



# M12 X-coded 10G transformer receptacles



## GENERAL INFORMATION

No. of contacts	8 poles
Contact resistance	< 5 mOhm
Working temperature range	-40°C - +85°C
Termination technology	SMT
Reflow processing temperature	245°C Max.
Total insertion force	30N Max. according to IEC 61076-2-109
Total withdrawal force	30N Max. according to IEC 61076-2-109
Mating cycles	100 mating cycles, according to IEC 61076-2-109
Shock and vibration proof	according to IEC 61076-2-109
RoHS - compliant	Yes
Lead free	Yes
PSL level acc. ECA/IPC/JEDEC J-STD-075	R7

## INSULATION MATERIAL

Material	LCP (liquid crystalline polymer)
Color	Black
UL classification	UL94-V0
Material group acc. IEC 60664-1	IIIa (175 ≤ CTI < 400)

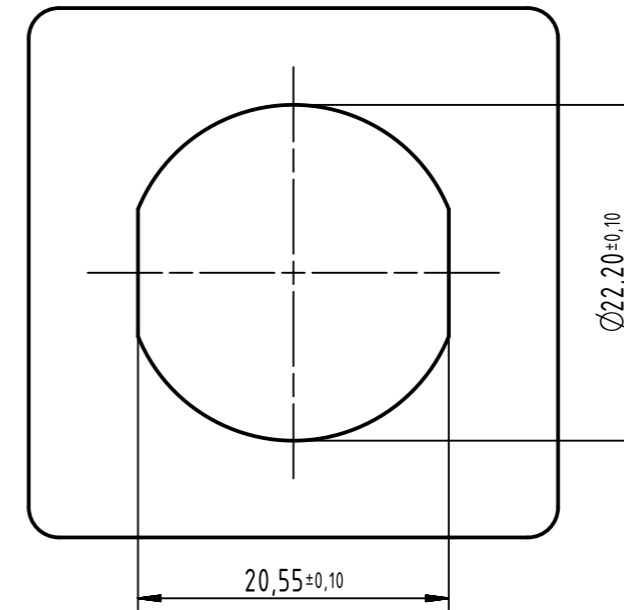
## CONTACT MATERIAL

Contact material	Copper alloy
Plating termination zone	Tin
Plating contact sliding side	Gold

