

The background of the entire page is a high-angle, artistic photograph of various Siemens industrial electrical components, including circuit breakers, contactors, and terminal blocks. These components are arranged on a dark surface with a glowing blue grid pattern. Overlaid on this grid are numerous technical symbols and labels in a light blue, semi-transparent font. These include certification marks like 'IECEx', 'EAC', 'UL', and 'CCC', as well as technical notations such as '=E05-GND', 'GNYE', 'VD 1', '4G2,5 mm²', 'F3 H', 'L', 'I>', 'W4', 'W7', 'U1', 'M 3~', 'GND', and 'M1'. Some components are highlighted with a blue wireframe effect. The overall aesthetic is high-tech and industrial.

SIEMENS

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Industrial Control

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usa.siemens.com/controls

Coupling Relays and Interfaces

3TG10 power relays

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	–	DC 24 V	3TG10 10-0BB4 3TG10 01-0BB4	0.15	10
				3	1	DC 24 V			

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	–	DC 24 V	3TG10 10-1BB4 3TG10 01-1BB4	0.14	10
				3	1	DC 24 V			

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.

Coupling Relays and Interfaces

3TG10 power relays

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 $1.0 \times U_s$)			
AC operation 45 – 450 Hz		VA	4.4
p.f.			0.9 (hum-free)
DC operation		W	4
Coil voltage tolerance			0.85 to $1.1 \times U_s$
Operating times (break-time = opening time + arcing time)			AC operation DC operation
	Closing	closing time opening time	NO ms NC ms
	Opening	opening time closing time	NO ms NC ms
	Arcing time		ms
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 DIAZED NEOZED	Type 3NA Type 5SB Type 5SE	
acc. to IEC 60 947-4-1 (DIN VDE 0660 Part 102)	Type of coordination "1" Type of coordination "2"	A A	25 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	230/220
with screw connection	kW	13	7.5
with tab connector	kW	10	6.0
Minimum conductor cross-section with $I_{e \text{ load}}$	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: $\geq 0.5 \Omega$)

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

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 x 26

2 x 26

2 x 1

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 ($\frac{L}{R} \leq 1 \text{ ms}$)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

 $(\frac{L}{R} \leq 15 \text{ ms})$ 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

Finely stranded with end sleeve (DIN 46 228, style A/D/C)

mm²

M3

Solid

mm²

2 x (0.75 to 2.5)

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

Ⓢ and Ⓢ ratings (screw connection)

Rated insulation voltage

AC

V

600

Conventional thermal current

Free air and enclosed

A

20

Maximum horsepower ratings

(Ⓢ and Ⓢ-approved values)

Ratings of three-phase motors

at 60 Hz

at 115 V

hp

1/2

200 V

hp

1

230 V

hp

1 1/2

460 V/575 V

hp

–

600 V

hp

–

1-phase

3-phase

–

3

3

5

5

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3TG10 power relays

Accessories

For contactor	Design	Order No.	List Price \$	Weight approx.	Pack
	Max. rated operational currents $I_n/AC-1$ (at 55 °C) of contactors				
Type	A	mm ²	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
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• 3-pole with terminal ¹⁾³⁾

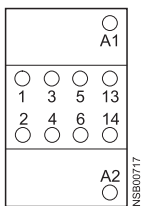
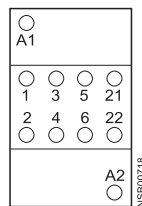
3TG10	40	25	3RT1 916-4BB31	0.013	1
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• 4-pole with terminal ¹⁾⁴⁾

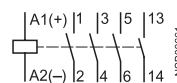
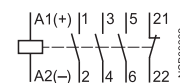
3TG10	50	25	3RT1 916-4BB41	0.02	1
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Circuit diagrams

Position of terminals

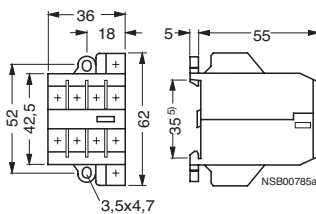
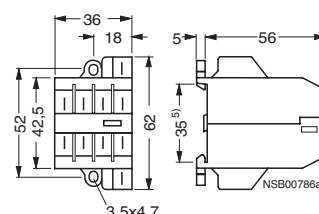
3TG10 10
1 NO3TG10 01
1 NC

Internal circuit diagram

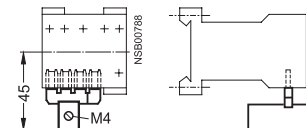
3TG10 10
1 NO
Ident. 10E3TG10 01
1 NC
01E

Dimension drawings

AC and DC operation

3TG10 ...-0..
with screw connections3TG10 ...-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.

Coupling Relays and Interfaces

3TX71 plug-in relays

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 commissioning 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.

Coupling Relays and Interfaces

3TX71 plug-in relays

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.

Coupling Relays and Interfaces

3TX71 plug-in relays

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.

Coupling Relays and Interfaces

3TX71 plug-in relays

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
DPST NO	40	110 VDC	3TX7130-0DF03	1M0
		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
DPDT (Mag Blowout)	40	48 VDC	3TX7130-0CD03	1M0
		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.

Coupling Relays and Interfaces

3TX71 plug-in relays

General specifications

Contact Characteristics		Units	3TX7109	3TX7110	3TX7111	3TX7111	3TX7111	3TX7111	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
Dielectric 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 around the Device	Storage	°C	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85
	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		3TX7114	3TX7115		3TX7116	3TX7117
Number and Type of Contacts			DPDT	3PDT	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
Dielectric 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 around the Device	Storage	°C	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85
	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

Coupling Relays and Interfaces

3TX71 plug-in relays

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
Dielectric 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 around the Device	Storage	°C	-40...+85	-40...+85	-40...+85	-40...+85	-40...+85
	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

