SIEMENS

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Industrial Control

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Overview

Version

The 3TG10 contactors with 4 main contacts are available with screw-type terminals or with 6.3 mm to 0.8 mm tab connectors. The designs with screw-type terminals are suitable for use in any climate and safe from touch to DIN VDE 0106 Part 100.

The 3TG10 contactors have a compact design. Their overall width is 36 mm.

Application

They are suitable for use in household appliances as well as for distribution boards in offices and residential buildings, owing to their hum-free construction. They can further be used in all areas where there is only a limited amount of space available, e.g. in air conditioners, heating systems, pumps and fans - basically in all simple electrical controls.

AC and DC operation

EN 60 947-4-1
(VDE 0660 Part 102).

Surge suppression

The 3TG10 contactors are fitted with an integrated protective circuit for damping opening surges.

Overload and short-circuit protection

The 3UA7 overload relay can be used for overload protection (see NS E catalogue, available in German). This applies both for contactor mounting and for mounting as a single unit.

The data for short-circuit protection of the contactors without using an overload relay are provided in the technical data.

Selection and ordering data

	Ratings Utilization category			Main contacts		Rated control supply voltage U_s	Order No.	List Price $	Weight approx.	Pack
	AC-1 maximum resistive load	Horsepower ratings of three-phase loads at 50 Hz 400 V	AC-3 maximum inductive current	Design						
	A	kW	A	NO	NC				kg	Units
With screw connections, 4-pin for screwing and snapping onto 35 mm standard mounting rail · hum-free										
	• **AC operation**									
3TG10 ..-0 	20	5	8.4	4	–	230 V, 45–450 Hz 110 V, 45–450 Hz 24 V, 45–450 Hz	**3TG10 10-0AL2** **3TG10 10-0AG2** **3TG10 10-0AC2**		0.15	10
				3	1	230 V, 45–450 Hz 110 V, 45–450 Hz 24 V, 45–450 Hz	**3TG10 01-0AL2** **3TG10 01-0AG2** **3TG10 01-0AC2**		0.15	10
	• **DC operation**									
	20	5	8.4	4 3	– 1	DC 24 V DC 24 V	**3TG10 10-0BB4** **3TG10 01-0BB4**		0.15	10
With tab connectors 6.3 x 0.8 mm, 4-pin for screwing and snapping onto 35 mm standard mounting rail · hum-free										
	• **AC operation**									
3TG10 ..-1 	16	5	8.4	4	–	230 V, 45–450 Hz 110 V, 45–450 Hz 24 V, 45–450 Hz	**3TG10 10-1AL2** **3TG10 10-1AG2** **3TG10 10-1AC2**		0.14	10
				3	1	230 V, 45–450 Hz 110 V, 45–450 Hz 24 V, 45–450 Hz	**3TG10 01-1AL2** **3TG10 01-1AG2** **3TG10 01-1AC2**		0.14	10
	• **DC operation**									
	16	5	8.4	4 3	– 1	DC 24 V DC 24 V	**3TG10 10-1BB4** **3TG10 01-1BB4**		0.14	10

1) The links for paralleling can be reduced by one pole. The rated operational currents are valid for each pole. The links for paralleling are insulated.

Technical data

General data

Mechanical endurance	operating cycles			3 mill.	
Electrical endurance at I_e	operating cycles	AC-1 AC-3		0.1 million 0.4 million	
Rated insulation voltage U_i (pollution degree 3)			V	400	
Rated impulse withstand voltage U_{imp}			kV	4	
Safe isolation acc. to DIN VDE 0106 Part 101 and A1 (draft 2/89) between coil and contacts			V	up to 300	
Permissible ambient temperature	in operation[1]) when stored		°C °C	–25 ... +55 –50 ... +80	
Degree of protection acc. to IEC 60 947-1 and IEC 60 529 (VDE 0470 Part 1)				IP 00, coil system IP 20	
Power consumption of the coils (with coil in cold state and 1.0 x U_s)					
AC operation 45 – 450 Hz			VA	4.4	
p.f.				0.9 (hum-free)	
DC operation			W	4	
Coil voltage tolerance				0.85 to 1.1 x U_s	
Operating times (break-time = opening time + arcing time)				AC operation	DC operation
Closing	closing time opening time	NO NC	ms ms	10 ... 50 5 ... 45	11 ... 50 5 ... 45
Opening	opening time closing time	NO NC	ms ms	20 ... 30 20 ... 30	19 ... 35 21 ... 39
Arcing time			ms	10 to 15	
Shock resistance					
rectangular pulse	AC and DC operation		*g*/ms	5.1/5 and 3.5/10	
sine pulse	AC and DC operation		*g*/ms	7.9/5 and 5.2/10	
Operating frequency *z* in operating cycles per hour					
Rated operation	No-load op. frequency		1/h	10000	
	for AC-1		1/h	1000	
	for AC-2		1/h	500	
	for AC-3		1/h	1000	

Short-circuit protection

Fuse links				
Utilisation category gL/gG	NH	Type 3NA		
	DIAZED	Type 5SB		
	NEOZED	Type 5SE		
acc. to IEC 60 947-4-1 (DIN VDE 0660 Part 102)	Type of coordination "1"		A	25
	Type of coordination "2"		A	10
Miniature circuit-breaker	C-characteristic		A	10

Load ratings with AC

AC-1 utilisation category, switching resistive load				
Rated operational current I_e at 55 °C to 400 V [1])				
with screw connection			A	20
with tab connector			A	16
Ratings U_e of three-phase loads p.f. = 1			V	400
with screw connection			kW	13
with tab connector			kW	10
				230/220
				7.5
				6.0
Minimum conductor cross-section with $I_{e\ load}$			mm^2	2.5

1) If the three main conducting paths are loaded with 20 A and I > 10 A for the fourth conducting path: the permissible ambient temperature is 40 °C.

Technical data

Load ratings with AC

AC-2 and AC-3 utilisation categories

Rated operational currents I_e up to 400 V	A	8.4
Ratings of motors with slipring or squirrel-cage rotor at 50 Hz and 60 Hz and at 400 V	kW	4

AC-5a utilisation category (permissible supply impedance: ≥ 0.5 Ω)
Switching gas discharge lamps
per main conducting path at 50 Hz 230 V

		Uncorrected			Lead-lag		
Rating per lamp	W	18	36	58	18	36	58
Rated operational current per lamp	A	0.37	0.43	0.67	2 x 0.11	2 x 0.21	2 x 0.32
Number of lamps	unit	43	37	24	2 x 81	2 x 42	2 x 28

Switching gas discharge lamps with correction, electronic ballast
per main conducting path at 50 Hz 230 V

		Parallel correction			Electr. ballast, 1 lamp			Electr. ballast, 2 lamps		
Rating per lamp	W	18	36	58	18	36	58	18	36	58
Capacitor	µF	4.5	4.5	7	6.8	6.8	10	10	10	22
Rated operational current per lamp	A	0.11	0.21	0.32	0.10	0.18	0.27	0.18	0.35	0.52
Number of lamps	unit	15	15	10	39	39	26	2 x26	2 x 26	2 x1

AC-5b utilisation category, switching incandescent lamps per main conducting path at 50 Hz 230 V	kW	1.6

Load ratings with DC

DC-1 utilisation category, switching resistive load ($\frac{L}{R}$ ≤ 1 ms)

Rated operational current I_e

Conducting paths connected in series		1	2	3	4
up to 24 V	A	16	16	18	20
60 V	A	6	16	18	20
110 V	A	2	6	16	20
220 V/240 V	A	0.8	1.6	6	20

DC-3 and DC-5 utilisation categories, shunt and series motors ($\frac{L}{R}$ ≤ 15 ms)

Rated operational current I_e

Conducting paths connected in series		1	2	3	4
up to 24 V	A	10	16	16	18
60 V	A	0.5	5	16	16
110 V	A	0.15	0.35	10	10
220 V/240 V	A	–	–	1.75	2

Conductor cross-sections for designs

with screw connections

Screw connection			M3
Finely stranded with end sleeve (DIN 46 228, style A/D/C)		mm²	2 x (0.75 to 2.5)
Solid		mm²	2 x (1 to 2.5)
		mm²	1 x 4

with tab connectors

Finely stranded	6.3 to 1	mm²	0.5 to 1
When using push-on contact acc. to DIN 46 245/46 247	6.3 to 2.5	mm²	1 to 2.5

cULus and CSA ratings (screw connection)

Rated insulation voltage	AC	V	600
Conventional thermal current	Free air and enclosed	A	20

Maximum horsepower ratings
(cULus and CSA-approved values)
Ratings of three-phase motors at 60 Hz

		1-phase	3-phase
at 115 V	hp	1/2	–
200 V	hp	1	3
230 V	hp	1 1/2	3
460 V/575 V	hp	–	5
600 V	hp	–	5

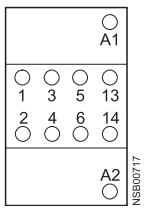
Accessories

For contactor	Design		Order No.	List Price $	Weight approx.	Pack
	Max. rated operational currents I_e/AC-1 (at 55 °C) of contactors	Max. conductor cross-sections				
Type	A	mm²	PG 101		kg	Units
Links for paralleling (star jumpers)						
• **3-pole without terminal** [1)2)]						
3TG10	16 Star jumpers can be reduced by one pole	–	**3RT1 916-4BA31**		0.004	1
• **3-pole with terminal** [1)3)]						
3TG10	40	25	**3RT1 916-4BB31**		0.013	1
• **4-pole with terminal** [1)4)]						
3TG10	50	25	**3RT1 916-4BB41**		0.02	1

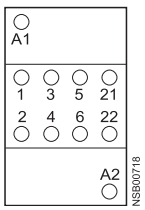
Circuit diagrams

Position of terminals

3TG10 10
1 NO

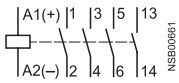


3TG10 01
1 NC

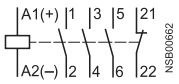


Internal circuit diagram

3TG10 10
1 NO
Ident. 10E



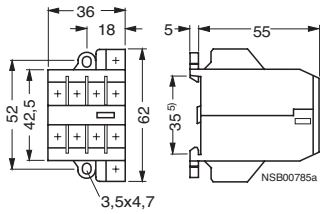
3TG10 01
1 NC
01E



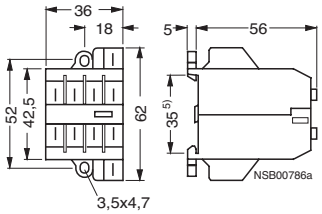
Dimension drawings

AC and DC operation

3TG10 ..-0..
with screw connections

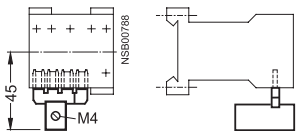


3TG10 ..-1..
with tab connectors



Accessories for 3TG10

3RT19 16-4BB41 links for paralleling, 4-pole, with terminal



The links for paralleling can be reduced by one pole.