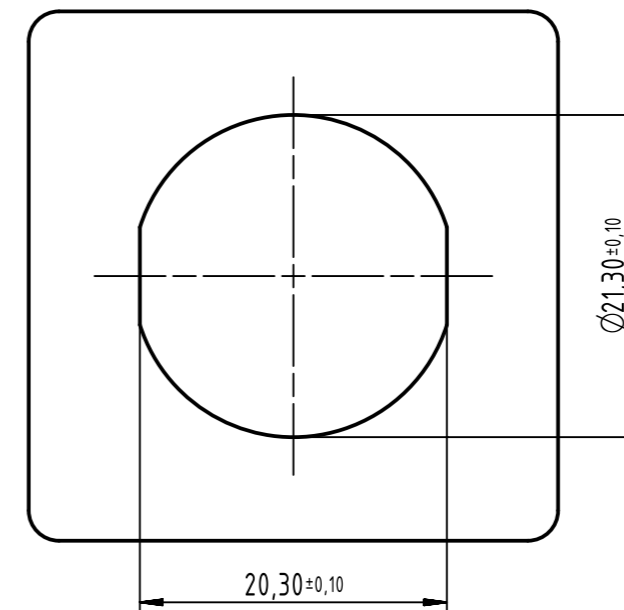
## SHIELDING MATERIAL

Shielding material	Copper alloy
Plating	Tin

## Recommended Panel cut out



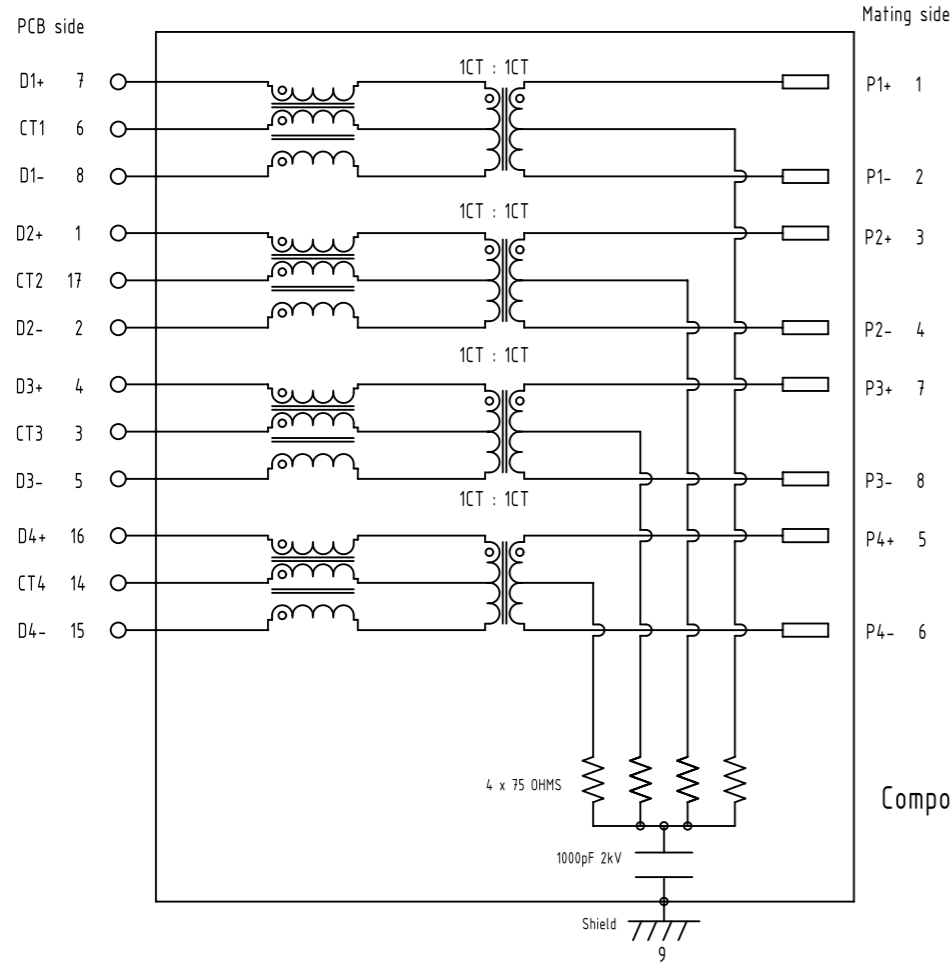
Front mounting use  
Detail see drawing 21033012006



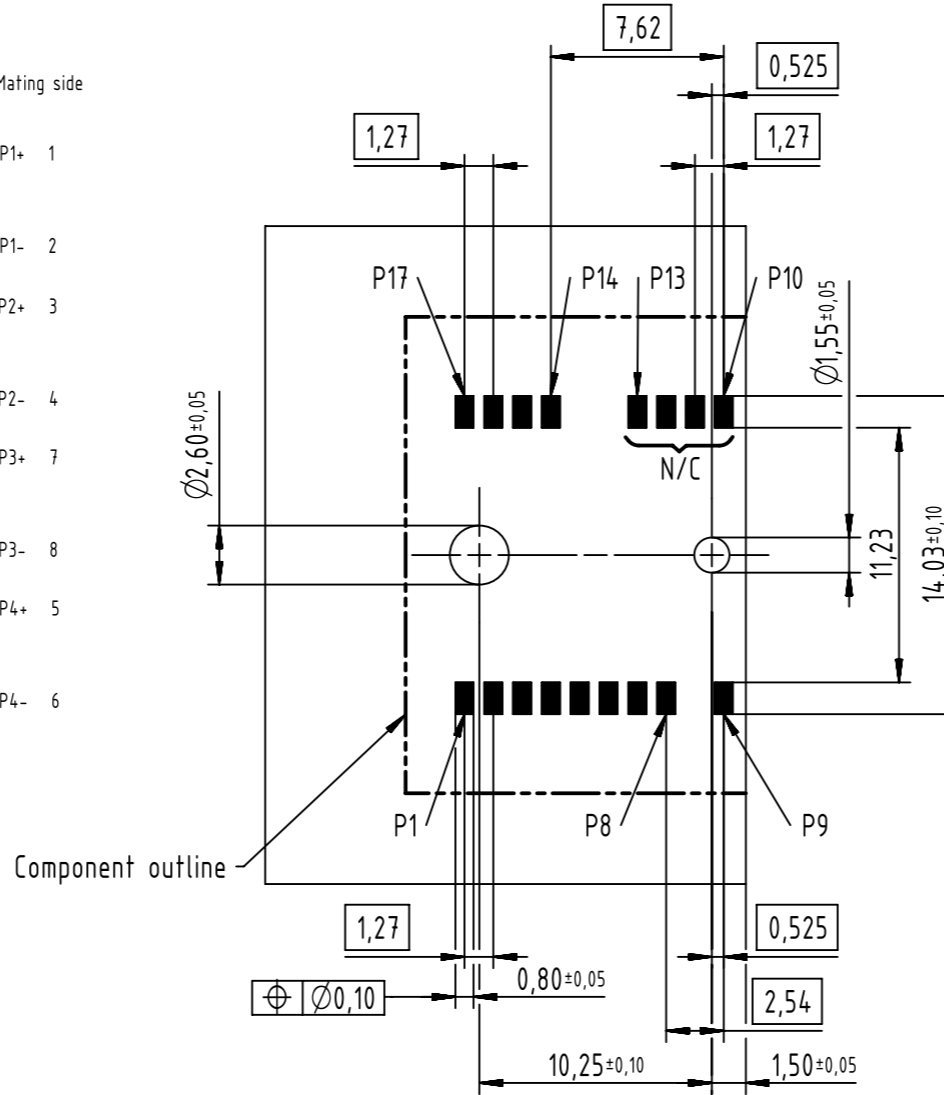
Rear mounting use  
Detail see drawing 21033012007

