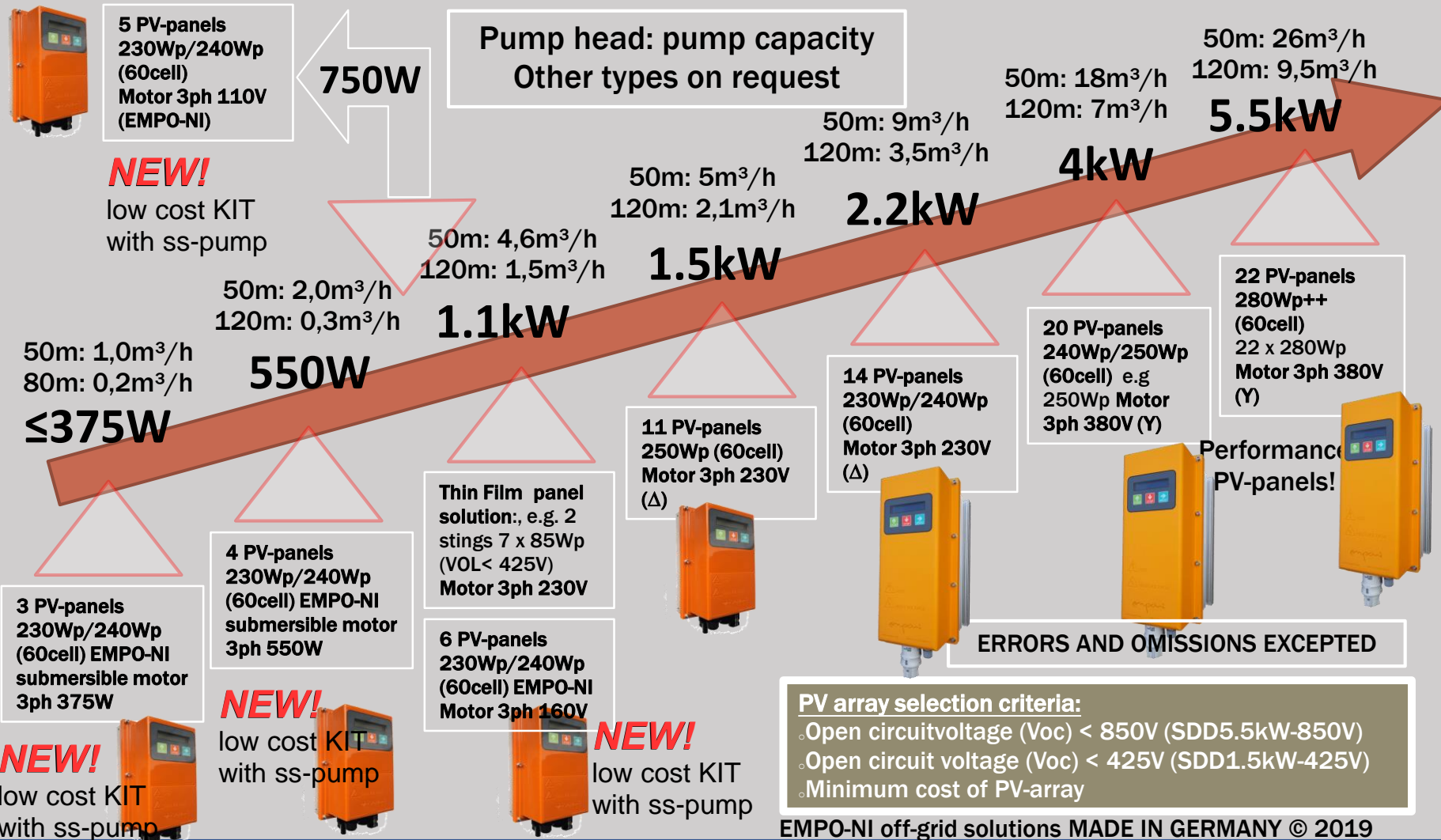
Inexpensive industrial VFD

Reliability rating: 85%
Rotating fan, IP20 / IP42, Tamb < 45°C



SOLAR DIRECT DRIVES:

Tailor made PV-panel power



EMPO-NI off-grid solutions



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