SHARYS IP

Rugged, reliable DC power solution

24/48/108/120 V from 15 to 200 A

SHARYS_29_B

SHARYS IP Enclosure

SHARYS_27_C

SHARYS IP System

The solution for

- Process industry
- Switchgear tripping
- Signalling
- Alarms systems
- Automatisms (PLC, relays, etc)

Certifications

All SHARYS IP (SH-IP) series rectifiers are certified by TÜV SÜD with regard to product safety (EN 61204-7 and EN 60950-1).

The SHARYS IP series have been designed with the objective of reliable DC supply.

Ideally suited for industrial applications, SHARYS IP combines telecom features like modularity, hot swap module replacements, redundancy N+1 and scalability along with a robustly designed frame creating an innovative mix.

Flexible design and a wide range of customization possibilities complete the package and enable the use of SHARYS IP in a wide range of situations.

Upgradeability

- Expandable according to future requirements by adding additional rectifier modules.

Reliability and robustness

- Robust steel frame.
- Degree of protection IP30(1).
- PCB tropicalisation as standard.
- Microprocessor control.
- Intelligent rectifier cooling.
- Battery safe thanks to the end of discharge protection (option).
- Limited thermal stress and longer life of the components.

Total Costs of Ownership (TCO)

- High efficiency up to 93%: low energy consumption, low heat dissipation.
- Sinusoidal current absorption with power factor close to one: low conductor heat dissipation and no plant oversize.
- Easy to install.
- Reduced maintenance costs.
- Process continuity with hot-swap capabilities (replacement of modules without any power interruption).

Easy, user-friendly operation

- Front mimic panel with clear working status indication.
- Digital control and monitoring of the rectifier modules.
- Adapted to be used with different types of battery technologies.
- Wide choice of communication interfaces: Dry contact, MODBUS RTU, SNMP (with NET VISION option).

(1) Contact us for power extension or customization needs

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Technical data

	SHARYS IP - Rectifier Module					
Model	24 V 50 A	48 V 15 A	48 V 30 A	48 V 50 A	108 V 20 A	120 V 20 A
INPUT						
Rated voltage	230 V 1ph + N					
Voltage tolerance	±20% @ 100% I_n up to -50% @ 40% I_n					
Frequency	47.5 … 63 Hz					
Power factor	≥ 0.99	≥ 0.98	≥ 0.99	≥ 0.99	≥ 0.99	≥ 0.99
Absorbed current distortion	complies with standard EN 61000-3-2					
Inrush current on insertion	limited by precharge circuit					
OUTPUT						
Rated voltage	24 V	48 V			108 V	120 V
Voltage regulation(1)	21-29 V	42-58 V			95-131 V	105-145 V
Static behaviour V_o	≤ 1%					
Rated current	50 A	15 A	30 A	50 A	20 A	20 A
Permanent current overload with constant power	105% of rated currrent					
Residual ripple (with I_o ≥ 10%)	AC < 50 mV, PP < 100 mV					
Current imbalance in parallel operation	≤ 0,05 I_o					
Dynamic behaviour on load variation (ΔI_o = 50% I_o in the range 10-100% I_o)	$\Delta V_o \leq 4\%$					
EFFICIENCY						
Typical	90%	90%	91%	92%	93%	93%
ISOLATION						
Input/output dielectric rigidity	3 kV (50 Hz for 60 s)					
ENVIRONMENT						
Operating ambient temperature	-5 … 45 °C without derating, up to 55 °C with power derating					
Relative humidity	10% to 90%					
Cooling	Forced with intelligent fan speed control					
CONNECTIONS						
Connections	Plug in + locking screw					
RECTIFIER ENCLOSURE						
Degree of protection	IP20					
Colours	RAL 7012					
STANDARDS						
Safety	IEC/EN 61204-7					
EMC	EN 61204-3, EN 61000-6-4, EN 61000-6-2					
Performance	IEC/EN 61204					
Resistance to vibrations	ASTM D999					
Resistance to falls	ASTM D5276					

Standard electrical features

- Polarity insulated or grounded.
- Internal battery protection.
- Fitting for output DC distribution.
- Battery temperature sensor.
- PCB tropicalization.
- IP30 steel cabinet.
- Pallet truck friendly base.