	All Dimensions in mm Original Size DIN A3	Scale 1:1	Free size tol.	Ref.	
				Sub.	
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	Department EC PD - CN	Title M12 transformer receptacles X-coded 10G angled,SMT			State Final Release
HARTING Electronics GmbH D-32339 Espelkamp		Type DS	Number 21033810203	Doc-Key / ECM-Nr. 100723745/UGD/001/B 500000119897	Rev. B Page 1/4

# Schematic



# Recommended PCB layout



Electrical Characteristics @+25°C unless otherwise noted  
 Meets IEEE802.3 specification  
 RoHS compliant

Parameter	Specification/ Limit Values	
Turn Ratio (+/- 2%)	1CT : 1CT	
Working voltage	57V	
OCL	min 120µH @ 100KHz , 100mV with 18mA bias current	
Isolation (Input- Output)	1.5kV VAC RMS , for 60sec. min	
Insertion Loss	f ≤ 0.3MHz	0.3MHz < f ≤ 100 MHz
	-3dB max	-0.7-0.001*f <sup>1.25</sup>
Return Loss	f ≤ 40MHz	40MHz < f ≤ 350MHz
	-17dB min	-17+10*log (f/40)    -5+15*log (f/490)
Crosstalk	f ≤ 20MHz	20MHz < f ≤ 500Mhz
	-45dB min	-45+15*log(f/20)
CMRR	f ≤ 20Mhz	20MHz < f ≤ 500Mhz
	-31dB min	-31+8*log (f/20)
CDMR	f ≤ 20Mhz	20MHz < f ≤ 500Mhz
	-42dB min	-42+14*log (f/20)

NOTE: f is the frequency in MHz

For X-coded 10G without PoE version only  
 N/C: leave pins open,not connect to GND or VCC

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**TAPE LAYOUT & PACKAGING**

**RECOMMENDATION FOR SOLDER PROCESSING**

**1. Solder paste recommendation**

The M12 transformer receptacles connector are solderable with established lead free SAC/SnNi solder but also leaded solder

**2. PCB pad plating**

The M12 transformer receptacles connector are solderable on lead-free pad surfaces like HAL,NiAu,Immersion Sn.

