GDPH

Definite Purpose Contactor 1, 2 and 3 pole

Benefits

- **Extended lifetime.** 250,000 cycles by UL60947-4-1 for air resistance heating application
- **Ready to be used in UL/CSA 60335 applications**. 100,000 cycles endurance test for inductive (motor) loads
- **A2L (UL category LZGH2/8) compliant.** Specific approval for use in applications using A2L (mildly flammable) refrigerants
- **Compliant to ARI-780 HVAC standard**
- **Wide operating range.** Line voltage up to 600 VAC
- **UL recognized and CSA approved.**

Description

The **GDPH** is a series of electro-mechanical definite purpose contactors specifically designed for higher performance and reliability.

The **GDPH** can be used in HVAC and refrigeration for compressor switching as well as for resistive heating applications.

All frame sizes feature an enclosed coil with Class B 266ºF (130ºC) insulation.

The **GDPH** carries specific approvals for use in A2L refrigerant applications.

Applications

- **HVAC**: Heat pumps, air-conditioners, chillers, fans
- **Refrigeration** : Display cabinets, condensing units, ice machines
- **Food and Beverage equipment**: Resistive heating, food service equipement, vending machines.

Main features

- Compliance to LZGH2/8 category for use with A2L refrigerants
- 250,000 cycles by UL60947-4-1 for air resistance heating application
- Connection terminal options include lug or screw connections including quick connect (faston) terminals
- 25 to 40 A , 1 to 3 pole switching models

Order code

GDPH □ □ □ □ □ □

Enter the code entering the corresponding option instead of □

Code	Option	Description	Comments
GDP	-	Definite purpose contactor - high performance	
H	-		
□	25	Full load amperage (FLA)	
	32		
	40		
□	1	Number of poles	
	2		
	3		
□	S	With shunt	Only for 1-pole models
	-	No shunt	
□	S	Terminal type: Screw and quick connect (faston) load terminals. Quick connect (faston) for control terminals	
	L	Terminal type: Lug and quick connect (faston) load terminals. Quick connect (faston) for control terminals	
□	24V	Coil voltage: 24 VAC	
	120V	Coil voltage: 120 VAC	
	220V	Coil voltage: 208/240 VAC	
□	01	Auxiliary output: 1 Normally Closed (NC)	Only available on 1-pole models
	-	No auxiliary outputs	

Selection guide

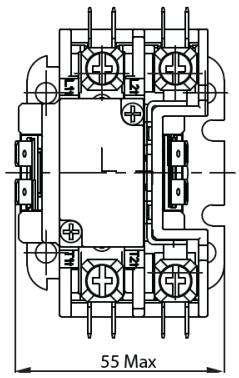
Full load amperage	Coil voltage	Terminal type	1 Pole with shunt	2 Pole	3 Pole
25 AAC	24 VAC	Screw	GDPH251SS24V	GDPH252S24V	GDPH253S24V
	120 VAC		GDPH251SS120V	GDPH252S120V	GDPH253S120V
	208/240 VAC		GDPH251SS220V	GDPH252S220V	GDPH253S220V
32 AAC	24 VAC		GDPH321SS24V	GDPH322S24V	GDPH323S24V
	120 VAC		GDPH321SS120V	GDPH322S120V	**GDPH323S120V**
	208/240 VAC		GDPH321SS220V	GDPH322S220V	GDPH323S220V
40 AAC	24 VAC		GDPH401SS24V	GDPH402S24V	GDPH403S24V
	120 VAC		GDPH401SS120V	GDPH402S120V	**GDPH403S120V**
	208/240 VAC		GDPH401SS220V	GDPH402S220V	GDPH403S220V
25 AAC	24 VAC	Lug	GDPH251SL24V	GDPH252L24V	GDPH253L24V
	120 VAC		GDPH251SL120V	GDPH252L120V	GDPH253L120V
	208/240 VAC		GDPH251SL220V	GDPH252L220V	GDPH253L220V
32 AAC	24 VAC		GDPH321SL24V	GDPH322L24V	GDPH323L24V
	120 VAC		GDPH321SL120V	GDPH322L120V	**GDPH323L120V**
	208/240 VAC		GDPH321SL220V	GDPH322L220V	GDPH323L220V
40 AAC	24 VAC		GDPH401SL24V	GDPH402L24V	GDPH403L24V
	120 VAC		GDPH401SL120V	GDPH402L120V	**GDPH403L120V**
	208/240 VAC		GDPH401SL220V	GDPH402L220V	GDPH403L220V

