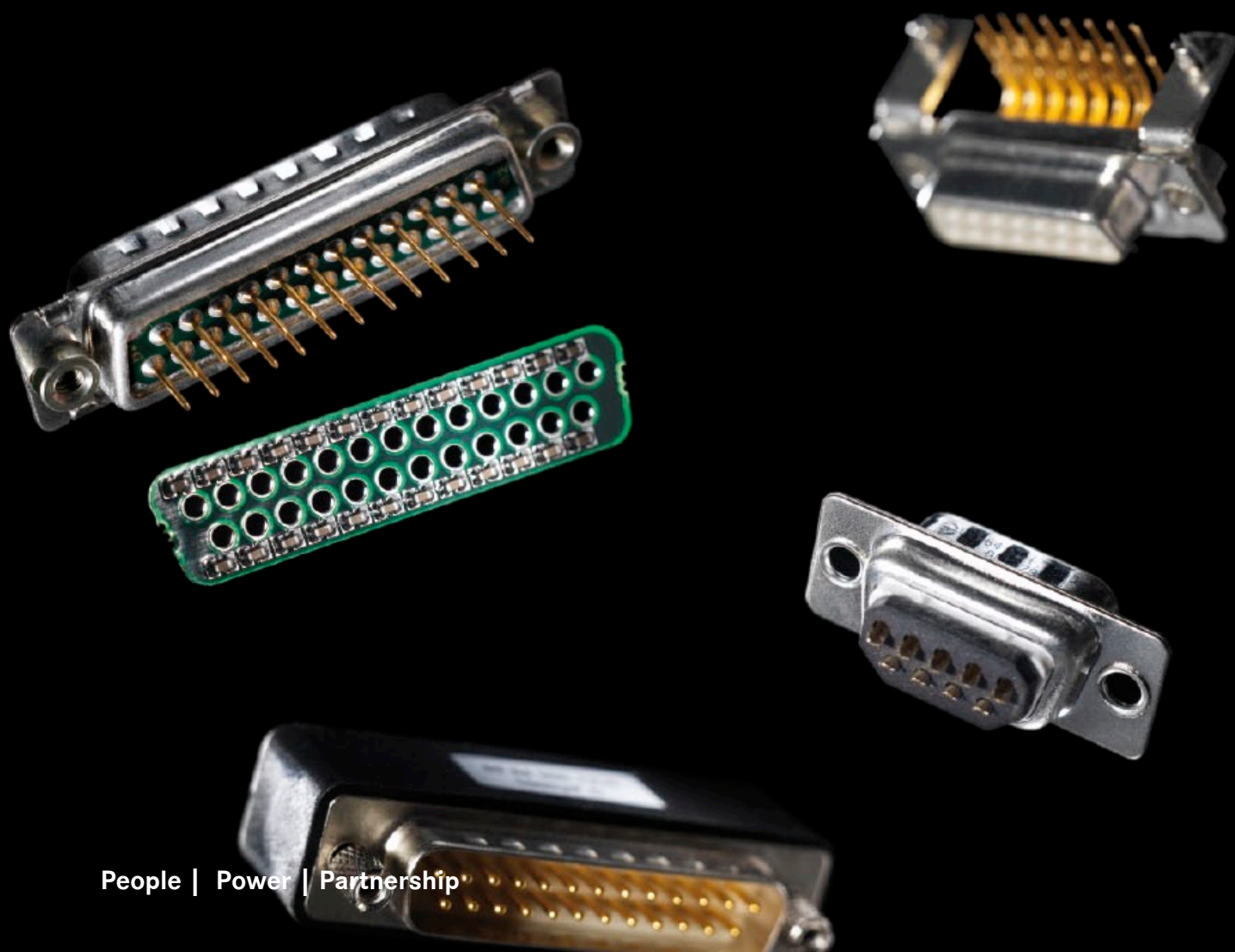


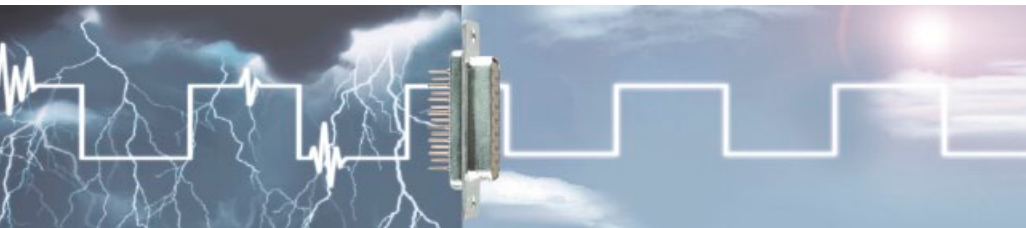


Pushing Performance

# 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.

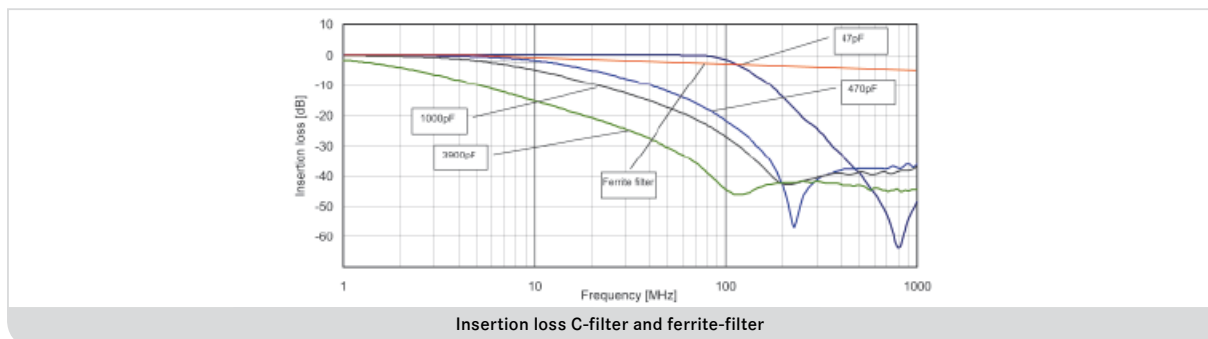
Therefore **HARTING** developed a range of filter solutions to help designers of electronic equipments to achieve the demanding goal of electromagnetic compatibility.

**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	09 64 1x2 7800		
	15	09 64 2x2 7800		
	25	09 64 3x2 7800		


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

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


## C-filters

Filter adapters		47 pF	470 pF	1000 pF	3900 pF
Male / Female 	9	09 64 100 7210	09 64 100 7220	09 64 100 7230	09 64 100 7240
	15	09 64 200 7210	09 64 200 7220	09 64 200 7230	09 64 200 7240
