

Powering system for CATV & LTE4,5G integrated networks



The CATV network, as deployed, with Power Availability is very well suited to power the 4G/LTE or 5G Microcell. That great technical & economical advantage should not be lost even when FTTH architectures are deployed. The Safecom's powering system offers to converge the CATV network and the new LTE 4,5G microcells with maintaining coaxial cables as a power distribution plant. This can be ensured even when used with other Optical Node Architectures.



In situations where a coaxial plant does not exist, hybrid cable constructions with power conductors placed within or alongside the fiber cables to retain access to network power. In the event of a power outage the Power Grid Controller draws power from an alternative distant available source over existing coax or power cable for unlimited time. Utilizing a complementary Power booster device Power Grid Controller ensures an optimal voltage level – even backup from a very long distance.



Safecom's technologies create solutions that provide the top level of reliability at the minimum investment without any maintenance.



Modular Indoor P.S –Dual Port
2500 VA 2x15A 63-87V 50/60Hz +
HMS,IP Monitoring



Power Booster
Extend powering Range +
More Power Availability for
Future CATV & LTE 4,5
integration



Remote
powering
controller



Outdoor P.S 380 VA
+1.2 GHz Power inserter



Indoor P.S
Adjustable 250 - 500 VA



Outdoor P.S
Adjustable 520 - 870 VA

SPD-140KA +
APC-Auto Phase
Changer



Modular Outdoor P.S –Dual Port 2200 VA
+ optional SPD 140KA+ Phase changer
+ HMS / IP Transponder



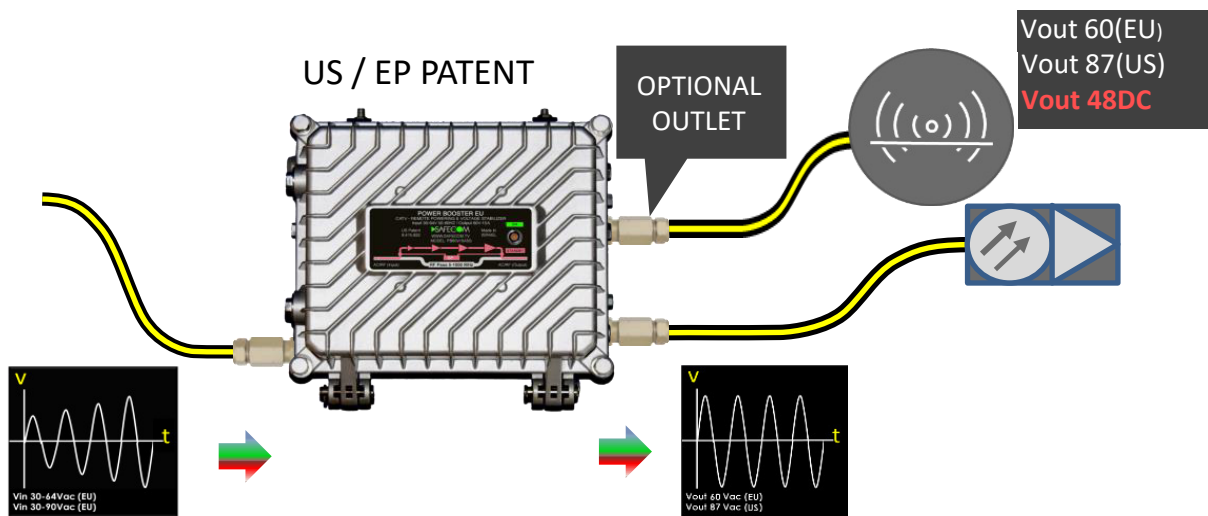
POWER BOOSTER 9G

Model: PB60V15A9G

The patented power booster, a Passive & Standalone element solves the voltage drop problems in a CATV network caused by high-resistance and low energy efficient coax & electricity cables.

Utilizing breakthrough direct on-line zero crossing AC/AC stabilizing technology safecom's ensures an optimal voltage level to Optical Nodes & Line Amplifiers even if the source of power from a very long distance.

Increasing the distance between remote power sources leads to a reduction in the number of power insertion points across the network, less power supplies (especially under-loaded power supplies are unnecessary), less street cabinets and permits are needed and less flat fees to the utility company for each of the power supply (even if it was never used).



Input range(EU): 38Vac – 65Vac
Input range(US): 45Vac – 90Vac

Output range (EU): 63 Vac +/- 2V
Output range (EU): 86 Vac +/- 4V

- ❑ MINIMIZE THE NUMBER OF POWER SUPPLIES IN THE NETWORK.
- ❑ INCREASING THE POWERING AREA COVERED BY POWER SUPPLY

Model	PB60V15A9G	PB90V15A9G
Input Voltage	35-75Vac	35-95Vac
Input Voltage optimal range (Vac)	38-65Vac	45-90VAC
Output Voltage range (Vac)	63+/- 2V	86+/-4V
Max Output Current (A)	15A / Gain	15A/Gain
Max Input Current	15A	15A
Voltage gain ratio (9 Gears)	1 -1.71	1-1.86
Load Regulation (%)	<2%	<2%
Efficiency (%)	>96%	>96%
Transfer time	ONLINE	Online

Mechanical	
Dimensions (L , W , H) mm	250 X 200 X 152
Weight (Kg/lbs)	6/13.2
Finish	Passivation
Environment	
Operating Temperature	-40°C ÷ +60°C
Storage Temperature	-40°C ÷ +70°C
Humidity (water proof)	0 ÷ 100%



