

## FFH S1/12H F1 B RL

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 26  
D-32758 Detmold  
Germany

www.weidmueller.com

### Product image



### OMNIMATE® - Board-to-Board connectors

Flexible engineering of compact devices

The use of future-proof contact systems, as well as the optimisation of manufacturing processes, are increasingly important in the development of efficient industrial devices, especially in the field of Industry 4.0.

OMNIMATE® board-to-board connectors feature a 1.27 mm pitch and offer maximum flexibility due to different designs.

- **Flexible device design** - Industrial suitable density combined with high flexible connection combinations (Mezzanine, Mother-to-Daughter, Extender-card, Cable-to-Board)
- **Automation-Ready** - Developed for automatic assembly with high precise pin coplanarity and SMT-fixation
- **Reliable contact** - Up to 500 mating cycles due to industry suitable gold-surface (PdNi-Au)
- **Process-Ready** - High performance LCP material for reflow soldering
- **Scalability** - Different heights with high contact overlapping ensure various solutions from 12 – 80 poles.
- **Robust miniaturisation** - simple and safe connection even possible under unfavorable mating conditions – e.g. inclination or offset.

### General ordering data

Version	PCB plug-in connector, female header, SMD solder connection, Pitch in mm (P): 1.27 mm, Number of poles: 12, 90°, Tape
Order No.	<a href="#">2747430000</a>
Type	FFH S1/12H F1 B RL
GTIN (EAN)	4064675000488
Qty.	560 pc(s).
Product data	IEC: / 2.8 A UL: 150 V
Packaging	Tape

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## Technical data

## Dimensions and weights

Depth	10.9 mm	Depth (inches)	0.429 inch
Height	3.7 mm	Height (inches)	0.146 inch
Width	12.7 mm	Width (inches)	0.5 inch
Net weight	2.679 g		

## System specifications

Transmission rate	3.125 Gbit/s	Product family	OMNIMATE Signal - Board-to-Board
Type of connection	Board connection	Mounting onto the PCB	SMD solder connection
Pitch in mm (P)	1.27 mm	Pitch in inches (P)	0.05 inch
Outgoing elbow	90°	Number of poles	12
Number of solder pins per pole	1	Coplanarity:	0.1 mm
Number of rows	1	Pin series quantity	2
Protection degree	IP20	Volume resistance	<25 mΩ
Plugging cycles	500	Plugging force/pole, max.	0.6 N
Pulling force/pole, max.	0.6 N		

## Material data

Insulating material	LCP	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	Illa
Insulation strength	≥ 10 <sup>10</sup> Ω	Moisture Level (MSL)	1
UL 94 flammability rating	V-0	Contact base material	Cu-alloy
Contact material	Cu-alloy	Contact surface	Gold over nickel
Layer structure of plug contact	≥ 2 μm Ni / ≥ 0.4 μm PdNi / ≥ 0.05 μm Au	Storage temperature, min.	-40 °C
Storage temperature, max.	70 °C	Operating temperature, min.	-55 °C
Operating temperature, max.	125 °C		

## Rated data acc. to IEC

Rated current, min. number of poles (Tu=20°C)	2.8 A	Clearance, min.	0.4 mm
Creepage distance, min.	0.4 mm		

## Rated data acc. to UL 1977

Reference to approval values	Specifications are maximum values, details - see approval certificate.	Rated voltage (UL 1977) (obsolete)	150 V
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## Packing

Packaging	Tape	VPE length	328 mm
VPE width	328 mm	VPE height	29 mm

## Classifications

ETIM 6.0	EC002637	ETIM 7.0	EC002637
ETIM 8.0	EC002637	ETIM 9.0	EC002637
ECLASS 9.0	27-44-04-02	ECLASS 9.1	27-44-04-02
ECLASS 10.0	27-44-04-02	ECLASS 11.0	27-46-02-01
ECLASS 12.0	27-46-02-01	ECLASS 13.0	27460201

Creation date December 4, 2023 11:50:59 AM CET

Catalogue status 24.11.2023 / We reserve the right to make technical changes.