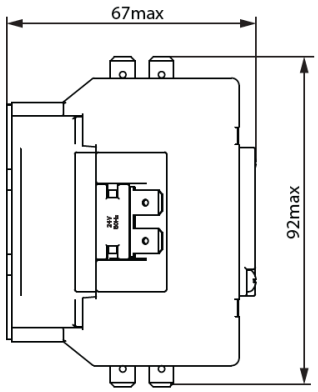
Features

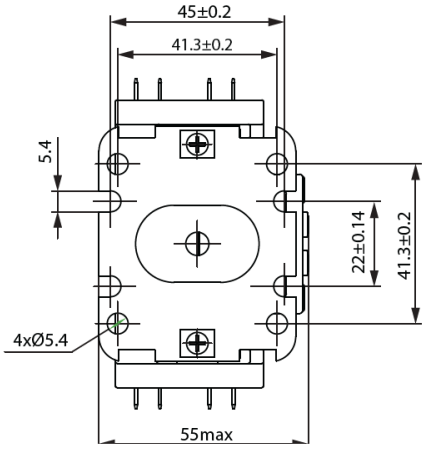
General data

Material		High arc-resistant polyester UL94 V0
Mounting		Industry standard mounting plate
Touch protection		IP00
Weight	**1 Pole**	0.64 lb. (290 g)
	2 Pole	0.75 lb. (340 g)
	3 Pole	0.97 lb. (440 g)
Mechanical lifetime		1,000,000 cycles

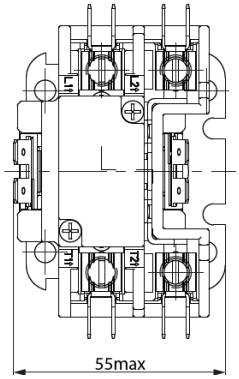
Dimensions

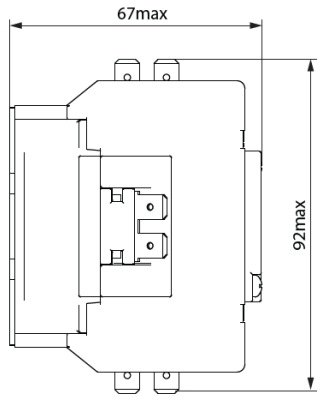


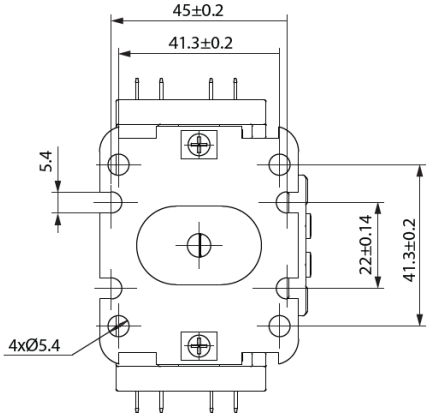




Dimensions in in. [mm].