1) The links for paralleling can be reduced by one pole. The rated operational currents are valid for each pole. The links for paralleling are insulated.
2) Replacement type for 3TX44 90-2C.
3) Replacement type for 3TX44 90-2A.
4) Replacement type for 3TX44 90-2B.
5) Can be snapped onto 35 mm standard mounting rails.

Selection and ordering data

Siemens offers a wide range of plug-in relays to meet your industrial needs. Basic style relays are the most economical and are equipped with a mechanical flag indicator only . Premium style relays are full featured with LED and mechanical flag indication, push to test button and typically a latching hold down door which provides a method of activating the contacts without applying power to the coil. This feature is very handy during comissioning and troubleshooting. Premium Bifurcated style relays are ideal for low minimum holding current requirements on the contacts. Typical minimum holding current for bifurcated contacts is 3mA instead of 100mA.

Relays are divided up by the following functions for selection:
- Base style
- Contact Arrangement
- Contact Rating
- Coil Voltage
- Optional Features (Basic, Premium and Premium Bifurcated)

Square Base (Narrow)

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Premium Relay	Uses Socket 3TX7144-	Uses Clip 3TX7144-	Socket Access Set	Panel Mount Adaptor 3TX7144-	DIN Rail Mount Adaptor 3TX7144-
SPDT	15	12VDC	3TX7110-5BB03C	3TX7110-5JB03	4E7	1L7	B	3L5	3L4
		24 VDC	3TX7110-5BC03C	3TX7110-5JC03	4E7	1L7	B	3L5	3L4
		24 VAC	3TX7110-5BC13C	3TX7110-5JC13	4E7	1L7	B	3L5	3L4
		120 VAC	3TX7110-5BF13C	3TX7110-5JF13	4E7	1L7	B	3L5	3L4
		240 VAC	—	3TX7110-5JG13	4E7	1L7	B	3L5	3L4

Square Base (Standard)

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Premium Relay	Uses Socket 3TX7144-	Uses Clip 3TX7144-	Socket Access Set	Panel Mount Adaptor 3TX7144-	DIN Rail Mount Adaptor 3TX7144-
DPDT	12	24 VDC	3TX7111-3DC03C	3TX7111-3LC03	4E5	1L6	B	3L7	3L6
		24 VAC	3TX7111-3DC13C	3TX7111-3LC13	4E5	1L6	B	3L7	3L6
		120 VAC	3TX7111-3DF13C	3TX7111-3LF13	4E5	1L6	B	3L7	3L6
DPDT	15	12 VDC	3TX7114-5DB03C	3TX7114-5LB03	4E6	1L6	B	3L7	3L6
		24VDC	3TX7114-5DC03C	3TX7114-5LC03	4E6	1L6	B	3L7	3L6
		24VAC	3TX7114-5DC13C	3TX7114-5LC13	4E6	1L6	B	3L7	3L6
		120 VAC	3TX7114-5DF13C	3TX7114-5LF13	4E6	1L6	B	3L7	3L6
		240 VAC	—	3TX7114-5LH13	4E6	1L6	B	3L7	3L6
DPDT	10	12 VDC	3TX7115-5DB03C	—	4E4	1L12	A	—	—
		24VDC	3TX7115-5DC03C	3TX7115-5LC03	4E4	1L12	A	—	—
		24VAC	3TX7115-5DC13C	3TX7115-5LC13	4E4	1L12	A	—	—
		120 VAC	3TX7115-5DF13C	3TX7115-5LF13	4E4	1L12	A	—	—

Option	Basic	Premium
Mechanical Flag	√	√
Push To Test		√
Lock Down Door		√
LED		√

Note: See page 11/131 for socket accessories.

Selection and ordering data

Square Base (Standard)

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Premium Relay	Premium Bifurcated	Uses Socket 3TX7144-	Uses Clip 3TX7144-	Socket Access Set	Panel Mount Adaptor 3TX7144-	DIN Rail Mount Adaptor 3TX7144-
3PDT	15	24VDC	3TX7116-5FC03C	3TX7116-5NC03	—	4E8	1L9	A	1M3	1M4
		24VAC	3TX7116-5FC13C	3TX7116-5NC13	—	4E8	1L9	A	1M3	1M4
		120 VAC	3TX7116-5FF13C	3TX7116-5NF13	—	4E8	1L9	A	1M3	1M4
3PDT	10	24VDC	—	3TX7115-5NC03	—	4E4	1L12	A	—	—
		120 VAC	3TX7115-5FF13C	3TX7115-5NF13	—	4E4	1L12	A	—	—
4PDT	6A for Basic and Premium and 3A for Bifurcated	24VDC	3TX7111-3HC03C	3TX7111-3PC03	3TX7111-5PC03B	4E5	1L6	B	3L7	3L6
		24VAC	3TX7111-3HC13C	3TX7111-3PC13	—	4E5	1L6	B	3L7	3L6
		120 VAC	3TX7111-3HF13C	3TX7111-3PF13	3TX7111-5PF13B	4E5	1L6	B	3L7	3L6
		240 VAC	—	3TX7111-3PG13	—	4E5	1L6	B	3L7	3L6
4PDT	15	24VDC	3TX7117-5HC03C	3TX7117-5PC03	—	4E9	1L10	A	1M5	1M6
		24VAC	3TX7117-5HC13C	3TX7117-5PC13	—	4E9	1L10	A	1M5	1M6
		120 VAC	3TX7117-5HF13C	3TX7117-5PF13	—	4E9	1L10	A	1M5	1M6

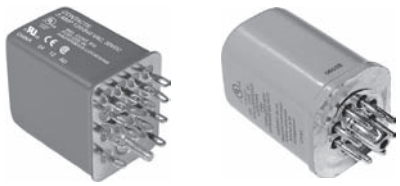
Option	Basic	Premium	Premium Bifurcated
Mechanical Flag	√	√	√
Push To Test		√	√
Lock Down Door		√	√
LED		√	√

Note: See page 11/131 for socket accessories.

Selection and ordering data

Standard Octal Base

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Premium Relay	Uses Socket 3TX7144-	Uses Clip 3TX7144-	Socket Access Set
DPDT	10	12 VDC	3TX7112-1DB03C	3TX7112-1LB03	4E2	1L14	A
		24VDC	3TX7112-1DC03C	3TX7112-1LC03	4E2	1L14	A
		24VAC	3TX7112-1DC13C	3TX7112-1LC13	4E2	1L14	A
		120 VAC	3TX7112-1DF13C	3TX7112-1LF13	4E2	1L14	A
		240 VAC	3TX7112-1DG13C	3TX7112-1LG13	4E2	1L14	A
3PDT	10	24VDC	3TX7112-1FC03C	3TX7112-1NC03	4E3	1L14	A
		24VAC	3TX7112-1FC13C	3TX7112-1NC13	4E3	1L14	A
		120 VAC	3TX7112-1FF13C	3TX7112-1NF13	4E3	1L14	A
		240 VAC	—	3TX7112-1NG13	4E3	1L14	A



Hermetically Sealed

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Uses Socket 3TX7144-	Uses Clip 3TX7144-	Socket Access Set
DPDT	12	24 VDC	3TX7127-5HC00	4E2	1L12	A
4PDT	3	24VDC	3TX7127-3HC00	4E5	1L11	B
		24VAC	3TX7127-3HC10	4E5	1L11	B
		120 VAC	3TX7127-3HF10	4E5	1L11	B
4PDT	5	12 VDC	3TX7127-3HB03	4E5	1L11	B
		24VDC	3TX7127-3HC03	4E5	1L11	B
		120 VAC	3TX7127-3HF13	4E5	1L11	B

Socket Accessories

Access. Series	MOV	MOV	R/C	R/C	Diode
	24VAC/DC	120VAC/DC	6-24VAC/DC	110-240VAC/DC	6-250VDC
A	3TX7144-H1	3TX7144-H20	3TX7144-H4	3TX7144-H5	3TX7144-H6
B	3TX7144-H9	3TX7144-H17	—	—	3TX7144-H12

Note: See socket accessories above.

Selection and ordering data

Open Power Relays

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay	Metal Cover 7144-
SPST NO-DM	40	24VAC	3TX7130-0AC13	1M0
SPST NO-DM		120 VAC	3TX7130-0AF13	1M0
SPST NO-DM		240 VAC	3TX7130-0AH13	1M0
SPST NC-DM	40	120 VAC	3TX7130-0QF13	1M0
SPDT		24 VAC	3TX7130-0BC13	1M0
SPDT		120 VAC	3TX7130-0BF13	1M0
SPDT		240 VAC	3TX7130-0BH13	1M0
SPDT		277 VAC	3TX7130-0BS13	1M0
DPDT	40	24 VAC	3TX7130-0DC13	1M0
		120 VAC	3TX7130-0DF13	1M0
		240 VAC	3TX7130-0DH13	1M0
		277 VAC	3TX7130-0DS13	1M0
		12 VDC	3TX7130-0DB03	1M0
		24 VDC	3TX7130-0DC03	1M0
		48 VDC	3TX7130-0DD03	1M0
		110 VDC	3TX7130-0DF03	1M0
DPST NO	40	24 VAC	3TX7130-0CC13	1M0
		120 VAC	3TX7130-0CF13	1M0
		240 VAC	3TX7130-0CH13	1M0
		12 VDC	3TX7130-0CB03	1M0
		24 VDC	3TX7130-0CC03	1M0
		48 VDC	3TX7130-0CD03	1M0
DPDT (Mag Blowout)	40	120 VAC	3TX7130-0RF13	1M0
		12 VDC	3TX7130-0RB03	1M0
		24 VDC	3TX7130-0RC03	1M0
		48 VDC	3TX7130-0RD03	1M0
		110 VDC	3TX7130-0RF03	1M0

Enclosed Power Relays

Contacts	Contact Rating (A)	Coil Voltage	Basic Relay
DPST-NO	30	24VAC	3TX7131-4CC13
		120 VAC	3TX7131-4CF13
		230 VAC	3TX7131-4CH13
DPDT	30 NO/ 3 NC	12 VDC	3TX7131-4DB03
		24 VDC	3TX7131-4DC03
		24VAC	3TX7131-4DC13
		120 VAC	3TX7131-4DF13
		230 VAC	3TX7131-4DH13

Note: See page 11/131 for socket accessories.