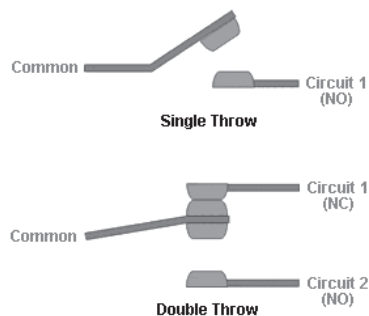
Contact Characteristics		Units	3TX7131		3TX7132		3TX7136	3TX7137
Number and Type of Contacts			DPST-NO	DPDT	DPDT	SPDT	SPDT	DPDT
Contact Material			Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy	Silver Alloy
Thermal (Carrying) Current		A	30	30 DPDT-NO	3 DPDT-NC	30 SPDT-NO	3 DPDT-NC	12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

Coupling Relays and Interfaces

3TX71 plug-in relays

Overview

Contact arrangement - throws

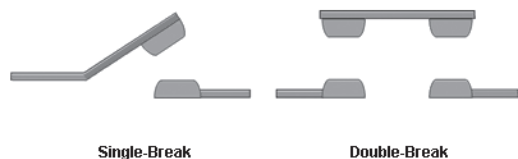


Throw is the number of different closed contact positions per pole. In other words a throw describes the total number of different circuits each pole controls.

The following abbreviations are used to indicate contact configurations:

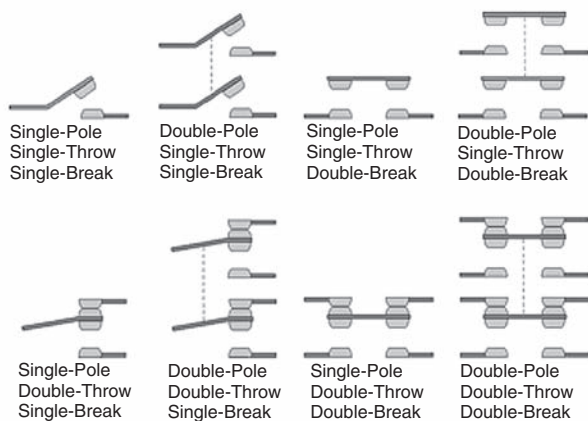
SPST Single-pole, single-throw
SPDT Single-pole, double-throw
DPST Double-pole, single-throw
DPDT Double-pole, double-throw

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



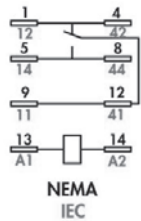
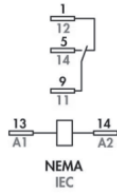
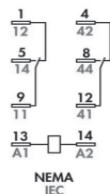
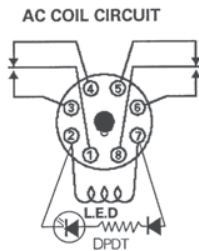
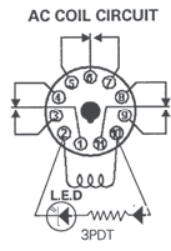
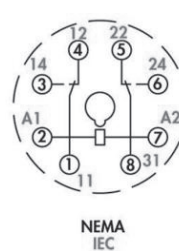
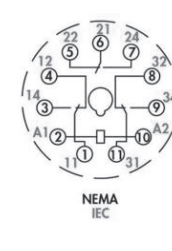
This illustration shows various contact arrangement types.

Coupling Relays and Interfaces

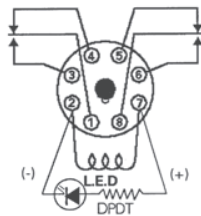
3TX71 plug-in relays

Circuit diagrams

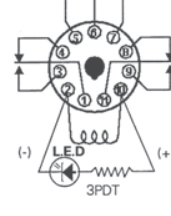
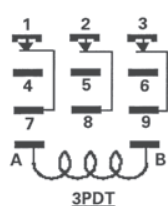
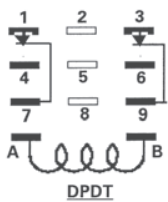
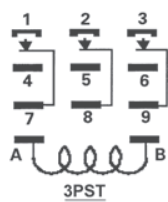
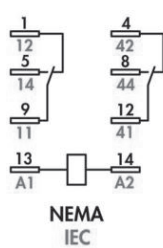
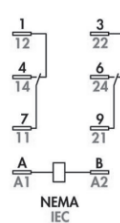
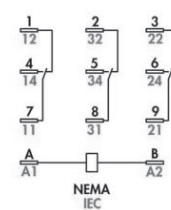
3TX7109 (SPDT)

3TX7110
SPDT3TX7111
DPDT3TX7111
4PDT3TX7112
DPDT3TX7112
3PDT3TX7112-1L, -1D
DPDT3TX7112-1N, -1F
3PDT

DC COIL CIRCUIT



DC COIL CIRCUIT

3TX7113
DPDT, 3PST, 3PDT3TX7114
DPDT3TX7115
DPDT3TX7115
3PDT

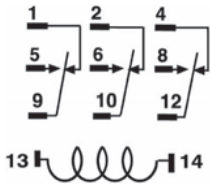
Coupling Relays and Interfaces

3TX71 plug-in

Circuit diagrams

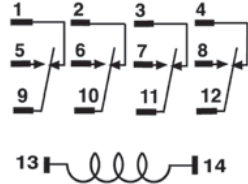
3TX7116

3PDT

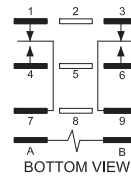


3TX7117

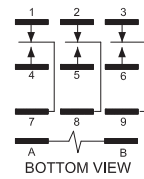
4PDT



3TX7119 (DPDT)

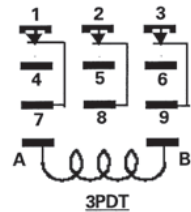
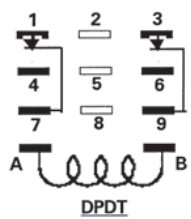


3TX7119 (3PDT)



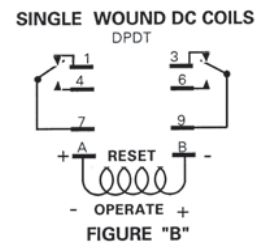
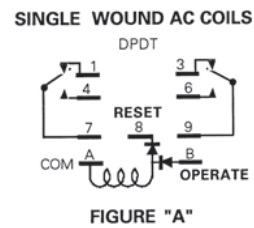
3TX7121