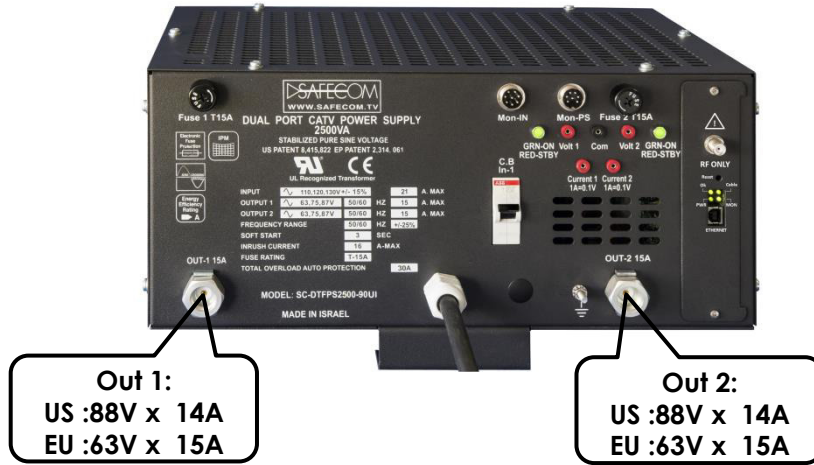
Standard Features	
Quick Connection In / Out Coax socket	✓
Electronic Overload protection	✓
Power Booster Adaptor Indication Green /Red LED	✓
RF	
Band width	5-1218Mhz
Through loss 1000 MHz	< 1.7 dB (+/- 0.5dB)
Return Loss	> 18 dB
RFI	>110 dB
Hum Modulation	> 65

Modular Dual Port indoor P.S 2500V 30A

Model: SC-DTFPS2500-90UIM

The most powerful for CATV & LTE integration + Central powering

US PATENT 8,415,822 EP PATENT 2,314,061

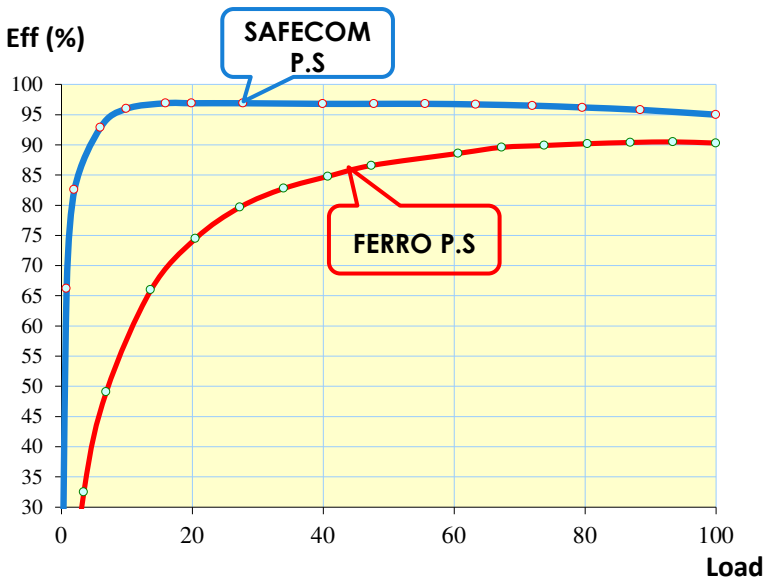


Modular Outdoor P.S –Dual Port 2500 VA

Latest Modular T-Former series P.S based on safecom's patented stabilized linear transformer enable to provide the CATV networks & Future LTE 4,5 integrated microcell the most powerful steadied voltage without any RF & acoustical noises while offering top efficiency .

Modular main frame configuration enables to add specific extra parts depend in different needs without the need to replace P.S or external parts connections.

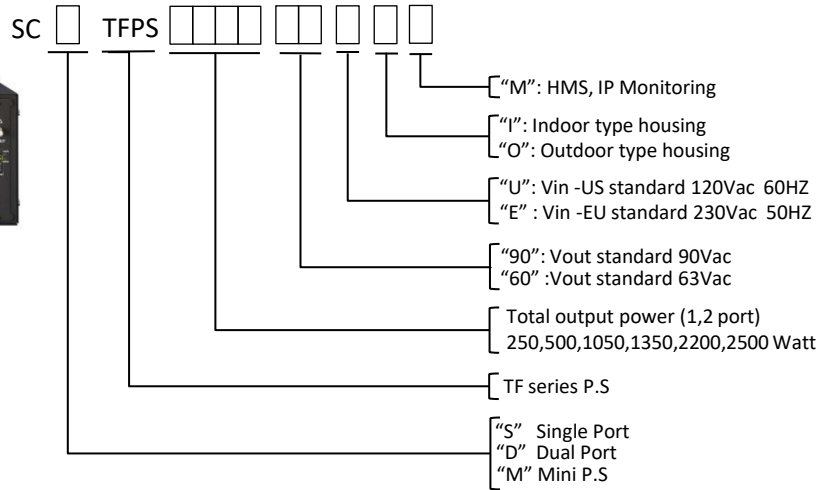
- ✓ Soft Start
- ✓ Inrush current protection
- ✓ Electronic Over load. protection
- ✓ Electronic Short Circuit. protection
- ✓ Designed for Unlimited life time
- ✓ No Saturation
- ✓ No Noise.
- ✓ Double Power 2X15A (63,75,87V).
- ✓ Optional HMS, IP Monitoring



Add on part options to modular dual port P.S:

- **Advanced HMS monitoring** module for monitoring both P.S & external devices
- Optional Surge suppressor 140KA
- Optional Phase changer 2X 25A
- Complete CATV Power Protector unit includes Surge Optional Auto Phase changer 2 x25A.