Electrical options

- BLVD battery low voltage disconnector.
- Output distribution.
- Double AC power supply.
- Double string battery protection.
- Emergency Power Off (EPO).
- Power Share.
- Coupling kit.
- Earth leakage control.
- Input surge suppressors.
- Battery cabinet.
- Enhanced protection degree.

Standard communication features

- Dry contact interface.
- SHARYS PLUS, advanced digital controller(1).
- MODBUS RTU(1).
- 2 slots for communication options(1).

Communication options

- NET VISION for DC systems: professional WEB/SNMP interface for DC system monitoring and shutdown management of several operating systems (1).

(1) System only

	SHARYS IP - Enclosures and Systems																			
Model	ENCLOSURE ED						ENCLOSURE EX						SYSTEM IS				SYSTEM IX			
INPUT																				
Rated voltage	230 V 1ph + N						400 V 2ph						230 V 1ph + N, 400 V 3ph + N				400 V 3ph			
Voltage tolerance	± 20% @ 100% P_n up to a -50% @ 40% P_n																			
Frequency	from 47.5 to 63 Hz																			
Input transformer	-						included in standard						-				included in standard			
OUTPUT																				
Rated voltage (V)	24	48			108	120	24	48			108	120	24	48	108	120	24	48	108	120
Rated current (A)	100	30	60	100	40		100	30	60	100	40		200	200	80	80	150	150	60	60
Maximum power (kW)	2.4	1.4	2.9	4.8	4.3	4.8	2.4	1.4	2.9	4.8	4.3	4.8	4.8	9.6	8.6	9.6	3.6	7.2	6.5	14.4
Max number of rectifier	2 modules						2 modules						4 modules				3 modules			
Voltage regulation(1) (V)	21-29	42-58			95-131	105-145	21-29	42-58			95-131	105-145	21-29	42-58	95-131	105-145	21-29	42-58	95-131	105-145
Voltage ripple	50mVrms 100mVpp																			
RECTIFIER CABINET																				
Dimensions W x D x H(2)	600 x 535 x (894 to 1254) mm												600 x 600 x 1925 mm							
Weight(3)	60 to 75 kg												245 kg				305 kg			
Degree of protection	IP30																			
Colours	RAL 7012																			

(1) Output voltage variation depends on the recharging voltage and on the end of the discharging voltage settings (typically 1.13 Vn with mains present and battery charged, 0.90 Vn when batteries are completely discharged). - (2) Height depends on accessories and backup time. - (3) Without batteries.

SHARYS IP

Rectifiers

24/48/108/120 V from 15 to 200 A

Rectifier module

SHARYS RECTIFIER modules use double conversion switching technology. The combination of SMD technology, of digital microprocessor control and of IGBT components result in a highly reliable and efficient rectifier.

- Plug-in "hot-swap".
- Microprocessor control with CAN-BUS protocol communication.
- Parallel connection with active load sharing and selective disconnection of a faulty module.
- PCB conformal coating (tropicalization) as standard.

	24 V DC	48 V DC	108 V DC	120 V DC
15 A	-	SH-IP-048015	-	-
20 A	-	-	SH-IP-108020	SH-IP-120020
30 A	-	SH-IP-048030	-	-
50 A	SH-IP-024050	SH-IP-048050	-	-

Enclosure

Flexible modular design DC power supply system.

Can include 2 rectifier modules max, suitable for full power application or redundant solution.

Useful in all most common low-medium power applications such as switchgear tripping equipment.

ED - Max 2 rectifier modules, redundancy 1+1 or full power

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	ED048I030	-	-
40 A	-	-	ED108I040	ED120I040
60 A	-	ED048I060	-	-
100 A	ED024I100	ED048I100	-	-

EX - Max 2 rectifier modules, redundancy 1+1 or full power, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	EX048I030	-	-
40 A	-	-	EX108I040	EX120I040
60 A	-	EX048I060	-	-
100 A	EX024I100	EX048I100	-	-

System

Complete DC power supply system

This can include up to 4 rectifier modules(1), suitable for N+1 redundant solution.

Useful in medium power applications such as automatic control equipment (PLC, relays, etc.) and process supply.

Thanks to the advanced controller SHARYS PLUS, it is indicated when extended communication possibilities and full setting flexibility are required.

