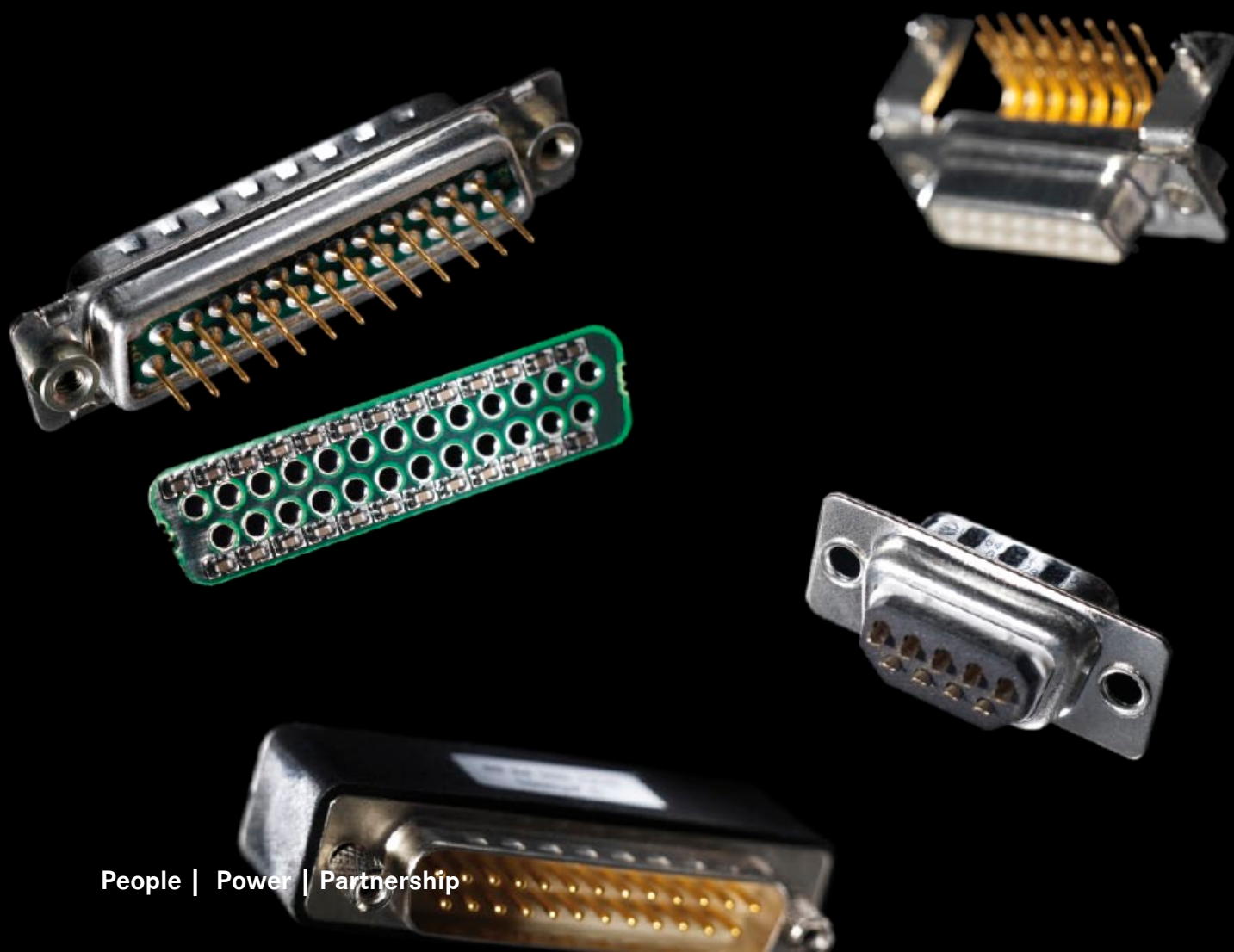


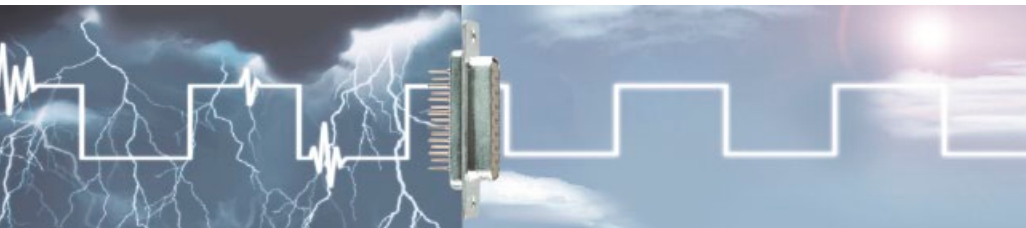


Pushing Performance

HARTING Subminiature D Filter



People | Power | Partnership



HARTING – Subminiature D Filter: Interference – Yesterdays problem!

