

Light Weight PV inverter for commercial rooftops

Bill Alexander

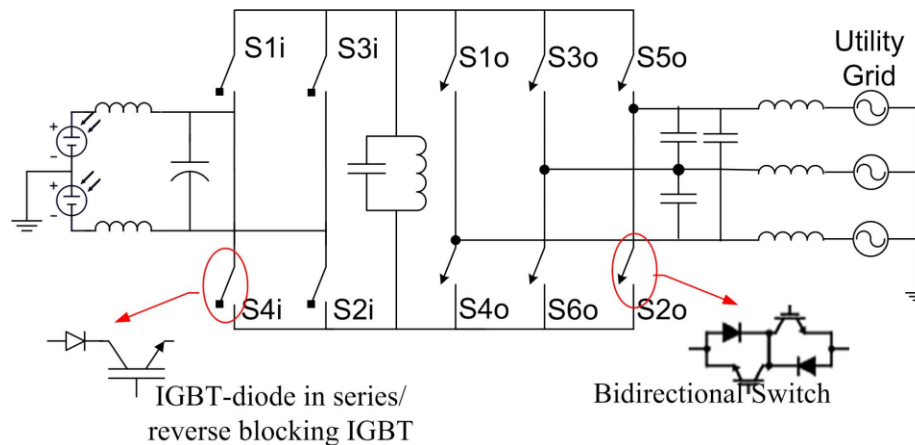
CEO / CTO / founder

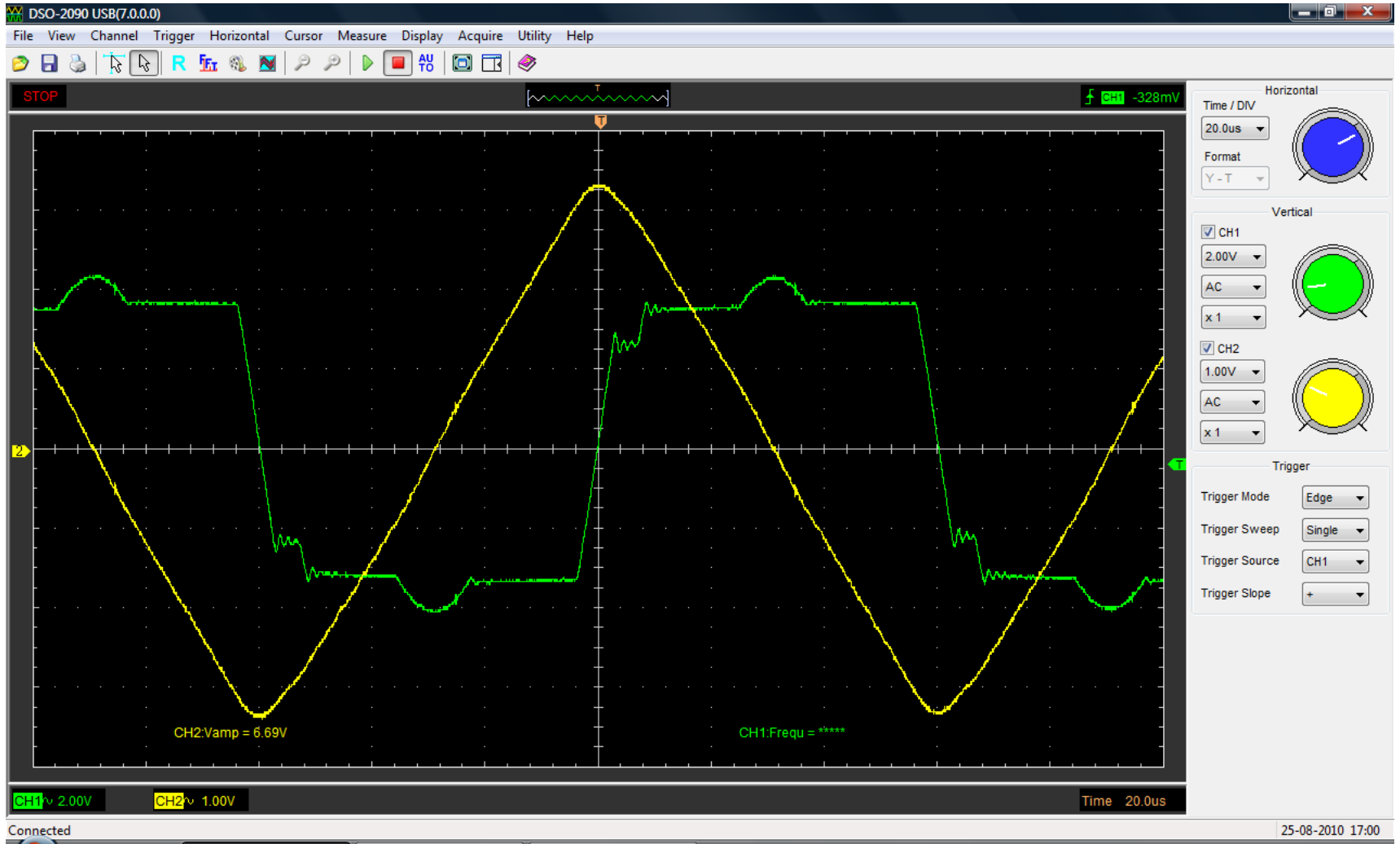
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- Soft-switched, buck-boost, current modulated converter
- All power transfer is through a link inductor (not resonant link)
- Link operates at 7 kHz at full power, AC current/voltage
- Precisely controlled current for output harmonics
- Link capacitor acts as loss-less snubber for ZVS
- Zero voltage turn-on, low di/dt reverse recovery
- Inherent isolation between input and output, no transformer needed





