

TUV certification now available for following clauses: as defined by MNRE

IEC STD NO	Name of the Test	Test specification
IEC 61683-1:1999	Energy Efficiency tests (Tests to be conducted on 2 samples as per MNRE)	Energy Efficiency
IEC 60068-2-1:2007	COLD Test	at -10° for 2hours
IEC 60068-2-2:2009	DRY Heat Test	at +55° for 16 hours
IEC 60068-2-14:2009	Change of Temperature	at -55° C & + 55°C + Duration at each Temperature for 1hour,Rate of change of Temperature :1deg/min. Total no of cycles:05
IEC 60068-2-30:2005	Damp heat cyclic Test	25° to 40° C +/-2 Deg. C Variant 1,12+12 Hrs, No of cycles:3,HR:93+/-3%
IEC 60068-2-75:2014	Environmental testing	Hammer tests



General Specification for Solar Pump Control

Maximum DC Input Voltage	300 VDC TO 800 VDC
MPPT Range	300 VDC TO 800 VDC
Maximum AC Output Voltage Range	380 VAC TO 480 VAC
Output Frequency	50 Hz./60 Hz.
Efficiency	>96%
IP Protection	IP21
Operating Temperature	Up to 50 °C
Humidity	Up to 95% RH-90%
Protection	IP21
Communication	RS485 / MODBUS RTU, Built in



Applicable Pump Motor (kW)	Solar VFD module Code	VFD (kW)	Output Current (Amp)	Dimensions WXHXD (mm)
0.4	FR-D740-012-EC	0.4	1.2	108x128x129.5
0.75	FR-D740-022-EC	0.75	2.2	108x128x129.5
1.5	FR-D740-036-EC	1.5	3.6	108x128x135.5
2.2	FR-D740-050-EC	2.2	5	108x128x155.5
3.7	FR-D740-080-EC	3.7	8	108x128x165.5
4	FR-E740-095-EC	4	9.5	140x150x135
5.5	FR-D740-120-EC	5.5	12	220x150x155
7.5	FR-D740-160-EC	7.5	16	220x150x155
11	FR-E740-230-EC	11	23	220x260x190
15	FR-E740-300-EC	15	30	220x260x190



POWERFUL INVERTERS FOR SOLAR PUMP
EMPOWERING RURAL INDIA.

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* Till Dec 2015

FRSeries/07-2016/1000/Vol1

***OVER 1500 INSTALLATIONS IN**
Farms | Farm Houses | Rural Empowerment

POWERFUL INVERTER FOR SOLAR PUMP

One of all the ways solar electricity benefits need for daily lives is by pumping water, providing water for irrigation for potable water sources etc. Mitsubishi Electric has developed solar power operated AC Inverter to drive the AC Induction motor of water pump. The Inverter has more efficiency, is compact in size, easy to maintain and simple operational functions and has built-in application specific dedicated features

Advance feature for Solar Pump Control:

- MPPT algorithm for higher pump operation efficiency
- Dry Run function: for no load current detection
- Flying Start function: Speed search at sudden start stop
- kWh Meter built in
- Ambient temperature 50°C
- IP 21 Enclosure

FR-D700 | 0.4 kW to 7.5 kW & FR-E700 | 0.4kW to 15kW

Simple Operation

- Simple cabling
- Easy Parameterisation
- Integrated control unit
- RJ 45 port support optional alpha-numeric keypad

Flexible Concept

- Compact installation
- Simple network connection
- Short service time
- Failure safety with self-diagnostics

Standard Functions

- Sensor-less vector control
- Auto tuning
- High overload capacity
- Integrated brake chopper
- Password protected
- Traverse function

Simple to Maintain

- Easy to replace cooling fan
- No maintenance needed for 10 years
- Self diagnostic warnings for key internal components