In a fast developing technological environment the management of electromagnetic interference is becoming more challenging.

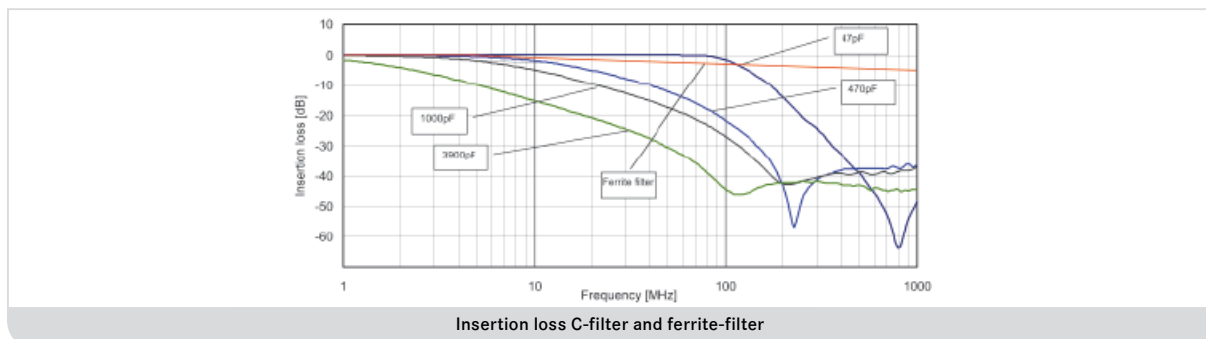
Therefore **HARTING** developed a range of filter solutions to help designers of electronic equipments to achieve the demanding goal of electromagnetic compatibility.

HARTING offers a wide range of solutions by the integration of a filter inside one of the most standard I/O ports on the market; the D-Sub.

From standard simple ferrite-filter solution to complex customized high performance filters, you will be able to find in the **HARTING** filter D-Sub range the adequate solution to protect your application from any introduction or radiation of noise through D-Sub port apertures.



Subminiature D Filter range



Insertion loss C-filter and ferrite-filter

Advantages

Wide range:

- 9, 15, 25 and 37 contact versions
- Various terminations such as solder buckets, straight and right angled solder pins
- A large range of accessories
- High performance (C-filter) as well as simple, quick and cost effective solutions (ferrite-filter)

Compatible with standard wave and lead-free reflow soldering (C-filter)

Same layout and shell dimensions as standard D-Sub connectors, no modification of PCB design necessary

Elimination of ringing, crosstalk phenomenon thanks to specific multilayer PCB used in C-filter design.

Flexible filter structure allowing a wide range of customization:

- Filter value (even pin by pin approach)
- Pi-filter
- Dielectric withstanding and working voltage
- Specific ESD / lightning protection

Ferrite-filters

Solder pins straight		Ferrite-filter	
Through hole	 9 15 25	09 64 1x2 7800 09 64 2x2 7800 09 64 3x2 7800	

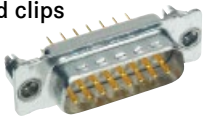
Solder buckets		Ferrite-filter	
Through hole	 9 15 25 37	09 64 1x1 7800 09 64 2x1 7800 09 64 3x1 7800 09 64 4x1 7800	

Right angled, US-footprint		Ferrite-filter	
Board lock and UNC 4-40 flange thread	 9 15 25 37	09 64 1x3 7802 09 64 2x3 7802 09 64 3x3 7802 09 64 4x3 7802	

C-filters

Filter adapters	47 pF	470 pF	1000 pF	3900 pF
Male / Female 	9 15 25 37	09 64 100 7210 09 64 200 7210 09 64 300 7210 09 64 400 7210	09 64 100 7220 09 64 200 7220 09 64 300 7220 09 64 400 7220	09 64 100 7230 09 64 200 7230 09 64 300 7230 09 64 400 7230

Turned solder pins straight	47 pF	470 pF	1000 pF	3900 pF
Through hole 	9 15 25 37	09 64 1x2 7210 09 64 2x2 7210 09 64 3x2 7210 09 64 4x2 7210	09 64 1x2 7220 09 64 2x2 7220 09 64 3x2 7220 09 64 4x2 7220	09 64 1x2 7230 09 64 2x2 7230 09 64 3x2 7230 09 64 4x2 7230

