



Best In-house R&D
ISO 9001-2015

Regressive topology Online UPS specially designed

for **5-axis milling machines**



PFC-IG303RL **20KVA - 200KVA**

- IGBT converter
- IGBT inverter
- Fully DSP controlled
- Event log & SNMP
- Solar compatible
- Galvanic isolation
- Power-conditioning
- Regenerative load handling

Regenerative load handling

Regressive topology Online UPS - designed to handle back-feed regenerative power by vertical and horizontal milling machines.



Retract source -sink iac load

Protection against **back-feed** regenerative power by the load

Real time sensing and regressing at AC side.

Regenerative Energy (4-Quadrant load) handling capability.

Applications

- Vertical 5axis milling machines
- Horizontal milling machines
- CNC cutting machine
- CNC bending machine
- Industrial saw
- Lifts and conveyors

The reverse back-feed voltage generated by the regenerative load is always dangerously higher than the UPS output voltage and starts feeding back to the UPS, resulting in failure of switching devices, DC Capacitor and overcharging the batteries and in most cases permanently damaging them in the **case of a conventional Online UPS.**

More importantly real time regression of the high voltage generated by the regenerative load is of prime importance as it causes premature failure of electrical and electronic components inside the CNC machine.



Retract source -sink iac load

Protection against **back-feed** regenerative power by the load

Real time sensing and regressing at AC side.

Arvi PFC-IG303RL Regressive Dual polarity topology Online UPS can source and sink back and forth to the load and from the load using Retract source-sink iac load. Employs real-time regenerative load sensing and load banking at the input side (AC side); offering dynamic load protection - ensuring faster clamping than the conventional DC side sensing and load banking.

It also offers comprehensive protection during non-linear, complex regenerative loads. Arvi PFC-IG303RL can handle 30% - 50% of the rated power regenerative energy.

100% Indigenous design



IGBT based PFC rectifier



Industrial Grade Designed for Harsh Environment

100% Indigenous Factory - With In-House R&D.

Compatible with

- | | | | | |
|------------|-----------|-----------|----------|----------|
| • DMG-MORI | • HAAS | • Mazak | • Makino | • TRUMPF |
| • MAG | • Brother | • ETHEREA | • ACE | • EMAG |
| • JYOTI | • FANUC | • Okuma | • AMADA | |

Optimise production process to improve Productivity and profitability...

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.



Galvanic Isolation for Comprehensive Power Protection

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-IG303RL 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.
- Galvanic isolation at the output.
- Operating ambient temperature 0-45 degrees.
- Overload handling capability of 150% for 1 minute.
- High surge handling capability.

Advanced Active Power PFC Online UPS

Features

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

Power Factor Corrections

- Reduces the running cost in terms of electricity bill
- Prevent 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

Topology

- Bifilar PWM switching

Interface

- SNMP compatible
- User-friendly LCD display
- True RMS reading
- Fault condition
- Status display
- Event logging

Ideal Power-conditioner

- Constant Frequency source
- Premium Quality Galvaically isolated Power
- Power Factor Corrector

Predictive Self Analysis

The uptime is significantly enhanced using the intelligent DSP based Predictive Self Analysis built-in in the UPS. Using 16 sensors, the UPS periodically carries-out Self Analysis of various parameters and initiates alarm for preventive and corrective action well in advance and facilitates high uptime of machines and process.

SNMP-Simple Network Monitoring Protocol

Monitoring

Diagnosis

Preventive action



Remote UPS monitoring software interface

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

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.

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



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

TECHNICAL SPECIFICATIONS

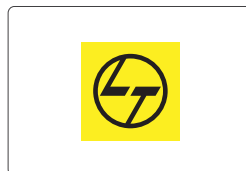
PFC-IG303RL | 20KVA - 200KVA

DESCRIPTION

TECHNOLOGY	DSP controlled, IGBT based, double conversion with retract iac load switching.
INPUT	
Operating voltage range	330VAC - 470VAC
Operating frequency range	47Hz - 53Hz
Power factor	<0.95, generator compatible.
Converter / rectifier type	Power Factor Corrected (PFC), Full bridge using IGBT
Converter topology	Interleaved bifilar switching topology.
OUTPUT	
Inverter type	MPWM using IGBT
Inverter topology	VFI, Power-conditioning topology with Galvanic isolation at the output for comprehensive power protection.
Output PF	0.8
Output voltage	400VAC, 3Ø- 3Ø
Voltage regulation	±1% on balanced and unbalanced load.
Output frequency	50 Hz ± 0.1Hz
Unbalanced Load Phase Shift	120°± 0.5°
Harmonic distortion	Linear Load < 2%, Non Linear Load < 5%
Crest factor	3:1 without derating in power waveform
Transient response	Remains within ±5% & recover to normal within 20 msec
Galvanic isolation	Built-in 1:1 Galvanic isolation at the output of inverter
PROTECTIONS	Overload, shortcircuit, over temperature, battery low.
Efficiency	92% - 94% (including the output transformer) on full load
	Regenerative energy clamping
Methodology	Real time regenerative load monitoring and banking using low inductance, highly durable load. Instantaneous load monitoring using high-speed DSP and fast acting semi-conductors at the load side (AC side sensing & clamping)
Regenerative energy	Customised as per load study.
UPS protection from excess regenerative load	Load gets disconnected from the UPS if the regenerative load is in excess than the rated capacity.
BATTERY	
Battery voltage	240VDC - 360VDC
Charger type	CVCF
SYSTEM FEATURES	
Overload capacity	100% - Continuous, 125% - 1min, 150% - 5secs
LED display	Mains ON, UPS ON, Battery low, UPS Trip
LCD DISPLAY	
	Input voltage, Output voltage, Battery voltage, output frequency, Load percentage, over temperature warning, UPS On - load on mains / battery
ALARMS	
	Input / Low / Fail, Overload, Overtemperature, Battery low Potential free contact for activating hooter.
Communication Interface	RS232 - Standard SNMP, MODBUS, GSM - Optional

A FEW OF APPROVED VENDOR FOR

Our esteemed customers have been using PFC-IF303RL for various applications across the country from past 6yrs and have certified the performance of the same.



Govt. of India certified
Importer & Exporter
Code: 0708009123

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