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LOW VOLTAGE AC DRIVES

## Solar pump drives

0.37 to 45 kW

Authorized  
value  
provider

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# Solar pump drive

## Harnessing sun's energy to maximize pump delivery

### Why solar pump?

There are still regions in the world which do not have wide coverage to grid electricity, or where the availability of electricity is uncertain. In many cases these regions are hot and dry, so it is vital to obtain clean water.

Meanwhile solar panels are becoming less expensive and there are more and more useful applications for them. The ABB solar pump drive is designed to effectively use that energy.

### Built-in MPPT

Maximum power point tracking functionality ensures that you get the most power output possible from your solar panel and maximizes the performance of your pump throughout the day.

### Remote monitoring

With the addition of optional modules you can monitor and configure drive and application parameters from anywhere via Modbus RTU, Modbus TCP, Profinet and Ethernet IP protocols.



### Best off-grid solution

Where electricity is very erratic and unpredictable, farmers need not to depend on grid electricity for their agricultural requirements.

### Advanced control panel

The multilingual assistant control panel ensures easy drive programming. Real-time clock enables accurate fault logging and automatic start and stop of the drive when there is enough power available.

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ABB solar pump drive is an innovative solution that uses solar power as a reliable energy source for pumping water.

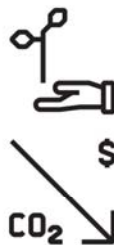
**Multiple pump motors with a single drive control**

Standard asynchronous motors as well as more efficient permanent magnet motors.

**Pump-specific protection**

Built-in flow measurement and sensorless flow calculation.

Dry run detection can be configured to pause the pumping to protect the pump. Pump cleaning in reversing method can be programmed to maximize the pump operation.



**Low-carbon economy**

With utilization of solarpower, ABB drives help in reducing your carbon footprint. The installed base of ABB's variable speed drives saved about 445 TWh in 2014 and reduced CO<sub>2</sub> emissions by 370 million tons.

# Environmentally friendly off-grid solution

## Save in energy costs and maximize productivity

ABB solar pump drives ensure reliable power supply throughout the day with on and off-grid compatibility.



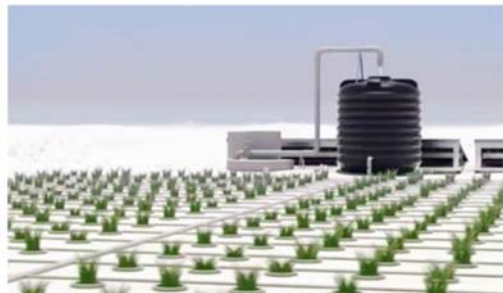
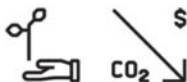
## Reduce maintenance costs

The drives can be equipped with remote monitoring options, reducing maintenance trips to the site.



## Save environment

Harnessing the power of sun provides an environmentally friendly pumping without producing any CO<sub>2</sub> emissions.



## Reduce operational risk

Embedded pump-specific features such as dry run detection and pump cleaning in reversing method protect the pump.

# Selection and ordering

Type designation:	ACS355	-	OXX	-	XXAX	-	X	+	N827	+	XXX
	ACSM1	-	04AS	-	XXXXA	-	X	+	N5400	+	N3400
Product series											
Constructions											
Ratings and types											
Voltages											
Solar pump software											
Options / Solar pump technology library											

## Type designation code

This is the unique reference number to identify your drive by power rating and frame size and can be used to determine the drive dimensions.

## Voltages

The ACS355 is available in two voltage ranges:

2 = 125 to 400 V DC or 200 to 240 V AC  
4 = 250 to 800 V DC or 380 to 480 V AC

ACSM1 available in one voltage:

4 = 270 to 800 V DC or 380 to 480 V AC

Insert either "2" or "4", depending upon your chosen voltage, into the type code shown.

## Construction

"01E" within the type code varies depending upon on the drive phase and EMC filtering. Choose one from options on the next page.

## ACS355 0.37 to 18.5 kW

01 = 1-phase  
03 = 3-phase  
E = EMC filter connected, 50 Hz

## ACSM1 5.5 to 45 kW

04 = 3-phase

## Product compliance

- UL, cUL, CE, C-Tick and GOST R approvals
- Low Voltage Directive 73/23/EEC with supplements
- EMC Directive 89/336/EEC with supplements
- Quality assurance system ISO 9001
- Environmental system ISO 14001
- RoHS compliant



