



# 5% PASSIVE HARMONIC FILTER



Harmonics produced on an electric power system from non-linear loads can adversely affect system infrastructure and loads. TCI's HarmonicShield™ (HSD) with PQconnect is a series drive-applied passive harmonic filter with intelligent control that limits current harmonic distortion to less than 5% over a wide load range. Due to the effects of harmonics distortion from variable frequency drives (VFD), IEEE 519-2022 standards require various levels of harmonic mitigation. The HSD reduces current THD to less than 5%.

The HSD with PQconnect offers industry leading performance even at light loads and under the harshest of conditions. The HSD filter is a stand-alone input device that is furnished in its own enclosure and mounted adjacent to the drive/VFD. It is designed to reduce harmonics caused by drives and VFDs.

## Features of the HSD with PQconnect:

- Limits current harmonic distortion to less than 5% over a wide load range
- IEEE 519-2022 compliant
- Cost effective, maintenance-free filter design - no mechanical adjustments needed
- Convection cooled and no moving parts
- Intelligent control and monitoring available with PQconnect
- Communications and data analytics available via Modbus RTU and EtherNet/IP
- 3 HP-1000 HP range
- 480 VAC; 600 VAC

## Typical VFD Applications

- Oil and Gas Pumps
- Water/Wastewater Pump Systems
- HVAC Compressors and Blowers
- Irrigation Pumps
- Extruders



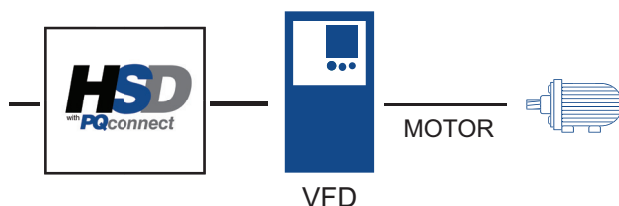
## Technical Specifications

Voltage	480 VAC; 600 VAC
Frequency	60 Hz
Power Rating	3 - 1000 HP
Load Types	3-phase diode bridge rectifier loads such as PWM AC drives
Immunity from Voltage Distortion	Less than 5% THID at full load with THVD as high as 0.5%*
Overload Capability	200% of current rating for up to 3 minutes/hour
Communication Options	Modbus RTU over RS485 & EtherNet/IP
Environmental Conditions	
Operating Ambient Temperature	-40°C (-40°F) - 40°C (104°F)
Maximum Ambient Storage Temperature	60°C (140°F)
Maximum Elevation	Up to 1,000 m (3,300 ft) without derating. Consult factory for higher elevations.
Maximum Humidity	95% non-condensing
Reference Technical Standards	
Enclosure Options	UL Type 1 or UL Type 3R
Agency Approvals	cULus Listed

\*For High Background Voltage Distortion applications, please use TCI's HGP configured for High Background Voltage Distortion.

NOTE: The HSD is classified as an Auxiliary Device, not an industrial control panel. Under UL and NFPA NEC guidelines an SCCR rating or marking is not required.

## Typical HSD Application

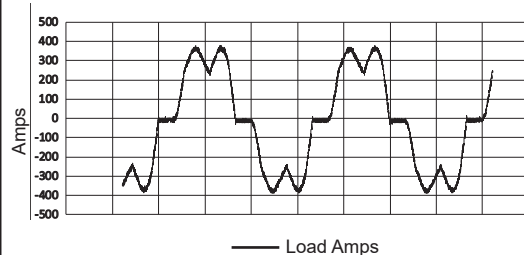


Please see web site for configuration guidelines.

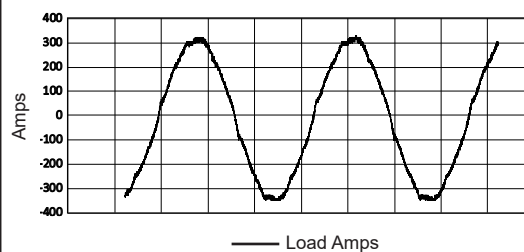
## Part Numbering

Series	HS
Model	D
D = Standard	
L = Low Capacitance	
E = EC Motor Version	
Horse Power	0100
Voltage Rating	A
A = 480 V	
C = 600 V (HSD & HSL only)	
Frequency	W
W = 60 Hz	
Enclosure	3
0 = Open Type (HSE only)	
1 = UL Type 1	
3 = UL Type 3R	
Option	1
0 = No contactor	
1 = With contactor	
Option	0
0 = Standard, no lugs	
1 = Lugs	
Communication Option	0
0 = Standard	
1 = PQconnect w/ Modbus RTU over RS485	
2 = PQconnect w/ EtherNet/IP	
Option	0
0 = Standard	

### Current Waveform Without HSD



### Current Waveform With HSD



**Performance Guarantee** - Select & install the appropriate HarmonicShield® Harmonic Filter in a variable torque, variable frequency AC drive application, within our published technical specifications and we guarantee that the input current distortion will be less than or equal to 5% THID for standard HSD Series filters at full load, and less than 8% at 30% load. If a properly sized and installed filter fails to meet its specified THID level, TCI will provide material for necessary modifications or replacement filter at no charge.