Modular Dual Port indoor P.S 2500W 30A



Model	SC-TFPS-2500-90UIM	SC-MTFPS-2250-60EIM
Electrical Input		
Input Voltage range (Vac)	90Vac-132Vac	195-255Vac
Input Frequency (Hz)	50/60 Hz	
Input Current (A) @ Output 63Vac-30A	$I_{max} < 17A$ (@120V)	$I_{max} < 9.3A$ (@230Vac)
Input Current (A) @ Output 75Vac-30A	$I_{max} < 18.8A$ (@120V)	$I_{max} < 10.4A$ (@230Vac)
Input Current (A) @ Output 88Vac-28A	$I_{max} < 22A$ (@120V)	$I_{max} < 11.4A$ (@230Vac)
Input inrush current	<5In single pulse of 5ms	
Input Power Factor	>0.98 (range 10-100% load)	
Electrical Output		
Output Voltage Taps (Vac)	88 Vac +/- 2%	63Vac, +/- 2%
Output Current Port 1	14A 15A 20A	15A 17.5A 20A
Output Current Port 2	14A 13A 10A	20A 17.5A 15A
Total output current (Port 1 +Port 2)	28A	35A
Short circuit time response (ms)	<10	
Recovery time delay (sec)	>2	
Output Power (VA)	2500	
Load Regulation (%)	<1%	
Electronic Output Protection	√	
Efficiency (%)	>93% (load 10-25%)	
	>96% (load 25-75%)	
	>95% (load 75-90%)	
	>94% (load 90-100%)	
Mechanical		
Dimensions (L , W , H) mm	420 x 340 x 200	
Weight (Kg/lbs) net	28kg / 61.6 Lbs	
Housing Finish	Corrosion protected + Epoxy coating	
Environment		
Operating Temperature	-20°C ÷ +60°C	
Storage Temperature	-20°C ÷ +70°C	
Humidity	0 ÷ 100% non condensing	
Standard Features		
Power Mains Cable	√	
Mains Transients Protection	√	
Output Coax socket	√	
Power Indication Green /Red LED	√	
Surge immunity		
EN61000-4-5	2.0kV(1.2/50µs, 2Q)	
ANSI\SCTE 81 2012	6KV 10/700µSec	
Optional Feature		
Surge protector + monitoring	140KA	
HMS Docsis 2,3 transponder	√	
Phase Changer	Optional for 2 AC inputs	

Modular outdoor P.S Dual Port P.S 2200W 25A

The most powerful for CATV & LTE integration + Central powering

US PATENT 8,415,822 EP PATENT 2,314,061

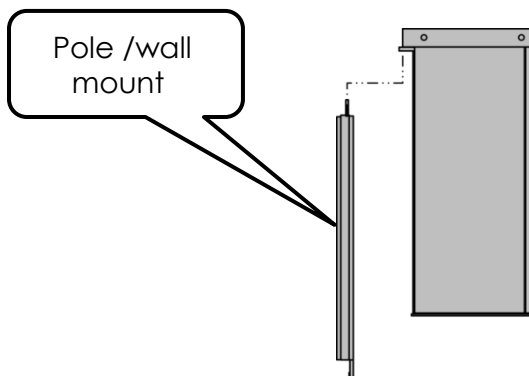


Latest Modular T-Former series P.S based on safecom's patented stabilized linear transformer enable to provide the CATV networks & Future LTE 4,5 integrated microcell the most powerful steadied voltage without any RF & acoustical noises while offering top efficiency .

Modular main frame configuration enables to add specific extra parts depend in different needs without the need to replace P.S or external parts connections.

- **US Spec 120V -60Hz**
- **Outdoor enclosure**

- ✓ **140KA** Surge Suppressor
- ✓ Soft Start
- ✓ Inrush current protection
- ✓ Electronic Over load. protection
- ✓ Electronic Short Circuit. protection
- ✓ Designed for Unlimited life time
- ✓ No Saturation
- ✓ No Noise.
- ✓ Double Power 2X15A (63,75,87V).
- ✓ Optional HMS, IP Monitoring



Add on part options to modular dual port P.S:

- **Advanced HMS monitoring** module for monitoring both P.S & external devices
- Optional Surge suppressor 140KA
- Optional Phase changer 2X 25A
- Complete CATV Power Protector unit includes Surge Optional Auto Phase changer 2 x25A.