2



**Data sheet**

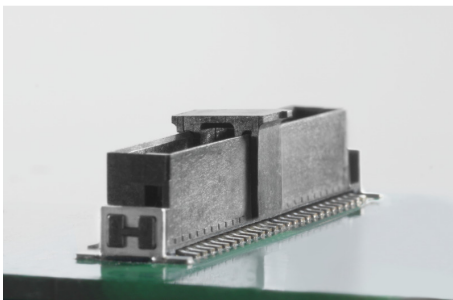
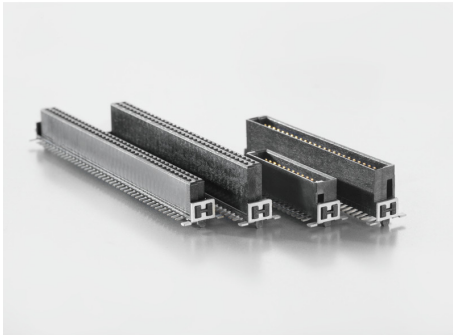
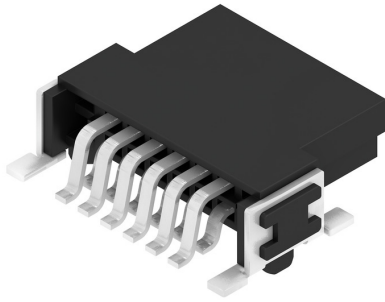
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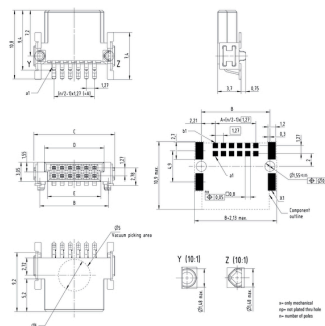
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**Drawings**

**Product image**



Type	Order no.	No. of poles	A	B	C	D	E
FFH S1/12H F1 B RL	2147430000	12	6,35	10,17	12,7	9,37	8,37
FFH S1/16H F1 B RL	2147440000	16	8,89	13,31	15,24	11,91	10,91
FFH S1/20H F1 B RL	2147450000	20	11,43	15,85	17,78	14,45	13,45
FFH S1/25H F1 B RL	2147460000	25	14,29	19,68	21,58	18,29	17,29
FFH S1/32H F1 B RL	2147470000	32	18,03	23,47	25,4	21,07	21,07
FFH S1/40H F1 B RL	2147480000	40	24,13	29,55	30,48	27,15	26,15
FFH S1/50H F1 B RL	2147490000	50	30,48	36,4	38,83	33,5	32,5
FFH S1/60H F1 B RL	2147500000	60	41,91	49,33	49,26	44,93	43,93
FFH S1/80H F1 B RL	2147510000	80	49,53	59,46	59,48	53,95	53,95



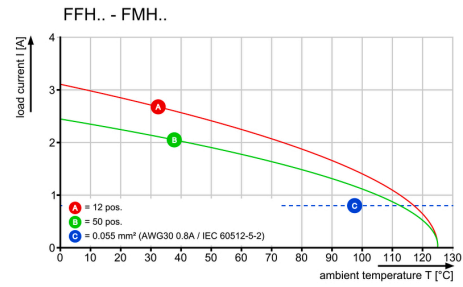
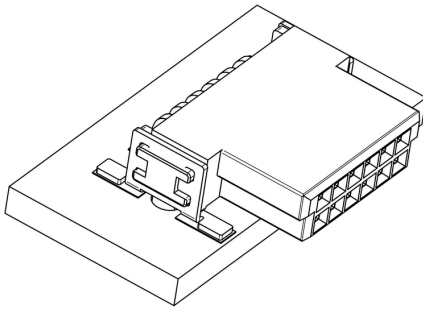
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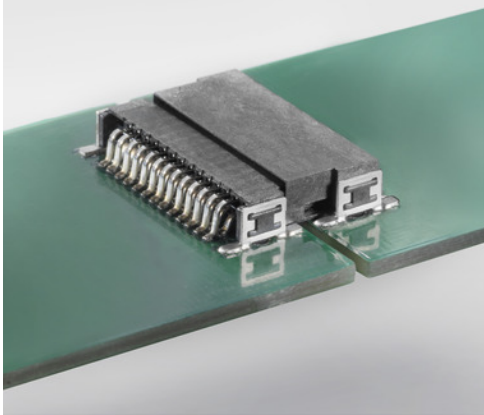
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Drawings

