


DATASHEET status Security status	<b>Solar Direct Drive low cost pump kit for 4-PV panels (60-cells) (VMPP = 4 x 31V)</b>			 EMPO-NI (EUROPE) Wernigeroder Strasse 102 D-40595 Düsseldorf
general specification or custom specification	prepared	W. Schröder	REV A	
	checked	M. Heyer		
	approved	M. Honsberg		
general	DATE	21.12.2018		

- Type** Solar Direct Drive SDD1.5kW-425V kit with 550W pump
- Description** MPPT Solar Direct Drive with 4" submersible motor 550W/85V and two options for hydraulic systems: Type 35m and type 85m
- Solar Direct Drive ratings and specifications**

#### Electrical ratings (25°C unless otherwise noted)


ITEM	Description	min	typ	max	unit	REV
$V_{start}$	startup voltage	75		425	V	
$V_{op}$	operation voltage after startup	100		425	V	
$V_{MPP}$	Maximum Power Point Tracking range	75		400	V	
$f_c$	switching frequency	4	4	8	kHz	
$I_{PV}$	Input current through PV plugs	0,05		10	A	
$T_{amb}$	Operating ambient temperature range	-10		45	°C	
$T_{fin}$	Heatsink temperature			90	°C	
$P_{out}$	Motor rating ( $f_o=50Hz$ , $V_{DC} \geq 118V$ , $V_{out}=85V_{rms}$ )		550,00		W	
$I_{out}$	output current	0	6,80	7,00	Arms	
$V_{out}$	output voltage 3 phase system 50Hz	85	85	230	Vrms	
$f_{out}$	output frequency range	0	50	87	Hz	
$\eta$	Efficiency (600VDC, $f_c=4kHz$ , $P=P_{max}$ , $PF=1$ )	96			%	
<b>Alt</b>	altitude without voltage derating			1000	m	
$V_{iso}$	Isolation to PE ( heatsink) 1minute 50Hz		1500		Vrms	

#### Interface (digital in/outputs)

$V_{SELV1}$	Isolated supply unstabilized	10		18	V	
$I_{SELV1}$	current available from $V_{SELV2}$			85	mA	
$V_{thH}$	Threshold (to 0V) digital inputs passive	4,5			V	
$V_{thL}$	Threshold (to 0V) digital inputs active			1	V	
$I_{DIGin}$	Digital input current (Ain/Kin or 0V referred)			12	mA	
$V_{DoutH}$	Digital output passive level *option	4,6		5,4	V	
$V_{DoutL}$	Digital output active level			1	V	
$I_{DIGout}$	Digital output current (open collector)			10	mA	
$V_{DIGout}$	Open loop voltage open Collector (ext.)			30	V	
$P_{under}$	Digital output is passive below $P_{under}$	0		2200	W	

#### Mechanical

<b>DIM</b>	dimensions width x length x height (max.)	(114)	(164)	(85)	mm	
<b>m</b>	mass (net weight)		(0,85)		kg	
<b>IP</b>	Protection degree		54		--	

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#### 4. Motor Submersible 3-phase motor 4" in oil bath

##### Electrical ratings (25°C unless otherwise noted)

ITEM	Description	min	typ	max	unit	REV
<b>M<sub>freq</sub></b>	Motor voltage at 50Hz		85		V	
<b>n</b>	motor speed at 50Hz		2850		rpm	
<b>I<sub>rms</sub></b>	Motor phase current			6,8	A	
<b>P</b>	Motor power at 50Hz		550		W	
<b>cos(φ)</b>	power factor at 50Hz		0,82			
<b>Tw</b>	Water temperature			35	°C	
<b>l</b>	Motor cable length		1,5		m	
<b>Cu</b>	Copper cable cross section area		1	1,5	mm <sup>2</sup>	
<b>m</b>	mass of the motor		11,00		kg	
<b>d</b>	Depth of immersion into water	1		10	m	

#### 5. Pump Submersible pump system 4"

##### Hydraulic performance pump type optimized for 35m pump head duty point

Pump head	2	19	25	30	37	43	49	m
Discharge	5,49	4,38	3,84	3,38	2,45	1,15	0	[m <sup>3</sup> /h]

##### Hydraulic performance pump type optimized for 85m pump head duty point

Pump head	35	45	60	85	95	105	120	m
Discharge	1,55	1,43	1,18	0,87	0,62	0,52	0	[m <sup>3</sup> /h]

##### Hydraulic system specification

External casing :	Stainless steel
Pump stages:	Polycarbonate
Impeller:	Noryl
Max. water temperature:	35°C
Sand content:	max. 50g/m <sup>3</sup>
Utilization:	EN 60335-2-41
Power input:	550W @ 2850 rpm
Water connection:	DNM 1"1/4
Bore diameter:	DN 100mm

Errors and omissions excepted. EMPO-NI reserves the right to change the specification without prior notice