DPDT, 3PDT



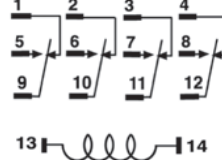
3TX7125

DPDT

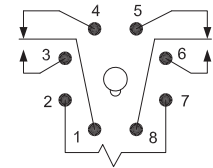


3TX7126/ 3TX7127

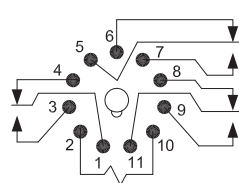
4PDT



3TX7127 (DPDT)



3TX7127 (3PDT)



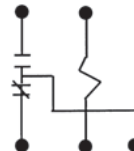
3TX7130

SPST-NO



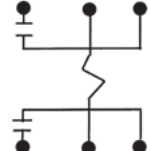
3TX7130

SPDT



3TX7130

DPST-NO



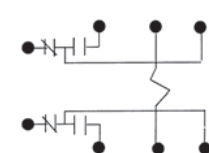
3TX7130

SPST-NC

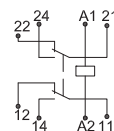


3TX7130

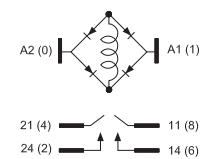
DPDT



3TX7130 (DPDT)



3TX7131 (DPST-NO) (AC)

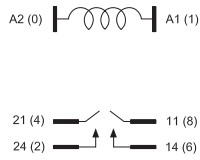


Coupling Relays and Interfaces

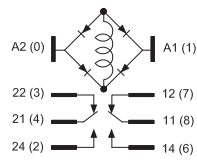
3TX71 plug-in relays

Circuit diagrams

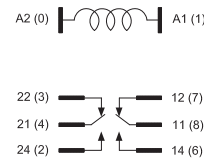
3TX7131 (DPST-NO) (DC)



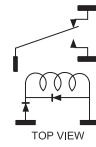
3TX7131 (DPDT) (AC)



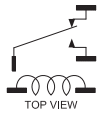
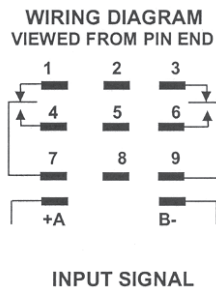
3TX7131 (DPDT) (DC)



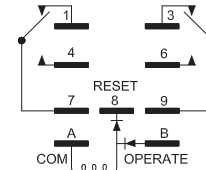
3TX7132 (SPDT) (AC)



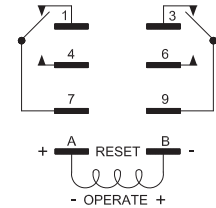
3TX7132 (SPDT) (DC)

3TX7136
DPDT

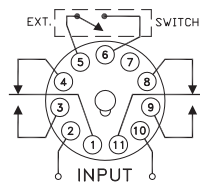
3TX7137 (DPDT) (AC)



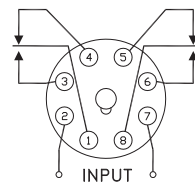
3TX7137 (DPDT) (DC)



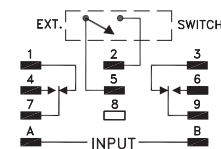
OFD-DFOB (DPDT)



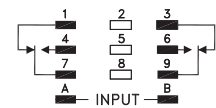
OND-DFOB (DPDT)



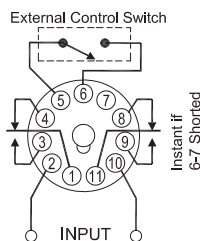
OFD-DFSB (DPDT)



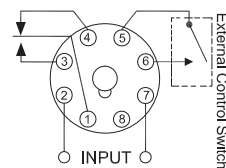
OND-DFSB (DPDT)



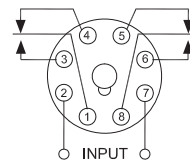
OFD-DFPR-00 (DPDT)



OND-DFPR-01 (SPDT)



OND-DFPR-02 (DPDT)



Dimension drawings

[illegible]

Figure 1: Dimensions of the 1000 Series

Key dimensions and features shown in the diagram:

- Overall Height:** 1.30 Max. (27.58)
- Overall Width:** 1.42 Max. (36.07)
- Terminal Spacing:** .020 Typ. (.31)
- Mounting Hole Spacing:** .830 (21.08)
- Terminal Height:** 1.00 (2.54)
- Terminal Width:** .250 (6.35)
- Push Button Flag:** .107 Max. (27.17)
- L.E.D. Lamp:** .820 Max. (20.82)
- Push Button Lock Down:** .820 Max. (20.82)
- Push Button:** .820 Max. (20.82)
- Terminal Configuration:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 terminals.
- Terminal Type:** Q.C./SOLDER/PLUG-IN TERMINALS
- Terminal Markings:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Figure 1: Dimensions of the Model 1000

Key dimensions and features shown in the drawing:

- Top Section:**
 - PUSH BUTTON LOCK DOWN
 - PUSH BUTTON
 - FLAG
 - 1.07 Max. (27.17)
- Base Section:**
 - 8.20 Max. (20.82)
 - WRITE ON I.D. TAG
 - LED LAMP
- Main Body:**
 - 1.42 Max. (36.07)
 - 1.620 (36.07)
- Connector Section:**
 - 020 Typ. (.31)
 - 1.10 Max. (27.9)
 - 8.30 (21.08)
 - Q.C./SOLDER PLUG-IN TERMINALS
 - 100 (2.54)
 - 250 (6.35)

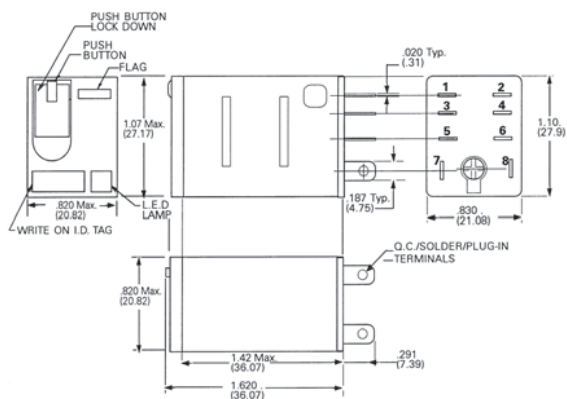
Technical drawings of the Model 1000 safe showing front, side, and rear views with dimensions in inches and millimeters.

