JDEVS

Converters & Power Supplies Center

WWW.JDEVS.COM

Designing, Engineering & Manufacturing of:

Industrial and Standard UPS, Industrial Battery Charger and Inverter

TÜV InterCert SAAR

RELIABILITY & HEAVY DUTY

INTRODUCTION

JDEVS is an Iranian, public nongovernmental self-finance scientific, engineering and production organization, which has been established in 1980. It is mainly involved in technical and industrial activities in the fields of environmental, electrical, mechanical, civil and architecture engineering through its different subsections working as different centers by more than 500 well trained employee.
Converters & Power Supplies Center was established in 1990 to design and manufacture different types of industrial AC/DC UPSs. The center with over 120 personnel and multi-million Euros annual turnover is the largest and the only leader of UPS manufacturers in Iran. Our products are installed in over 100 Industrial plants, such as oil, gas, petrochemical complexes, power plants, as well as other major industries. JDEVS Converters & Power Supplies Center with seven departments including sales & marketing, engineering, R&D, Procurement, Fabrication, QC & QA and after sales service; does it best try to use new advance technologies for producing modern and high quality systems.

PRODUCTS

CHARGER

JDEVS automatic battery chargers are constant voltage, current limited, 6-12 pulse technology, based on power electronic converters. To provide high performance and reliable industrial power supplies, thyristor based battery chargers are used. Extensive ranges of JDEVS chargers are available with no limitation in power. For more information please refer to table 1.

Features:

- Unattended charging of vented or sealed recombination Ni-Cd/Lead-Acid batteries to provide high security DC power systems.
- Simultaneously supplies load and recharging current as the load is permanently connected across the battery.
- Particularly suited to operate on generator supplies with limited rating where rating for operation on half controlled.

INVERTER

Extensive ranges of JDEVS inverters power provide reliable continuous power for high performance applications. UPS systems are produced in the power range of 5 kVA to 250 kVA (higher rating on request) based on international standard specifications, and are designed particularly to meet customer specific demands. The systems have been configured in a way to protect sensitive loads against the main disturbances such as, power failures, voltage variations and surge transients, spike and frequency variations. PWM-based inverter transforms DC power to AC with overload capacity for fuse blowing and fault clearance. Heavy-duty design and out-standing performance of these uninterruptible units help users to avoid of annoying power problems. For more information please refer to table 2.

Features:

- Configuration as a single/dual load share hot standby mode
- Three level PWM and vector control technology
- IGBT based inverter, with high efficiency
- DSP (or Analog) control unit

STANDARD UPS

Features:

- Double conversion
- DSP controllers
- IGBT based rectifier & inverter technology
- Low input current THD (< %3)
- High input power factor (> 0.99)
- High efficiency > % 93
- Advanced battery test and management
- Short circuit & overload protection
- Automatic/ manual bypass operation
- Easy power upgrade
- Reliability & paralleling ability
- Redundancy up to 8 systems
- Communication port (RS 232 / 485, MODBUS, SNMP)
- Perfect generator compatibility
- Cold start function
- Emergency shutdown
- Graphic LCD monitoring
- Up to 500 event recording
- Auto restart

For more information please refer to table 6.

Models:

- ***Modular***
  Model No. : JDMA-XXX
  ON line (4X20 KVA)
- ***1 Phase input / 1 phase output***
  Model No. : JD11-XXX
  ON line (1 ~ 20 KVA)
- ***Rackmount***
  Model No. : JDRM-XXXON
  ON line (1 ~ 20 KVA)
- ***3 Phase input / 1 phase output***
  Model No. : JD31-XXX
  ON line (10 ~ 20 KVA)
- ***3 Phase input / 3 phase output***
  Model No. : JD33-XXX
  ON line (10 ~ 800 KVA)

BATTERY MONITORING TEST SYSTEM

Uninterrupted energy supply is one of the main requirements for modern systems used in telecommunications and industry. A key element of each system power supply are batteries. They are subject to fluctuations of temperature, voltage fluctuations, production defects, misuse, improper operation, etc. All these factors influence the service life of the batteries and their residual capacity. To be confident in the system of power supply, you need to be sure of the entire fleet of battery and each battery individually. JDVES's Battery Monitoring System continuously captures and securely transmits battery performance data. Suited for both VRLA and wet cell batteries, the system is cost effective and can be easily installed on UPS, generator, DC plant and switchgear battery systems. JDVES ensures that your critical backup power systems are ready when needed. For more information please refer to table 7.

