FGR SAFETY RELAYS
with force guided contact sets

FGR30 / FGR31

General Technical Data

Relay Version	FGR30 (OFFSET FOOTPRINT) FGR31 (INLINE FOOTPRINT)
Contact Configurations	220 (2NO/2NC) , 310 (3NO/1NC)
Contact Material	AgCdO + 0.2 µm Au or 2µm Au gold pl.
Nominal Coil Consumption (average)	800 mW
Pull-in Consumption (average)	450 mW
Admissible Ambient Temperature Range / ^{O}C (^{O}F)	-25 ... +80 ^{O}C (-13 ... + 176 ^{O}F)
Admissible Coil Temperature	120 ^{O}C (248 ^{O}F)
Max. Switched Voltage Rating in accordance to DIN VDE 0435	230/240 VAC / 300 VDC
Max. Switched Current Rating (de-rated to 6 A if more than 2 contacts are simultaneously loaded)	8 A
Max. Contact Load (resistive)	1,800 VA / 60 W
Mechanical Service Life	1 x 10^{7} switching operations
Electrical Service Life	1 x 10^{5} switching operations
Contact gap in case of malfunction (110% $V_{nom.}$; $T_{vmin.}$; $R_{min.}$)	> 0.5 mm
Response times Pull-in / Drop-out	13 / 8 m sec.
Insulation for reference voltage 250V Coil-Contact set Contact set - Contact set	Operational surge voltage category III; and Pollution degree 2 Reinforced Insulation Basic Insulation
Vibration resistance within frequency range of 10-55Hz in accordance to DIN EN 60068-2-6	5 g
Shock resistance	10 g / 11 ms
Weight	30 g
Approvals	UL, CUL, CSA, (TÜV in progress)

Standard Coil Data at 20^{O}C (68^{O}F)

Nominal Voltage	Coil Resistance	Tolerance	Pull-in Voltage	Drop-out Voltage	Max. Operat. Voltage	Coil Consumption
VDC	Ohm	%	VDC	VDC	VDC	mA
6	45	±10	4.1	0.3	11.0	200
12	180	±10	8.2	0.6	21.0	100
24	720	±10	16.8	1.2	42.0	50
48	2,880	±10	33.6	2.4	85.0	25
60	4,500	±10	42.0	3.0	96.0	20
110	15,125	±15	77.0	5.5	198.0	10

Ordering Example

- **FGR30-024-220FN** designates a FGR relay series 30 (OFFSET FOOTPRINT) with 24 VDC coil and 2NO/2NC force guided contact set with AgCdO-0.2 µm Au gold flashed contacts.
- For detailed ordering information please refer to FGR designation key on page 15

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FGR SAFETY RELAYS
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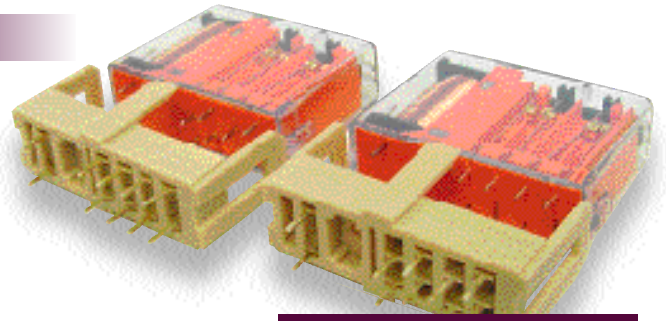
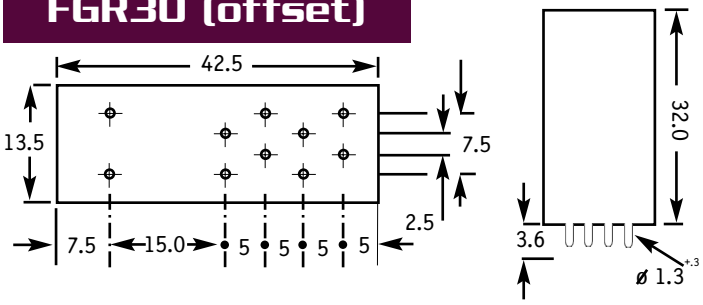


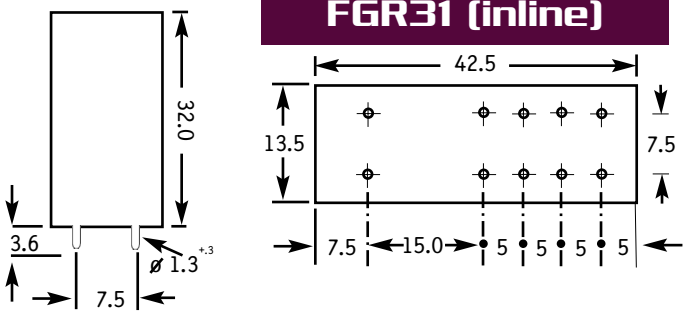
FGR30 / FGR31

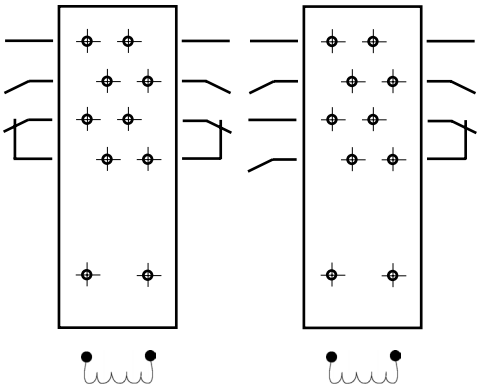
Dimensions and Foot Prints

FGR30 (offset)



