



ERNI ModJack

Modular Jacks with integrated magnetics – 10 Base T, 10/100 Base TX

ERNI presents the ERNI ModJack™ line of integrated magnetic modular jacks.

These connectors provide signal conditioning and increase emissions performance. By integrating into the connector magnetic filtering components which are usually found as surface mount components on a PCB, increased PCB space and reduced manufacturing steps are realized. ERNI ModJacks are specifically designed to be drop-in replacements for traditional modular jacks.

Integrated magnetic packages are designed to meet FCC and IEEE 802.3 requirements for performance and voltage isolation. Variable sizes and magnetic configurations allow for a wide variety of applications. ERNI ModJacks are available in standard PCB layouts and come in single, ganged, and stacked port versions.

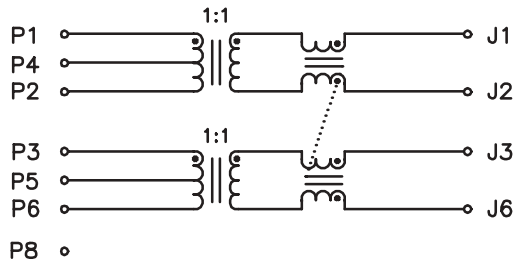
Features and Benefits

- Transformer filtered
- Eliminates NEXT
- Direct replacement for board filters
- CAT 5E replacement
- Drop-in replacement for standard jacks
- Saves PCB space
- Patented construction under US Patent #5,687,233

ERNI Modular Jacks with integrated magnetics

M2A01 Electrical Circuit

10 Base T – M2A01

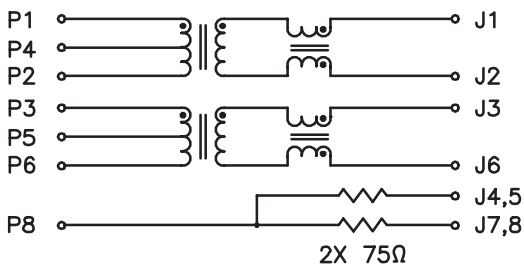


Electrical Specifications @ 25° C

TURNS RATIO (P1–P2:J1–J2) (P3–P6:J3–J6)	1CT:1 ±3% 1CT:1 ±3%
OCL (100KHz, 0.1Vrms) (P1–P2) (P3–P6)	100µH typ 100µH typ
DCR (P1–P2, P3–P6)	0.9Ω max
RETURN LOSS 5–10MHz	-15dB min
CROSSTALK (0.1–10MHz)	-40dB min
CMR (0.1–10MHz)	-40dB min
ISOLATION	1,500Vrms

M3B01 Electrical Circuit

10/100 Base TX (Low Cost) – M3B01



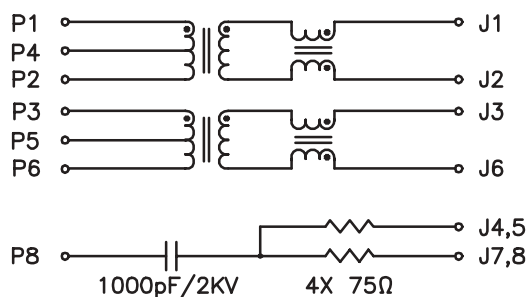
Electrical Specifications @ 25° C

TURNS RATIO (P1–P2:J1–J2) (P3–P6:J3–J6)	1CT:1 ±3% 1CT:1 ±3%
OCL (100KHz, 0.1Vrms, 8mA) (P1–P2, P3–P6)	350µH min
DCR (P1–P2, P3–P6)	0.9Ω max
INSERTION LOSS 0.1–100MHz	-1.1dB max
RETURN LOSS 0.5–30MHz 40MHz 50MHz 60–80MHz	-18dB min -15.5dB min -13.6dB min -12dB min
CROSSTALK (0.1–100MHz)	-40dB typ
COMMON MODE REJECTION 0.1–30MHz 30–60MHz 60–100MHz	-50dB typ -40dB typ -35dB typ
ISOLATION	1,500Vrms