Features:

- Protection through high voltage insulation transformers
- Protection through optical insulators
- Data transfer using opto-isolators
- Current limiting resistors
- Initial protection between battery monitoring system and battery bank with through high impedance
- Less than 30 μA current from battery bank
- Performing the duty without any loading effect on the system
- Not causing current discharge of batteries
- Compatibility with any sort of installed battery bank without affecting their performance
- Ability of recording measured data

ACCESSORIES

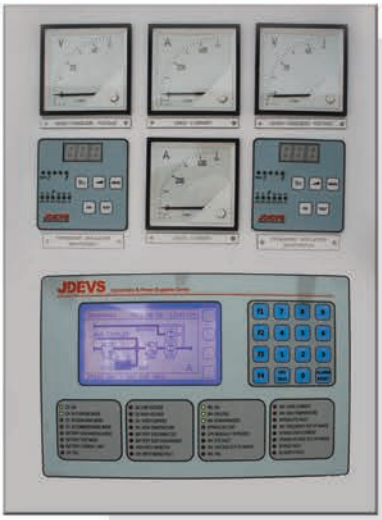
- AC voltage stabilizer
- DC/DC regulator
- Dropper diodes
- Battery test system
- THDi filter
- CANBUS signal transferring, etc. For more information please refer to table 3.

ENCLOSURE

AC/DC UPSs are housed in free standing enclosures which normally accommodate a limited amount of optional equipment without increased size. Our cubicles, have IP20~IP42 and finishing paint compatible with RAL standard. Additional front access arrangements help clients to reduce MTTR less than 1 hr. For more information refer to table 4.

VENTILATION

Cubicles are designed to be cooled by natural convection. For maximum reliability forced ventilation will operate in emergency conditions or in very high power systems.



FRONT PANEL INDICATION

System enabling status and system control panel are comprehensible with a rapid glance. With Graphical LCD & mimic ensure immediate recognition of any abnormal conditions.

DOCUMENTATION

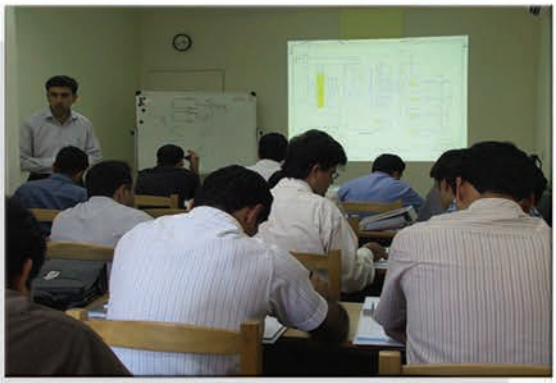
In order to provide fast and easy installation, commissioning, and maintenance all JDEVS systems are accompanied by a complete set user manual and circuit diagrams, which designed and prepared in accordance with clients' documentation specifications.

SAFETY

The internal layout of systems is designed for maximum safety with easy access for adjustment and performing routine maintenance. Fuses easy access makes replacement and test quick and safe.

RESEARCH AND DEVELOPMENT

R&D section with it's customer-oriented perspective or in other words, to reach satisfaction and meet expectations of customers, is in charge of innovation for industrial products of converters and power supplies center at JDEVS. This section, in order to constantly increase the quality of products and to reach customer satisfaction, according to the requirements, employs only engineers with great academic background or highly experienced technicians with new ideas in production.