FGR31 (inline)

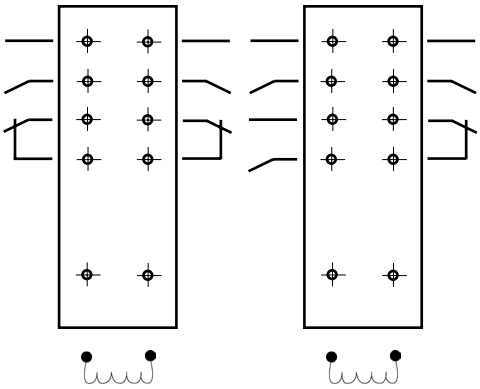




2NO/2NC | 3NO/1NC

All Dimensions shown are metric (mm)
For conversion:
1mm = 0.03937 inch
1inch = 25.40 mm

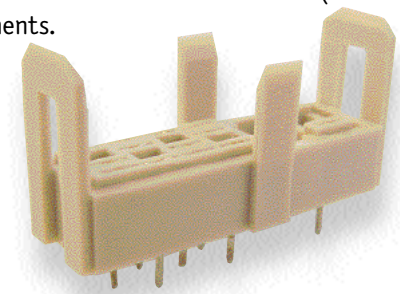
Note: FGR Relays are suitable for hand and wave soldering process. The inside diameter of soldering eyes for all relay pins must be **$1.3^{+0.3}$mm ($0.052^{+0.013}$inch)**



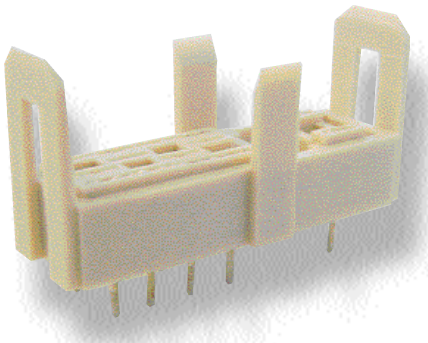
2NO/2NC | 3NO/1NC

Accessories

FGR30-4S: 4-Pole PCB mount socket for safety relay FGR30. This socket can be used for all FGR 4-Pole (OFFSET) contact set arrangements.



FGR31-4S: 4-Pole PCB mount socket for safety relay FGR31. This socket can be used for all FGR31 4-Pole (INLINE) contact set arrangements.



- All FGR Sockets are rated 8 Amp / 250 Volt AC or DC.
- All FGR Sockets can be used for all available coil voltages. 6 VDC to 110 VDC.
- All FGR Sockets are provided with terminals that are suitable for hand and wave soldering process.
- Overall dimensions: L. W. H. 45.1 x 15.7 x 22.5mm (1.78 x 0.62 x 0.89inch).
- Soldering Pin length: 5.5mm (0.22inch). The inside diameter of soldering eyes for all socket pins must be **$1.3^{+0.3}$mm ($0.052^{+0.013}$inch).**

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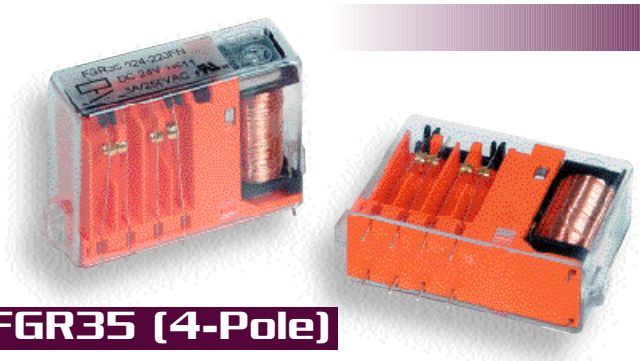

FGR35 (4-Pole)

General Technical Data

Relay Version	FGR35 (4-pole)
Contact Configurations	220 (2NO/2NC) , 310 (3NO/1NC)
Contact Material	AgCdO + 0.2 µm Au or 2µm Au gold pl.
Nominal Coil Consumption (average)	800 mW
Pull-in Consumption (average)	450 mW
Admissible Ambient Temperature Range / ^{O}C (^{O}F)	-25 ... +80 ^{O}C (-13 ... + 176 ^{O}F)
Admissible Coil Temperature	120 ^{O}C (248 ^{O}F)
Max. Switched Voltage Rating in accordance to DIN VDE 0435	230/240 VAC / 300 VDC
Max. Switched Current Rating (de-rated to 6 A if more than 2 contacts are simultaneously loaded)	8 A
Max. Contact Load (resistive)	1,800 VA / 60 W
Mechanical Service Life	1 x 10^{7} switching operations
Electrical Service Life	1 x 10^{5} switching operations
Contact gap in case of malfunction (110% $V_{nom.}$; $T_{vmin.}$; $R_{min.}$)	> 0.5 mm
Response times Pull-in / Drop-out	13 / 8 m sec.
Insulation for reference voltage 250V Coil-Contact set Contact set - Contact set	Operational surge voltage category III; and Pollution degree 2 Reinforced Insulation Basic Insulation
Vibration resistance within frequency range of 10-55Hz in accordance to DIN EN 60068-2-6	5 g
Shock resistance	10 g / 11 ms
Weight	30 g
Approvals (in progress)	UL, CUL, CSA (TÜV)