Front View: Dimensions include a height of 1.350 (34.29) and a width of 1.320 (33.52). Features include a "Push button lock down" and "Push Button" at the top, a "Flag" indicator, a "Write on I.D. tag" area, and an "L.E.D." indicator at the bottom.

Side View: Dimensions include a depth of 2.29 (58.16) and a handle width of .450 (11.43).

Rear View: Dimensions include a height of 1.390 (35.30) and a width of 1.380 (35.05). It features an "8 PIN OCTAL PLUG" and a note for the "11 PIN PLUG NOT SHOWN".

3TX7114 DPDT



The technical drawings show the dimensions of the power supply unit. The front view on the right indicates a width of 1.37 inches (34.9 mm) and a height of 1.4 inches (35.4 mm). The side view on the left shows a depth of 1.97 inches (50 mm).

[illegible]

Technical drawing of the 100 Series Standard Cover, showing front and side views with dimensions and labels.

Labels:

- Orange Flag Indicator
- Push Button & Lock-Down Door
- Orange Flag Indicator
- Standard Cover
- Clear Window
- Green L. E. D. Status Lamp
- Frosted Panels
- Plastic I.D. Tag / Write Label

Dimensions:

- 1.54 MAX. (39.11)
- 1.06 MAX. (27.05)
- 1.595 (40.51)
- 1.080 (27.43)
- 0.187 (4.74)

Terminal Block:

1	2	3	4
5	6	7	8
9	10	11	12

13 ⊕ 14

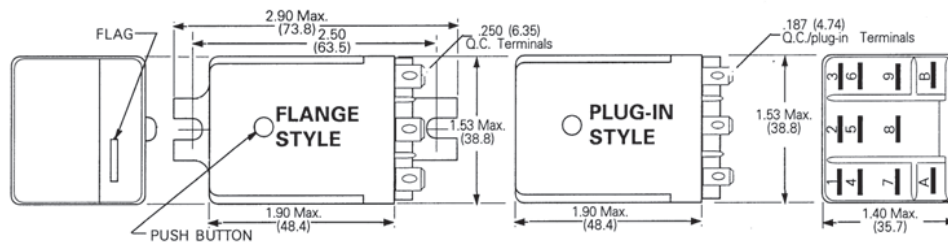
QUICK CONNECT SOLDER / PLUG-IN TERMINALS

Coupling Relays and Interfaces

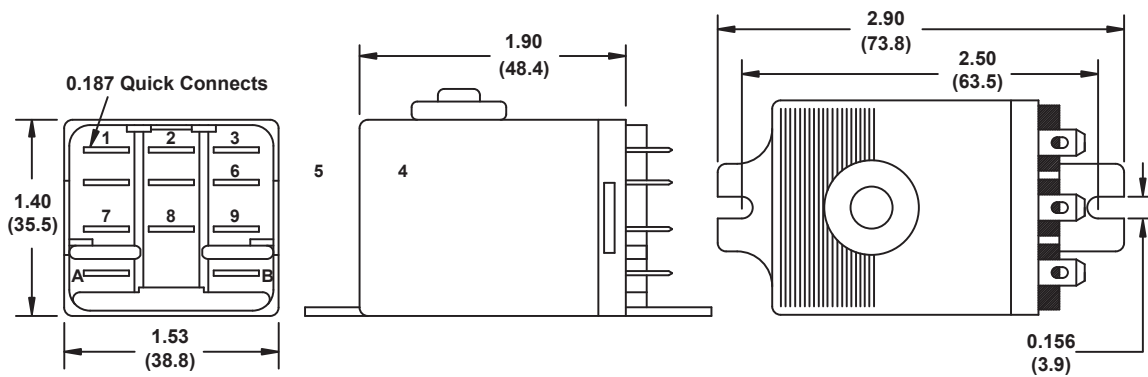
3TX71 plug-in relays

Dimension drawings

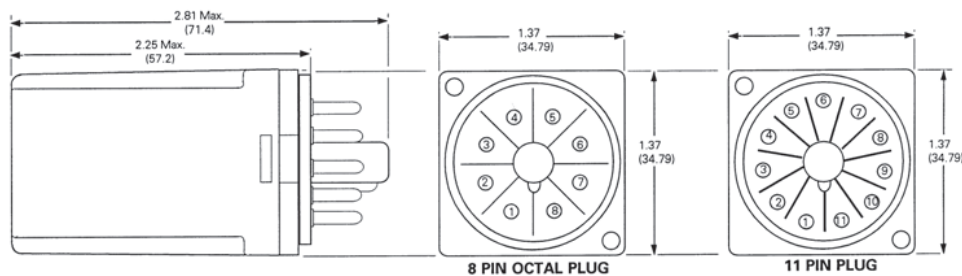
3TX7119 DPDT



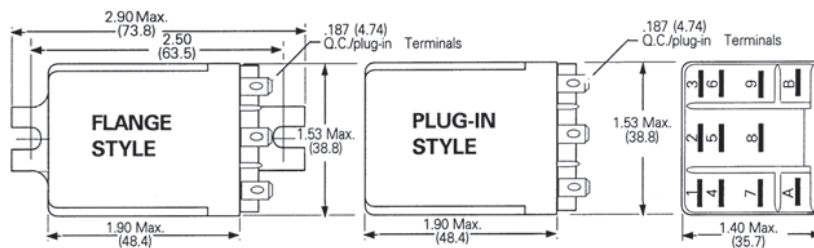
3TX7119 (3PDT)