TRAINING

JDEVS provides training courses for operation and maintenance in three levels. Elementary and intermediate level courses are presented in customer site or in JDEVS headquarter, but advanced level courses shall be presented in JDEVS workshops.

QUALITY CONTROL

Based on our experience and well-equipped facilities, we offer a wide range of quality control services and on-site testing to our clients according to well-known standards.

GUARANTEE AND WARRANTY

All JDEVS products have 12 months after commissioning or 18 months after delivery, guarantee and 10 years warranty as minimum. Also, these services may be provided on client's request.

SPARES

Extensive stocks of components and spare parts are maintained to support clients with fast delivery and replacement services.

AFTER SALES SERVICE

You are in good hands with us Because of a certified and experienced team available any time to answer your request. We offer different on-site services: - Maintenance, Commissioning and Repair. We render all services not only for our own products, but also for products of other manufacturers.

CERTIFICATES AND AWARDS

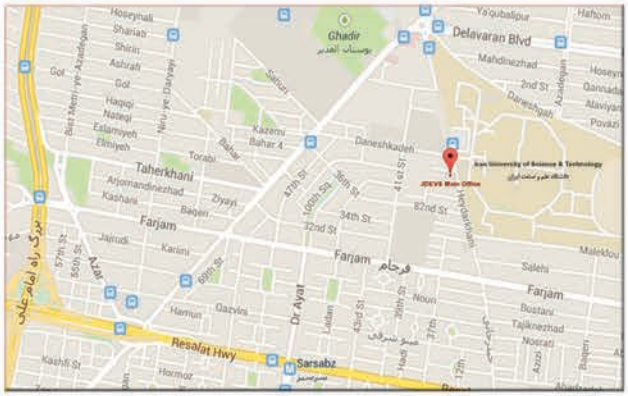
JDEVS with its strong design, engineering, QC/QA, and productions based on IEC standards (table 5) has been able to achieve many awards and certifications such as: ISO 9001, prestigious awards, patents, and type test certificates.

CONVERTERS & POWER SUPPLIES ELECTRICAL WORKSHOP

Converter & Power Supplies Center Workshop space is 5,000 m and production capacity is more than 500 industrial UPS and Battery charger systems and 2,000 Standard UPS annually.

REFERENCE LIST

Client / project	Quantity
South pars fields (POGC)	More than 295 sets
persian gulf star refinery	More than 18 sets
Petrochemicals	More than 95 sets
Refining and refineries	More than 80 sets
NISOC co.	More than 45 sets
Power plants and substations	More than 75 sets
Oil storage, pipelines and pumping stations	More than 35 sets
Offshore platform (Except South Pars)	More than 25 sets
Gas compressor station	More than 15 sets
Other oil and gas industries	More than 40 sets
IRIB	More than 15 sets
Universities	More than 5 sets
Other industries	More than 30 sets



CONTACT US

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- Main office address: No.184, Haidarkhani St., Farjam Ave., Narmak, Tehran, Iran, (Postal box: 14155-4364, postal code: 1683851167)
- Workshop address: ACECR R&D complex, end of Kavosh St., Supa Blvd., km 55 Tehran-Qazvin High way, Iran