Auto Power Grid Controller- DPSv5

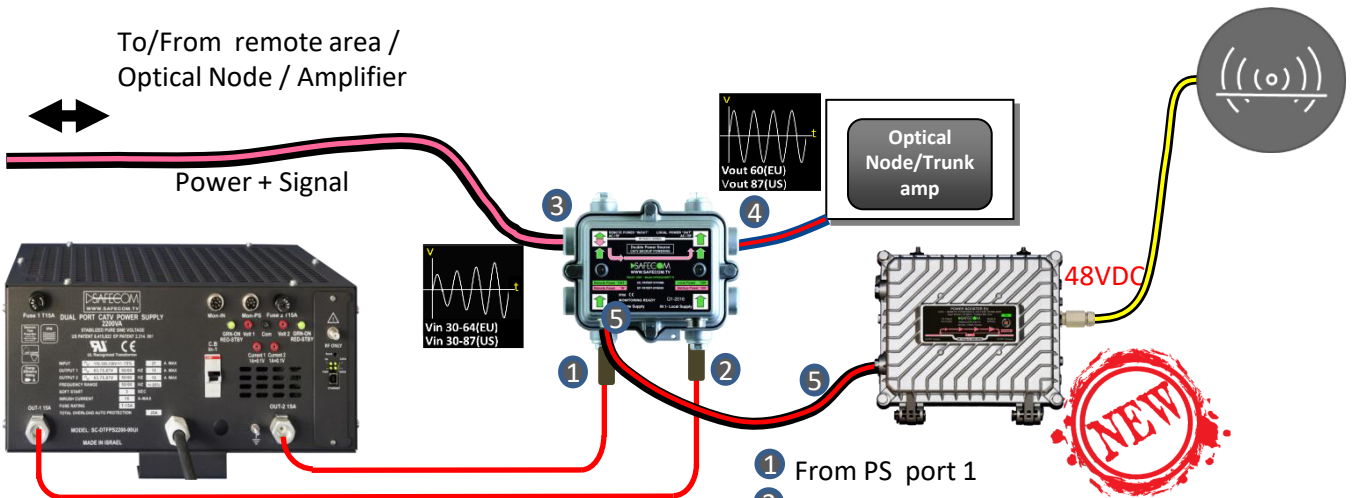
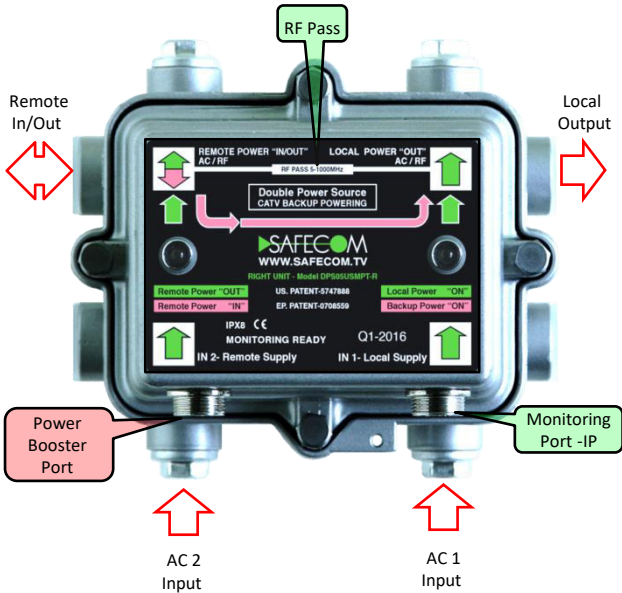
□ Unlimited Backup Power

US P. 5747888, EP P. 0708559



The CATV network, as deployed, with Power Availability is very well suited to power the 4G/LTE or 5G Microcell. That great technical & economical advantage should not be lost even when FTTH architectures are deployed. The Safecom's power grid controller offers to converge the CATV network and the new LTE 4,5G microcells with maintaining coaxial cables as a power distribution plant. This can be ensured even when used with other Optical Node Architectures.

In situations where a coaxial plant does not exist, hybrid cable constructions with power conductors placed within or alongside the fiber cables to retain access to network power. In the event of a power outage the Power Grid Controller draws power from an alternative distant available source over existing coax or power cable for unlimited time. Utilizing a complementary Power booster device Power Grid Controller ensures an optimal voltage level – even backup from a very long distance. In this way no need for the deployment and maintenance of expensive batteries & UPS for CATV & LTE 4,5G microcells.



To/From remote area /
Optical Node / Amplifier

Power + Signal

Vout 60(EU)
Vout 97(US)

Vin 30-64(EU)
Vin 30-87(US)

48VDC



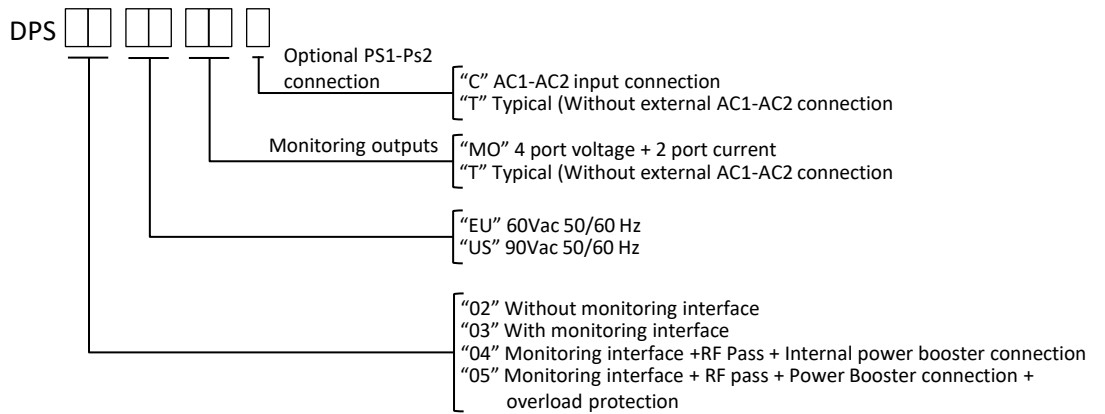
- 1 From PS port 1
- 2 From PS port 2
- 3 To remote area / Optical Node / Amplifier
- 4 To Local area / Optical Node / Amplifier
- 5 From DPSv5 to P.B & 48VDC supply

Standard Features

- Europe 60V & US 90V Standard.
- Support full 15A rms input/output.
- Voltage stabilization at the insertion point in the network.
- Water-proof Enclosure.(IPX8)
- Opposite connection protected.
- Input & Output Surge Protection.
- Optional DOCSIS® & EuroDOCSIS Status Monitoring.
- Online RF transmission during operation.