- Pilot proves IPC's 30 kW 480VAC PV inverter functionality



CONVENTIONAL
30kW INVERTER

IPC 30kW INVERTER
PROTOTYPE




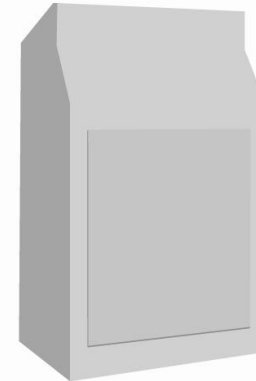
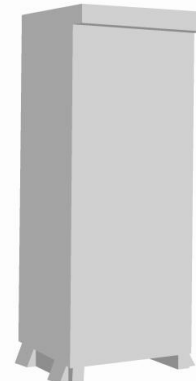
- Pilot uses existing array at the Austin Convention Center with cooperation from



- IPC has used the same technology to develop and pilot test a low harmonic VFD.

30kW Photovoltaic Inverter Comparison

	 IDEAL POWER CONVERTERS	Satcon	PV Powered
Power (kW)	30	30	35
Weight (lbs)	80	1204	1200
CEC Efficiency	97%	95%	96%



- **Manufactured in the US at lower cost than competing inverters**
 - **85–95% cost reduction in shipping and installation**
 - **Higher efficiency & improved reliability**
- **Applicable to utility-scale PV, wind, battery, VFD & PHEV**

- **85-95% lower indirect costs of shipping & installation**

	IPC 30kW	Conventional 30kW
Shipping	UPS Ground \$50	commercial freight \$500–1,000
Mounting	wall-mount 2 installers for 1 hour \$250	poured concrete pad forklift/crane rental \$1,500–5,000
Indirect Costs	\$300 \$0.01/Wp	\$2,000–6,000 \$0.07–0.20/Wp

- **Array to be mounted on existing building at UT-San Antonio**
- **No space for large 480V inverter on ground, roof or inside building**
 - Inverters to be mounted inside penthouse mechanical building
 - Shorter DC runs from array to inverters
- **Must interface with 480 VAC 3-phase**
 - Single phase SMA Sunnyboys can be used
 - Must be be configured to create 3-phase 480VAC
 - Not sufficient wall space for mounting 15 single-phase SMA inverters

Conventional String Inverter	qty	Unit weight	System weight	Wall Space needed	Eff (CEC)
SB 8000US	15	145lb	2,175lb	32 ft	96%
IPC-30kW-480	4	80lb	320lb	5 ft	97.0%