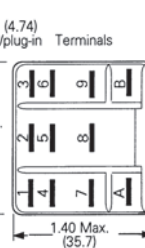
3TX7120



3TX7121/3TX7122



3TX7123

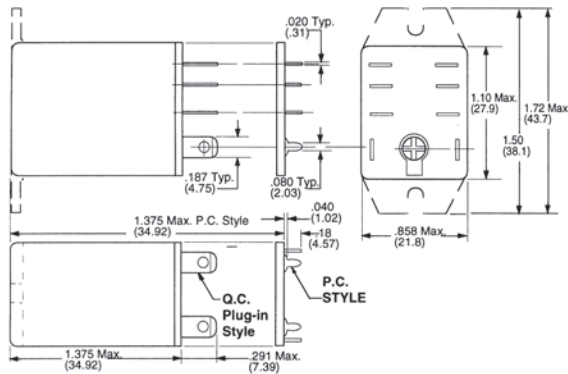


Coupling Relays and Interfaces

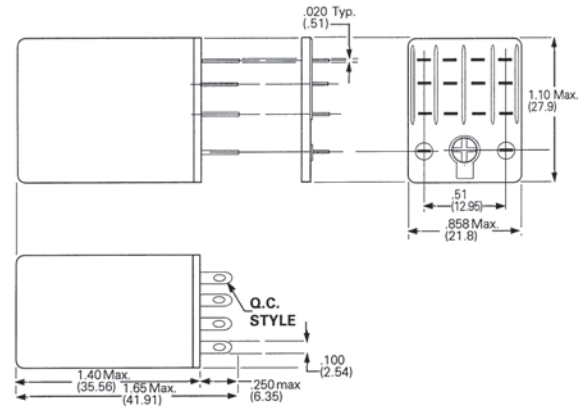
3TX71 plug-in relays

Dimension drawings

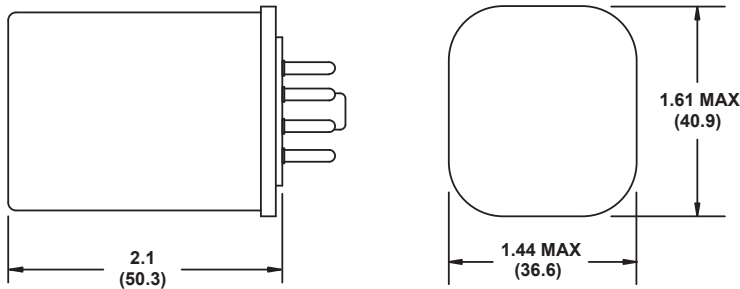
3TX7123



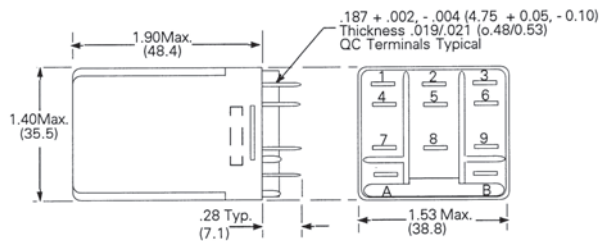
3TX7126



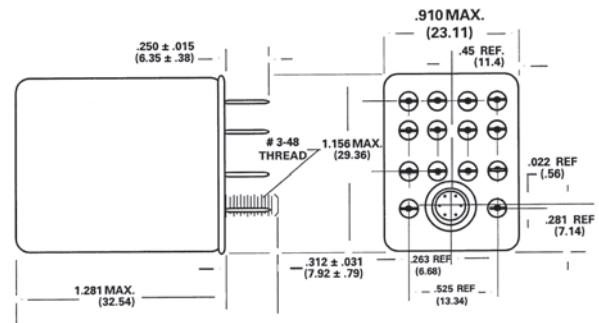
3TX7127 (DPDT)



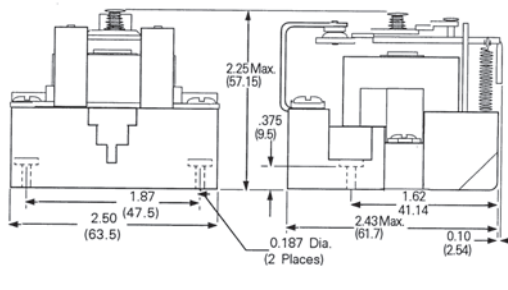
3TX7127 3PDT



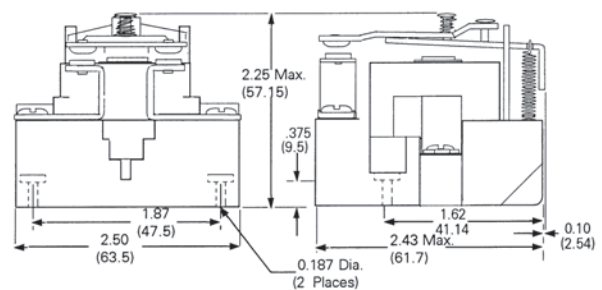
3TX7127 4PDT



3TX7130 SPST NC



3TX7130 SPST NO

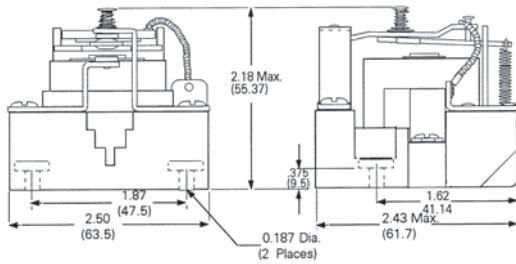


Coupling Relays and Interfaces

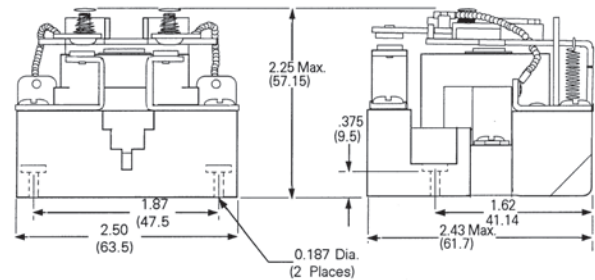
3TX71 plug-in relays

Dimension drawings

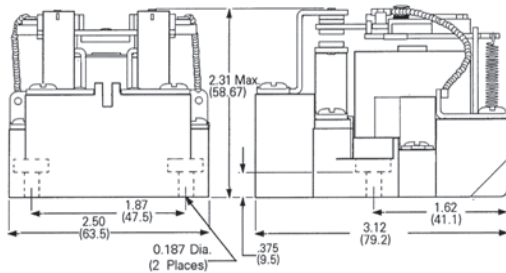
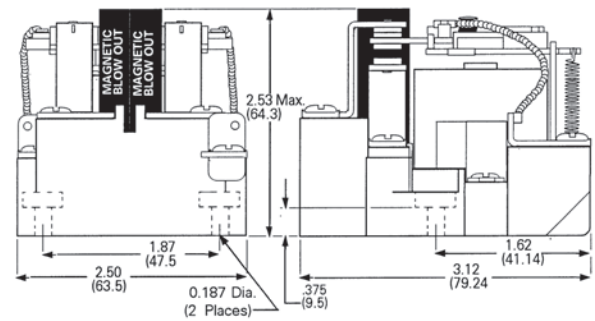
3TX7130 SPDT