- Unlimited Remote backup power solution.
- Optional external Power Booster / Voltage stabilizer.

Auto Power Grid Controller -DPSv5 - ordering info



DPSv5 - Technical Specification

Model	DPS05EUMP	DPS05USMP
Electrical Input		
local input voltage operational range	45-65 VAc	60-90VAc
Remote input voltage operational range	30-65VAc	30-90VAc
Input Frequency (Hz)	50/60 Hz	
Max current Local input /output	17A	17A
Max current Remote input/output	17A	17A
Power Consumption (Watt)	1.8W	3.5W
Max Voltage	75VAc	100VAc
Min Voltage from remote location	18VAc	
LED's indicators		
Two Green	Local ON , Remote ON	
Two Red	Backup from Remote Location	
Left LED Red , Right LED Green	Local Power ON , remote standby	
RF		
Bandwidth	5-1000MHz	
Through loss 1000Mhz	< 1.9 dB (+/- 0.3dB)	
Return Loss	>18dB	
RFI	>110dB	
Hum Modulation	>65dB	
Mechanical		
Dimensions (L , W , H) mm	160X11X130 mm	
Weight (Kg/lbs) net	1.5Kg / 3.3 L	
Housing Finish	Corrosion protected + painting coating	
Environment		
Operating Temperature	-20°C ÷ +60°C	
Storage Temperature	-20°C ÷ +70°C	
IP Standard -100% waterproof	IPX8	
General		
Backup operation life expectancy	500,000	
Broadband Continuity	Online	
Monitoring interface for IP transponder		
Broadband Continuity	Online	
Power Booster Port	Direct connection to Power Booster	
Surge immunity		
EN61000-4-5	2.0kV(1.2/50µs, 2Ω)	
ANSI\SCTE 81 2012	6KV 10/700µSec	
Optional external feature		
Surge protector + monitoring	140KA	
HMS Docsis 2,3 transponder Via P.S	√	

Adjustable Mini P.S 250 -500VA

Manually adjustable Max Power option
(five steps) from 250 to 500VA



Zero Crossing stabilizer technology
US & EP Patented



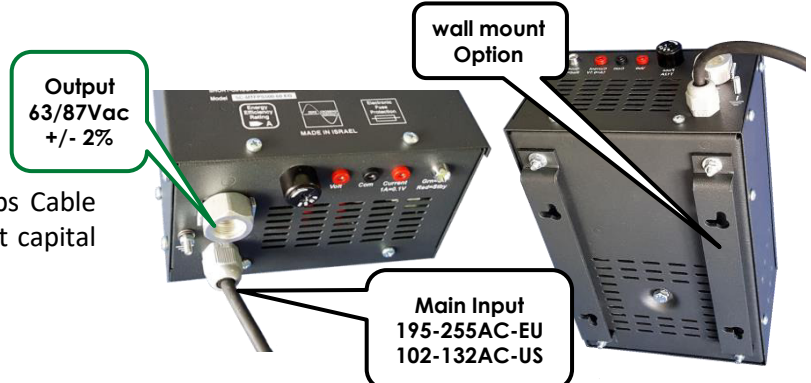
Safecom presents the latest technology to reduce energy consumption and save electrical bills in CATV Networks while attaining Energy 2020 targets. The new compact adjustable Spec P.S. model is a CATV P.S. with the highest efficiency and most cost-effective capabilities developed for low and average current consumption needs such as Optical & Deep Fiber HFC networks.

In addition, manually adjustable Max Power option (five steps) from 250 to 500VA offers an option for adjusting the maximum power manually as well as allows the operator to pay flat rate for the real energy consumed instead of paying for the Power Supply rated power.

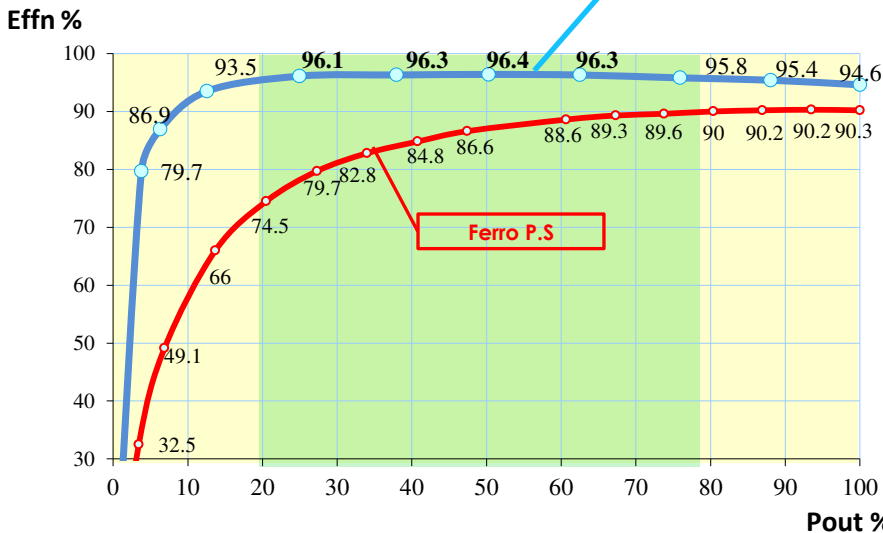
Power Supplies are designed for a lifetime of operation while producing actual energy savings of between 5-15% compared to common Ferro P.S.