General specifications

Contact Characteristics		Units	3TX7109	3TX7110		3TX7111			
Number and Type of Contacts			SPDT	SPDT	SPDT	DPDT	DPDT	4PDT	4PDT
Contact Material			Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	20	15	3 (Bifurcated)	12	3 (Bifurcated)	6	3 (Bifurcated)
Maximum Switching Voltage		V	300	300	300	300	300	300	300
Switching Current at Voltage		Resistive	16A @240V	15A @240V	3A @240V	—	3A @240V	6A @240V	3A @240V
		Resistive	16A @120V	15A @120V	—	12A @120V	3A @120V	6A @120V	3A @120V
		Resistive	16A @ 28	15A @ 28	—	12A @ 28	3A @ 30	6A @ 28	3A @ 30
		HP	1/2 @ 120VAC	1/2 @ 120VAC	—	1/3 @ 120VAC	1/16 @ 120VAC	1/3 @ 120VAC	1/16 @ 120VAC
		HP	1 @ 240VAC	1 @ 240VAC	—	—	—	1 @ 240VAC	—
		Pilot Duty	B300	B300	—	B300	—	B300	—
Minimum Switching Requirement		mA	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	3 @ 17VDC (.4W)	100 @ 5VDC (.5W)	3 @ 17VDC (.4W)	100 @ 5VDC (.5W)	3 @ 17VDC (.4W)
Coil Characteristics									
Voltage Range	AC	V	6…240	6…240	6…240	6…240	6…240	6…240	6…240
	DC	V	6…125	6…125	6…125	6…125	6…125	6…125	6…125
Operating Range	AC	%	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110
	DC	%	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110
Average Consumption	AC	VA	1.2	0.9	0.9	1.2	1.2	1.2	1.2
	DC	W	0.9	0.7	0.7	0.9	0.9	0.9	0.9
Drop-out Voltage Threshold	AC	%	15	15	15	15	15	15	15
	DC	%	10	10	10	10	10	10	10
Performance Characteristics									
Electrical Life (UL508)	Operations @ Rated Current	(Resistive)	100,000	100,000	100,000	200,000	200,000	200,000	200,000
Mechanical Life	Unpowered		10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Operating Time (response time)		ms	20	20	20	20	20	20	20
Dialectric Strength	Between Coil and Contact	V(rms)	2500	2500	2500	2500	2500	2500	2500
	Between Poles	V(rms)	1500	1500	1500	1500	1500	1500	1500
	Between Contacts	V(rms)	1500	1500	1500	1500	1500	1500	1500
Environment									
Product Certifications	Standard Version		UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS
Ambient Air Temperature	Storage	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
around the Device	Operational	°C	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55
Vibration Resistance	Operational	g-n	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz
Shock Resistance		g-n	10	10	10	10	10	10	10
Degree of Protection			IP40	IP40	IP40	IP40	IP40	IP40	IP40
Weight		grams	36	29	29	36	36	36	36

Contact Characteristics		Units	3TX7112	3PDT	3TX7114	3TX7115	3PDT	3TX7116	3TX7117
Number and Type of Contacts			DPDT	3PDT	DPDT	DPDT	3PDT	3PDT	4PDT
Contact Material			Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	10	10	15	10	10	15	15
Maximum Switching Voltage		V	300	300	300	300	300	300	300
Switching Current at Voltage		Resistive	10A @240V	10A @240V	12A @277V	10A @277V	10A @277V	12A @277V	12A @277V
		Resistive	10A @120V	10A @120V	15A @120V	10A @120V	10A @120V	15A @120V	15A @120V
		Resistive	10A @ 28	10A @ 28	12A @ 28	10A @ 28	10A @ 28	12A @ 28	12A @ 28
		HP	1/3 @ 120VAC	1/3 @ 120VAC	1/2 @ 120VAC	1/3 @ 120VAC	1/3 @ 120VAC	1/2 @ 120VAC	1/2 @ 120VAC
		HP	1/2 @ 240VAC	1/2 @ 240VAC	1 @ 240VAC	1/2 @ 240VAC	1/2 @ 240VAC	3/4 @ 240VAC	3/4 @ 240VAC
		Pilot Duty	B300	B300	B300	B300	B300	B300	B300
Minimum Switching Requirement		mA	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)
Coil Characteristics									
Voltage Range	AC	V	6…240	6…240	6…240	6…240	6…240	6…240	6…240
	DC	V	6…125	6…125	6…125	6…125	6…125	6…125	6…125
Operating Range	AC	%	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110
	DC	%	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110
Average Consumption	AC	VA	1.2	1.2	1.2	1.2	1.2	1.5	1.5
	DC	W	0.9	0.9	0.9	0.9	0.9	1.4	1.5
Drop-out Voltage Threshold	AC	%	15	15	15	15	15	15	15
	DC	%	10	10	10	10	10	10	10
Performance Characteristics									
Electrical Life (UL508)	Operations @ Rated Current	(Resistive)	200,000	200,000	100,000	100,000	100,000	200,000	200,000
Mechanical Life	Unpowered		10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Operating Time (response time)		ms	20	20	20	20	20	20	20
Dialectric Strength	Between Coil and Contact	V(rms)	2500	2500	2500	2500	2500	2500	2500
	Between Poles	V(rms)	1500	1500	1500	1500	1500	2500	2500
	Between Contacts	V(rms)	1500	1500	1500	1500	1500	1500	2500
Environment									
Product Certifications	Standard Version		UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS	UL,RoHS
Ambient Air Temperature	Storage	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
around the Device	Operational	°C	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55
Vibration Resistance	Operational	g-n	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz
Shock Resistance		g-n	10	10	10	10	10	10	10
Degree of Protection			IP40	IP40	IP40	IP40	IP40	IP40	IP40
Weight		grams	89	89	36	88	88	60	60

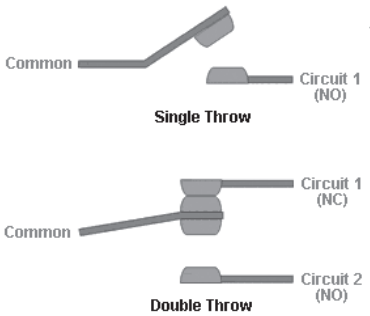
General specifications

Contact Characteristics		Units	3TX7119	3TX7127			3TX7130
Number and Type of Contacts			DPDT	DPDT	4PDT	4PDT	All
Contact Material			Silver Alloy	Silver Alloy	Fine Silver	Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	20	12	3	5	40
Maximum Switching Voltage		V	600	300	300	300	600
Switching Current at Voltage		Resistive	20A @300V	12A @240V	3A @240V	12A @240V	40A @277V
		Resistive	—	12A @120V	3A @120V		—
		Resistive	20A @ 28	12A @ 28	3A @ 30		40A @ 28
		HP	1/3 @ 120VAC	1/3 @ 120VAC	1/16 @ 120VAC	—	—
		HP	1/2 @ 600VAC	1/2 @ 240VAC	1/10 @ 240VAC	—	—
		Pilot Duty	B600	B300	—	—	—
Minimum Switching Requirement		mA	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)	10 @ 5VDC (.5W)	100 @ 5VDC (.5W)	1000 @ 12VAC/DC
Coil Characteristics							
Voltage Range	AC	V	6…240	6…240	6…240	6…240	6…600
	DC	V	6…125	6…125	6…125	6…125	6…600
Operating Range	AC	%	85 to 110	85 to 110	85 to 110	85 to 110	85 to 110
	DC	%	80 to 110	80 to 110	80 to 110	80 to 110	80 to 110
Average Consumption	AC	VA	2.75	1.2	1.2	1.2	10
	DC	W	2	0.9	0.9	0.9	4
Drop-out Voltage Threshold	AC	%	15	15	15	15	10
	DC	%	10	10	10	10	10
Performance Characteristics							
Electrical Life (UL508)	Operations @ Rated Current	(Resistive)	100,000	100,000	100,000	100,000	100,000
Mechanical Life	Unpowered		10,000,000	10,000,000	10,000,000	10,000,000	1,000,000
Operating Time (response time)		ms	20	20	20	20	30
Dialectric Strength	Between Coil and Contact	V(rms)	2000	1,500	1240	1240	2200
	Between Poles	V(rms)	2000	1,500	1240	1240	2200
	Between Contacts	V(rms)	1500	1500	500	500	1500
Environment							
Product Certifications	Standard Version		UL	UL,RoHS	UL,RoHS	UL,RoHS	UL
Ambient Air Temperature	Storage	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
around the Device	Operational	°C	-40…+55	-40…+55	-40…+70	-40…+70	-40…+70
Vibration Resistance	Operational	g-n	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz
Shock Resistance		g-n	10	10	10	10	—
Degree of Protection			IP40	IP67	IP67	IP67	Open
Weight		grams	88	130	45	45	227 to 312

Contact Characteristics		Units	3TX7131			3TX7132		3TX7136	3TX7137
Number and Type of Contacts			DPST-NO	DPDT	DPDT	SPDT	SPDT	DPDT	DPDT
Contact Material			Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	30	30 DPDT-NO	3 DPDT-NC	30 SPDT-NO	3 DPDT-NC	12	16
Maximum Switching Voltage		V	600	300	300	300	300	300	300
Switching Current at Voltage		Resistive	20A @300V	30A @277V	3A @277V	30A @277V	3A @277V	12A @240V	16A @277V
		Resistive	—	—	—	—	—	—	16A @120V
		Resistive	20A @ 28	20A @ 28	3A @ 28	10A @ 28	3A @ 28	12A @ 28	16A @ 28
		HP	1/3 @ 120VAC	1 @ 120VAC	—	1 @ 120VAC	—	1/2 @ 120VAC	1/2 @ 120VAC
		HP	1/2 @ 600VAC	3 @ 240VAC	—	2 @ 240VAC	—	1/3 @ 240VAC	1/3 @ 240VAC
		Pilot Duty	—	—	—	—	—	B300	B300
Minimum Switching Requirement		mA	500 @ 12VAC/DC	500 @ 12VAC/DC	500 @ 12VAC/DC	1000 @ 12VAC/5VDC	500 @ 12VAC/DC	100 @ 5VDC (.5W)	100 @ 5VDC (.5W)
Coil Characteristics									
Voltage Range	AC	V	12…240	12…240	12…240	12…277	12…277	12…120	6…240
	DC	V	6…110	6…110	6…110	5…110	5…110	12…110	6…125
Operating Range	AC	%	85 to 120	85 to 120	85 to 120	85 to 120	85 to 120	85 to 110	85 to 110
	DC	%	75 to 120	75 to 120	75 to 120	75 to 120	75 to 120	80 to 110	80 to 110
Average Consumption	AC	VA	4	4	4	2.8	2.8	1.8	3
	DC	W	1.7	1.7	1.7	1	1	1.8	1.4
Drop-out Voltage Threshold	AC	%	10	10	10	10	10	15	15
	DC	%	10	10	10	10	10	10	10
Performance Characteristics									
Electrical Life (UL508)	Operations @ Rated Current	(Resistive)	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Mechanical Life	Unpowered		5,000,000	5,000,000	5,000,000	10,000,000	10,000,000	10,000,000	5,000,000
Operating Time (response time)		ms	15	15	15	15	15	35	20
Dialectric Strength	Between Coil and Contact	V(rms)	4000	4000	4000	2500	2500	1500	1500
	Between Poles	V(rms)	2000	2000	2000	1500	1500	500	1500
	Between Contacts	V(rms)	1500	1500	1500	1500	1500	1500	1500
Environment									
Product Certifications	Standard Version		UL	UL	UL	UL	UL	UL	UL
Ambient Air Temperature	Storage	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
around the Device	Operational	°C	-40…+55	-40…+55	-40…+55	-40…+55	-40…+55	-40…+70	-40…+70
Vibration Resistance	Operational	g-n	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz	3, 10 - 55 Hz
Shock Resistance		g-n	10	10	10	10	10	10	10
Degree of Protection			—	—	—	—	—	IP40	IP40
Weight		grams	86	86	86	33	33	110	87

Overview

Contact arrangement - throws

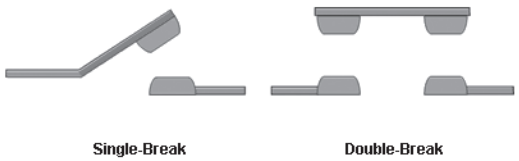


Throw is the number of different closed contact positions per pole. In other words a throw describes the total number of different circuits each pole controls.

