

pCon
2000
7000



Industrial Power supplies Serial Ha-VIS pCon 2000

for centralised power supply
in control cabinets with degree of protection IP 20

General Description

The power supplies of the product family Ha-VIS pCon 2000 are designed for power supply solutions for control units, Ethernet and other automation components. With their wide range of input voltage, the units are suitable for world-wide use.

The quick connection technique guarantees easy installation.

Features

- Wide range input for world-wide use
- High efficiency of up to 92 %
- Easy installation and toolless connection
- Range of operating temperature of up to 70 °C without derating

Advantages

- Wide operating temperature range
- Compact design and high power density
- Proof against sustained short-circuits, overloads and no-load operation
- International approvals
- Protection class II (no earth connection necessary)
- Proof against dynamic overload (150% rated current for up to 2.5 seconds)

Application fields

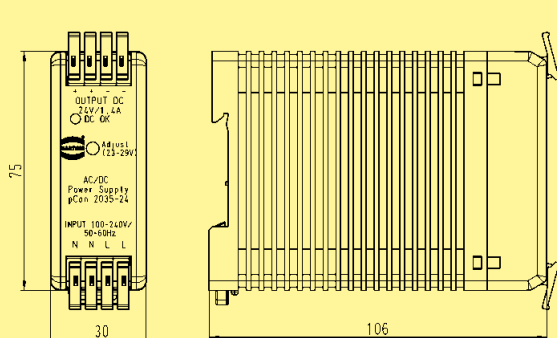
- Industrial automation
- Automotive industry
- Power generation and distribution



Industrial Power supply Ha-VIS pCon 2035-24

for centralised power supply in control cabinets
with degree of protection IP 20

2x spring-type terminals		IP 20	24 V DC	34 W
Input		Output		
Rated voltage	100 ... 240 V AC (Wide range input)	Output voltage	24 V DC ± 1% (setting range 23 ... 29 V)	
Input voltage range	85 ... 264 V AC (100 ... 375 V DC)	Output current	1.4 A	
Input rated current	< 0.4 A at 230 V < 0.8 A at 100 V	Max. output power	34 W	
Input current	< 40 A (active limiting)	Main buffering time	> 100 ms (at 230 V AC) > 15 ms (at 115 V AC)	
Input frequency	47 ... 63 Hz	Remaining ripple	< 40 mVss (at rated values)	
Input fuse	internal T 4 A	Sensibility	< 2%	
Recommended backup fuse	B 16 A (EN 60 898)	Protection function	Proof against sustained short-circuits, overloads and no-load operation	
Protection class	II (no earth connection necessary)	Overload behavior	Limiting current 2.5 A	
		Output voltage indication	LED Green	
General data				
Termination Power / Load	Spring-type terminal 0.3 ... 2.5 mm² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm² / AWG 28 ... 12 (stranded)			
Product standards	EN 60 950 (SELV)	Efficiency	89% (230 V) / 87% (115 V)	
Approvals	CE, GS, cCSA _{US} (UL 60 950, UL 508)	Weight	approx. 160 g	

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 2035-24 Industrial Power supply for mounting onto 35 mm top-hat mounting rail according to DIN EN 60 715	20 80 000 3123		



Industrial Power supply
Ha-VIS pCon 2060-24
for centralised power supply in control cabinets
with degree of protection IP 20

