

# ACHVI MP

Ultra-versatile bidirectional 3Ph+N inverter  
 Built-in input-output galvanic isolation  
 120A<sub>RMS</sub> / phase, max power 80kW @400V<sub>AC</sub>  
 Perfect for grid and island configurations,  
 or High Power On-board Charger

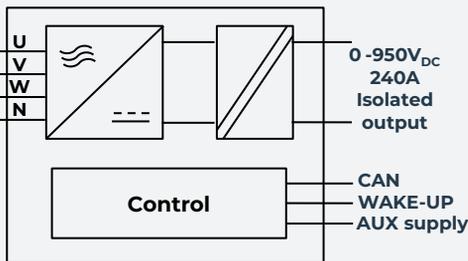


## KEY FEATURES

- > Built-in capacitors, inductors and transformer
- > DC range 0-950V<sub>DC</sub>, AC range 0-400V<sub>AC</sub>
- > Non-overlapping topology:  $V_{DC} > \hat{V}_{ph-ph}$
- > 120A<sub>RMS</sub> max phase current
- > Output power of 80kW at 400V<sub>AC</sub>
- > Buck-boost configuration possible for wide DC voltage range
- > Seamless transition between grid-tied (CSI) and grid-forming (VSI) inverter and PFC rectifier
- > On-the-fly adjustment of harmonics corrections
- > PLL synchronization on external grid
- > Flexible controls allow inverter operation as independent single-phase, balanced three-phase, or unbalanced with neutral connection
- > AC compliant load sharing algorithm for easy parallelization
- > Cutting-edge power density
- > Weight: <25kg

## TECHNICAL SPECIFICATION

Power	
AC ports	3 phases + neutral, 400V <sub>AC</sub> / 950V <sub>DC</sub> max
DC port	0V <sub>DC</sub> to 950V <sub>DC</sub>
AC Frequency range	0-1000Hz
Power factor	> 0.95 @ 50Hz
Harmonic distortion	<1% @ 50Hz
Phase unbalance	0-100% with neutral connection
Control modes	Grid forming inverter
	Grid tied inverter
	PFC rectifier
	Active harmonics correction
Current capability	120A <sub>RMS</sub> per phase
Current accuracy	<3% of full scale
Efficiency	>96% at full load
Control	
Auxiliary supply	9V <sub>DC</sub> - 75V <sub>DC</sub> <100µA disable mode current consumption
Enable function	ON/OFF signal. Tie to ground for start-up. Internal pull up
Parallelization	Active current sharing
Switching synchronization	Internal, between paralleled converters
	External, with a synchronization signal CAN-settable phase shift
Safety discharge	<5 sec to reach 60V
Environment	
Environmental protection	IP67
Altitude	Up to 4000m
Max cooling temperature	65°C outlet
Operating temperature range	From -40°C to 70°C ambient
Storage temperature range	From -40°C to 100°C



### BrightLoop Converters

221 Boulevard Davout  
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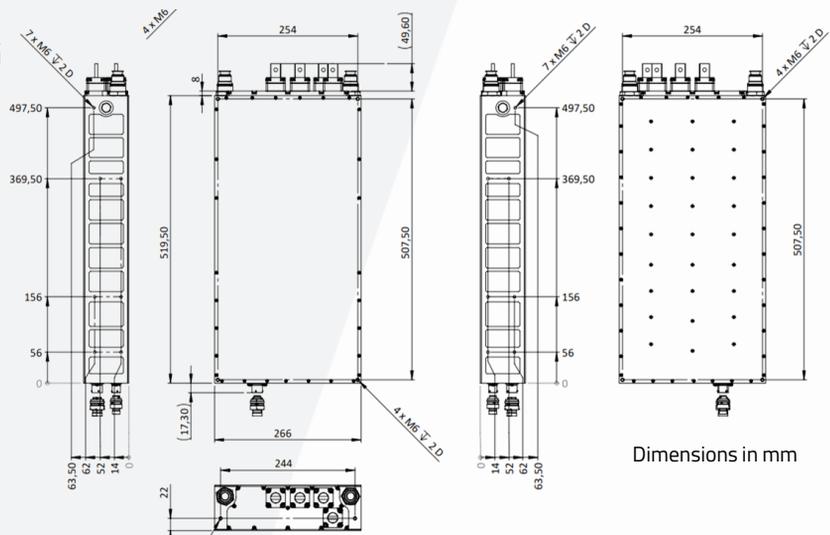
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TECHNICAL SPECIFICATION

