ION RECTIFIERS

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* 7" Touch Screen Color Panel Control
* Precision Digital Control
* Molded Fiberglass Enclosure
* High Efficiency
* Dual Pulse

IP21P SWITCH MODE PULSE RECTIFIER

- **High efficiency**
- **Better current distribution**
- **Reduced metals and additive consumption**
- **Finer grain structure, lower stress and greater ductility**
- **Enhanced brightness**
- **Improved corrosion resistance**
- **Faster plating speeds**
- **Output current available from 10 to 100,000 Amps**

Control Modes:
- Constant current or
- Constant voltage with bus bars cables drop compensation
- Wireless remote color Touch Screen control panel (optional)

Operation Modes:
- On/Off manual operation
- 10 independent programmable timers
- 10 independent Amp X min or Amp X hour counters + 1 total
- 10 independent recipes (for decorative chromium applications)
- Thickness operation (10 independent programs)

Automation:
- Process control (5 Amp X min or Amp X hour independent programs)
- 3 independent dosing pumps control
- 4 input x 4 output integrated PLC

Pulse Adjustment:
- T On = from 5uS to 32,750uS (1uS resolution).
- T Off = from 5uS to 32,750uS (1uS resolution).
- Train Pulse adjusts from 0.1 a 3,276 Sec.
- Direct Current capability
- Automatic pulse adjust (single pulse only)

Dual Pulse:
- Dual Pulse capability + Pulse Train

Pulse Reverse:
- Reverse Pulse capability connecting 2 pulse rectifiers (sync mode)

Protection:
- Line fault and output overload electronic protection
- over temperature alarm
- Thermal magnetic trip circuit breaker
- Isolation fault

Construction:
- 0.95 power factor (low energy consumption)
- Low noise high frequency switch mode converter
- Corrosion proof molded fiberglass enclosure
- 7" Color Touch Screen control panels
- Easy replace power modules
- Water cooled (rinse water before use) Remote Control Panel
- Reliable low maintenance rugged construction
- Hundreds units operating for more than 10 years without any maintenance

Standard Switch Mode Pulse Rectifiers - 12V output

MODEL	Average Current (A)	Peak Current (A)	Water Cooling	Dimensions H x W x D (in)	Weight (Lb)
IP21P-010/12	**10**	20	Air – Conv.	14 x 12 x 6	50
IP21P-050/12	**50**	100	Air – Conv.	18 x 16 x 10	60
IP21P-100/12	**100**	200	Forced Air	18 x 16 x 10	60
IP21P-200/12	**200**	400	Forced Air.	18 x 16 x 10	70
IP21P-300/12	**300**	600	1 liter/min	18 x 16 x 10	90
IP21P-500/12	**500**	1000	1.5 liter/min	18 x 16 x 10	100
IP21P-1000/12	**1000**	2000	3 liters/min	24 x 20 x 12	150
IP21P-2000/12	**2000**	4000	6 liters/min	30 x 24 x 10	180
IP21P-3000/12	**3000**	6000	9 liters/min	30 x 24 x 10	190
IP21P-4000/12	**4000**	8000	12 liters/min	40 x 32 x 12	200
IP21P-5000/12	**5000**	10000	15 liters/min	48 x 36 x 16	360

3 phase 240V or 380/440V/480V, 50/60Hz AC line. Models from 10 to 200 Amps 110V or 240V-60Hz single phase

Standard Switch Mode Pulse Rectifiers - 24V output

MODEL	Average Current (A)	Peak Current (A)	Water Cooling	Dimensions H x W x D (in)	Weight (Lb)
IP21P-020/24	**20**	40	Air – Conv.	18 x 16 x 10	60
IP21P-050/24	**50**	100	Forced Air	18 x 16 x 10	60
IP21P-100/24	**100**	200	Forced Air	18 x 16 x 10	70
IP21P-300/24	**300**	600	1 liter/min	18 x 16 x 10	100
IP21P-500/24	**500**	1000	1.5 liter/min	18 x 16 x 10	150
IP21P-1000/24	**1000**	2000	3 liters/min	24 x 20 x 12	160
IP21P-2000/24	**2000**	4000	6 liters/min	30 x 24 x 10	190
IP21P-3000/24	**3000**	6000	8 liters/min	40 x 32 x 12	200
IP21P-4000/24	**4000**	8000	12 liters/min	40 x 32 x 12	220
IP21P-5000/24	**5000**	10000	15 liters/min	48 x 36 x 16	400

3 phase 240V or 380/440V/480V, 50/60Hz AC line. Models from 20 to 100 Amps 110 or 220V-60Hz single phase Anodizing applications

Standard Switch Mode DC Rectifiers - 12V or 24V output

MODEL	Current (A)	Water Cooling	Dimensions H x W x D (in)	Weight (Lb)
IP21C-300/12	**300**	1 liter/min	18 x 16 x 10	110
IP21C-500/12	**500**	1.5 liter/min	18 x 16 x 10	110
IP21C-1000/12	**1000**	3 liters/min	18 x 16 x 10	140
IP21C-2000/12	**2000**	6 liters/min	30 x 24 x 10	160
IP21C-3000/12	**3000**	9 liters/min	30 x 24 x 10	180
IP21C-4000/12	**4000**	12 liters/min	40 x 32 x 12	200
IP21C-5000/12	**5000**	15 liters/min	40 x 32 x 12	320