2x spring-type terminals		IP 20	24 V DC	60 W
Input		Output		
Rated voltage	100 ... 240 V AC (Wide range input)	Output voltage	24 V DC ± 1% (setting range 23 ... 29 V)	
Input voltage range	85 ... 264 V AC (100 ... 375 V DC)	Output current	2.5 A	
Input rated current	< 0.7 A at 230 V < 1.3 A at 100 V	Max. output power	60 W	
Input current	< 40 A (active limiting)	Main buffering time	> 100 ms (at 230 V AC) > 15 ms (at 115 V AC)	
Input frequency	47 ... 63 Hz	Remaining ripple	< 40 mVss (at rated values)	
Input fuse	internal T 4 A	Sensibility	< 2%	
Recommended backup fuse	B 16 A (EN 60 898)	Protection function	Proof against sustained short-circuits, overloads and no-load operation	
Protection class	II (no earth connection necessary)	Overload behavior	Limiting current 2.7 A (static) / 5.0 A (dynamic)	
		Output voltage indication	LED Green	
General data				
Termination Power / Load	Spring-type terminal 0.3 ... 2.5 mm² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm² / AWG 28 ... 12 (stranded)			
Product standards	EN 60 950 (SELV)	Efficiency	91.5% (230 V) / 90% (115 V)	
Approvals	CE, GS, cCSA _{US} (UL 60 950, UL 508)	Weight	approx. 250 g	

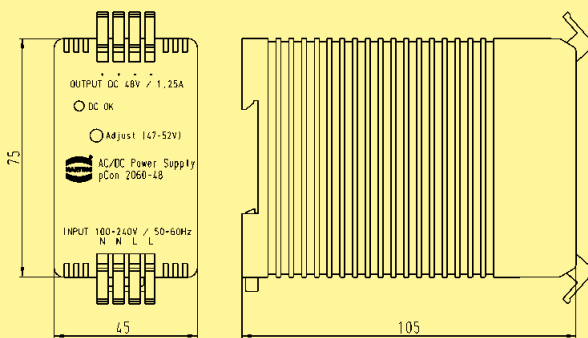
Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 2060-24 Industrial Power supply for mounting onto 35 mm top-hat mounting rail according to DIN EN 60 715	20 80 000 3121		

Industrial Power supply Ha-VIS pCon 2060-48

for centralised power supply in control cabinets
with degree of protection IP 20



2x spring-type terminals	IP 20	48 V DC	60 W
Input		Output	
Rated voltage	100 ... 240 V AC (Wide range input)	Output voltage	48 V DC ± 1% (setting range 47 ... 52 V)
Input voltage range	85 ... 264 V AC (100 ... 375 V DC)	Output current	1.25 A
Input rated current	< 0.7 A at 230 V < 1.3 A at 100 V	Max. output power	60 W
Input current	< 40 A (active limiting)	Main buffering time	> 100 ms (at 230 V AC) > 15 ms (at 115 V AC)
Input frequency	47 ... 63 Hz	Remaining ripple	< 40 mVss (at rated values)
Input fuse	internal T 4 A	Sensibility	< 2%
Recommended backup fuse	B 16 A (EN 60 898)	Protection function	Proof against sustained short-circuits, overloads and no-load operation
Protection class	II (no earth connection necessary)	Overload behavior	Limiting current 1.5 A (static) / 2.5 A (dynamic)
		Output voltage indication	LED Green
General data			
Termination Power / Load	Spring-type terminal 0.3 ... 2.5 mm² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm² / AWG 28 ... 12 (stranded)		
Product standards	EN 60 950 (SELV)	Efficiency	92% (230 V) / 90% (115 V)
Approvals	CE, GS, cCSA _{US} (UL 60 950, UL 508)	Weight	approx. 250 g

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 2060-48 Industrial Power supply for mounting onto 35 mm top-hat mounting rail according to DIN EN 60 715	20 80 000 3122		



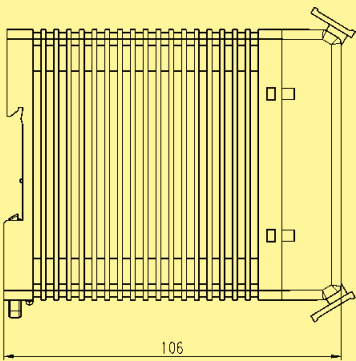
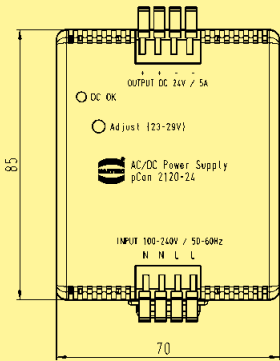
Industrial Power supply
Ha-VIS pCon 2120-24
for centralised power supply in control cabinets
with degree of protection IP 20