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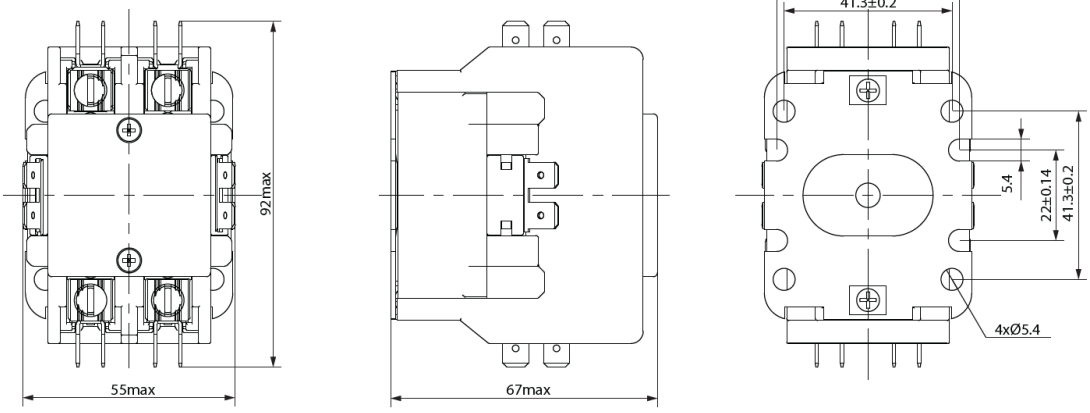

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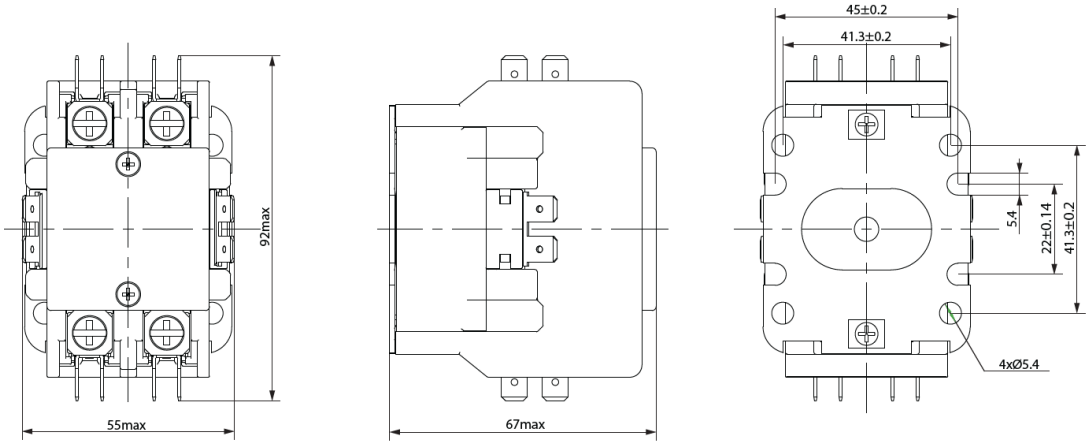

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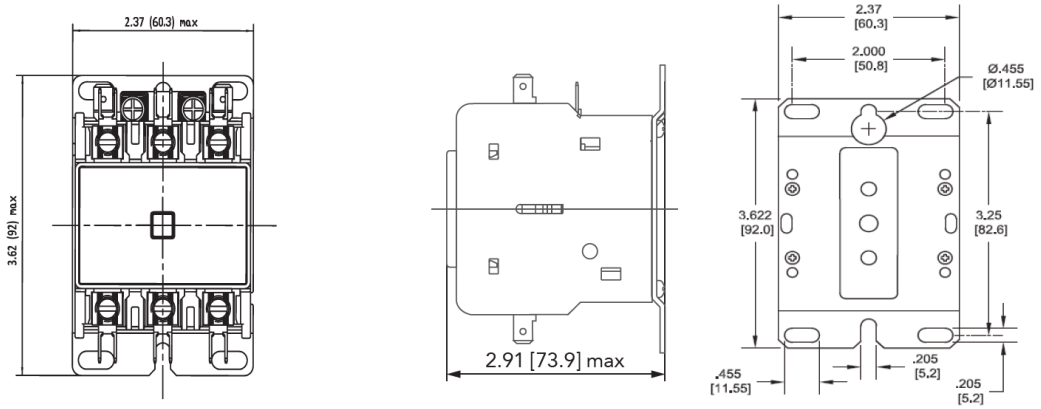


Dimensions in in. [mm].