The following abbreviations are used to indicate contact configurations:

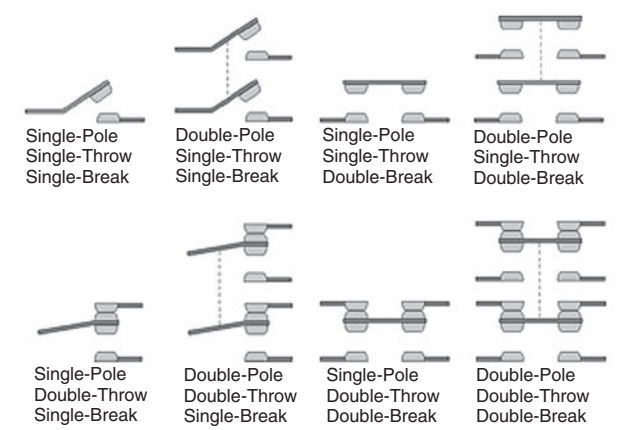
SPST Single-pole, single-throw
SPDT Single-pole, double-throw
DPST Double-pole, single-throw
DPDT Double-pole, double-throw

Contact arrangement - break



Break is the number of separate contacts the switch uses to open or close an individual circuits. If the relay breaks the circuit in one place, then it is a single break relay. If the relay breaks the circuit in two places, then it is a double break relay.

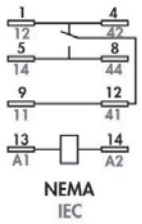
Contact arrangements overview



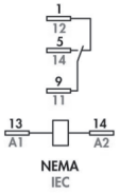
This illustration shows various contact arrangement types.

Circuit diagrams

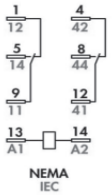
3TX7109 (SPDT)



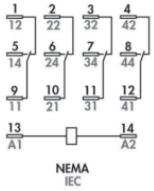
3TX7110
SPDT



3TX7111
DPDT

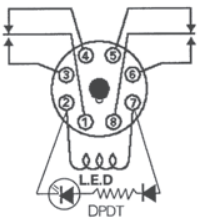


3TX7111
4PDT

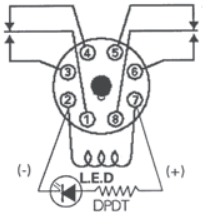


3TX7112
DPDT

AC COIL CIRCUIT

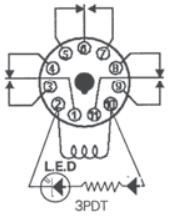


DC COIL CIRCUIT

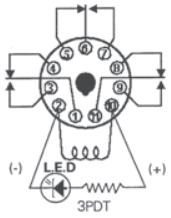


3TX7112
3PDT

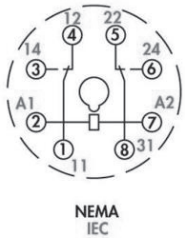
AC COIL CIRCUIT



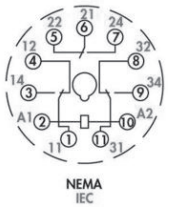
DC COIL CIRCUIT



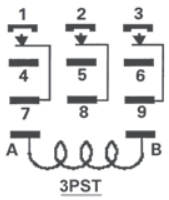
3TX7112-1L, -1D
DPDT

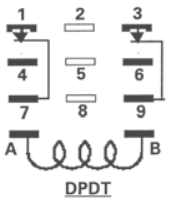


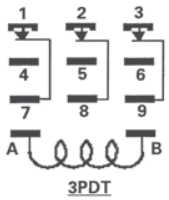
3TX7112-1N, -1F
3PDT



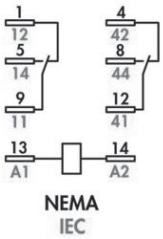
3TX7113
DPDT, 3PST, 3PDT



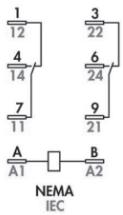




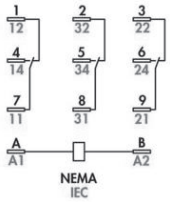
3TX7114
DPDT



3TX7115
DPDT

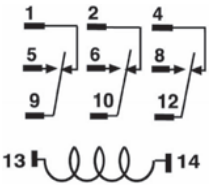


3TX7115
3PDT

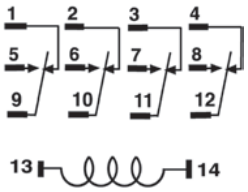


Circuit diagrams

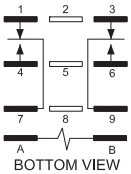
3TX7116
3PDT



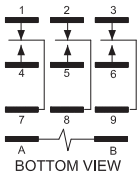
3TX7117
4PDT



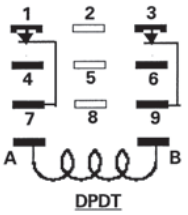
3TX7119 (DPDT)

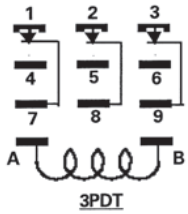


3TX7119 (3PDT)



3TX7121
DPDT, 3PDT





3TX7125
DPDT

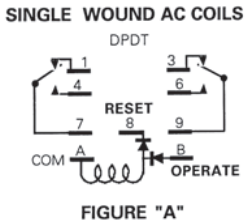


FIGURE "A"

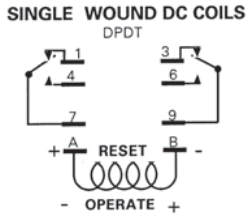
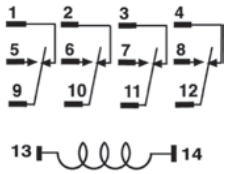
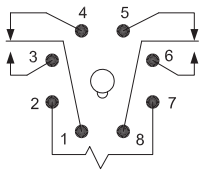


FIGURE "B"

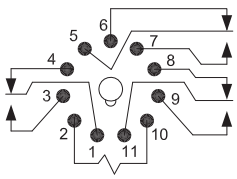
3TX7126/ 3TX7127
4PDT



3TX7127 (DPDT)

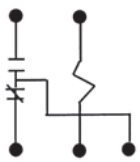


3TX7127 (3PDT)

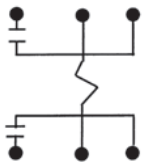


3TX7130
SPST-NO

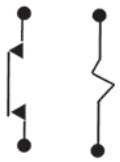
3TX7130
SPDT



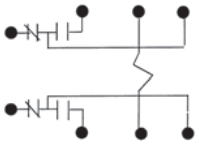
3TX7130
DPST-NO



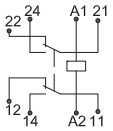
3TX7130
SPST-NC



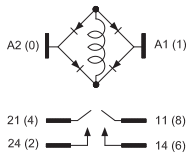
3TX7130
DPDT



3TX7130 (DPDT)

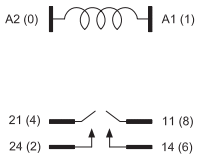


3TX7131 (DPST-NO) (AC)



Circuit diagrams

3TX7131 (DPST-NO) (DC)



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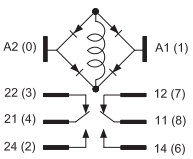

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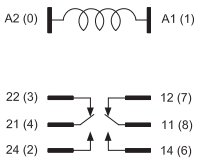

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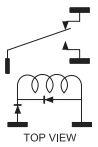

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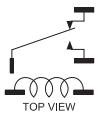
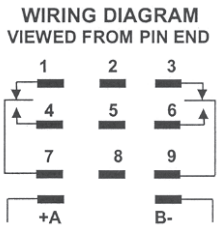


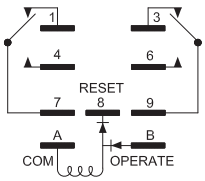
3TX7136

DPDT



INPUT SIGNAL

3TX7137 (DPDT) (AC)



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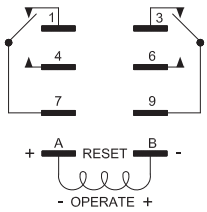
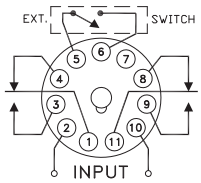
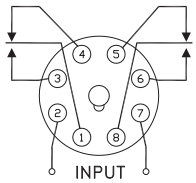


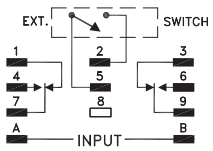
OFD-DFOB (DPDT)



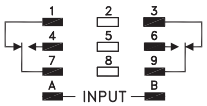
OND-DFOB (DPDT)



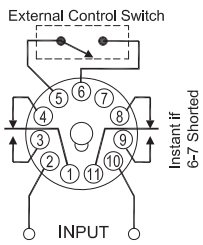
OFD-DFSB (DPDT)



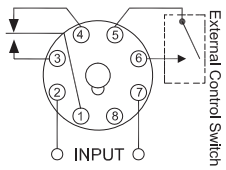
OND-DFSB (DPDT)



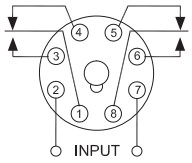
OFD-DFPR-00 (DPDT)



OND-DFPR-01 (SPDT)