	25	09 64 300 7210	09 64 300 7220	09 64 300 7230	09 64 300 7240
	37	09 64 400 7210	09 64 400 7220	09 64 400 7230	09 64 400 7240


Turned solder pins straight		47 pF	470 pF	1000 pF	3900 pF
Through hole 	9	09 64 1x2 7210	09 64 1x2 7220	09 64 1x2 7230	09 64 1x2 7240
	15	09 64 2x2 7210	09 64 2x2 7220	09 64 2x2 7230	09 64 2x2 7240
	25	09 64 3x2 7210	09 64 3x2 7220	09 64 3x2 7230	09 64 3x2 7240
	37	09 64 4x2 7210	09 64 4x2 7220	09 64 4x2 7230	09 64 4x2 7240

Turned solder pins straight		47 pF	470 pF	1000 pF	3900 pF
Straight board clips 	9	09 64 1x2 721y	09 64 1x2 722y	09 64 1x2 723y	09 64 1x2 724y
	15	09 64 2x2 721y	09 64 2x2 722y	09 64 2x2 723y	09 64 2x2 724y
	25	09 64 3x2 721y	09 64 3x2 722y	09 64 3x2 723y	09 64 3x2 724y
	37	09 64 4x2 721y	09 64 4x2 722y	09 64 4x2 723y	09 64 4x2 724y