**3. Stencil recommendation**

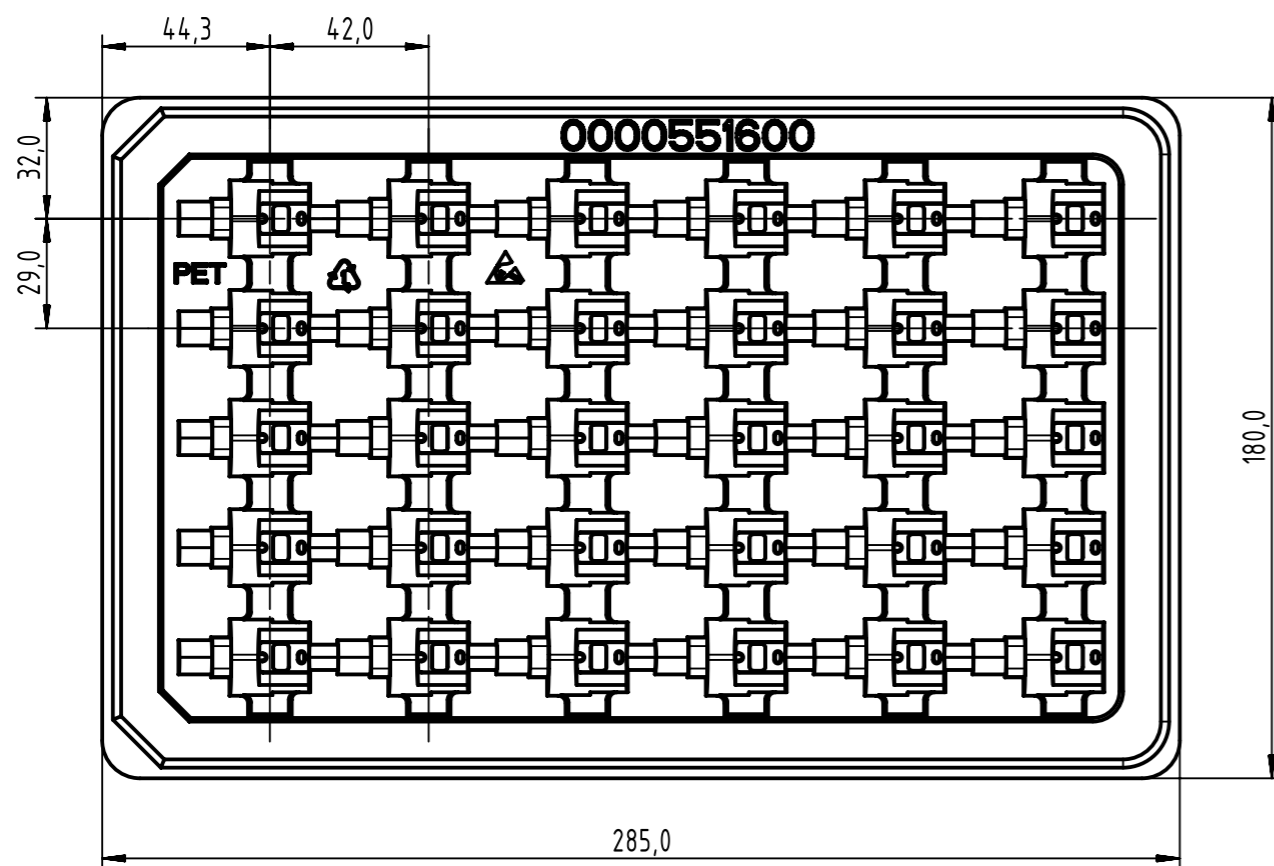
The size of the solder stencil apertures is depending on the thickness of the stencil.

In general, the thinner stencils will need larger apertures to result in the required volume of solder paste.

