



# Online UPS specially designed

for CT, MRI, PET scanners, radiotherapy equipment and X-ray machines



**PFC-iPL303  
Online UPS  
10KVA - 400KVA**

Save on cost of warranty & downtime escalations,  
reduces service cost of OEMs by 30%



## Mitochondrian Concept

Managed Power Storage and Deliver

Limits the Peak Power Consumption Utility  
Allows to operate at lower sanctioned power or to use a  
lower capacity generator.

- Wireless display for remote power monitoring
- Galvanic isolation at the output for comprehensive power protection.  
Input to output galvanic isolation for operator and patient safety.



## Crest Power Delivery - CPD technology

CPD technology is the UPS's unique capability to handle high inrush current (during **repetitive high surge power** demand of non-linear loads) which is also called as the **fault current clearance capacity, without any derating in voltage harmonics** as explained below.

Arvi UPS **PFC-iPL303** Online UPS with CPD technology is a proprietary design - specially designed for CT, MRI, PET scanners, radiotherapy equipment and X-ray machines and such non-linear loads. This was designed in our state-of-art in-house R&D after conducting power audit on these non-linear loads - ever since we have been updating our UPS continuously as per the varying power requirement of these equipment.

The non-linear loads pollutes (power distortion) the quality of UPS power; and the polluted UPS power in turn impacts the performance and optimum product life of the connected machine - Arvi **PFC-iPL303** UPS has CPD technology which compensates the power distortion by the load - the power waveform of the UPS without CPD technology while handling a high surge load is shown in graph below (Pic A)

Picture - A



Power waveform of any conventional UPS for radiology equipment during peak processing

Picture - B



Power waveform of PFC-iPL303 during peak processing

The downtime of an equipment occurs not only due to failure of power but also **due to breakdown of any electrical or electronic parts** in the equipment, input / output MCB, switchgears and other electrical and safety parts mainly due to repetitive exposure to distorted power waveform.

If this cycle of high surge is repetitive then the THD variation during the surge can have a **tangible effect** on the performance and the optimum life expectancy of the connected equipment.

Since the **tangible effects of poor quality power are not immediately experienced**, one generally tends to ignore to find the root cause analysis of any component failure.

**PFC-iPL303** provides distortion-free, **high grade quality power** (even in high surge, non-linear peak power demand load operation) **which is the fuel for the infrastructure for optimum product life** and process uptime.

PFC-iPL303 UPS design incorporates higher current rated IGBT and also special transformer design (Crest Power Delivery) capability and supplies peak power demand load current **without any distortion in the power waveform** as the IGBT and the transformers are designed to handle such high surge loads without any derating - as shown in picture B (in the above graph).

This **Ultra Clean Premium Quality Power** during full cycle of power delivery will **enhance availability of the connected equipment and optimise its expected life**.

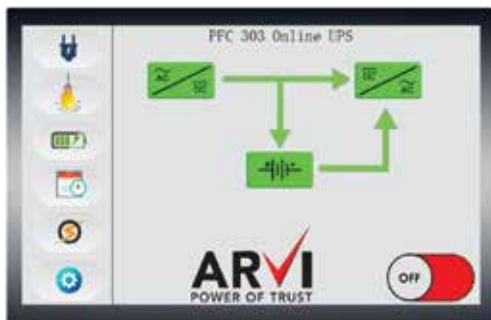
# \*Input Power Limiting Facility



This facility reduces the power demand and the cost of input transformer, generator, initial deposit for additional power sanctions and recurring electricity bills in hospitals and diagnostic centres who would have difficulty in availing higher KVA power sanctions.



## TFT, touch screen, color display



### Graphical display of UPS status, load percentag and battery levels

- Input voltage
- Output PF
- Output voltage
- Output frequency
- Battery voltage
- Load percentage
- Output power in KVA
- Over-temperature warning
- Output power in KW

## Interface

### MODBUS-BMS, SNMP, GSM and RS-485



#### Monitoring

SNMP feature facilitates the user to carry-out preventive action remotely without physically reaching the UPS. Pre-trip alarm pops on the monitoring screen prompting the user/system admin/maintenance engineer to initiate preventive action.



#### Diagnosis

Without the SNMP feature, the pre-trip alarms are often unnoticed as the UPS is located away from the users and can cause ungraceful shutdown of machines / servers / process.

## GSM Interface



### GSM based SMS pre-trip alert for initiating necessary preventive action.

Monitor the UPS mains input voltage, output voltage, battery voltage, load percentage etc from a remote location.

### Preventive action

SMS STATUS from the registered mobile number and get instant SMS about the mains input voltage, output voltage, battery voltage, load current etc. Also receive SMS alert for pre-trip like battery low, overload and over temperature.

# Advanced power factor correction

## Features

- Power Factor Corrected
- Digital Signal Processor
- Isolation Transformer
- SNMP
- Autobypass

## Power Factor Correction

- Reduces the running cost in terms of electricity bill
- Prevents the overrating of electrical wire
- Reduce reflected harmonics back to the source
- Savings in sizing of utility transformer & generator

## Technology

- DSP technology IGBT inverter - IGBT converter

## Technology

- Bifilar PWM switching

## Galvanic isolation offers

### Comprehensive Protection and High Availability.

Mains grade raw power contains impurities and large percentages of harmonics injected into the line by various non-linear loads. The common problem of neutral drift can produce considerable increase in output voltage and permanently destroy your critical loads and data.

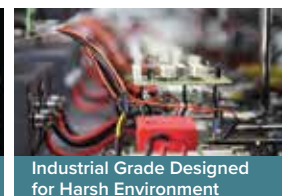
Isolation transformers increase load protection and **ensure human safety by isolating the AC leakage current from developing a potential between the input and ground.** Isolated output enhances the attenuation of common mode noise by increasing the impedance between the input and output.