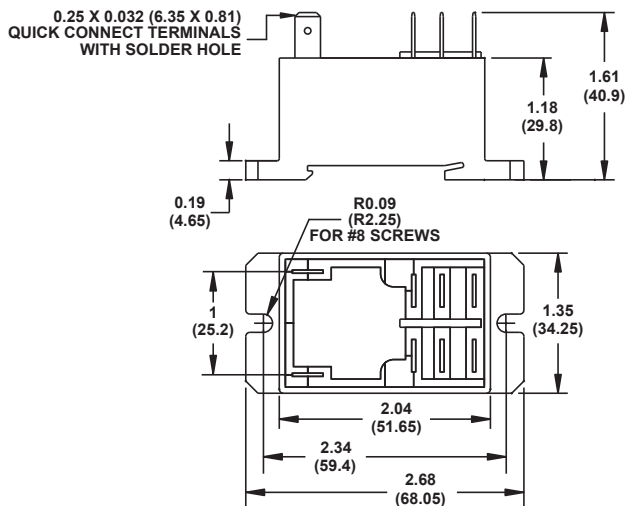
3TX7130 DPST NO



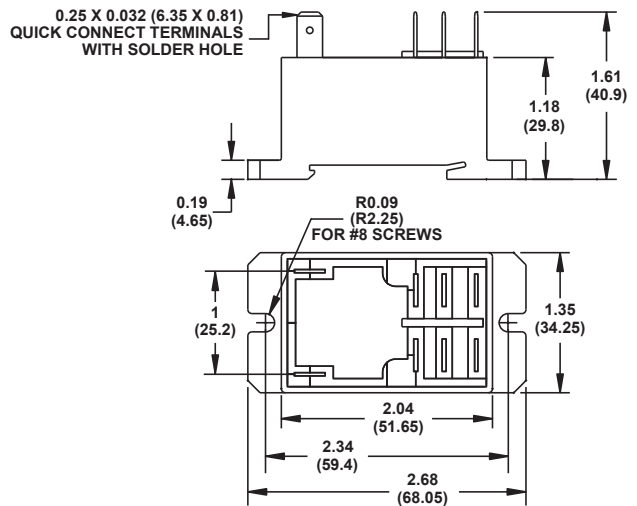
3TX7130 DPDT

3TX7130 DPDT with magnetic
blowout

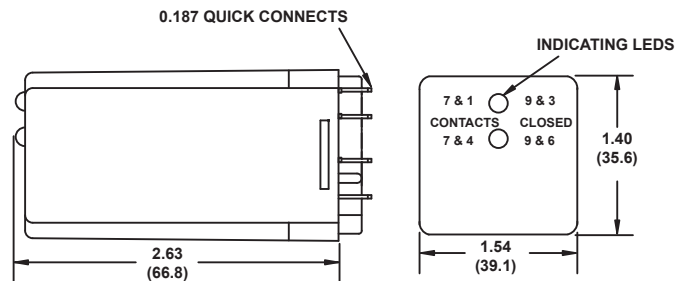
3TX7131 (DPST-NO)



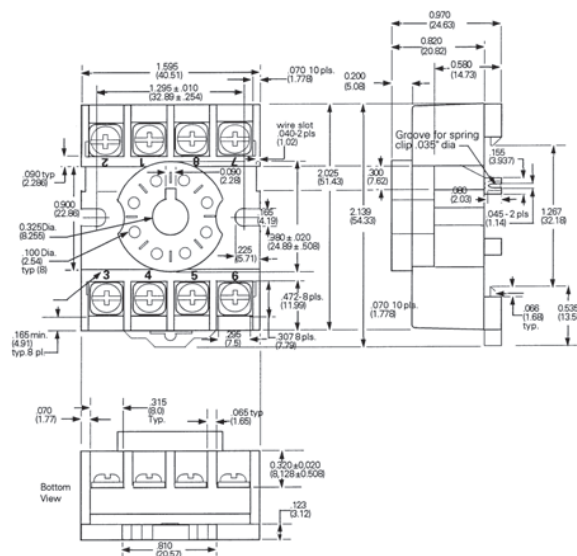
3TX7131 (DPDT)



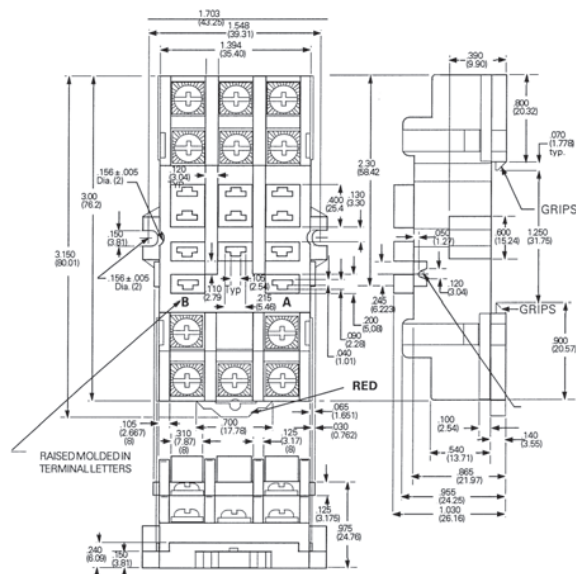
3TX7136 (DPDT Alternating)