ERNI Modular Jacks with integrated magnetics

M3C01 Electrical Circuit

10/100 Base TX – M3C01

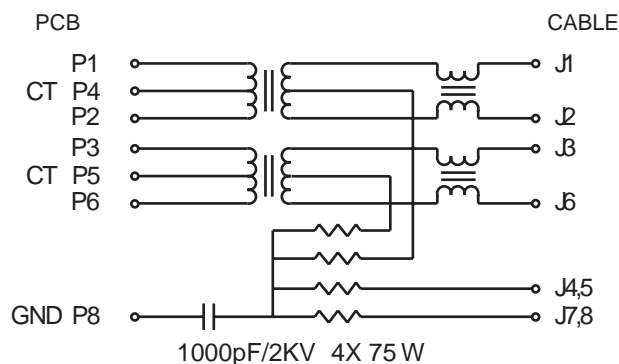


Electrical Specifications @ 25° C

TURNS RATIO (P1–P2:J1–J2) (P3–P6:J3–J6)	1CT:1CT ±3% 1CT:1CT ±3%
OCL (100KHz, 0.1Vrms, 8mA) (P1–P2, P3–P6)	350µH min
DCR (P1–P2, P3–P6)	0.9Ω max
INSERTION LOSS 0.1–100MHz	-1.1dB max
RETURN LOSS 0.5–30MHz	-18dB min
40MHz	-15.5dB min
50MHz	-13.6dB min
60–80MHz	-12dB min
CROSSTALK (0.1–100MHz)	-40dB typ
COMMON MODE REJECTION 0.1-30MHz	-50dB typ
30-60MHz	-40dB typ
60-100MHz	-35dB typ
ISOLATION	1,500Vrms

M3D01 Electrical Circuit

10/100 Base TX – M3D01



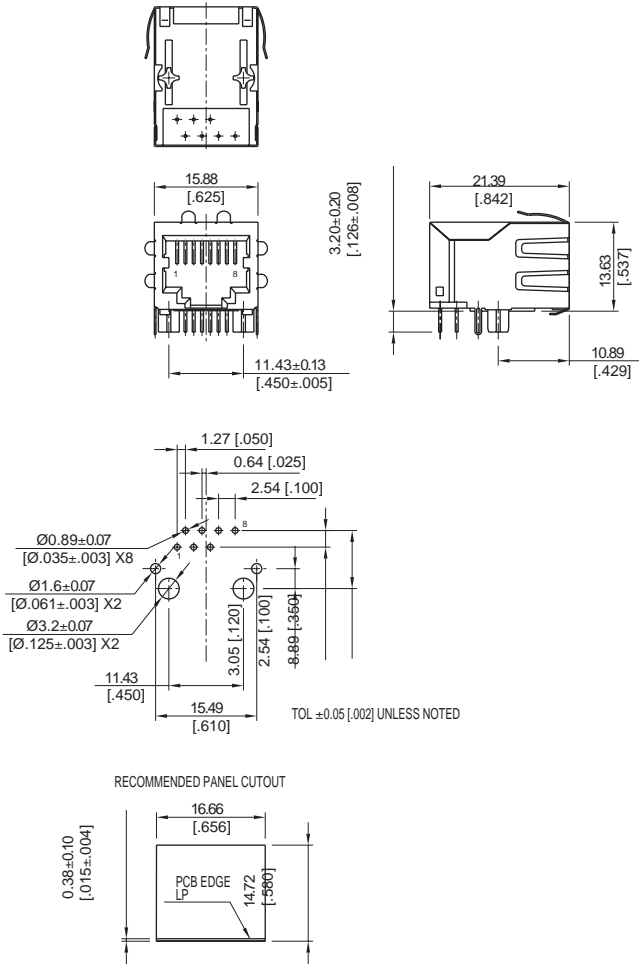
Electrical Specifications @ 25° C

TURNS RATIO (P1–P2:J1–J2) (P3–P6:J3–J6)	1CT:1CT ±3% 1CT:1CT ±3%
OCL (100KHz, 0.1 Vrms, 8mA) (P1–P2, P3–P6)	350 µH min
DCR (P1–P2, P3–P6)	0.9 Ω max
INSERTION LOSS 0.1–100 MHz	-1.1dB max
RETURN LOSS 0.5–30 MHz	-18 dB min
40 MHz	-15.5 dB min
50 MHz	-13.6 dB min
60–80 MHz	-12 dB min
CROSSTALK (0.1–100 MHz)	-40 dB typ
COMMON MODE REJECTION 0.1-30MHz	-50dB typ
30-60MHz	-40dB typ
60-100MHz	-35dB typ
ISOLATION	1,500Vrms