Turned solder pins straight	47 pF	470 pF	1000 pF	3900 pF
Straight board clips 	9 15 25 37	09 64 1x2 721y 09 64 2x2 721y 09 64 3x2 721y 09 64 4x2 721y	09 64 1x2 722y 09 64 2x2 722y 09 64 3x2 722y 09 64 4x2 722y	09 64 1x2 723y 09 64 2x2 723y 09 64 3x2 723y 09 64 4x2 723y

y: 4-40 UNC = 5 or M3 = 6

Turned solder pins straight	47 pF	470 pF	1000 pF	3900 pF
Clinch nut 	9 15 25 37	09 64 1x2 721y 09 64 2x2 721y 09 64 3x2 721y 09 64 4x2 721y	09 64 1x2 723y 09 64 2x2 723y 09 64 3x2 723y 09 64 4x2 723y	09 64 1x2 724y 09 64 2x2 724y 09 64 3x2 724y 09 64 4x2 724y

y: 4-40 UNC = 7 or M3 = 8

Solder buckets	47 pF	470 pF	1000 pF	3900 pF
Through hole 	9 15 25 37	09 64 1x1 7210 09 64 2x1 7210 09 64 3x1 7210 09 64 4x1 7210	09 64 1x1 7220 09 64 2x1 7220 09 64 3x1 7220 09 64 4x1 7220	09 64 1x1 7230 09 64 2x1 7230 09 64 3x1 7230 09 64 4x1 7230

C-filters

Solder buckets		47 pF	470 pF	1000 pF	3900 pF	
Clinch nut		9	09 64 1x1 721y	09 64 1x1 722y	09 64 1x1 723y	09 64 1x1 724y
		15	09 64 2x1 721y	09 64 2x1 722y	09 64 2x1 723y	09 64 2x1 724y
		25	09 64 3x1 721y	09 64 3x1 722y	09 64 3x1 723y	09 64 3x1 724y
		37	09 64 4x1 721y	09 64 4x1 722y	09 64 4x1 723y	09 64 4x1 724y

y: 4-40 UNC = 7 or M3 = 8

Turned solder pins right angled		47 pF	470 pF	1000 pF	3900 pF	
Through hole		9	09 64 1x4 7210	09 64 1x4 7220	09 64 1x4 7230	09 64 1x4 7240
		15	09 64 2x4 7210	09 64 2x4 7220	09 64 2x4 7230	09 64 2x4 7240
		25	09 64 3x4 7210	09 64 3x4 7220	09 64 3x4 7230	09 64 3x4 7240
		37	09 64 4x4 7210	09 64 4x4 7220	09 64 4x4 7230	09 64 4x4 7240

Turned solder pins right angled		47 pF	470 pF	1000 pF	3900 pF	
Bracket, board lock and through hole		9	09 64 1x4 7211	09 64 1x4 7221	09 64 1x4 7231	09 64 1x4 7241
		15	09 64 2x4 7211	09 64 2x4 7221	09 64 2x4 7231	09 64 2x4 7241
		25	09 64 3x4 7211	09 64 3x4 7221	09 64 3x4 7231	09 64 3x4 7241
		37	09 64 4x4 7211	09 64 4x4 7221	09 64 4x4 7231	09 64 4x4 7241

Turned solder pins right angled			47 pF	470 pF	1000 pF	3900 pF
Bracket, board lock and clinching nut		9	09 64 1x4 721y	09 64 1x4 722y	09 64 1x4 723y	09 64 1x4 724y
		15	09 64 2x4 721y	09 64 2x4 722y	09 64 2x4 723y	09 64 2x4 724y
		25	09 64 3x4 721y	09 64 3x4 722y	09 64 3x4 723y	09 64 3x4 724y
		37	09 64 4x4 721y	09 64 4x4 722y	09 64 4x4 723y	09 64 4x4 724y

y: 4-40 UNC = 2 or M3 = 3

Turned solder pins right angled			47 pF	470 pF	1000 pF	3900 pF
Bracket, board lock and female screw		9	09 64 1x4 721y	09 64 1x4 722y	09 64 1x4 723y	09 64 1x4 724y
		15	09 64 2x4 721y	09 64 2x4 722y	09 64 2x4 723y	09 64 2x4 724y
		25	09 64 3x4 721y	09 64 3x4 722y	09 64 3x4 723y	09 64 3x4 724y
		37	09 64 4x4 721y	09 64 4x4 722y	09 64 4x4 723y	09 64 4x4 724y