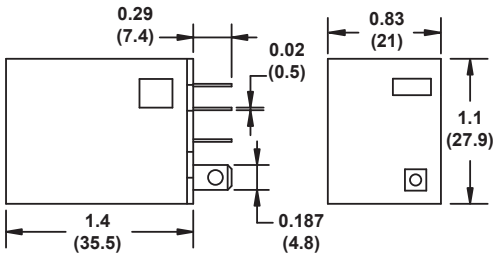


OND-DFPR-02 (DPDT)

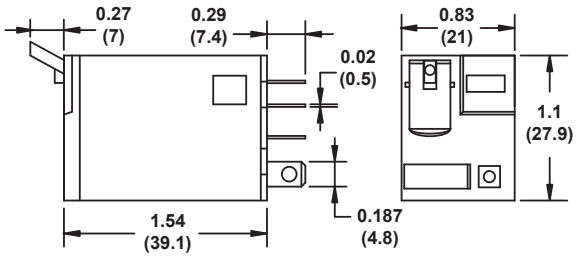


Dimension drawings

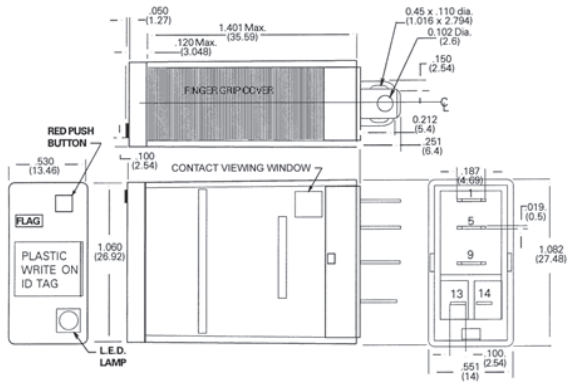
3TX7109 (SPDT) (clear cover)



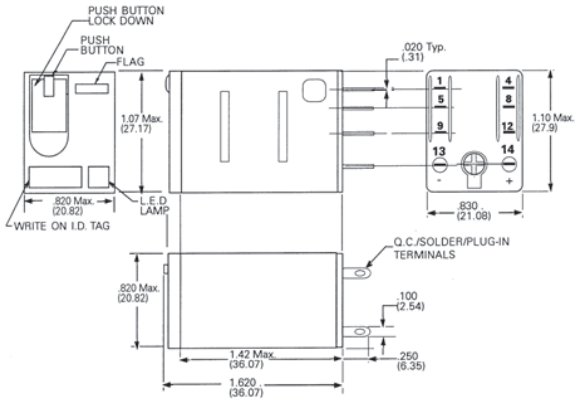
3TX7109 (SPDT) (full feature)



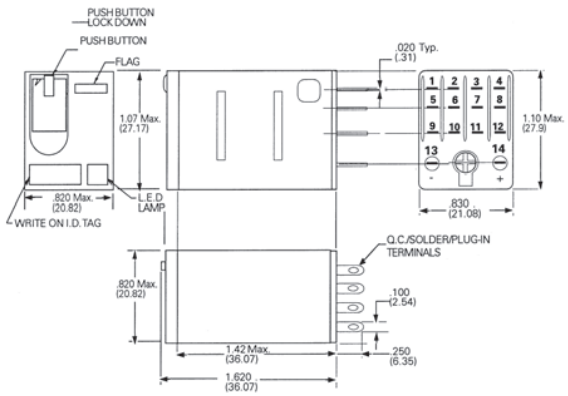
3TX7110 SPDT



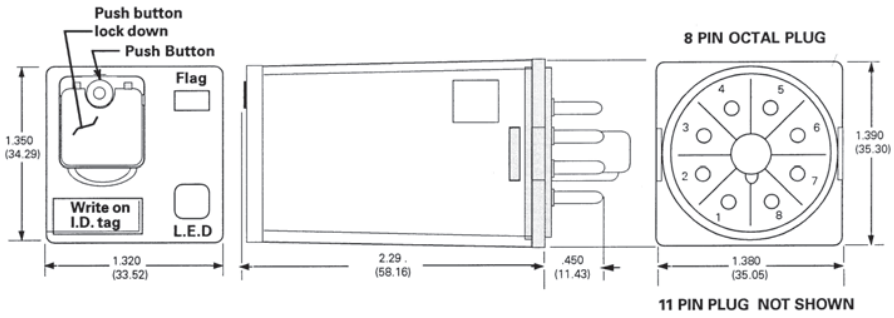
3TX7111 DPDT



3TX7111 4PDT

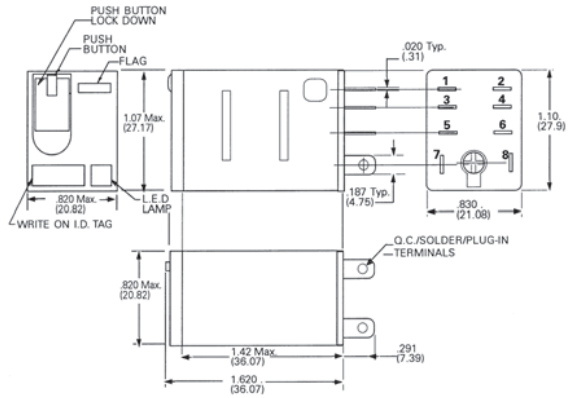


3TX7112 DPDT

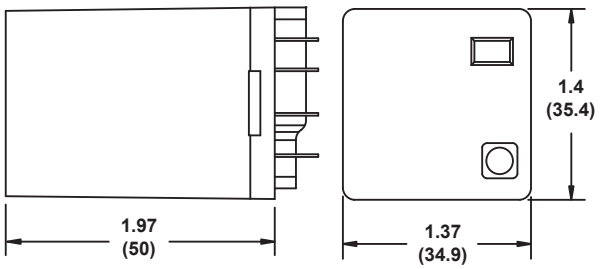


Dimension drawings

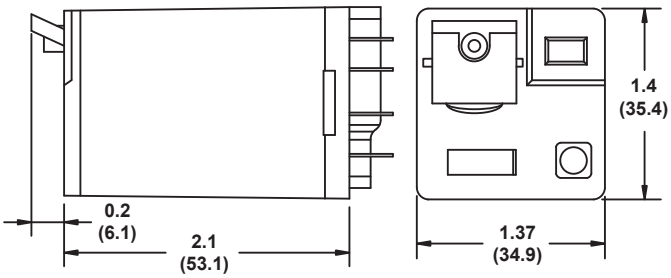
3TX7114 DPDT



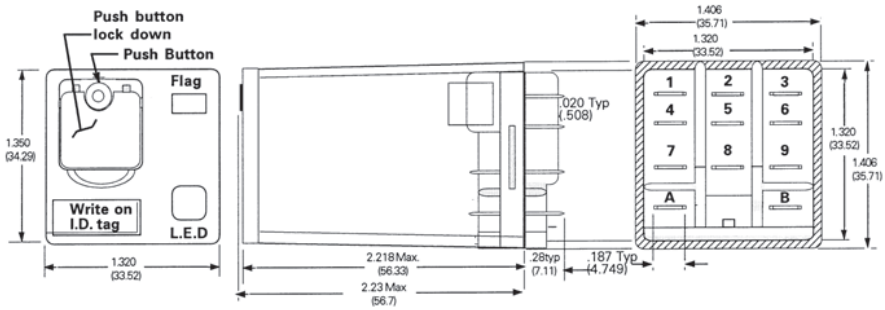
3TX7115 (DPDT) (clear cover)



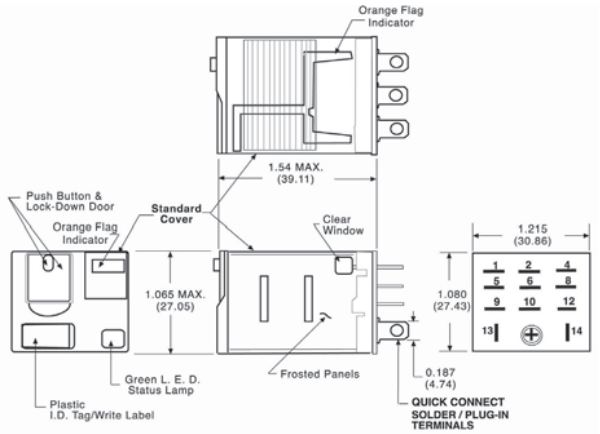
3TX7115 (DPDT) (full feature)