2x spring-type terminals		IP 20	24 V DC	120 W
Input		Output		
Rated voltage	100 ... 240 V AC (Wide range input)	Output voltage	24 V DC ± 1% (setting range 23 ... 29 V)	
Input voltage range	85 ... 264 V AC (100 ... 375 V DC)	Output current	5 A	
Input rated current	< 1.6 A at 230 V < 2.6 A at 100 V	Max. output power	120 W	
Input current	< 40 A (active limiting)	Main buffering time	> 100 ms (at 230 V AC) > 15 ms (at 115 V AC)	
Input frequency	47 ... 63 Hz	Remaining ripple	< 40 mVss (at rated values)	
Input fuse	internal T 4 A	Sensibility	< 2%	
Recommended backup fuse	B 16 A (EN 60 898)	Protection function	Proof against sustained short-circuits, overloads and no-load operation	
Protection class	II (no earth connection necessary)	Overload behavior	Limiting current 5 A (static) / 10 A (dynamic)	
		Output voltage indication	LED Green	
General data				
Termination Power / Load	Spring-type terminal 0.3 ... 2.5 mm² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm² / AWG 28 ... 12 (stranded)			
Product standards	EN 60 950 (SELV)	Efficiency	92% (230 V) / 90.5% (115 V)	
Approvals	CE, GS, cCSA _{US} (UL 60 950, UL 508)	Weight	approx. 500 g	

Identification	Part number	Drawing	Dimensions in mm
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Ha-VIS pCon 2120-24
Industrial Power supply for mounting
onto 35 mm top-hat mounting rail
according to DIN EN 60 715

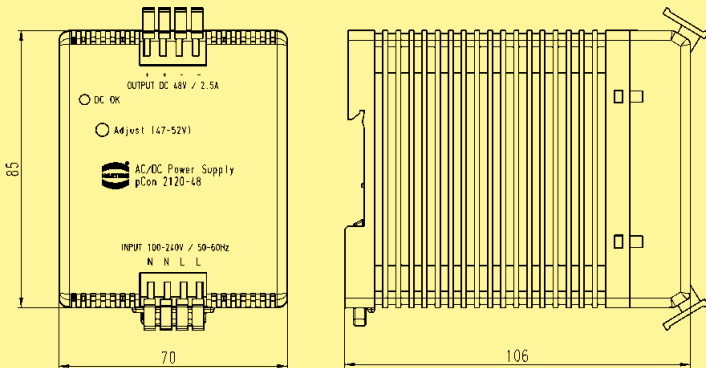
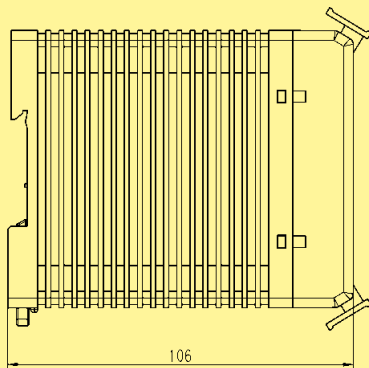
20 80 000 3124



Industrial Power supply Ha-VIS pCon 2120-48

for centralised power supply in control cabinets
with degree of protection IP 20



2x spring-type terminals	IP 20	48 V DC	120 W
Input Rated voltage 100 ... 240 V AC (Wide range input) Input voltage range 85 ... 264 V AC (100 ... 375 V DC) Input rated current < 1.6 A at 230 V < 2.6 A at 100 V Input current < 40 A (active limiting) Input frequency 47 ... 63 Hz Input fuse internal T 4 A Recommended backup fuse B 16 A (EN 60 898) Protection class II (no earth connection necessary) General data Termination Power / Load Spring-type terminal 0.3 ... 2.5 mm ² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm ² / AWG 28 ... 12 (stranded) Product standards EN 60 950 (SELV) Approvals CE, GS, cCSA _{US} (UL 60 950, UL 508)		Output Output voltage 48 V DC ± 1% (setting range 47 ... 52 V) Output current 2.5 A Max. output power 120 W Main buffering time > 100 ms (at 230 V AC) > 15 ms (at 115 V AC) Remaining ripple < 40 mV _{ss} (at rated values) Sensibility < 2% Protection function Proof against sustained short-circuits, overloads and no-load operation Overload behavior Limiting current 2.7 A (static) / 4.0 A (dynamic) Output voltage indication LED Green	
Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 2120-48 Industrial Power supply for mounting onto 35 mm top-hat mounting rail according to DIN EN 60 715	20 80 000 3125		