(1) Contact us for power extension or customization

IS - Max 4 rectifier modules, redundancy N+1

	24 V DC	48 V DC	108 V DC	120 V DC
80 A	-	-	IS108I080	IS120I080
200 A	IS024I200	IS048I200	-	-

IX - Max 3 rectifier modules, redundancy N+1, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
60 A	-	-	IX108I060	IX120I060
150 A	IX024I150	IX048I150	-	-

SHARYS PLUS control module(1)

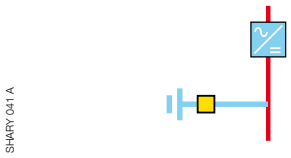
The SHARYS PLUS advanced control and monitoring module is included as standard on all SHARYS IP SYSTEMS. A 32-digit LCD display provides easy and fast access to all information parameter settings.

- Microprocessor control with CAN-BUS protocol communication and RS232/485 port for external communication.
- Additional easy frontal LEDs indications.
- Plug-in "hot swap" solution, easy to replace.

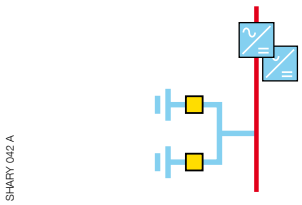
(1) System only.

Typical configurations

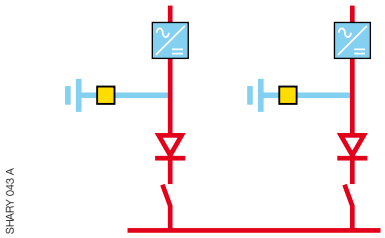
Single



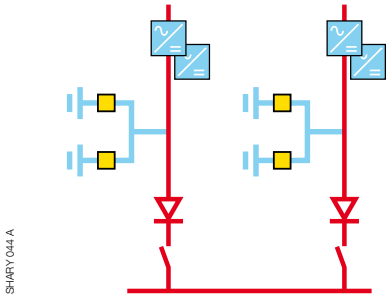
Redundant N+1



Full redundant 1+1



Extended full redundant



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Full battery compatibility

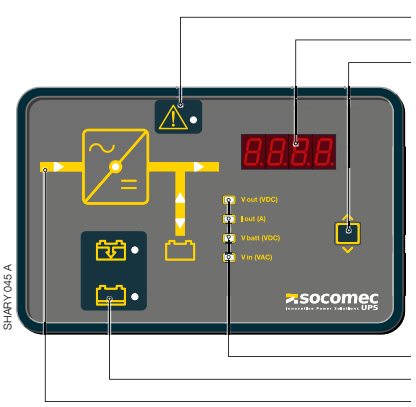
SHARYS IP design is compatible with different battery technologies(1) such as:

- Valve Regulated Lead Acid (VRLA),
- Open Vented Lead Acid,
- Nichel Cadmium.

(1) Please check the compatibility with load supply voltages.

APPLI 146 A

Mimic panel



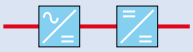
SHARY 045 A

1. Fault alarm
2. Display
3. Status LED
4. Selection button
5. Battery discharge status
6. Power flow indication

Product highlights

APPLI 496 A

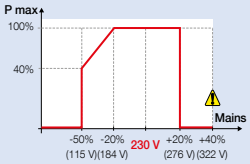
Double conversion IGBT based topology



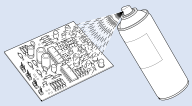
Unitary input power factor (PF >0.99) and low input THDI

Hot swappable wireless modules with selective disconnection

Wide Input Voltage and frequency range. Protection against permanent input overvoltages (up to +40%) and against surges



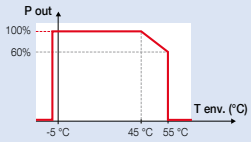
PCB tropicalization



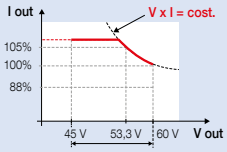
Built-in input output galvanic isolation

Digital microprocessor control and regulation SMD technology

Wide temperature and environment range up to +55 °C ambient temperature

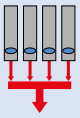


Constant output power

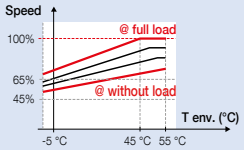


Can bus communication between modules

Active load sharing among modules



Speed controlled forced air cooling (temperature-load) Automatic self-test fan failure detection



Optimized efficiency design point