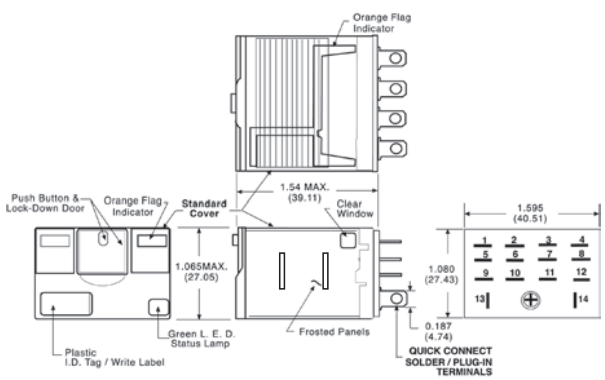
3TX7115 3PDT



3TX7116 3PDT

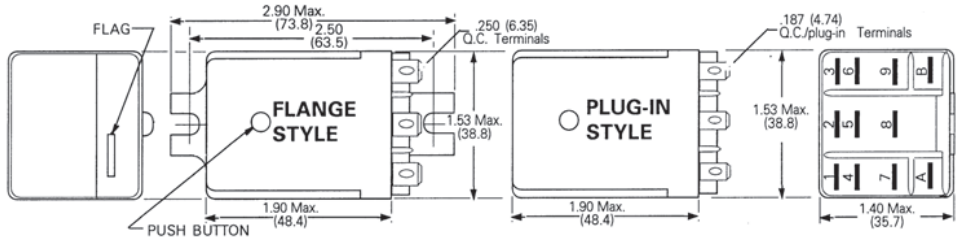


3TX7117 4PDT



Dimension drawings

3TX7119 DPDT



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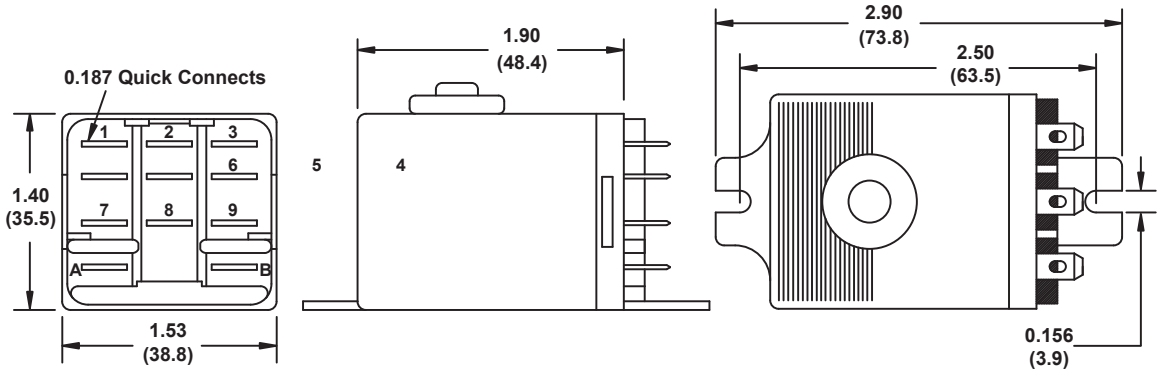
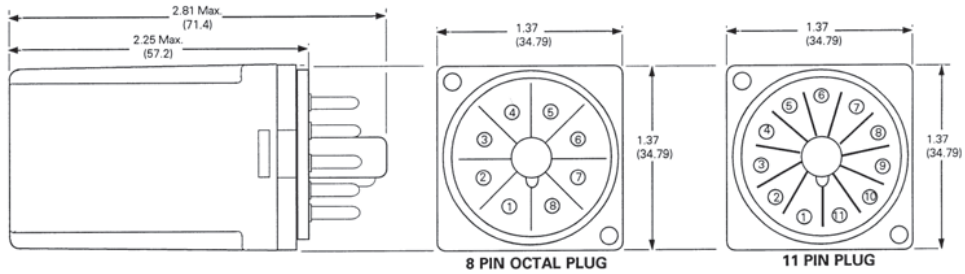
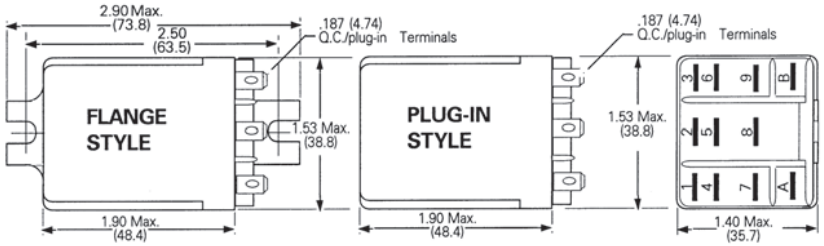


3TX7120



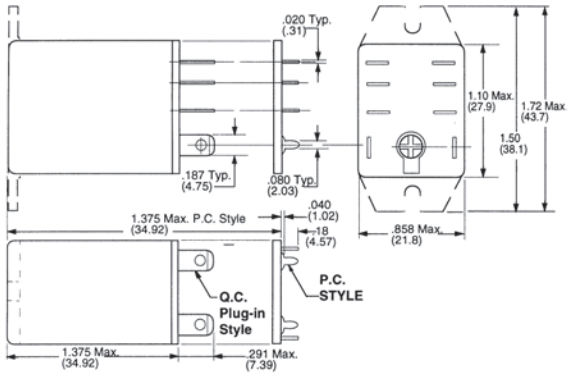
3TX7121/3TX7122

3TX7123

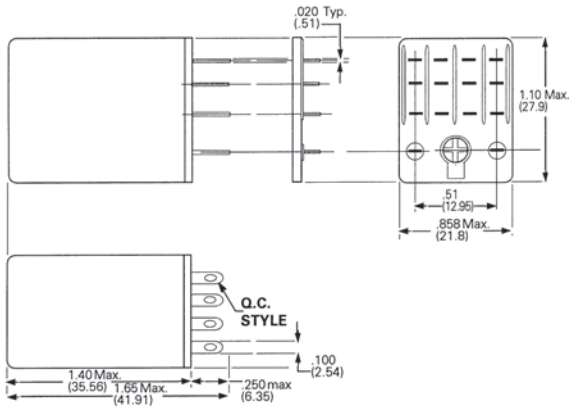


Dimension drawings

3TX7123



3TX7126



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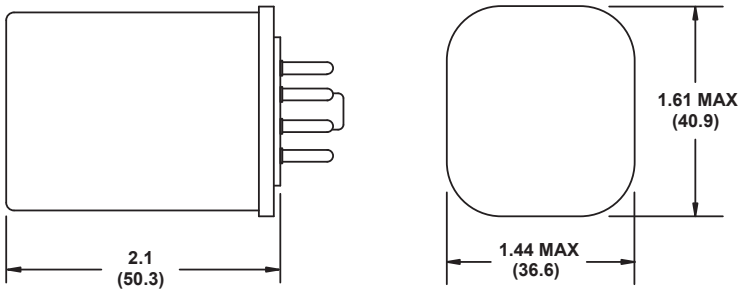
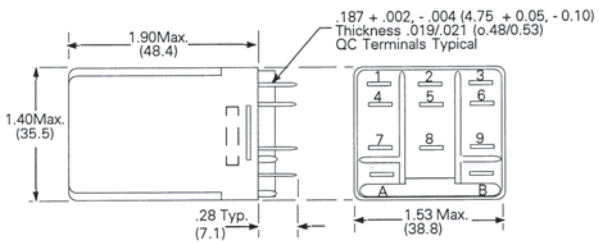
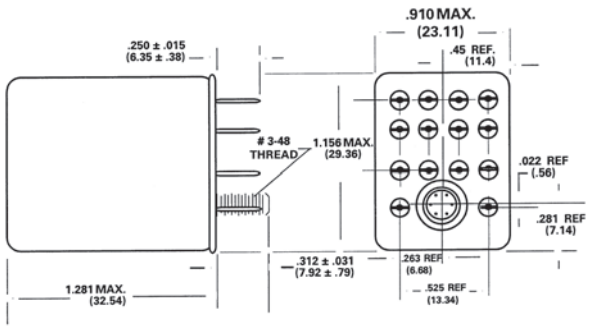


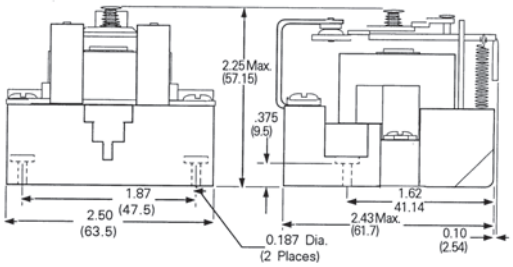
3TX7127 3PDT



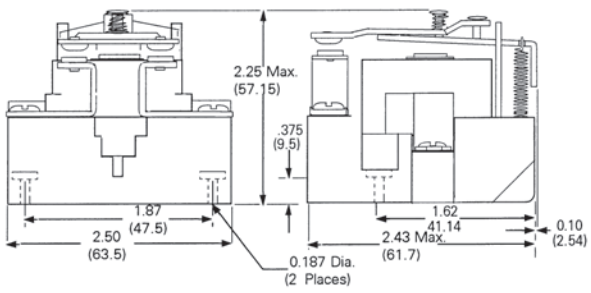
3TX7127 4PDT



3TX7130 SPST NC

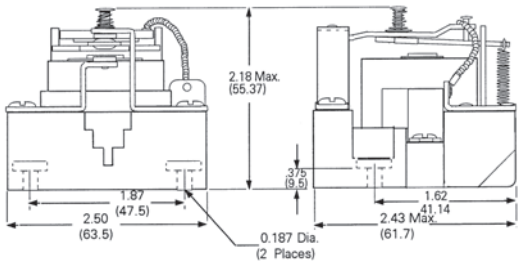


3TX7130 SPST NO



Dimension drawings

3TX7130 SPDT



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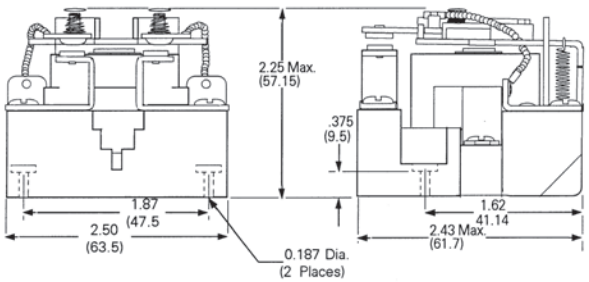
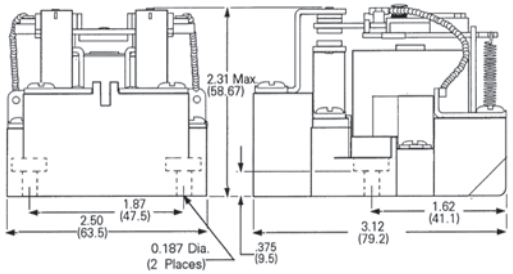
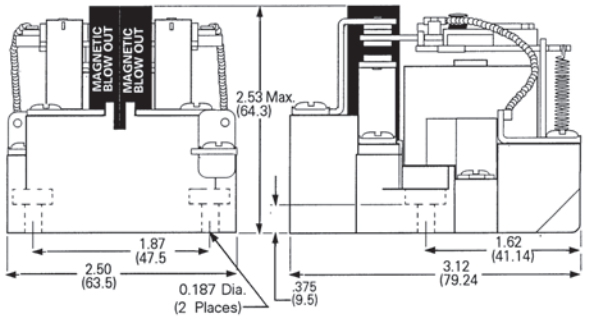


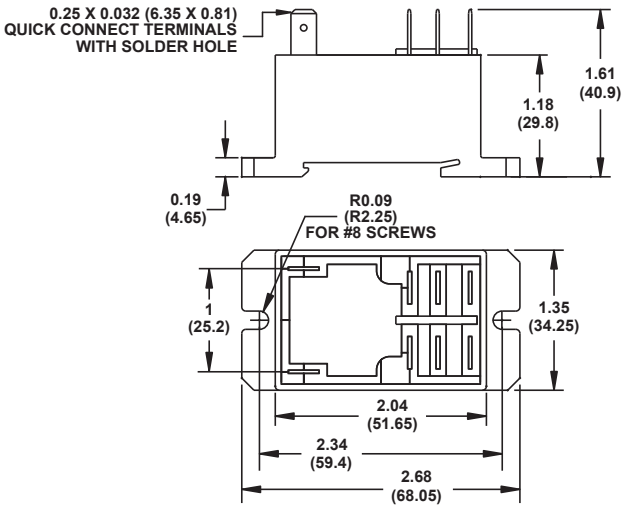
3TX7130 DPDT



3TX7130 DPDT with magnetic blowout



3TX7131 (DPST-NO)