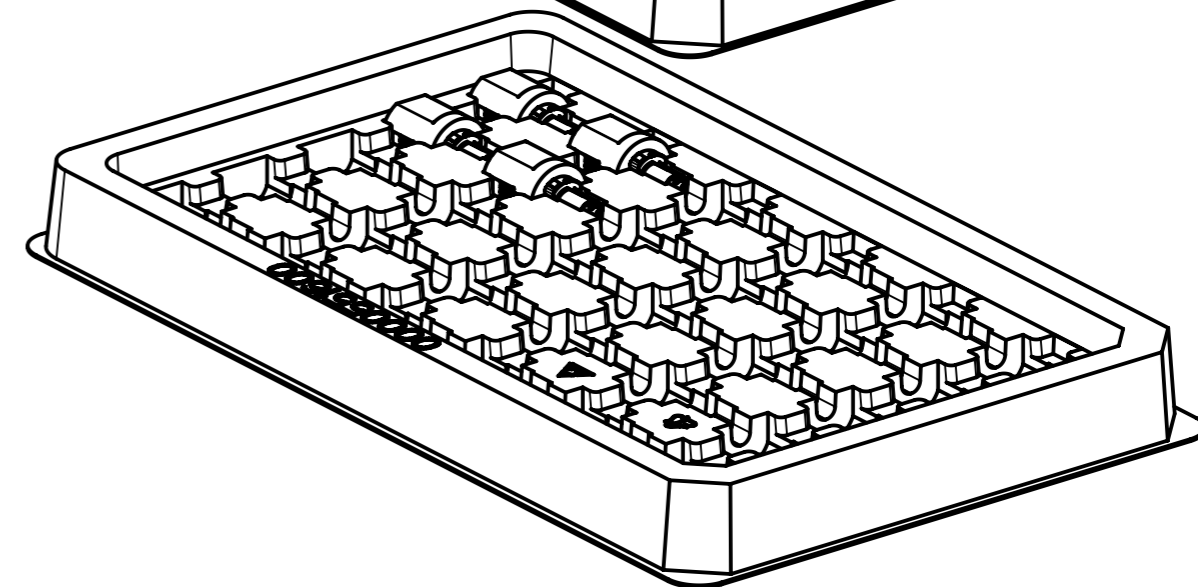
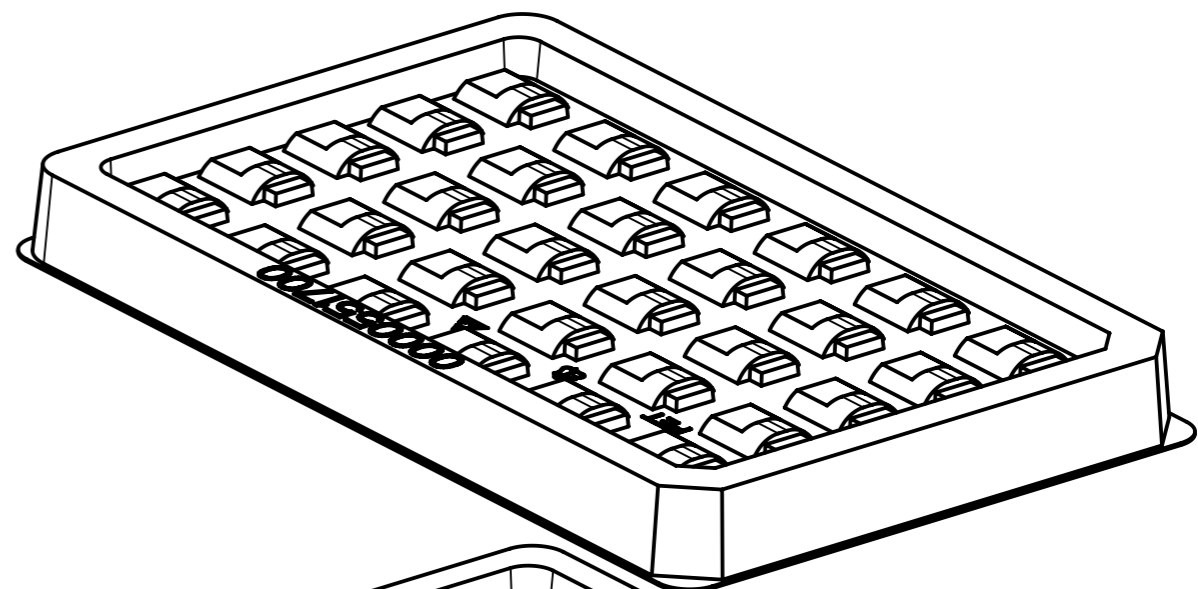
The minimum required solder paste volume for the signal pins is 0,114mm<sup>3</sup>,For example, this can be achieved with the following stencil data :

Single pin			
Stencil thickness	PCB pad size	proposal stencil aperture size	calculated solder paste volume
120 µm	1,4 x 0,8 mm	1,32 x 0,72 mm	0,114 mm <sup>3</sup>

**HARD TRAY LAYOUT & PACKAGING**



**APPLICATION INFORMATION**



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