Charger

Size (Current A)			30	50	100	150	200	250	300	400	500	600	700	750	800	900	1000	1200	> 1200
Mains input voltage			380VAC - 400VAC (with ±10% Vn variation) 4wire/3wire (single phase for power < 2KVA)															
Frequency			50 Hz ±5% (60 Hz on request)															
Rectifier type	Thyristor	Type	6 pulse									12 pulse						
		Input THD	`< 30 %									< 8% (5% with additional filter)						
		Power factor	> 0.7									> 0.8						
Output voltage	24VDC 48VDC	Dimension(cm)	80x80x226					105x80x226			120x80x226			150x80x226			185x80x226	
		Weight (kg)	250 ~ 500					400 ~ 650			500 ~ 800			800 ~ 1100			1100 ~ 1500	
	110VDC	Dimension(cm)	80x80x226					105x80x226			120x80x226			150x80x226	180x100x226		215x100x226	
		Weight (kg)	300 ~ 450					450 ~ 650			650 ~ 900			900 ~ 1000	1000 ~1200		1200 ~ 2000	
	220VDC	Dimension(cm)	80x80x226				1050x80x226			120x80x226		150x80x226		185x100x226	215x100x226		240x100x226	
		Weight (kg)	350 ~ 450				450 ~ 550			550 ~ 750		750 ~ 1000		1000 ~1200	1200 ~ 1400		1400 ~2000	
	360VDC	Dimension(cm)	80x80x226			105x80x226		120x80x226		150x80x226		185x100x226		215x100x226	240x100x226		300x100x226	
		Weight (kg)	400 ~ 450			450 ~ 550		550 ~ 750		750 ~ 850		850 ~ 1050		1050 ~ 1400	1400 ~1600		1600 ~2500	
Output ripple	±1% with battery ±2% without battery																	
Regulation	From no load up to full load : ±1%																	
Charging voltage	24VDC	Float : 25VDC ~ 29VDC					Equalize : 27VDC ~ 31VDC							Initial : 31VDC ~ 33VDC				
	48VDC	Float : 50VDC ~ 58VDC					Equalize : 54VDC ~ 62VDC							Initial : 62VDC ~ 66VDC				
	110VDC	Float : 112VDC ~ 133VDC					Equalize : 120VDC ~ 143VDC							Initial : 135VDC ~ 152VDC				
	220VDC	Float : 221VDC ~ 265VDC					Equalize : 238VDC ~ 284VDC							Initial : 270VDC ~ 302VDC				
	360VDC	Float : 378VDC ~ 435VDC					Equalize : 406VDC ~ 465VDC							Initial : 462VDC ~ 495VDC				
Thermal compensate	-3 mV/cell °C for more than 25 °C																	
Boost mode timer	0 ~ 24 hr (adjustable)																	
Overload	110% continuous																	
Battery current limit	0.2 C5 for Ni-Cd battery / 0.1 C10 for Lead-Acid battery																	
Static stability	±0.5%																	
Dynamic stability	Step load from 10% to 100% and 100% to 10% : ±10% with recovery to ±2% in 100 ms																	
Efficiency	at Full Load	86%			87%				89%				90%					
Noise level	at 1m	< 63 dB			< 64 dB				< 65 dB				< 70 dB				<75	
Operation type	Single , Multiple: Hot Standby , Dual Load share , N+1 Parallel - Redundant																	

Table 1

Inverter

Size (Power (KVA))		5	10	15	20	30	40	50	60	70	80	90	100	120	150	200	250	> 250
DC input voltage	110VDC (88 ~ 145)	110VDC (Other on Request)						220VDC (Other on Request)				360VDC (Other on Request)				400VDC		600VDC
	220VDC (176 ~ 285)																	
	360VDC (288 ~ 470)																	
AC output voltage	110VAC ~ 115VAC	Single phase Three phase (on request)																
	220VAC ~ 230VAC																	
	400VAC																	
Harmonic distortion	Linear load: THD < 3% & SHD < 2% Nonlinear load: THD < 5% & SHD < 3%																	
Power factor	0.8																	
Crest factor	3 : 1																	
Frequency	50 Hz (60 Hz as request)																	
Overload	Load on inverter: 125% for 10 min. 150% for 1 min. 200% for 1 sec.																	
	Load on bypass: 110% continuous 150% for 10 min. 1000% for 1 sec.																	
Static stability	±1% Vn																	
Dynamic stability	±8% with recovery to ±2% in 60 ms																	
Synchronization limit	Fn±1% , Fn±2% , Fn±4% (Slew rate: 0.5 Hz/sec) & Vn±10% , Vn±15%																	
Static transfer switch	Type : Anti parallel thyristors																	
Noise level	at 1m	< 60 dB			< 65 dB				< 70 dB						< 75 dB			
Dimensions	L x W x H (cm)	80x80x226			105x80x226			120x80x226		150x100x226				185x100x226			215x100x226	
Weight	~ (kg)	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1400	1600	1800	2500
Operation Type	Single , Multiple: Hot standby , Dual load share , N+1 Parallel - Redundant																	