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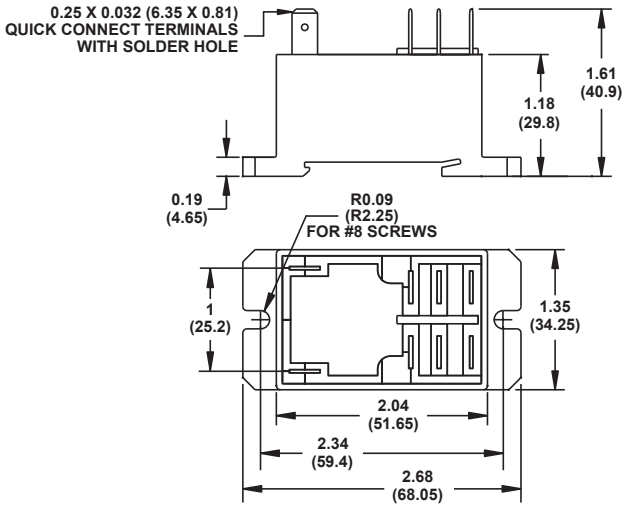
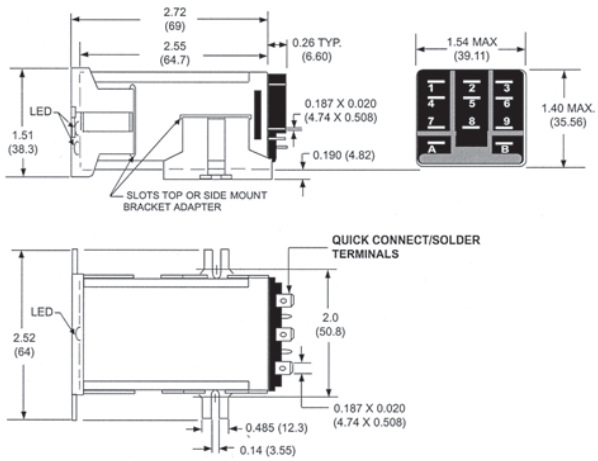
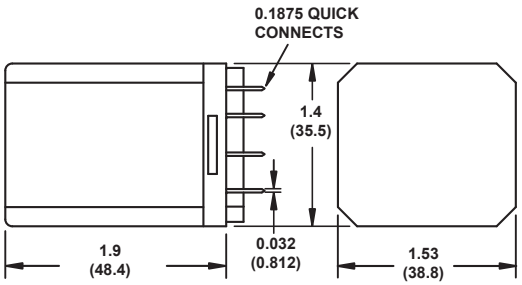


Dimension drawings

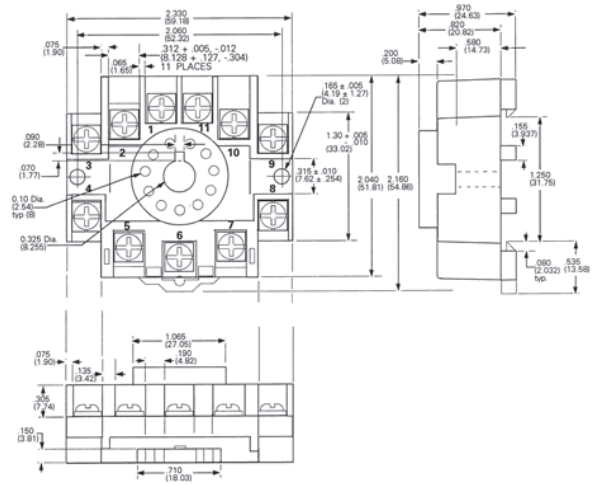
3TX7136



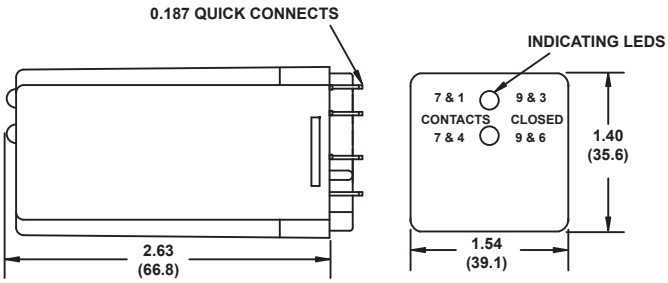
3TX7137 (DPDT)



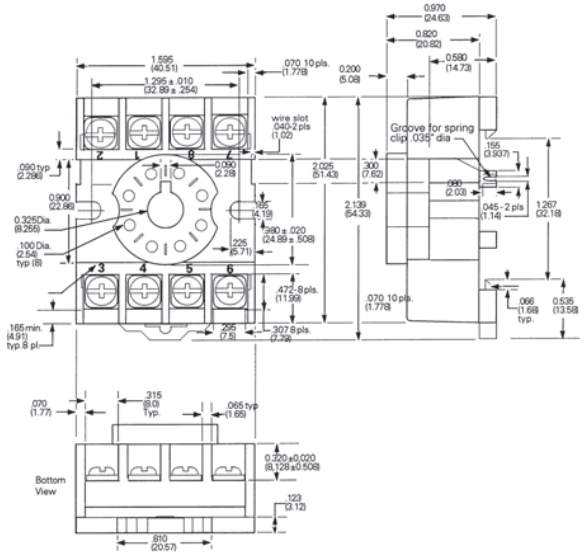
3TX7144-1E3



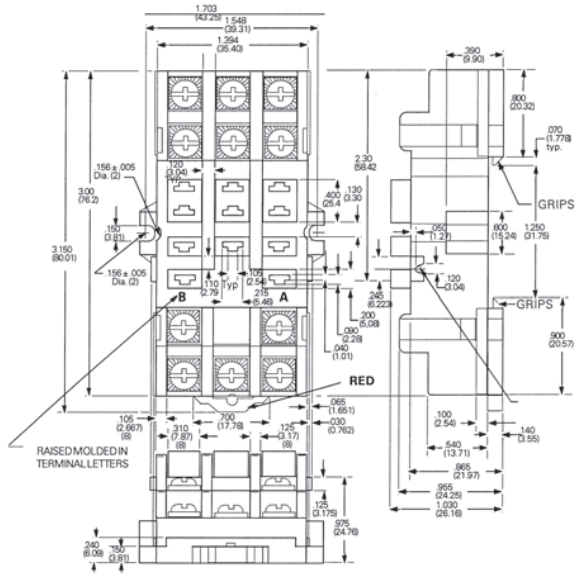
3TX7136 (DPDT Alternating)



3TX7144-1E2

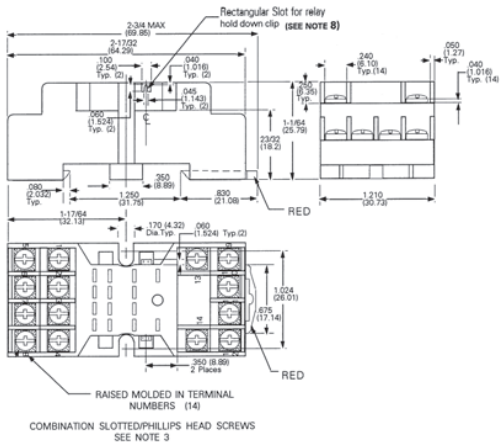


3TX7144-1E4



Dimension drawings

3TX7144-1E5



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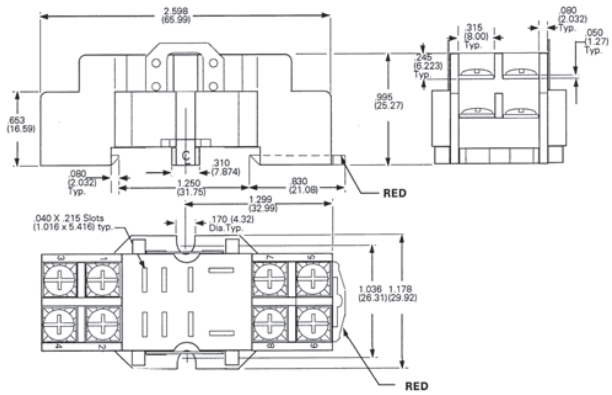

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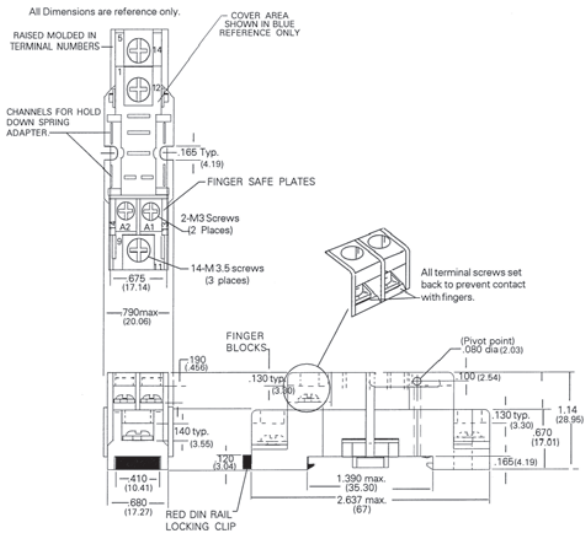

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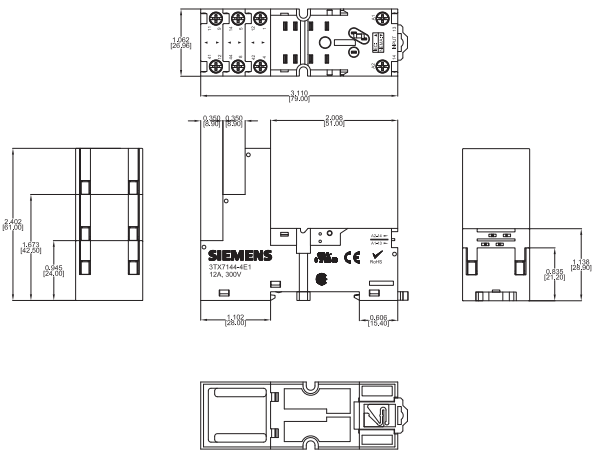