Provides protection of loads against lightning. Galvanic isolation via transformer is the only way to safely protect loads from lightning. It provides protection from high energy transients, which are clamped at the AC input from propagating to the output.



## Uninterrupted Premium Quality Power using Power-Conditioning topology

The factors contributing to the pre-mature failure of electrical gadgets and eventually the system failure is not limited only to voltage fluctuations but also the poor quality of power. Hence, importance should not only be given for power availability but also for quality power availability.



## PFC-iPL303 is a complete Power-conditioner & Power Factor Corrector

Optimises the product life & process uptime by 35%-40%.

- Constant voltage, frequency, High Grade Premium quality power.
- Overload handling capability of 150% for 1 minute.
- Galvanic isolation at the output.
- Operating ambient temperature 0-45 degrees.
- High surge handling capability.



National award winner from SoftDisk  
"Most innovative power solution of the year 2016."

Best In-house R&D  
ISO 9001-2015

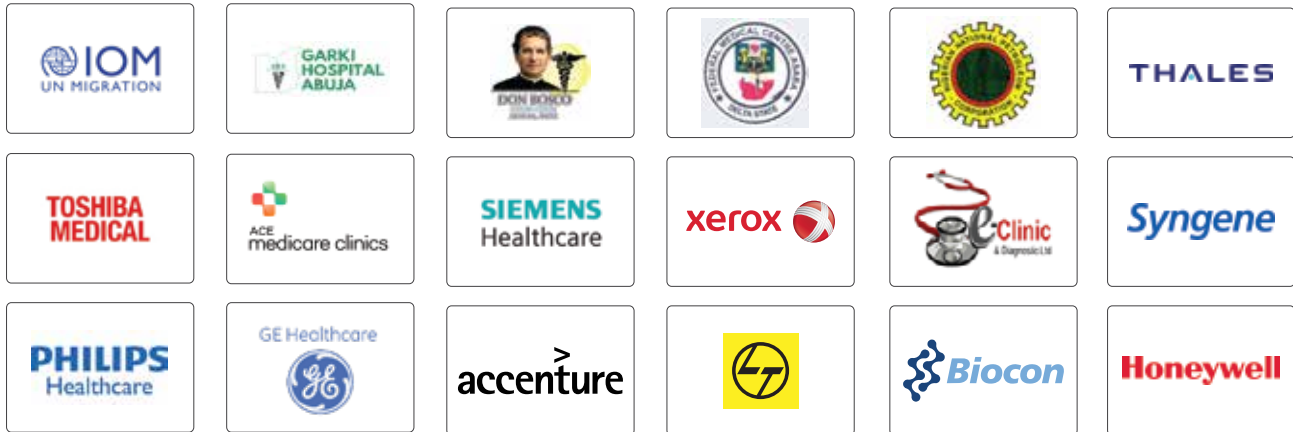
# Technical Specification

## 10KVA - 400KVA PFC-iPL303

<b>TECHNOLOGY</b>	DSP based, IGBT inverter-IGBT converter Online UPS.
RATING	10KVA - 400KVA
DC BUS	240VDC - 384VDC
<b>INPUT</b>	
Input Voltage	415VAC, 3Ø & N
Input Voltage Window	330VAC - 470VAC
Input Frequency	45-55Hz
Input PFC 100% load	> 0.95
Power walk in	Soft start for 0-20 seconds power walk-in.
Input Power Limiting	The power consumption limit is programmable from 30%-100% of input power.
<b>RECTIFIER</b>	
Type	PFC (Power Factor Corrected) IGBT based full bridge using DSP.
Voltage Regulation	( ± ) 1%
Ripple Voltage	< 2%
Converter Protection	Advanced Electronic Protection for device safety backed up, with MCB's/ MCCBs & fast acting fuses
<b>INVERTER</b>	
Inverter Type	IGBT based MPWM with instantaneous Sinewave Control
Output PF	0.8 lagging to Unity
Nominal Voltage	415VAC, 3Ø, P-P / 230VAC, 1Ø, P-N (Output voltage can be customised as per requirement)
Regulation	( ± ) 1%
Frequency	50 Hz ± 0.1Hz
Waveform	True Sinewave
Total Harmonic Distortion	< 2% for linear load & <6% for non-linear loads.
Transient Response	Remains within +/- 5% & recover to normal within 20 msec
Over Load Capacity	100% Continuous, 110% for 10mins & 150% for one minute.
Crest Factor	4:1
Mode of Operation	Designed for Continuous operation
ISOLATION	True Online with complete galvanic isolation. Galvanic isolation at the output for comprehensive power protection. Input to output galvanic isolation for operator and patent safety.
Inverter Protection	Advanced Electronic Protection for device safety backed up with MCB's/ MCCBs & fast acting fuses, high speed pulse by pulse electronic device protection over voltage / under voltage protection, Electronic over current trip.
<b>BYPASS</b>	
Manual Bypass	Provided
<b>ALARMS</b>	
	• Input / Low / Fail • Output overload • Over temperature • Battery low
<b>Remote Power Monitoring</b>	
	• Wireless Display • GSM Interface • SNMP Interface • BMS compatible
<b>LED Indications (Single LED with multi function )</b>	
	• Mains on • UPS on • Battery Low • Overload
<b>User Friendly LCD Display shows the following parameters</b>	
	• Input Voltage • Output Voltage • Load current • Output Frequency • Battery Voltage
Ambient temperature	0 - 40°C
Enclosure Protection grade	IP - 20
Testing standards	As per IEC 62040 - 3

## Approved vendor for

Our esteemed customers have been using PFC-iPL303 for various applications across the country from past 20yrs and have certified the performance of the same.



PARTIAL LIST



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