Table 2

Accessory	
bypass Stabilizer	Electromotor control system
	Input : ±10% Output: ±1%
Dropper diodes	output voltage = Vn+10%
	One step: Vfloat <= Vn+10%
	Two step: Vfloat > Vn+10%
	Bypass contactor: Batteries in service
DC/DC converter (IGBT based)	output voltage = Vn±1%
	Buck DC/DC : Only decrease
	Buck-Boost DC/DC: Increase & decrease
	Efficiency: 90%
PIM	Permanent Insulation Monitoring for online Indicating Insulation amount in output line
PBM	Professional Battery Monitoring system for indicating defective cells in battery bank and finding remained capacity
THDi filter	For reduce current THD in chargers input
ESD system	Using shunt trip in main MCCBs
Anti condensator	Heater & Thermostat
Panel lighting	Fluorescent bulb with microswitch
Internal signal transferring	CANBUS (other on request)
Meters	Digital / Analog
Indicators	LCD graphic / LED , Mimic
Remote signals	Free contact , RS232 , RS485,(other on request)
	Transducer (4 - 20 mA)

Table 3

General	
Cubicle	Floor mounted, Steel sheet (1.5mm & 2mm)
Protection degree	IP21 - IP31 - IP41 - IP42
Colour	Ral 7032 (other on request)
Storage temp.	-20 °C ~ 70 °C
Operation temp.	-5 °C ~ 45 °C (other on request)
Operation altitude	< 2500m A.S.L.
Ventilation	Natural or light fan forced
Relative humidity	< 100% @ 25 °C
Cable entry	Bottom (Top on request)
Quality standard	ISO 9001 : 2008
MTBF	> 100,000 hrs
MTTR	< 1 hr

Table 4

Standard	
Low voltage assemblies	IEC 60439-1,-2,-3
Semiconductor converters	IEC 60146-1-1 ,-3, IEC 60146-2
Degree of protection	IEC 60529
Safety	IEC 62040-1
Electromagnetic compatibility	IEC 61000, IEC 62040-2
Test and performance	IEC 62040-3, IEC 60146
Power transformer	IEC 60076
Circuit breakers, Switch	IEC 60947-2,-3
Contactors	IEC 60947-4-1
Measuring instruments	IEC 60051-1,-2
Capacitors	IEC 60384