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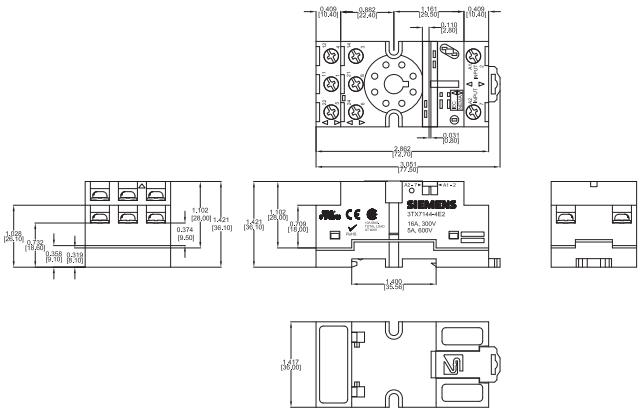
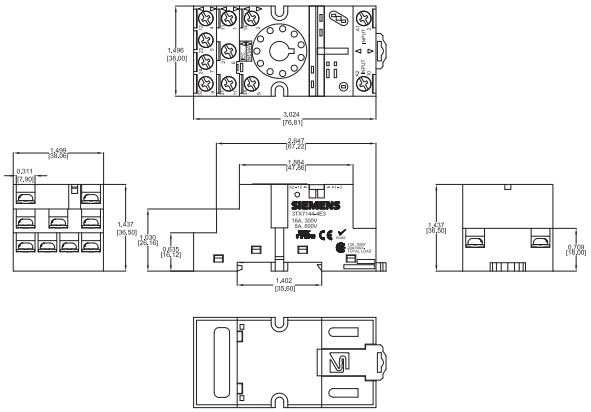
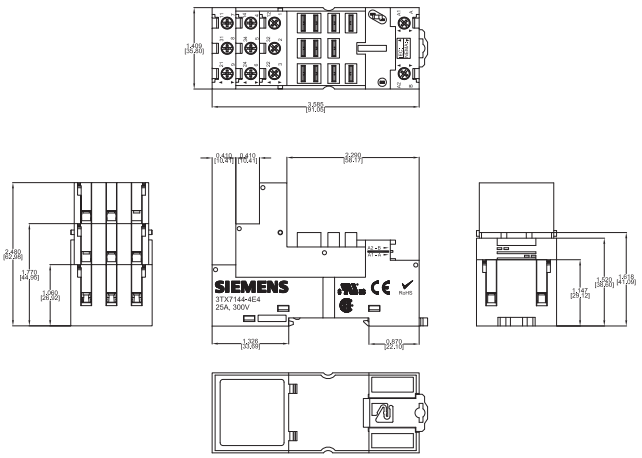


3TX7144-4E3

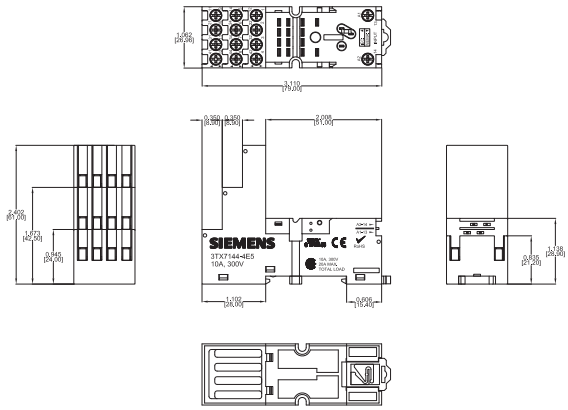


Dimension drawings

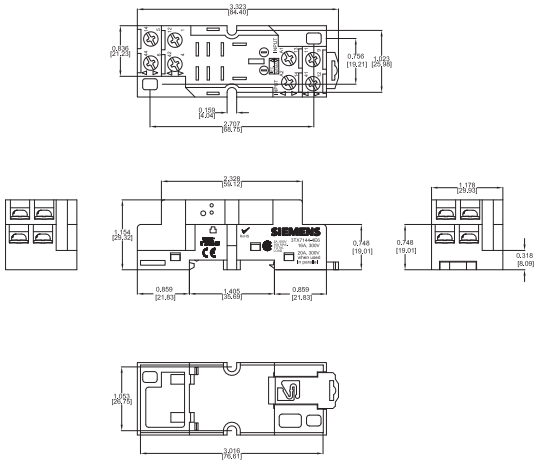
3TX7144-4E4



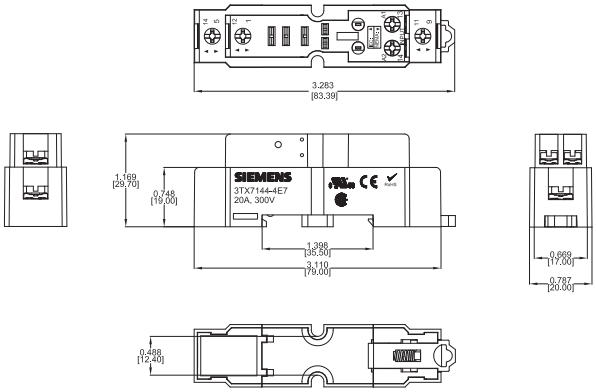
3TX7144-4E5



3TX7144-4E6



3TX7144-4E7



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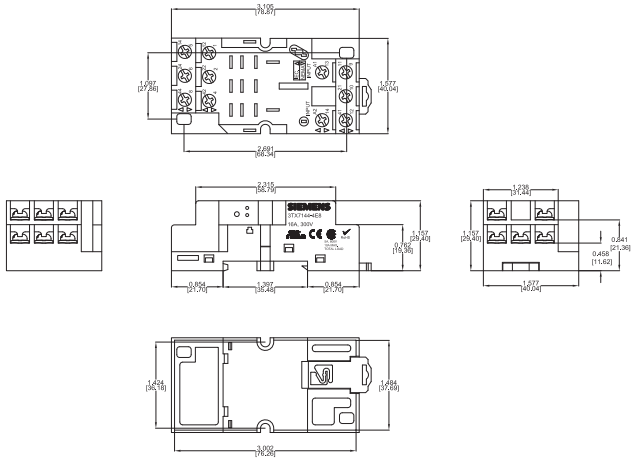

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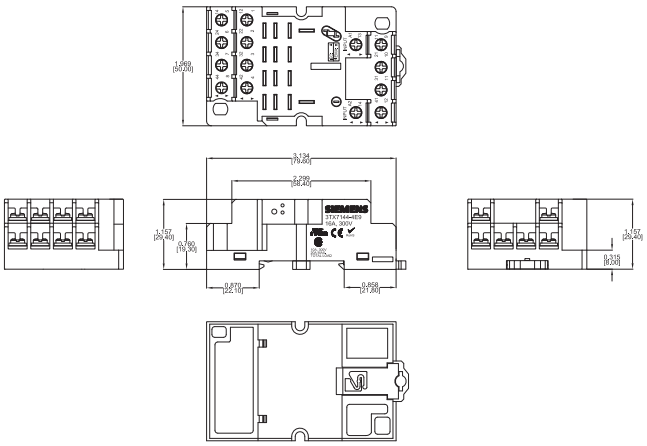
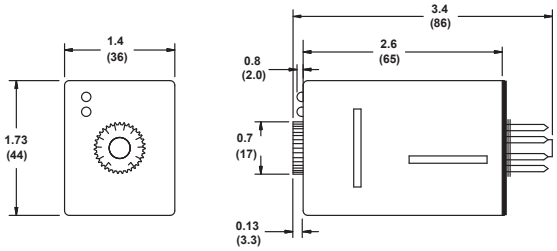
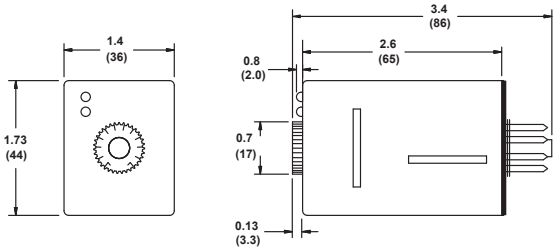


Dimension drawings

OFD-DFOB (DPDT)



OND-DFOB (DPDT)



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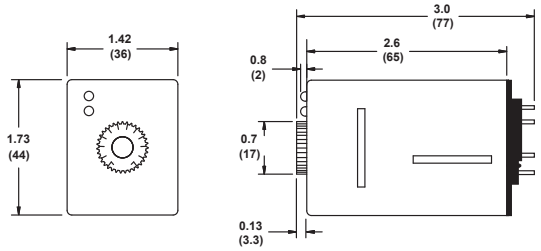

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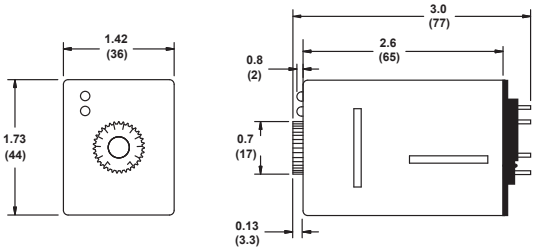
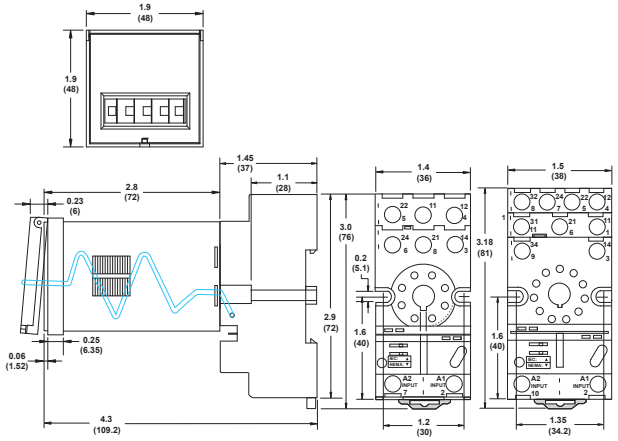
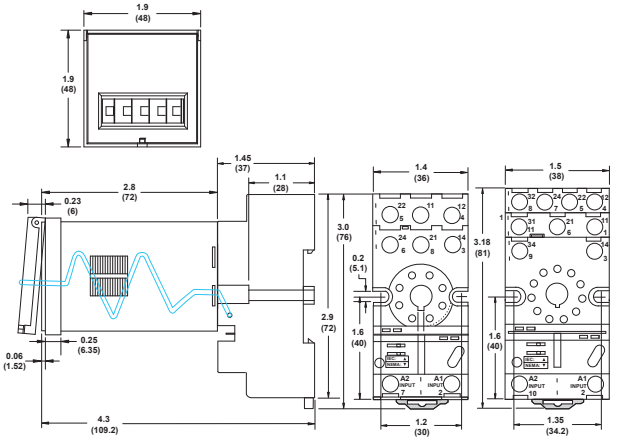


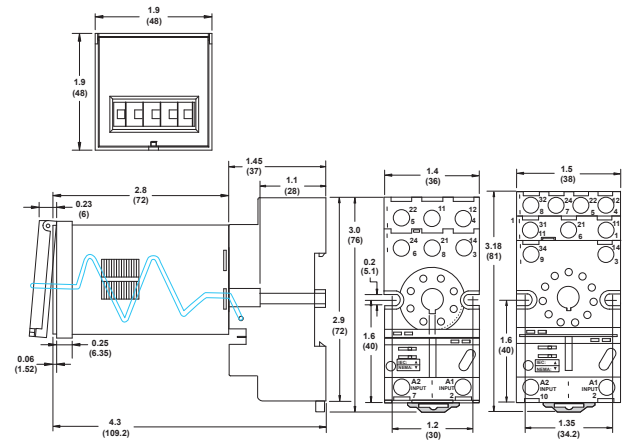
OFD-DFPR-00 (DPDT)



OND-DFPR-01 (SPDT)



OND-DFPR-02 (DPDT)



Notes