The AC constant-voltage Mini CATV P.S helps Cable TV operators reduce network expenditure at capital as well as operational levels.



SAFECOM P.S – Achieving the Highest Energy Performance



- ✓ Lower Operating Cost
- ✓ No Noise, No Vibration
- ✓ Slow Start
- ✓ Electronic Overload Protection
- ✓ shelf- lain or wall mount
- ✓ No RF noise
- ✓ Surge immunity / ANSI/SCTE81 2012
- ✓ Surge immunity / EN1000-4-5
- ✓ Testing Point Vout
- ✓ Testing Point Iout
- ✓ Optional SPD 140KA
- ✓ 3 years extended warranty

Compact CATV Stabilized Power Supply Specification



Adjusting the maximum power manually allows the operator to pay flat rate for the real energy consumed instead of paying for the Power Supply rated power.

DIP Switch Position			Current Limit -63V
1	2	3	
OFF	OFF	OFF	4A
OFF	OFF	ON	5A
OFF	ON	OFF	6A
ON	OFF	OFF	7A
ON	ON	ON	8A

Model	SC-MTFPS-250-500-90UI	SC-MTFPS-250-500-60EI
	Electrical	
Input Voltage range (Vac)	102Vac-132Vac	195-255Vac
Input Frequency (Hz)	50/60 Hz	
Input Current (A) Adjustable	2.15 A < I _{max} < 4.3A (@120V)	1.1A < I _{max} < 2.2A (@230Vac)
Input inrush current	<5In single pulse of 5ms	
Input Power Factor	>0.98 (range 10-100% load)	
Output Voltage Taps (Vac)	87Vac +/- 2%	63Vac +/- 2%
Output Current (A) Adjustable	2.8A < I _{max} < 5.75A	4A < I _{max} < 8A
Short circuit time response (ms)	<10	
Recovery time delay (sec)	>2	
Output Power (VA)	500	
Load Regulation (%)	<1%	
Electronic Output Protection		
Efficiency (%)	>93% (load 10-25%)	
	>96% (load 25-75%)	
	>95% (load 75-90%)	
	>94% (load 90-100%)	
	Mechanical	
Dimensions (L , W , H) mm	275 x 162 x 135	
Weight (Kg/lbs)	8Kg /19L	
Housing Finish	Corrosion protected + Epoxy coating	
	Environment	
Operating Temperature	-20°C ÷ +60°C	
Storage Temperature	-20°C ÷ +70°C	
Humidity	0 ÷ 100% non condensing	
	Standard Features	
Power Mains Cable	√	
Mains Transients Protection	√	
Output Coax socket	√	
Power Indication Green /Red LED	√	

Adjustable Outdoor / Indoor P.S 520 - 870 VA

Manually adjustable Max Power option
(five steps) from 500 to 880VA



Main Input
102-132AC-US (50/60 HZ)
195-255AC-EU (50/60 HZ)

Output
EU-63Vac
US-87Vac
+/- 2%

Safecom presents the latest technology to reduce energy consumption and save electrical bills in CATV Networks while attaining Energy 2020 targets. The new compact adjustable Spec P.S model is a CATV P.S with the highest efficiency and most cost-effective capabilities developed for average current consumption needs such as Optical & Deep Fiber HFC networks.

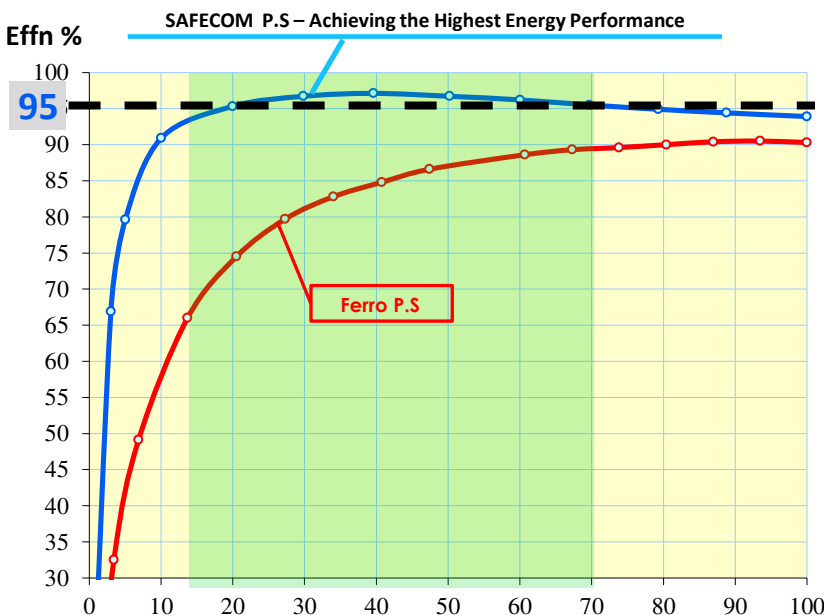
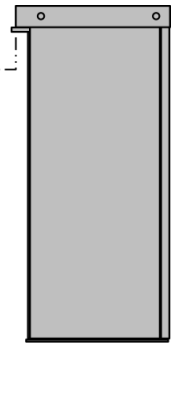
In addition, manually adjustable Max Power option (five steps) from 520 to 870VA offers an option for adjusting the maximum power manually as well as allows the operator to pay flat rate for the real energy consumed instead of paying for the Power Supply rated power.