Performance

Outputs

1 Pole and 2 Pole Models	GDPH251... GDPH252...	GDPH321... GDPH322...	GDPH401... GDPH402...
Max. operational current (FLA): AC-53 rating (Inductive)	25 AAC	32 AAC	40 AAC
Max. operational current (FLA): AC-51 rating (Resistive)	35 AAC	40 AAC	50 AAC
Locked rotor current (LRA): 240/277 VAC 480 VAC 600VAC	 150 AAC 125 AAC 100 AAC	 200 AAC 150 AAC 120 AAC	 240 AAC 200 AAC 160 AAC
Horsepower (hp) rating (1-Phase): 120 VAC 240 VAC	 1 hp 2 hp	 2 hp 3 hp	 2 hp 3 hp
Endurance testing acc. to UL508, UL60947-4-1	100,000 cycles (inductive) 250,000 cycles (resistive)		

3 Pole Models	GDPH253...	GDPH323...	GDPH403...
Max. operational current (FLA): AC-53 rating (Inductive)	25 AAC	32 AAC	40 AAC
Max. operational current (FLA): AC-51 rating (Resistive)	35 AAC	40 AAC	50 AAC
Locked rotor current (LRA): 240/277 VAC 480 VAC 600VAC	 150 AAC 125 AAC 100 AAC	 200 AAC 150 AAC 120 AAC	 240 AAC 200 AAC 160 AAC
Horsepower (hp) rating (1-Phase): 120 VAC 240/277 VAC	 2 hp 5 hp	 2 hp 5 hp	 3 hp 7.5 hp
Horsepower (hp) rating (3-Phase): 240/277 VAC 480 VAC 600 VAC	 10 hp 15 hp 20 hp	 10 hp 15 hp 20 hp	 10 hp 20 hp 25 hp
Endurance testing acc. to: UL508, UL60947-4-1	100,000 cycles (inductive) 250,000 cycles (resistive)		

Performance

Coil data

1 Pole Models	24 V	120 V	208 - 240 V
Nominal coil resistance:			
50 Hz	18 Ω	470 Ω	1358 Ω
60 Hz	15 Ω	315 Ω	1188 Ω
Nominal coil voltage	24 VAC	120 VAC	208 - 240 VAC
Pickup voltage (max.)	20.4 VAC	102 VAC	177 VAC
Dropout voltage (min.)	4.8 VAC	24 VAC	48 VAC
Nominal inrush:			
50 Hz	25 VA		
60 Hz	27 VA		
Nominal seal:			
50 Hz	7.5 VA		
60 Hz	9 VA		

2 Pole Models	24 V	120 V	208 - 240 V
Nominal coil resistance:			
50 Hz	10 Ω	250 Ω	880 Ω
60 Hz	9 Ω	198 Ω	715 Ω
Nominal coil voltage	24 VAC	120 VAC	208 - 240 VAC
Pickup voltage (max.)	20.4 VAC	102 VAC	177 VAC
Dropout voltage (min.)	4.8 VAC	24 VAC	48 VAC
Nominal inrush:			
50 Hz	39 VA		
60 Hz	44 VA		
Nominal seal:			
50 Hz	9.5 VA		
60 Hz	11 VA		

3 Pole Models	24 V	120 V	208 - 240 V
Nominal coil resistance:			
50 Hz	8.5 Ω	178 Ω	715 Ω
60 Hz	8.5 Ω	178 Ω	715 Ω
Nominal coil voltage	24 VAC	120 VAC	208 - 240 VAC
Pickup voltage (max.)	18 VAC	80 VAC	158 VAC
Dropout voltage (min.)	6 - 15 VAC	20 - 70 VAC	40 - 140 VAC
Nominal inrush:			
50 Hz	60 VA		
60 Hz	50 VA		
Nominal seal:			
50 Hz	8 VA		
60 Hz	6.5 VA		