<b>Dielectric withstand</b>	
HV - case	Basic insulation, tested at 2500V <sub>DC</sub>
HVAC - HVDC	Basic insulation, tested at 2500V <sub>DC</sub>
HV - LV	Reinforced insulation, tested at 5000V <sub>DC</sub>
LV - case	Functional insulation, tested at 500V <sub>DC</sub>
<b>CAN Interface</b>	
Bus speed	125Kbps to 1Mbps (set by CAN)
Controls	Current limit
	Voltage setpoint
	Frequency setpoint
	Mode of operation
	Power ON/OFF
Monitoring	Discharge request
	Status
	Voltages, currents, frequency
	Internal auxiliary power supplies voltage
Identification	Internal temperatures
	Internal protections
Software Update	Software & Hardware revision
Software Update	CAN Bootloader
<b>Liquid cooling</b>	
Pressure loss	<300mBar
Maximum operating pressure*	3 barg
Maximum testing pressure	6 barg
Hydraulic connector	NORMAQUICK PS3 VDA (Mounted on NORMAQUICK PS3 NW 16-xx)
<b>Mechanical</b>	
Dimensions	< 520 x 266 x 80mm + connectors
Weight	<25kg
Interface	M8 fixations on each sides
Housing	Aluminum with conductive anti-corrosion treatment
Power connectors options	Amphenol PL500 & PL300 with HVIL
	Amphenol PL082 & PL084 with HVIL
	Bus bar connection
Signal connector	22 pins for control 13 pins for paralleling and switching synchronization 8STA family (SOURIAU)

\*: for higher pressure application, please contact us

## OUTLINE DRAWING



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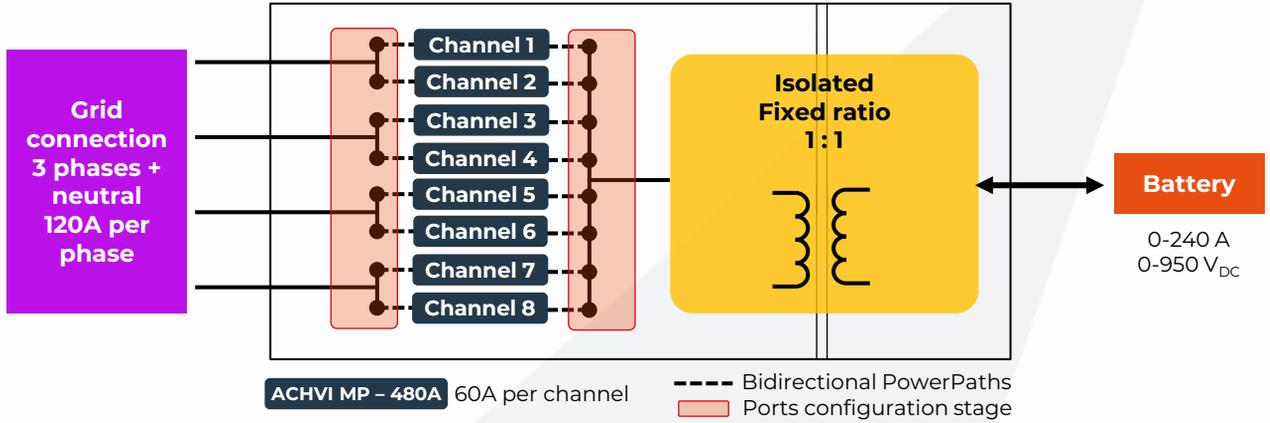
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# Ordering code logic

Port examples  
Individually CAN Settable

Port examples  
Individually CAN Settable



## Part number example :



<b>1 – Product family</b>	<b>2 – Voltage</b>
AC HV-HV isolated ACDC conv. inv.	HV 400V <sub>AC</sub> / 950V <sub>DC</sub> max
<b>3 – Galvanic isolation</b>	
I Isolated	
<b>4 – Package size</b>	<b>5 – Product line</b>
M Medium	P Performance
<b>6 – Number of ports on side A</b>	<b>7 – Number of ports on side B</b>
S Single	∅ None
D Dual	S Single
T Triple	D Dual
Q Quadruple	T Triple
P Penta	Q Quadruple
Sx Six	P Penta
H Hepta (seven)	Sx Six
O Octo (eight)	H Hepta (seven)
<b>8 – Number of ports on side C</b>	<b>9 – Cooling option</b>
S Single	LC Liquid cooling

V26.02

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