Redundant module
Ha-VIS pCon 20DRM-10A

for redundant power supply in control cabinets
with degree of protection IP 20

2x spring-type terminals		IP 20		24 V DC		60 W	
Input				Output			
Rated voltage		12 ... 48 V DC		Output voltage		same as Input voltage	
Input rated current		10 A		Output current		16 A (max.)	
Protection class		II (no earth connection necessary)		Voltage drop		300 mV (max.)	
				Current limiting		No. The upstream power supply has to fulfill this function.	
				Overload protection		No. The upstream power supply has to fulfill this function.	
				Overtemperature shutt-off		No	
				Power loss		6 W (max.)	
				Indication		LED Green	
				Green flashing:		Only one input connected. Output voltage present	
				Green continuous ON:		Both inputs are connected. Output voltage present	
General data							
Termination Power / Load		Spring-type terminal 0.3 ... 2.5 mm ² / AWG 28 ... 12 (solid) / 0.3 ... 4 mm ² / AWG 28 ... 12 (stranded)					
Product standards		EN 60 950 (SELV)		Weight		approx. 100 g	
Approvals		CE, GS, cCSA _{us} (UL 60 950, UL 508)					

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 20DRM-10A Redundant module for mounting onto 35 mm top-hat mounting rail according to DIN EN 60 715 Example for application:	20 80 000 3130		



Industrial DC/DC converter Serial Ha-VIS pCon 7000

for centralised power supply
with degree of protection IP 20 / IP 65

General Description

These primary switched DC/DC converters of the product family Ha-VIS pCon 7000 are designed for the decentralised supply of control units, Ethernet components or automation devices in industrial areas and harsh environments.

With their wide range of input voltage, the units are suitable for world-wide use.

The converters need no ground load and are short-circuit protected by primary and secondary power limitation.

The converters are maintenance free, vacuum potted and prepared for the use in devices with Protection Class I or II, depending on the type of the converter.

Features

- Wide input range for world-wide use
- Easy installation
- Galvanically separated
- Short circuit protected
- Ambient Temperature up to 70 °C
- High degree of protection IP 65 / IP 67

Advantages

- Robust housing
- Wide operating temperature range
- Mechanical stability for highest demands
- Can be used directly in industrial and railway environments
- Compact design and high power density
- Proofed against short-circuits, overloads and no-load operation
- International approvals

Application fields

- Industrial automation
- Automotive industry
- Railway applications
- Power generation and distribution

DC/DC converter
Ha-VIS pCon 7150-110/48
for centralised power supply
with degree of protection IP 65