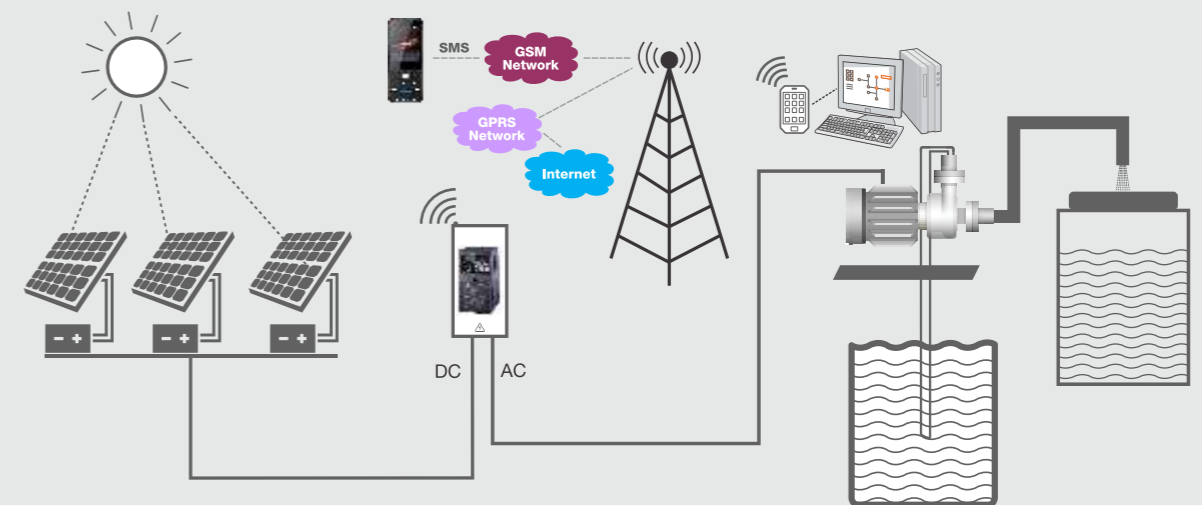
Remote Monitoring System as per MNRE Mandates

This product follows all the essential mandates set by the Ministry of New and Renewable Energy (MNRE). There is a provision for remote monitoring of the installed pumps through an externally fitted arrangement. It ascertains the daily water output, the power generated by the PV array, the uptime of the pump during the year, number of days the pump is unused or under breakdown/repairs.

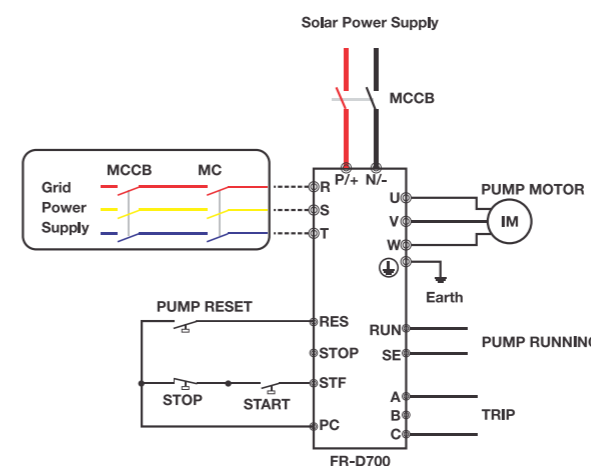
Control Panel



Application Architecture:



Connection diagram



Inverter Main Circuit Terminals-

- P/+ N/- : Solar DC power input
- R.S.T : Grid power input
- U.V.W : Inverter output

Inverter control Terminals-

- STF, STOP, PC : Pump start/stop inputs
- RES, PC : Pump reset input
- RUN, SE : Pump running output
- A,B,C : Inverter trip output

Supporting Product Features

Features

MPPT, *Dry Run Detection

*Automatic Switching to Grid Supply

Soft Start Controlling

Protections

Over Voltage, Under Voltage, PTC Thermistor

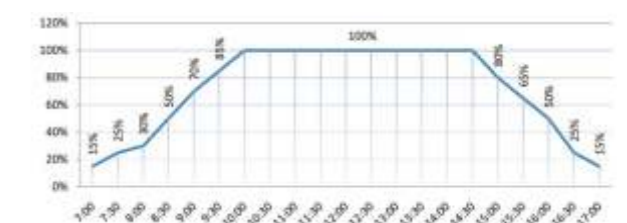
Overvoltage, Undervoltage Short Circuit on Input side, Over Current, Zero Current

IP20, Phase Imbalance, *Reverse Polarity, *Output Surge Protection

*By adding external Hardware in Control Panel

Water discharge (%) v/s Time

(Based on average data captured from Open-well /Submersible Installation)



Performance Monitor: FR-configurator



*Dedicated to Run on 450VDC Minimum | # Zero current relay output settable