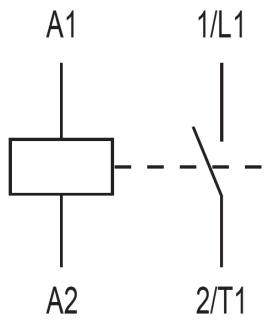
Environmental specifications

Operating temperature	**Full load current rating**	23 ºF ~ 104 ºF (-5 °C ~ 40 °C)
	De-rating factor (0.875)	From 106 ºF ~ 122 ºF (41 °C ~ 50 °C)
	De-rating factor (0.750)	From 124 ºF ~ 140 ºF (51 °C ~ 60 °C)
	De-rating factor (0.625)	From 142 ºF ~ 158 ºF (61 °C ~ 70 °C)
Storage temperature		-13 ºF ~ +131 ºF (-25 ºC ~ +55 ºC)
Relative humidity		< 50 % @ 104 ºF (40 ºC), non-condensing
Pollution degree		2
Installation altitude		≤ 2000m
Installation method		≤ 5° from vertical plane
EU RoHS compliant		Yes

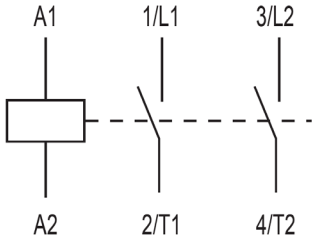
Compatibility and conformance

Approvals	
Standards compliance	UL: UL60947-1, UL60947-4-1, UL 508 UL File No.: E236208 (LZGH2, LZGH8, NLDX2, NLDX8) CSA: C22.2 IEC/EN 60947 ARI-780 RoHS

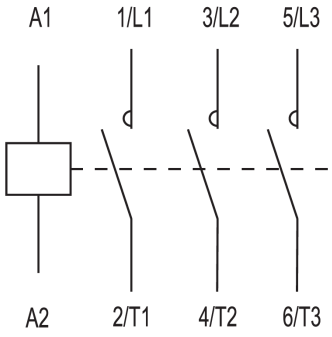
Functional diagram



GDPH 1-Pole



GDPH 2-Pole



GDPH 3-Pole

Connection specifications

Power connection 1 Pole and 2 Pole Models	GDPH251... GDPH252...	GDPH321... GDPH322...	GDPH401... GDPH402...
Line and load terminals	# 10 - 32 Screw Box Lug		
Copper cable AWG (mm^2) Rigid wire (single core) Flexible (stranded wire)	14 ~ 10 (2.5 ~ 6) 14 ~ 12 (2.5 ~ 4)	12 ~ 8 (6 ~ 10) 14 ~ 10 (2.5 ~ 6)	10 ~ 8 (4 ~ 10) 14 ~ 10 (2.5 ~ 6)
Tightening torque Main circuit in-lb (N.m)	20 (2.3)		
Quick connects Coil terminals Power terminals	Dual 0.25 quick connects (fast on) Dual 0.25 quick connects (fast on)		

Power connection 3 Pole Models	GDPH253...	GDPH323...	GDPH403...
Line and load terminals	# 10 - 32 Screw Box Lug		
Copper cable AWG (mm^2) (Screw models) Rigid wire (single core) Flexible (stranded wire)	14 ~ 10 (2.5 ~ 6) 14 ~ 12 (2.5 ~ 6)	2 ~ 8 (4 ~ 10) 14 ~ 12 (2.5 ~ 6)	2 ~ 8 (4 ~ 10) 14 ~ 12 (2.5 ~ 6)
Copper cable AWG (mm^2) (Lug models) Rigid wire (single core) Flexible (stranded wire)	14 ~ 8 (2.5 ~ 10) 14 ~ 8 (2.5 ~ 10)		
Tightening torque (Screw models) Main circuit in-lb (N.m)	20 (1.8 ~ 2)		
Tightening torque (Lug models) Main circuit in-lb (N.m)	40 (4 ~ 6)		
Quick connects Coil terminals Power terminals	Dual 0.25 quick connects (fast on) 3/4 P Dual		

Short circuit protection

Protection Co-ordination Type 1

Part No.	Prospective short circuit current [kArms]	Max fuse size [A]	Voltage [VAC]
GDPH25...	100	Class J fuse 80 A	Max. 600
GDPH32...	100	Class J fuse 80 A	Max. 600
GDPH40...	100	Class J fuse 100 A	Max. 600