# Ratings, types and voltages

Ratings for ACS355 IP20				
$P_N$ (kW)	$P_N$ (hp)	$I_{2N}$ (A)	Type designation	Frame size
1-phase AC supply, 125 to 400 V DC or 200 to 240 V AC				
0.37	0.5	4.7	ACS355-01E-04A7-2	R1
0.75	1.0	6.7	ACS355-01E-06A7-2	R1
1.1	1.5	7.5	ACS355-01E-07A5-2	R2
1.5	2.0	9.8	ACS355-01E-09A8-2	R2
3-phase AC supply, 125 to 400 V DC or 200 to 240 V AC				
0.37	0.5	3.5	ACS355-03E-03A5-2	R0
0.55	0.75	4.7	ACS355-03E-04A7-2	R1
0.75	1.0	6.7	ACS355-03E-06A7-2	R1
1.0	1.5	7.5	ACS355-03E-07A5-2	R1
1.5	2.0	9.8	ACS355-03E-09A8-2	R2
2.2	3.0	13.3	ACS355-03E-13A3-2	R2
3.0	4.0	17.6	ACS355-03E-17A6-2	R2
4.0	5.0	24.4	ACS355-03E-24A4-2	R3
5.5	7.5	31.0	ACS355-03E-31A0-2	R4
7.5	10.0	46.2	ACS355-03X-46A2-2	R4
3-phase AC supply, 250 to 800 V DC or 380 to 480 V AC				
0.37	0.5	1.9	ACS355-03E-01A9-4	R0
0.55	0.75	2.4	ACS355-03E-02A4-4	R1
0.75	1.0	3.3	ACS355-03E-03A3-4	R1
1.1	1.5	4.1	ACS355-03E-04A1-4	R1
1.5	2.0	5.6	ACS355-03E-05A6-4	R1
2.2	3.0	7.3	ACS355-03E-07A3-4	R1
3.0	4.0	8.8	ACS355-03E-08A8-4	R1
4.0	5.0	12.5	ACS355-03E-12A5-4	R3
5.5	7.5	15.6	ACS355-03E-15A6-4	R3
7.5	10.0	23.1	ACS355-03E-23A1-4	R3
11.0	15.0	31.0	ACS355-03E-31A0-4	R4
15.0	20.0	38.0	ACS355-03E-38A0-4	R4
18.5	25.0	44.0	ACS355-03E-44A0-4	R4

Ratings for ACSM1 IP20				
$P_N$ (kW)	$P_N$ (hp)	$I_{2N}$ (A)	Type designation	Frame size
3-phase AC supply, 270 to 800 V DC or 380 to 480 V AC				
5.5	7.5	14	ACSM1-04AS-012A-4	B
7.5	10	18	ACSM1-04AS-016A-4	B
11	15	27	ACSM1-04AS-024A-4	C
15	20	35	ACSM1-04AS-031A-4	C
18.5	25	44	ACSM1-04AS-040A-4	C
22	30	50	ACSM1-04AS-046A-4	C
30	40	65	ACSM1-04AS-060A-4	D
37	50	80	ACSM1-04AS-073A-4	D
45	60	93	ACSM1-04AS-090A-4	D

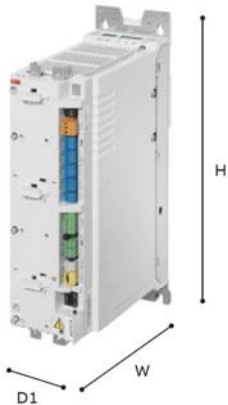
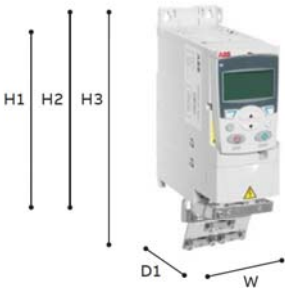
# Dimensions

All solar pump drives are IP20 modules that need to be installed in an enclosure withstanding the local weather conditions.

ACS355 Cabinet-mounted drives (IP20/UL Open type)						
Frame size	IP20 / UL open					
	H1 (mm)	H2 (mm)	H3 (mm)	W (mm)	D (mm)	Weight (kg)
R0	169	202	239	70	161	1.2
R1	169	202	239	70	161	1.2
R2	169	202	239	105	165	1.5
R3	169	202	236	169	169	2.5
R4	181	202	244	260	169	4.4

H1 = Height without fastenings and clamping plate  
H2 = Height with fastenings but without clamping plate  
H3 = Height with fastenings and clamping plate  
W = Width  
D1 = Standard depth

ACSM1 Cabinet-mounted drives (IP20 / UL Open type)				
Frame size	IP20 / UL open			Weight (kg)
	H (mm)	W (mm)	D (mm)	
B	380	100	223	5
C	467	165	225	10
D	467	220	225	17



## Connection representation

Representation of the typical connection of the drive.



**Applications**  
Typical applications are irrigation, community water supply, fish farming and agriculture.



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## Options

### Connectivity options

In order to improve connectivity of the solar pump drives either to remote monitoring, or to most common data acquisition (SCADA) applications, a set of FENA ethernet adapters are available. Ethernet adapters can be configured for Modbus/TCP, EtherNet/IP™ and PROFINET IO protocols.

FMBA-01 adapter for ACS355 solar pump drive and FSCA-01 adapter for ACSM1 solar pump drive offer Modbus RTU connectivity for more cost efficient monitoring setups.

Also PROFIBUS adapter FPBA-01 is available for PLC connections.

Connectivity options		
Ordering code	Description	Type designation
+K466/68469422	One port ethernet adapter for ACS355	FENA-01
+K473/3AUA0000089107	One port ethernet adapter	FENA-11
+K475/3AUA0000089109	Two port ethernet adapter	FENA-21
+K458/68469881	Modbus RTU adapter for ACS355	FMBA-01
+K458/3AUA0000031336	Modbus RTU adapter for ACSM1	FSCA-01
+K454/68469325	PROFIBUS adapter	FPBA-01

### NETA-21 remote monitoring tool

The remote monitoring tool, NETA-21, gives easy access to the drive via the Internet or local Ethernet network. NETA-21 comes with a built-in web server. Compatible with standard web browsers, it ensures easy access to a web based user interface. Through the web interface, the user can configure drive parameters, monitor drive log data, load levels, run time, energy consumption, I/O data and bearing temperatures of the motor connected to the drive.

Remote monitoring options		
Ordering code	Description	Type designation
3AUA0000094517	2 x panel bus interface, 2 x 32 = max. 64 drives 2 x Ethernet interface SD memory card USB port for WLAN/3G	NETA-21



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