ERNI Modular Jacks with integrated magnetics

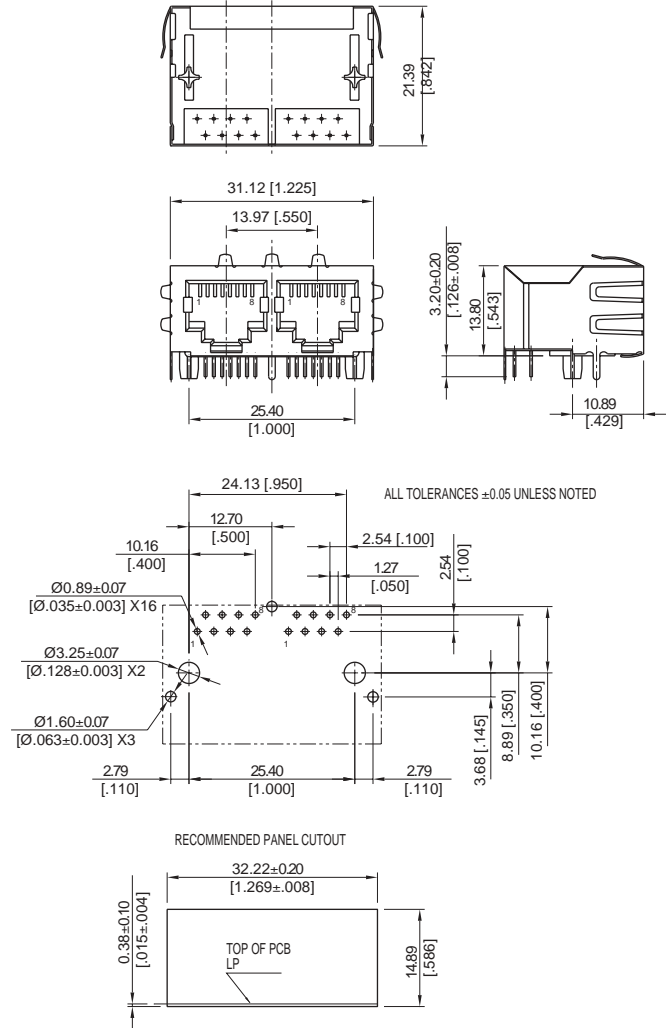
Dimensions & PCB Layout

1x1 (1 Port)



Dimensions & PCB Layout

1x2 (2 Port)



Ordering Information 1x1 (1 Port)

Electrical Circuit	Turns Ratio		Part Number
	TX	RX	
M2A01	1:1	1:1	203150
M3B01	1:1	1:1	203151
M3C01	1:1	1:1	203152
M3D01	1:1	1:1	133723

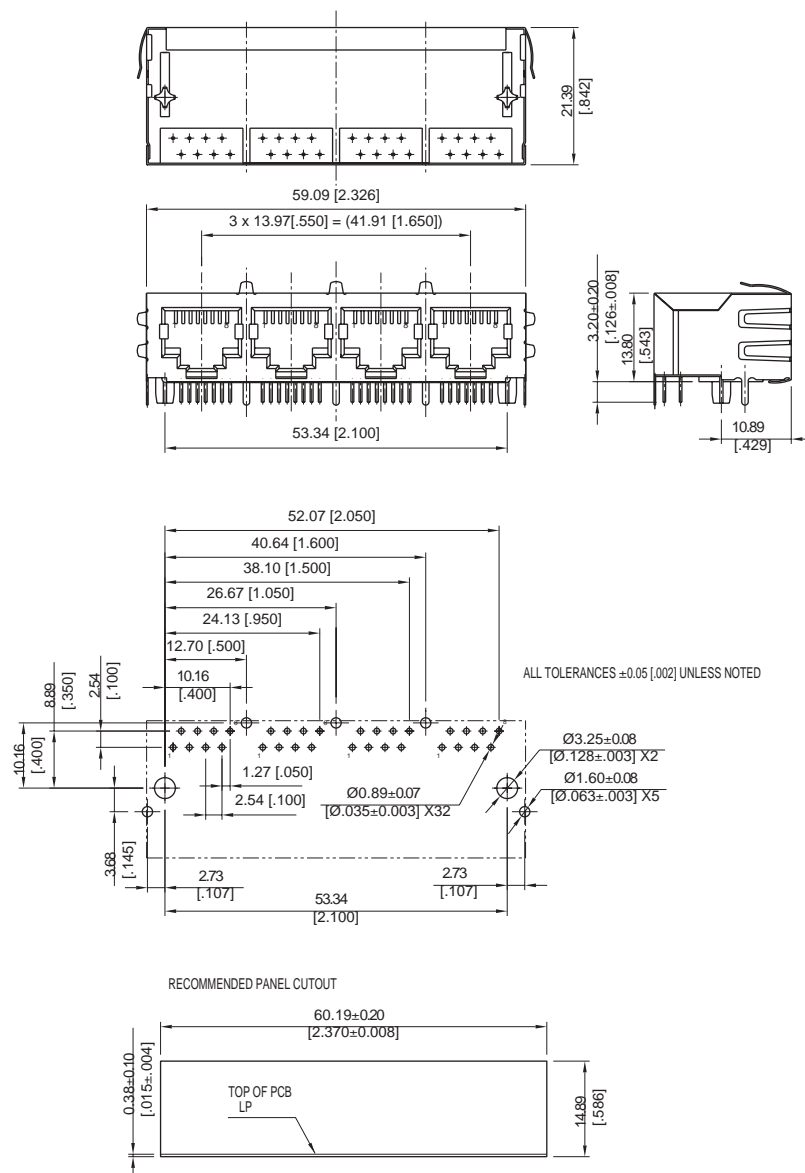
Ordering Information 1x2 (2 Port)