Power Supplies are designed for a lifetime of operation while producing actual energy savings of between 5-15% compared to common Ferro P.S.

The AC constant-voltage Mini CATV P.S helps Cable TV operators reduce network expenditure at capital as well as operational levels.

Zero Crossing stabilizer technology
US & EP Patent

Pole /wall mount



- ✓ Lower Operating Cost
- ✓ No Noise, No Vibration
- ✓ Slow Start
- ✓ Electronic Overload Protection
- ✓ shelf- lain or wall mount
- ✓ No RF noise
- ✓ Surge immunity / ANSI/SCTE81 2012
- ✓ Surge immunity / EN1000-4-5
- ✓ Testing Point Vout
- ✓ Testing Point Iout
- ✓ Optional SPD 140KA
- ✓ 3 years extended warranty

Manually adjustable Max Power option (five steps) from 500 to 870VA

DIP Switch Position			Current Limit 63V
1	2	3	
OFF	OFF	OFF	8A
OFF	OFF	ON	9.5A
OFF	ON	OFF	11A
ON	OFF	OFF	12.5A
ON	ON	ON	14A

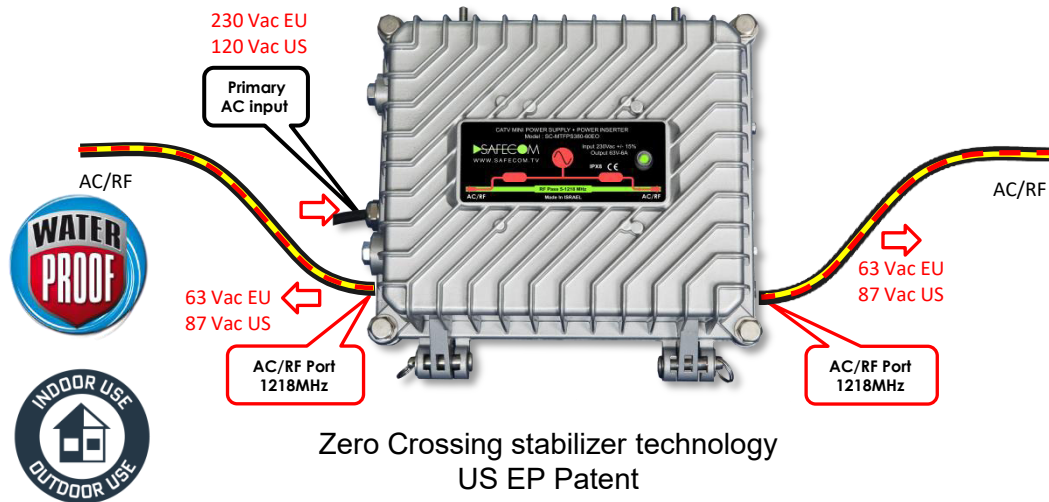
Adjusting the maximum power manually allows the operator to pay flat rate for the real energy consumed instead of paying for the Power Supply rated power.

Compact CATV Stabilized Power Supply Specification

Model	SC-MTFPS-520-870-90UO	SC-MTFPS-500-880-60EI
Electrical		
Input Voltage range (Vac)	102Vac-132Vac	195-255Vac
Input Frequency (Hz)	50/60 Hz	
Input Current (A) Adjustable	2.15 A < I _{max} < 7.3A (@120V)	1.1A < I _{max} < 2.2A (@230Vac)
Input inrush current	<5In single pulse of 5ms	
Input Power Factor	>0.98 (range 10-100% load)	
Output Voltage Taps (Vac)	87Vac +/- 2%	63Vac +/- 2%
Output Current (A) Adjustable	6A < I _{max} < 10A	8A < I _{max} < 14A
Short circuit time response (ms)	<10	
Recovery time delay (sec)	>2	
Output Power (VA)	870	
Load Regulation (%)	<1%	
Electronic Output Protection		
Efficiency (%)	>93% (load 10-25%)	
	>96% (load 25-75%)	
	>95% (load 75-90%)	
	>93% (load 90-100%)	
Mechanical		
Dimensions (L , W , H) inch /mm	12.9,7.8,5.7 inch/ 328,199,145 mm	
Weight (Kg/lbs)	12.9 kg / 28.43L	
Housing Finish	Corrosion protected + Epoxy coating	
Environment		
Operating Temperature	-20°C ÷ +60°C	
Storage Temperature	-20°C ÷ +70°C	
OUTDOOR - Humidity	0 ÷ 100% non condensing	
Standard Features		
Power Mains Cable	√	
Mains Transients Protection	√	
Output Coax socket	√	
Power Indication Green /Red LED	√	
Surge immunity20		
EN61000-4-5	2.0kV (1.2/50µs, 2Ω). L →N and L,N →PE √	
ANSI\SCTE 81 2012	6KV 10/700µSec √	

CATV 6A STABILIZED POWER SUPPLY + Integrated power inserter 1218 MHZ

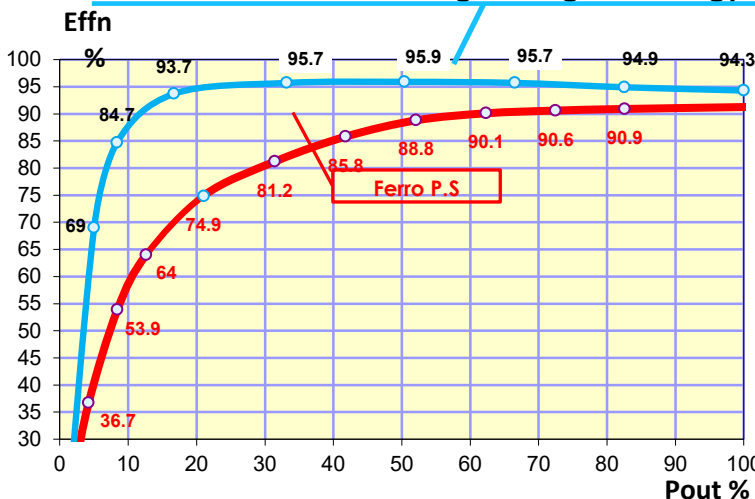
Reaching highest Network Energy Performance // Excellent efficiency >95%.