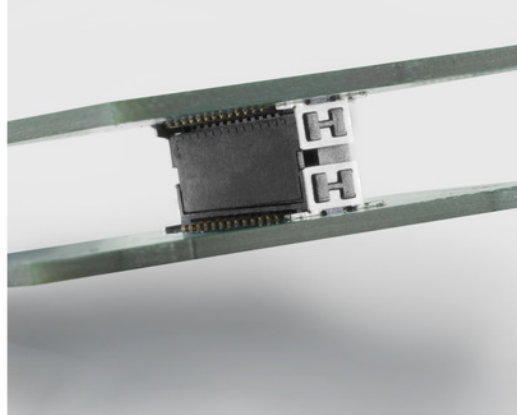
Derating curve



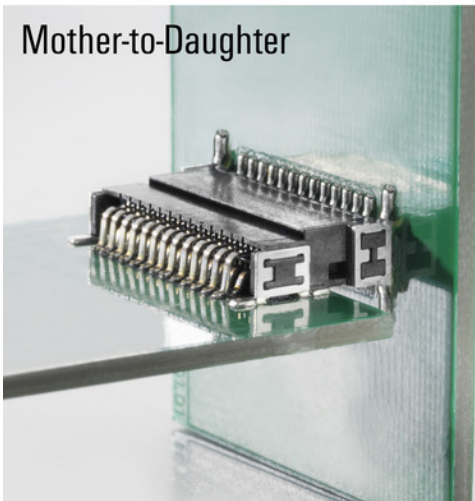
Extender-Board



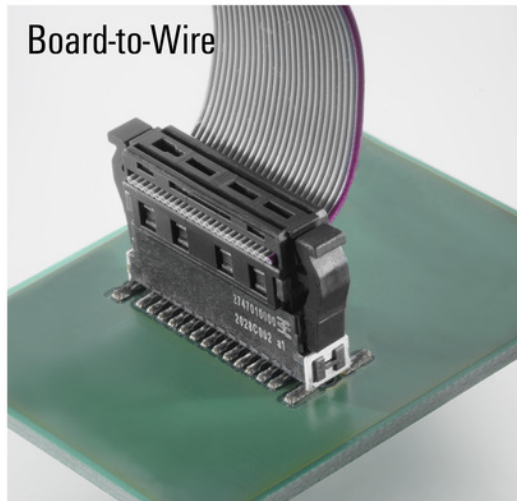
Mezzanine



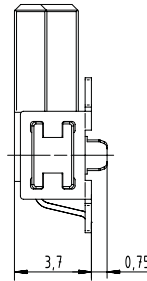
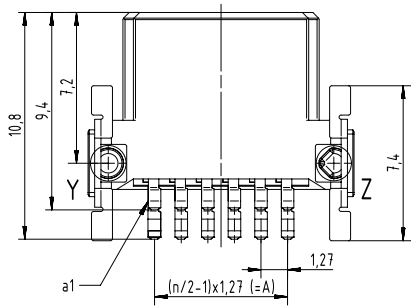
Mother-to-Daughter



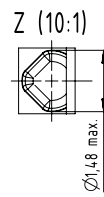
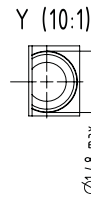
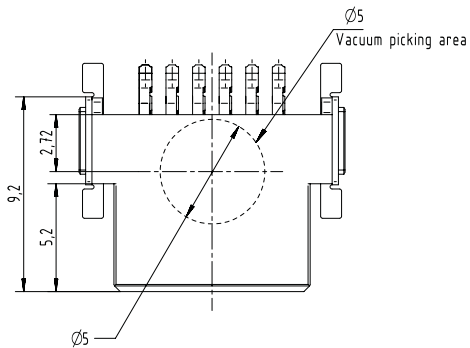
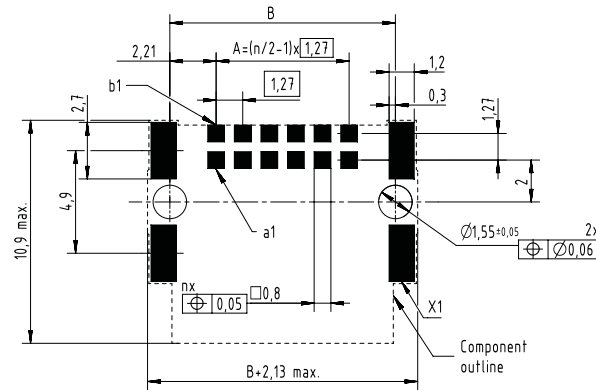
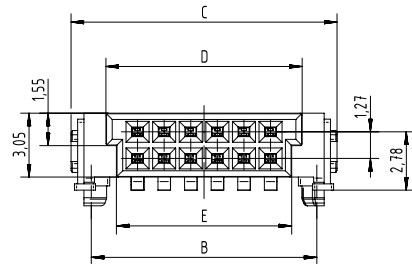
Board-to-Wire