Electrical Circuit	Turns Ratio		Part Number
	TX	RX	
M2A01	1:1	1:1	203153
M3C01	1:1	1:1	203155
M3D01	1:1	1:1	203156

ERNI Modular Jacks with integrated magnetics

Dimensions & PCB Layout

1x4 (4 Port)



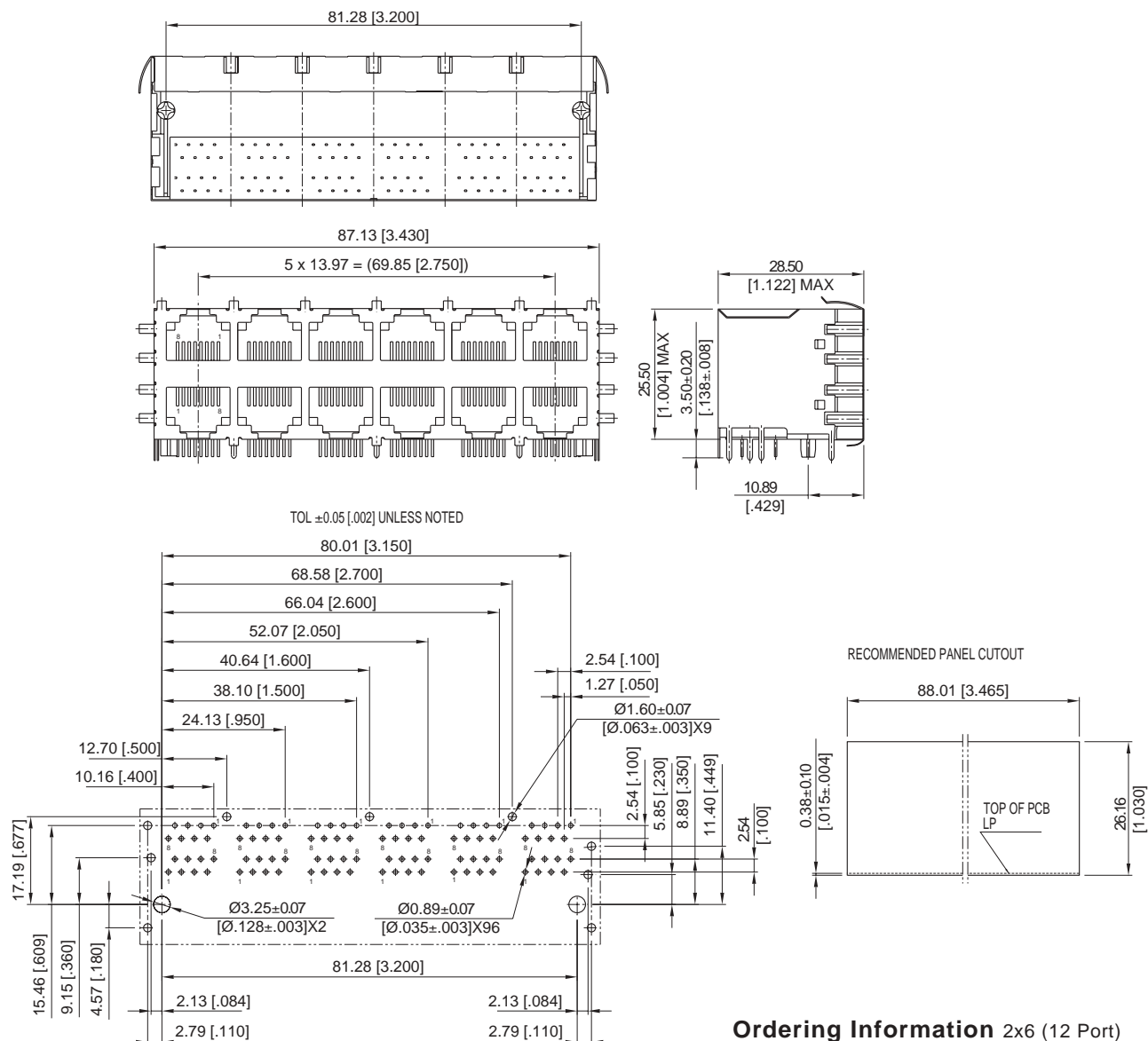
Ordering Information 1x4 (4 Port)