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

Turned solder pins straight		47 pF	470 pF	1000 pF	3900 pF
Clinch nut 	9	09 64 1x2 721y	09 64 1x2 722y	09 64 1x2 723y	09 64 1x2 724y
	15	09 64 2x2 721y	09 64 2x2 722y	09 64 2x2 723y	09 64 2x2 724y
	25	09 64 3x2 721y	09 64 3x2 722y	09 64 3x2 723y	09 64 3x2 724y
	37	09 64 4x2 721y	09 64 4x2 722y	09 64 4x2 723y	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	09 64 1x1 7210	09 64 1x1 7220	09 64 1x1 7230	09 64 1x1 7240
	15	09 64 2x1 7210	09 64 2x1 7220	09 64 2x1 7230	09 64 2x1 7240
	25	09 64 3x1 7210	09 64 3x1 7220	09 64 3x1 7230	09 64 3x1 7240
	37	09 64 4x1 7210	09 64 4x1 7220	09 64 4x1 7230	09 64 4x1 7240


## C-filters

Solder buckets		47 pF	470 pF	1000 pF	3900 pF
<b>Clinch nut</b> 	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
<b>Through hole</b> 	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
<b>Bracket, board lock and through hole</b> 	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
<b>Bracket, board lock and clinch nut</b> 	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
<b>Bracket, board lock and female screw</b> 	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
<b>Bracket and clinch nut</b> 	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
<b>Bracket and female screw</b> 	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

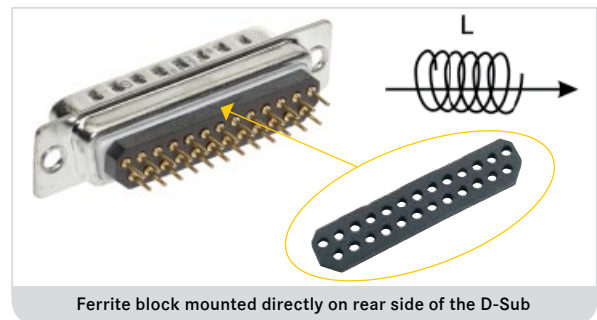
For samples, please contact your local HARTING sales representative.  
Find drawings and technical characteristics at [www.HARKIS.HARTING.com](http://www.HARKIS.HARTING.com)

# 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.

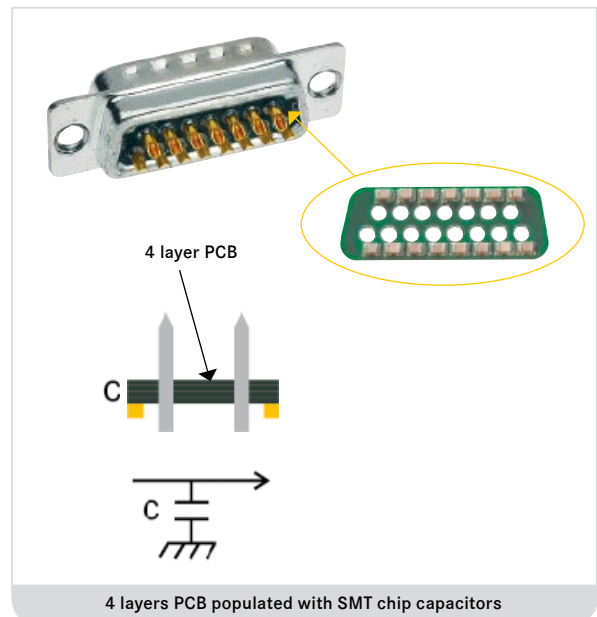


Ferrite block mounted directly on rear side of the D-Sub

## 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.



4 layers PCB populated with SMT chip capacitors

## 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.



Perfect design-in support with D-Sub filter adapters



**Pushing Performance**

[www.HARTING.com](http://www.HARTING.com)