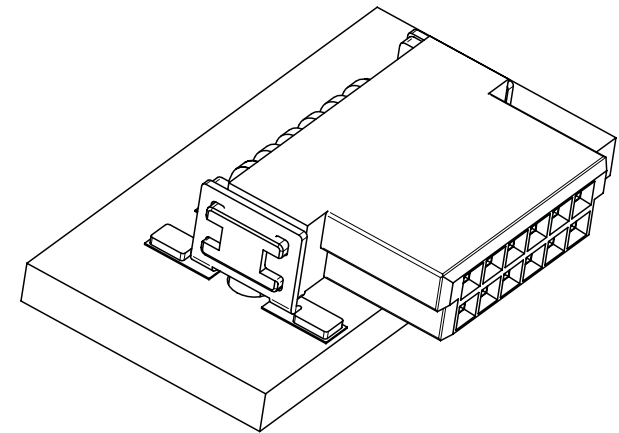
FFH S1/..H F1 B RL



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FFH S1/16H F1 B RL	2747440000	16	8,89	13,31	15,24	11,91	10,91
FFH S1/20H F1 B RL	2747450000	20	11,43	15,85	17,78	14,45	13,45
FFH S1/26H F1 B RL	2747460000	26	15,24	19,66	21,59	18,26	17,26
FFH S1/32H F1 B RL	2747470000	32	19,05	23,47	25,4	22,07	21,07
FFH S1/40H F1 B RL	2747480000	40	24,13	28,55	30,48	27,15	26,15
FFH S1/50H F1 B RL	2747490000	50	30,48	34,9	36,83	33,5	32,5
FFH S1/68H F1 B RL	2747500000	68	41,91	46,33	48,26	44,93	43,93
FFH S1/80H F1 B RL	2747510000	80	49,53	53,95	55,88	52,55	51,55