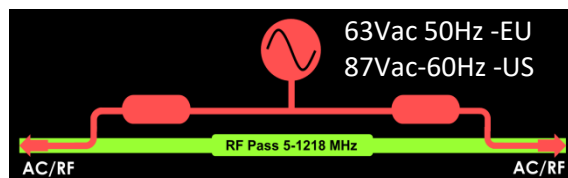
Safecom's offered the latest technologies to reduce Energy consumption in CATV Networks and Attain Energy 2020 Targets. The New Waterproof Compact P.S model is a highest efficient and cost-effective CATV power supply developed for low & average current consumption needs such as Optical & Deep Fiber HFC networks. Designed for lifetime operation & delivering energy savings 5-15% energy compared to common Ferro P.S.

Integrated power inserter 1218 MHz RF Pass saving the needs for external power insertion devices. The AC constant-voltage Mini CATV Outdoor / Indoor P.S helps operators reduce network expenditure at capital as well as operational levels.

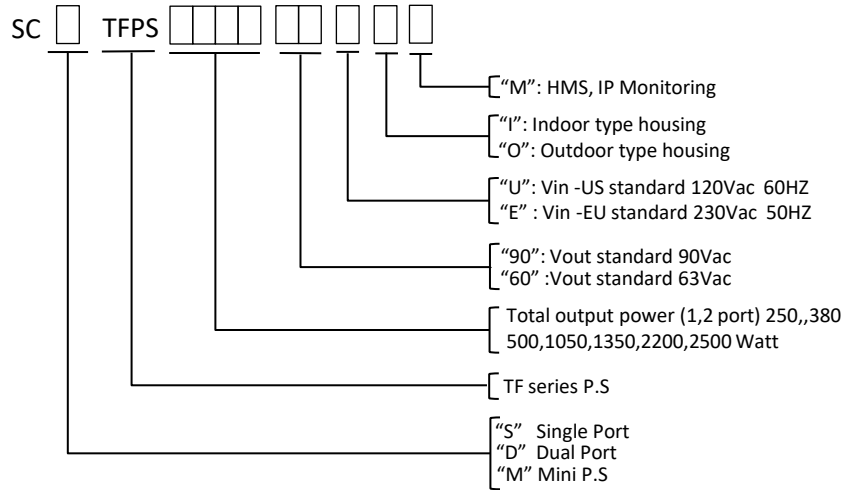
SAFECOM P.S – Achieving the Highest Energy Performance



- ✓ Lower Capital Cost
- ✓ Lower Operating Cost
- ✓ No Noise, No Vibration
- ✓ Slow Start
- ✓ Optional SPD 140KA
- ✓ Electronic Overload Protection
- ✓ Waterproof housing IPX8
- ✓ Integrated 1.2 GHz Power Inserter
- ✓ No RF noise.
- ✓ Surge immunity / ANSI/SCTE81 2012 & EN1000-4-5 &
- ✓ Support 50 & 60 Hz



Ordering info



Technical Specification

Model	SC-MTFPS-380-90UO	SC-MTFPS-380-60EO
	Electrical	
Input Voltage range (Vac)	120Vac±15%	230Vac±15%
Input Frequency (Hz)	50/60 Hz	
Input Current (A)	<3.3A	<1.75A
Input inrush current	<5In single pulse of 5ms	
Input Power Factor	>0.95 at full load	
Output Voltage Taps (Vac)	87Vac +/- 2%	63Vac +/- 2%
Output Current (A)	4.4A	6A
Short circuit time response (ms)	<10	
Recovery time delay (sec)	>2	
Output Power (VA)	380	
Load Regulation (%)	<1%	
Electronic Output Protection		
Efficiency (%)	>95%	
	Mechanical	
Dimensions (L , W , H) mm	250 X 200 X 152	
Weight (Kg/lbs)	7.8Kg /17L	
Housing Finish	Corrosion protected White zinc	
	Environment	
Operating Temperature	-20°C ÷ +60°C	
Storage Temperature	-20°C ÷ +70°C	
Humidity	Waterproof IPX8 + 0 ÷ 100% condensing	
	Standard Features	
Power Mains Cable	√	
Mains Transients Protection	√	
Output Coax socket	√	
Power Indication Green /Red LED	√	

RF	
Band width	5-1218MHz
Through loss 1000 MHz	< 1.5 dB (+/- 0.3dB)
Through loss 1218 MHz	< 1.9 dB (+/- 0.4dB)
Return Loss	> 18 dB
RFI	>110 dB
Hum Modulation	> 65dB

Surge immunity	
EN61000-4-5	2.0kV (1.2/50µs, 2Ω). L →N and L,N →PE √
ANSI\SCTE 81 2012	6KV 10/700µSec