3TX7144-1E2

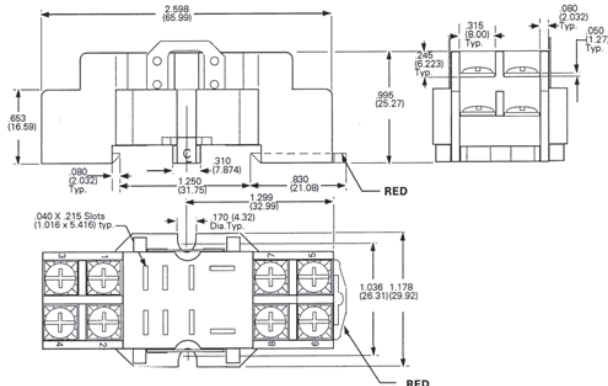


3TX7144-1E4

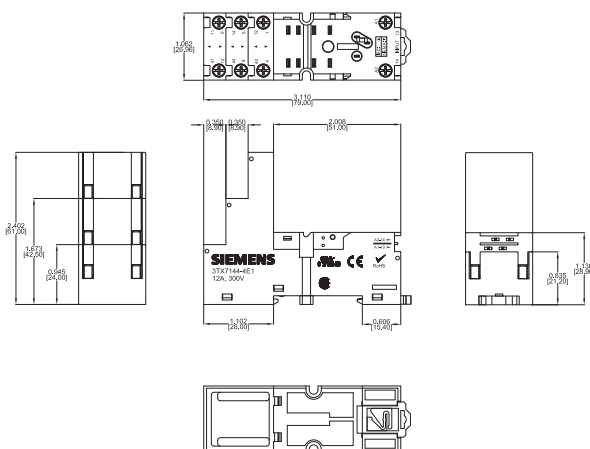


Dimension drawings

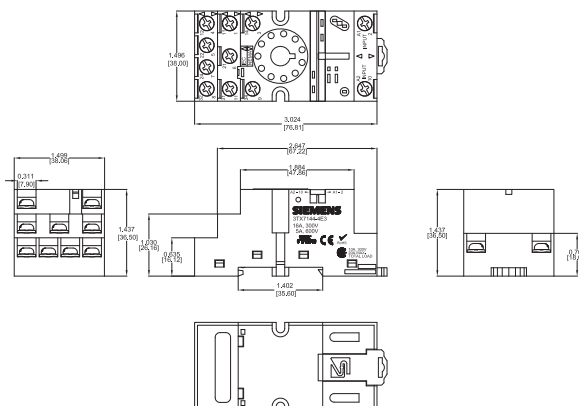
3TX7144-1E6



3TX7144-4E1



3TX7144-4E3

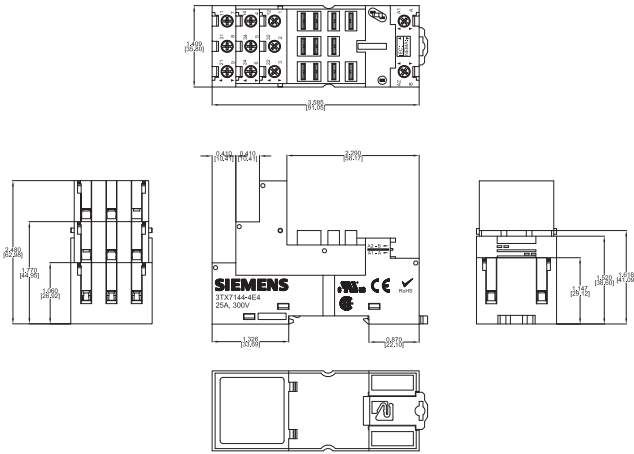


Coupling Relays and Interfaces

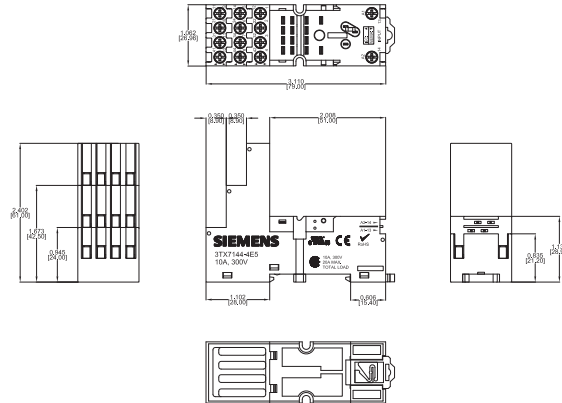
3TX71 plug-in relays

Dimension drawings

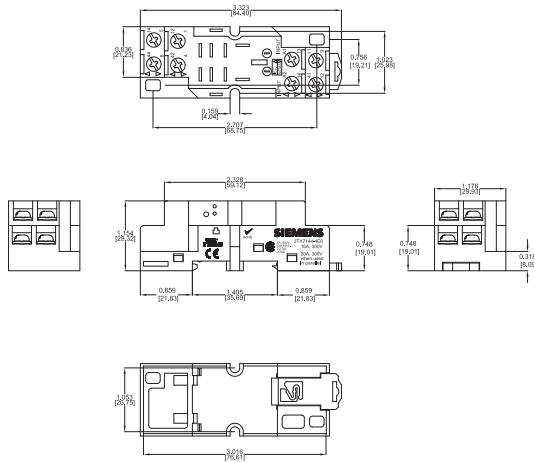
3TX7144-4E4



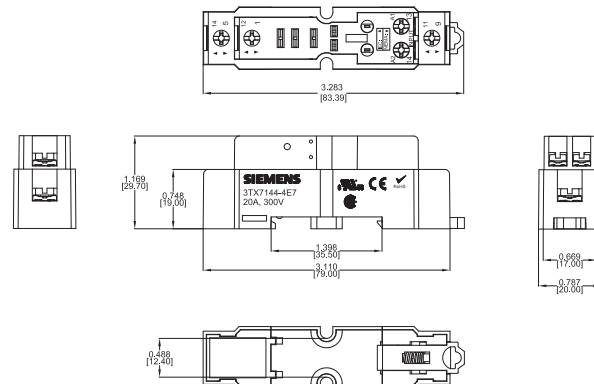
3TX7144-4E5



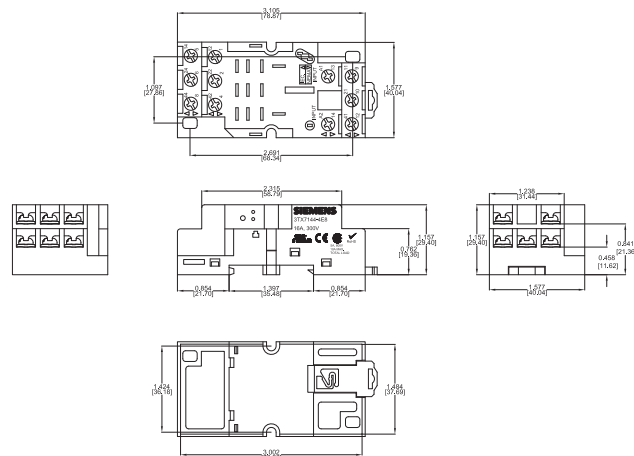