Standard Coil Data at 20^{O}C (68^{O}F)

Nominal Voltage	Coil Resistance	Tolerance	Pull-in Voltage	Drop-out Voltage	Max. Operat. Voltage	Coil Consumption
VDC	Ohm	%	VDC	VDC	VDC	mA
6	30	±10	3.9	0.3	11.0	200
12	120	±10	7.8	0.6	21.0	100
24	480	±10	15.6	1.2	42.0	50
48	1,920	±10	31.2	2.4	85.0	25
60	3,000	±10	39.0	3.0	96.0	20
110	10,800	±15	71.5	5.5	198.0	10

Ordering Example

- **FGR35-024-310PN** designates a FGR relay series 35 with 24 VDC coil and 3NO/1NC force guided contact set with AgCdO-2 µm Au gold plated contacts.
- For detailed ordering information please refer to FGR designation key on page 15.

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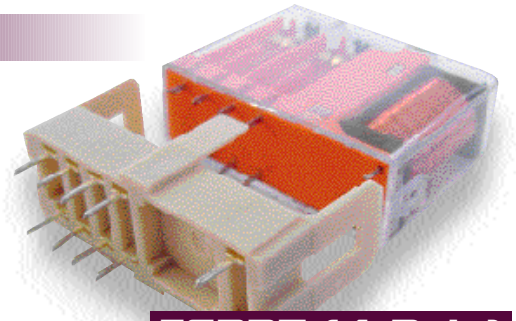
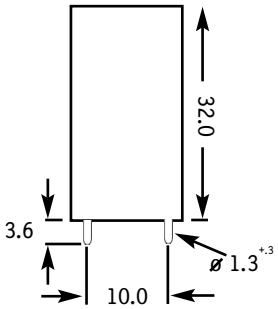


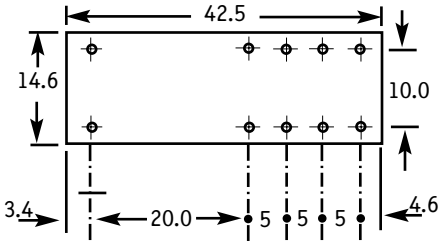
FGR35 (4-Pole)

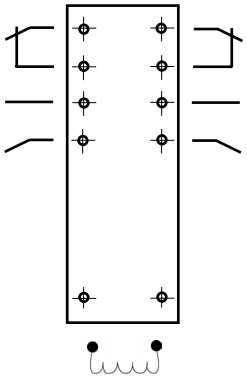
Dimensions and Foot Prints

All Dimensions shown are metric (mm)
For conversion:
1mm = 0.03937 inch
1inch = 25.40 mm

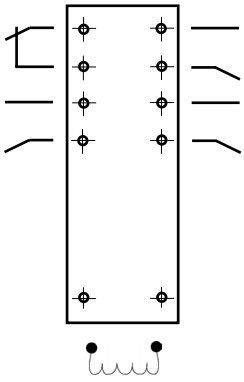
Note: FGR Relays are suitable for hand and wave soldering process. The inside diameter of soldering eyes for all relay pins must be **$1.3^{+0.3}$mm ($0.052^{+0.013}$inch)**







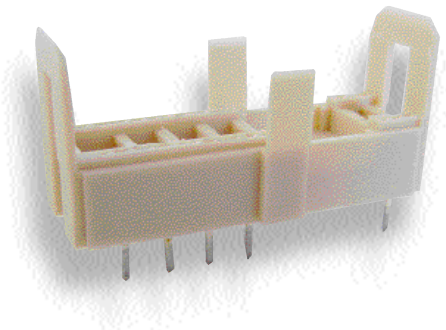
2NO/2NC



3NO/1NC

Accessories

FGR35-S4: 4-Pole PCB mount socket for safety relay FGR35 4-Pole.
This socket can be used for all FGR35 4-Pole contact set arrangements.



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- All FGR Sockets can be used for all available coil voltages. 6 VDC to 110 VDC.
- All FGR Sockets are provided with terminals that are suitable for hand and wave soldering process.
- Overall dimensions: L. W. H. 45.1 x 17.0 x 22.5mm (1.78 x 0.67 x 0.89inch).
- Soldering Pin length: 5.5mm (0.22inch). The inside diameter of soldering eyes for all socket pins must be **$1.3^{+0.3}$mm ($0.052^{+0.013}$inch).**