Electrical Circuit	Turns Ratio		Part Number
	TX	RX	
M2A01	1:1	1:1	203157
M3C01	1:1	1:1	203159
M3D01	1:1	1:1	203160

ERNI Modular Jacks with integrated magnetics

Dimensions & PCB Layout

2x6 (12 Port)



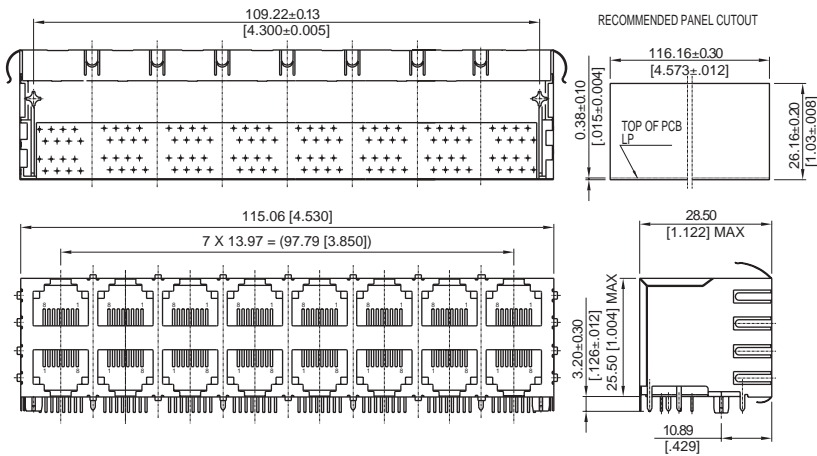
Ordering Information 2x6 (12 Port)

Electrical Circuit	Turns Ratio		Part Number
	TX	RX	
M2A01	1:1	1:1	203165
M3C01	1:1	1:1	203167
M3D01	1:1	1:1	133660

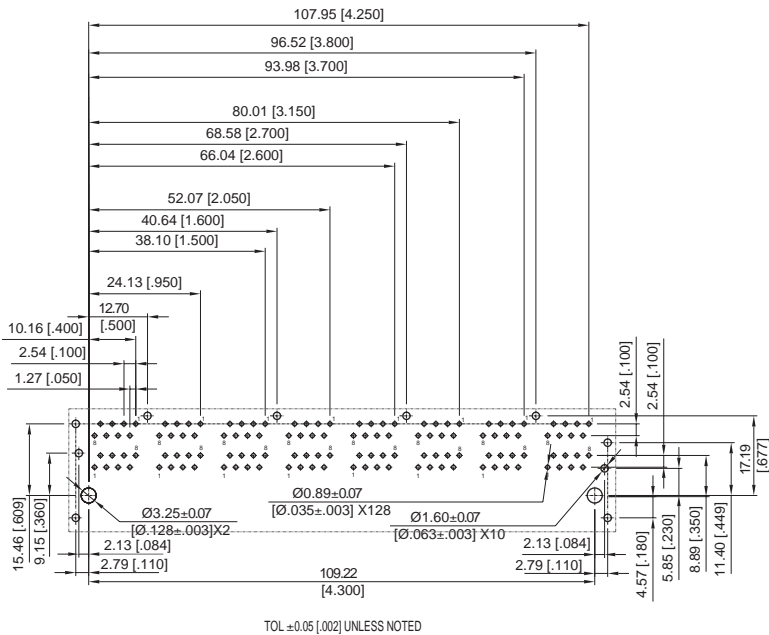
ERNI Modular Jacks with integrated magnetics

Dimensions & PCB Layout

2x8 (16 Port)



RECOMMENDED PCB LAYOUT (COMPONENT SIDE VIEW)



Ordering Information 2x8 (16 Port)

Electrical Circuit	Turns Ratio		Part Number
	TX	RX	
M2A01	1:1	1:1	203168
M3C01	1:1	1:1	203170
M3D01	1:1	1:1	203171