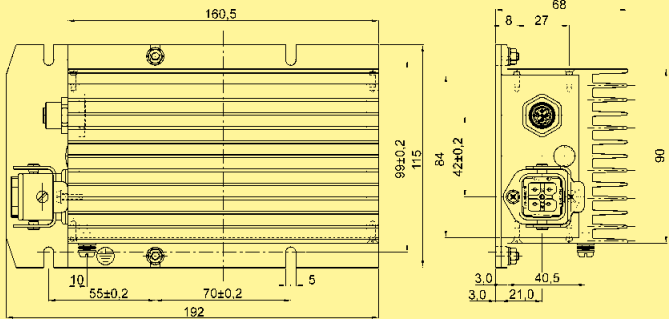
Han® 3 A / M12 A-coding		IP 65	110 V DC	48 V DC
Input		Output		
Input voltage	50.4 ... 154 V DC (wide range input)	Output voltage	48 V DC -1 % / +2 %	
Inrush current	< 7 x I _{in nom}	Ripple	≤ 1 % p-p	
Switching frequency	approx. 70 kHz	Noise	≤ 2 % p-p	
Efficiency	≥ 88 %	Starting time	≤ 200 ms	
Input filter	two-step filter	No load characteristics	no ground load	
Reverse polarity protection	by means of connector with coding	Current limiting	105 ... 130 % stabilised current	
Termination	Han® 3 A	Termination	M12 A-coding	
Protection class	I			
General data				
Operating temperature	-40 °C ... +70 °C / -40 °C ... +85 °C for t ≤ 10 min. according to EN 50 155			
Cooling	free convection			
Weight	approx. 1800 g			
Relative humidity	30 % ... 95 % (non-condensing)			
Dimensions	192 x 115 x 68 mm			
MTBF	> 950 000 hours (according to SN 29 500, T _A = +50 °C)			

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 7150-110/48 DC/DC converter	20 80 300 3026		

DC/DC converter
Ha-VIS pCon 7150-24/48
for centralised power supply
with degree of protection IP 65



Han® 3 A / M12 A-coding	IP 65	24 V DC	48 V DC
Input		Output	
Input voltage	16.8 ... 33.6 V DC (wide range input)	Output voltage	48 V DC -1 % / +2 %
Inrush current	$< 7 \times I_{in\ nom}$	Ripple	$\leq 1\ %\ p-p$
Switching frequency	approx. 70 kHz	Noise	$\leq 2\ %\ p-p$
Efficiency	$> 90\ %$	Starting time	$\leq 200\ ms$
Input filter	two-step filter	No load characteristics	no ground load
Reverse polarity protection	by means of connector with coding	Current limiting	105 ... 130 % stabilised current
Termination	Han® 3 A	Termination	M12 A-coding
Protection class	I		
General data			
Operating temperature	$-40\ ^\circ C \dots +70\ ^\circ C / -40\ ^\circ C \dots +85\ ^\circ C$ for $t \leq 10\ min.$ according to EN 50 155		
Cooling	free convection		
Weight	approx. 1800 g		
Relative humidity	30 % ... 95 % (non-condensing)		
Dimensions	192 x 115 x 68 mm		
MTBF	$> 950\ 000\ hours$ (according to SN 29 500, $T_A = +50\ ^\circ C$)		

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 7150-24/48 DC/DC converter	20 80 300 3027		



DC/DC converter
Ha-VIS pCon 7060-110/24
for centralised power supply
with degree of protection IP 20

2x spring-type terminals		IP 20	110 V DC	24 V DC
Input		Output		
Input voltage	43.2 ... 154 V DC (wide range input)	Output voltage	24 V DC ±2 %	
Switching frequency	approx. 70 kHz	Ripple	≤ 1.5 % p-p	
Efficiency	≥ 85 %	Noise	≤ 2 % p-p	
Input filter	LC filter	Starting time	≤ 200 ms	
Transient protection	1.8 kV / 5/50 µs	No load characteristics	no ground load	
Reverse polarity protection	cross diode (together with external fuse)	Current limiting	105 ... 130 % stabilised current	
Termination	Spring clamps	Termination	Spring clamps	
Protection class	II (no earth connection necessary)			
General data				
Operating temperature	-40 °C ... +70 °C / -40 °C ... +85 °C for t ≤ 10 min. according to EN 50 155			
Cooling	mounting on heat sink with R _{th} < 2.5 K/W, thermal coupling with Al base plate			
Weight	approx. 400 g			
Relative humidity	30 % ... 95 % (non-condensing)			
Dimensions	69 x 130 x 30 mm			
MTBF	> 1 400 000 hours (according to SN 29 500, T _A = +50 °C)			

Identification	Part number	Drawing	Dimensions in mm
Ha-VIS pCon 7060-110/24 DC/DC converter	20 80 300 3025	