3TX7144-4E6



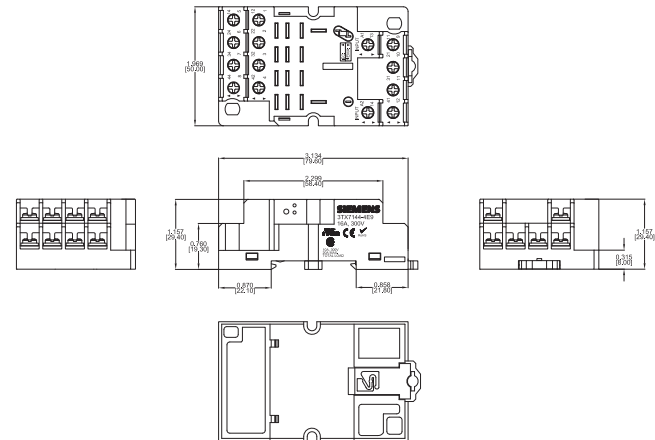
3TX7144-4E7



3TX7144-4E8

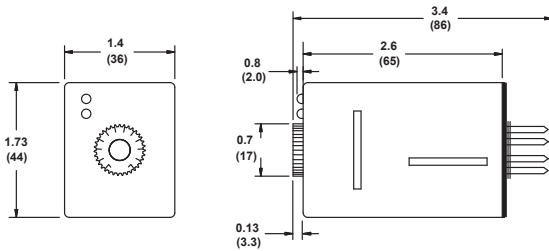


3TX7144-4E9

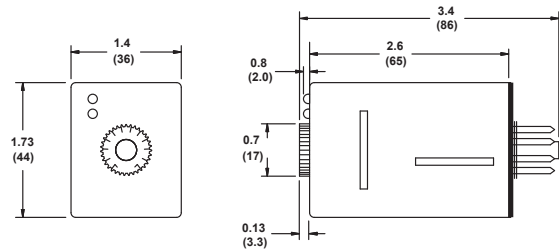


Dimension drawings

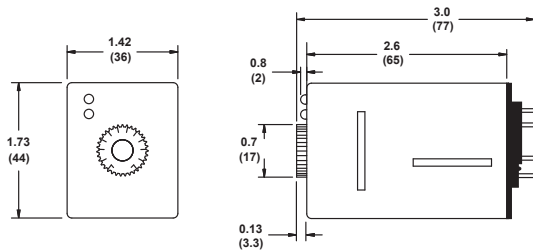
OFD-DFOB (DPDT)



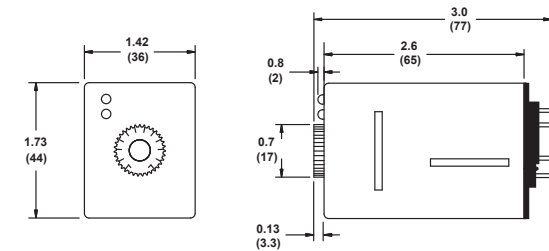
OND-DFOB (DPDT)



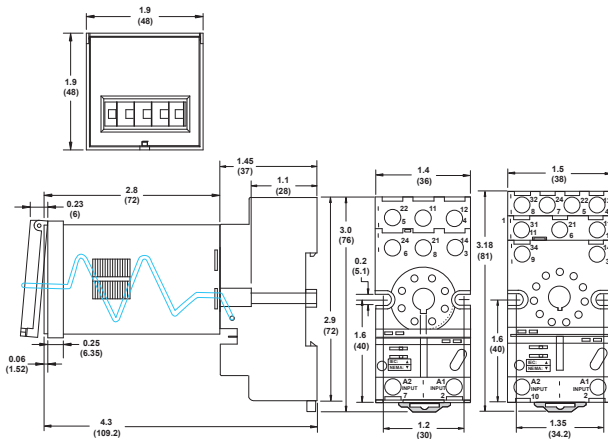
OFD-DFSB (DPDT)



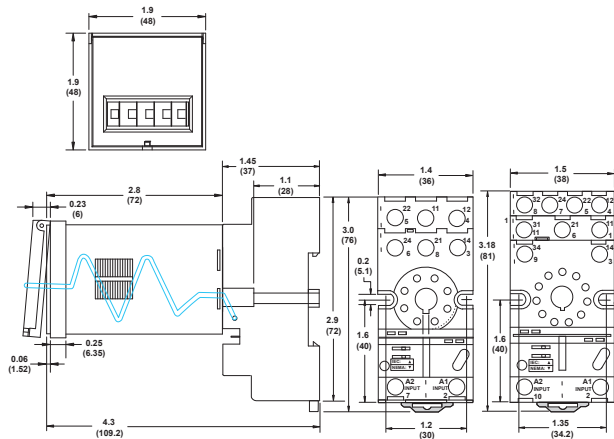
OND-DFSB (DPDT)



OFD-DFPR-00 (DPDT)



OND-DFPR-01 (SPDT)



OND-DFPR-02 (DPDT)