y: 4-40 UNC = 4 or M3 = 5

Turned solder pins right angled		47 pF	470 pF	1000 pF	3900 pF	
Bracket and clinching nut		9	09 64 1x4 721y	09 64 1x4 722y	09 64 1x4 723y	09 64 1x4 724y
		15	09 64 2x4 721y	09 64 2x4 722y	09 64 2x4 723y	09 64 2x4 724y
		25	09 64 3x4 721y	09 64 3x4 722y	09 64 3x4 723y	09 64 3x4 724y
		37	09 64 4x4 721y	09 64 4x4 722y	09 64 4x4 723y	09 64 4x4 724y

y: 4-40 UNC = 6 or M3 = 7

Turned solder pins right angled		47 pF	470 pF	1000 pF	3900 pF	
Bracket and female screw		9	09 64 1x4 721y	09 64 1x4 722y	09 64 1x4 723y	09 64 1x4 724y
		15	09 64 2x4 721y	09 64 2x4 722y	09 64 2x4 723y	09 64 2x4 724y
		25	09 64 3x4 721y	09 64 3x4 722y	09 64 3x4 723y	09 64 3x4 724y
		37	09 64 4x4 721y	09 64 4x4 722y	09 64 4x4 723y	09 64 4x4 724y

y: 4-40 UNC = 8 or M3 = 9

x: Female = 1 or Male = 2

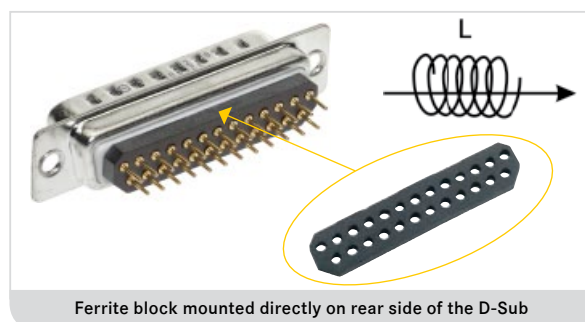
For samples, please contact your local HARTING sales representative.
Find drawings and technical characteristics at www.HARKIS.HARTING.com

HARTINGs broad Filter range

Ferrite-filter

Ferrite-filter D-Subs providing a low level of filtering thanks to simple blocks of inductive ferrite attached to the back end of the connectors.

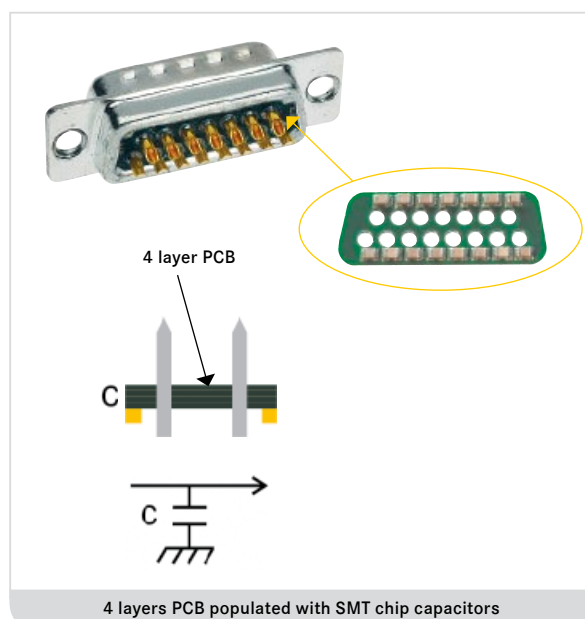
Providing a few dB attenuation only at high frequencies **HARTING** ferrite-filter D-Subs represent a cost effective solution in applications where the emission level is close to the limit.



C-filter

To address higher EMI disturbances **HARTING** propose a comprehensive range of C-filter D-Sub connectors. **HARTING** C-filter D-Sub integrates a patented 4 layer printed circuit board equipped with chip capacitors. This patented solution provides complete protection of the I/O port due to the filtering performance of the capacitors and the screening effect of the PCB. Further more the 4 layers PCB also limits the ability of interference to enter the equipment through the D-Sub aperture.

Available in 4 standard filter values 47, 470, 1000 and 3900 pF **HARTING** C-filter D-Subs represent for all designers a smart filtering solution allowing replacement of a “defective” port by a filtered one without any change of the PCB design.



Filter adapter

To support engineers in the diagnosis of EMI disturbances **HARTING** has developed, in addition to its filter series a range of male/female filter D-Sub adapters.

These back-to-back adapters can be used as testing tools and replaced later on in production directly by a filtered D-Sub connector.





Pushing Performance

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