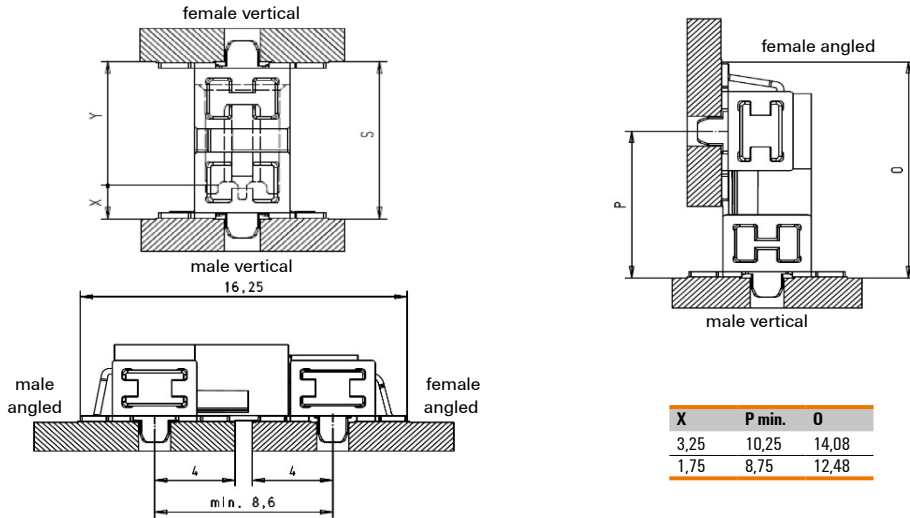


x= only mechanical  
 np= not plated thru hole  
 n= number of poles



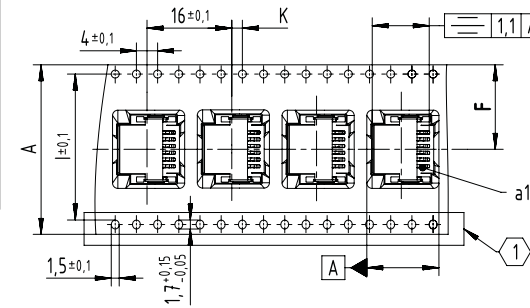
## Female angled - FFH

### Application - dimensions



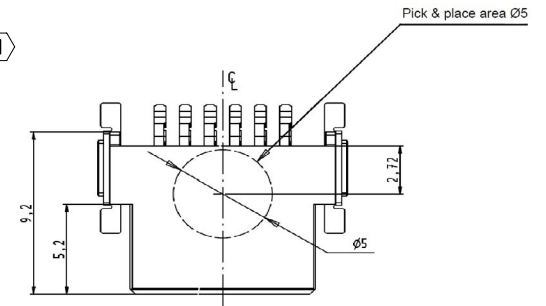
X	P min.	O
3,25	10,25	14,08
1,75	8,75	12,48

### Tape - dimensions

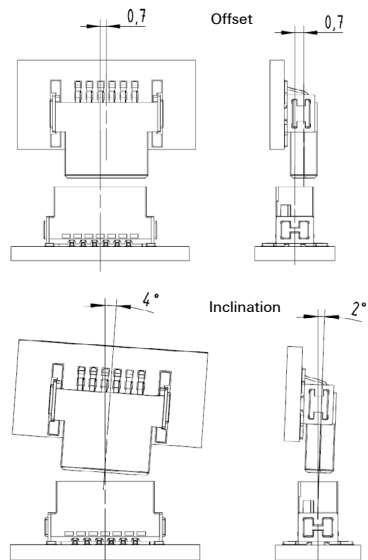


Tape dimensions	A	F	I	K
Poles 12	24,0 + 0,3/-0,1	11,5 ± 0,1	-	2 ± 0,1
Poles 14 to 20	32,0 ± 0,3	14,2 ± 0,1	28,4	2 ± 0,1
Poles 22 to 40	44,0 ± 0,3	20,2 ± 0,15	40,2	2 ± 0,15
Poles 42 to 56	56,0 ± 0,3	26,2 ± 0,15	52,4	2 ± 0,15
Poles 58 to 80	72,0 ± 0,3	34,2 ± 0,3	68,4	2 ± 0,2

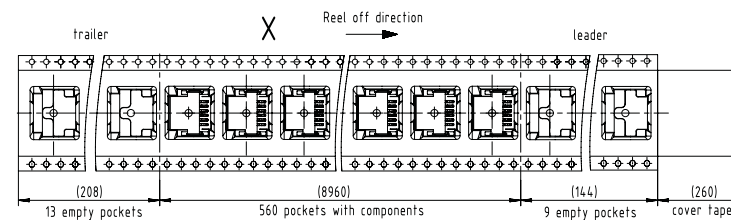
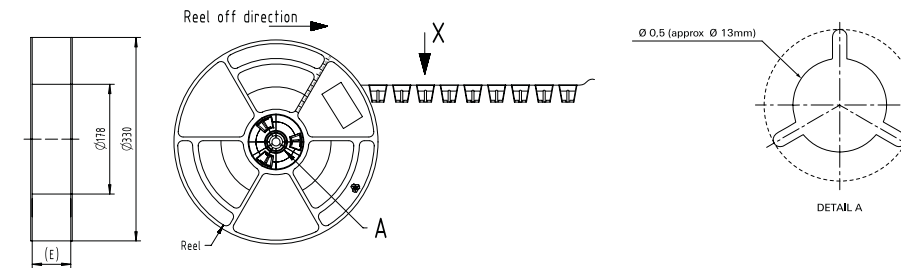
⊕ No double sprocket holes for 12 pole numbers (tape size 24)



### Mating conditions



### Reel - dimensions



Reel dimensions	E
Poles 12	24,4
Poles 14 to 20	32,4
Poles 22 to 40	44,4
Poles 42 to 56	56,4
Poles 58 to 80	72,4

## Recommended reflow soldering profile

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 16  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com



### Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically  $\leq +3\text{K/s}$ . In parallel the solder paste is ‚activated‘. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at  $\geq -6\text{K/s}$  solder is cured. Board and components cool down while avoiding cold cracks.