Table 5

Data Sheet	
INPUT	
Input Voltage Range	220 / 400 VAC (L - N) Standard
Input Power Factor	> 0.99
Input Frequency Range	50 Hz ± 10% / 60 Hz ± 10% (Selectable)
Total Harmonic Distortion(THDI)	< %3
OUTPUT	
Output Voltage Range	220 / 380 VAC (230 / 400 VAC) 1 & 3 phase + N ± 1%
Recovery Time	At 100% load, 5 mSec.
Efficiency	Normal Mode up to %94, Eco Mode %98
Output Frequency Range	50 Hz / 60 Hz ± 0.01% (Battery Mode)
Power Factor	0.8
Crest Factor	3:1
Overload Capacity	At %110 load 60 min. ,% 125 load 10 min., % 150 load 1 min.
Short Circuit Protection	IGBT controlled electronic short circuit protection
BATTERY	
Type	Sealed lead acid maintenance free
Quantity	Selectable
Battery Test	Programmable, automatic battery test
Battery Temperature	20 °C - 25 °C (for maximum efficiency)
BY-PASS	
By-pass Input Voltage Range	230 / 400 VAC (220 / 380 VAC) 3 phase + N ± 10% (selectable)
By-pass Transfer Time	< = 1 ms
COMMUNICATION	
Communication Port	RS232 / RS 485 / SNMP
Dry Contact Alarms	4 Programable dry contacts
SNMP Adaptor	Optional
Advanced Communic. Options	MOD - Bus / J-Bus / profibus / web / tel-net / GPRS / CAN - Bus, SNMP
GENERAL	
Technology	Online, double conversion, transformerless, DSP + CPLD controlled digital
Design	Advanced Multiprocessor DSP Controllers, fast maintenance and serviceability
Front Panel	Geraphic LCD Monitoring with 500 Event recorder
Running Temperature	For UPS 0 - 40 °C, for battery 22-25 °C
Protections	Overload, short circuit, over temperature, high charge, low charge
Protection Class	IP 20
Humidity	0 - 95% (non condensing)
Altitude	< 1000 m.
Noise	60 dBA
Alerts	Operational status record and voice alert
Generator Compability	Soft start, power walk in 5-30 Sec. (adjustable)
Parallel Operation	N+1 redundant parallel, parallable up to 8 units
EMI / RFI	EN50091-2 class A
EPO (Emergency Power Off)	Available
Galvanic Isolation Transformer	Optional

Table 6

General system overall	Value	Unit
Maximum number of possible systems to monitor	255	
Signaling interface	RS485	
Communication protocol	Proprietary	
Min transmission rate	9,600	b/s
Max transmission rate	115,200	b/s
Min cable length	50	m
Max cable length	1,000	m
Max distributed Power	45	W
Maximum distributed voltage	16	V
Maximum distributed current	2.5	mA
Features		
Insulation voltage	± 4	kV
Measured temperature resolution	1	°C
Operating temperature range	(-20) - (+70)	°C
Power supply voltage range	6 to 20	V
Measured block/cell voltage channels	8	
Probe resistance	1	MΩ
Differential input impedance	4	MΩ
Max measuring current (Ni-Cd)	±4	µA
Max measuring current (Lead-Acid)	±30	µA
Measuring voltage range	±20	V
Measuring accuracy	±0.1	%
Measured voltage resolution	1	mV
Continuous common mode voltage	±500	V
Continuous over-voltage	±3	kV
Peak over-voltage	±10	kV
Power supply current	8	mA

Table 7

ENGINEERING & MANUFACTURING OF DRILLING RIGS CENTER

- Designing & manufacturing of oil & gas land drilling rigs
- Designing & manufacturing of drilling rigs electrical and control system
- Supplying spare parts, upgrading and repairing of land drilling rigs
- Technical & consultant services in the field of oil & gas land drilling rigs
- Automation in oil, gas and petrochemical industries
- Turn-Key projects in electrical and control packages

AIR POLLUTION CONTROL CENTER

- ESPs, bag filters and scrubbers for non-metallic mineral and metal industries, refineries and petrochemicals
- Internal parts: collecting plates, electrodes, rapping systems, ...
- Upgrading of existing dedusting systems
- Supplying spare parts for ESPs and bag houses

HIGH VOLTAGE ENGINEERING CENTER

- AC, DC, impulse, resonant and hipot test equipment
- AC, DC and impulse measurement equipment
- Quality control testing services
- Onsite test services (GIS stations and ...)

SPECIAL TRANSFORMERS CENTER

- High current transformer rectifiers for zinc, copper and aluminum industries
- High voltage transformer rectifiers and microprocessor based controllers for ESPs
- Electroplating DC power pupplies
- Special transformers (dry/oil)
- Multiplier voltage power supply
- Variable Frequency Driver (VFD)

ELECTROMECHANIC R&D GROUP

- Submerge Rotary Jet (SRJ)
- Oil loading arms
- Electrostatic oil desalter
- Gangway