

# Assembly Instructions for: PL 6\*\* & PL 7\*\* Series Junction Boxes (UL)



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**IMPORTANT:** This document should be read carefully before commencing installation

**Zones of Use of Terminal Box**

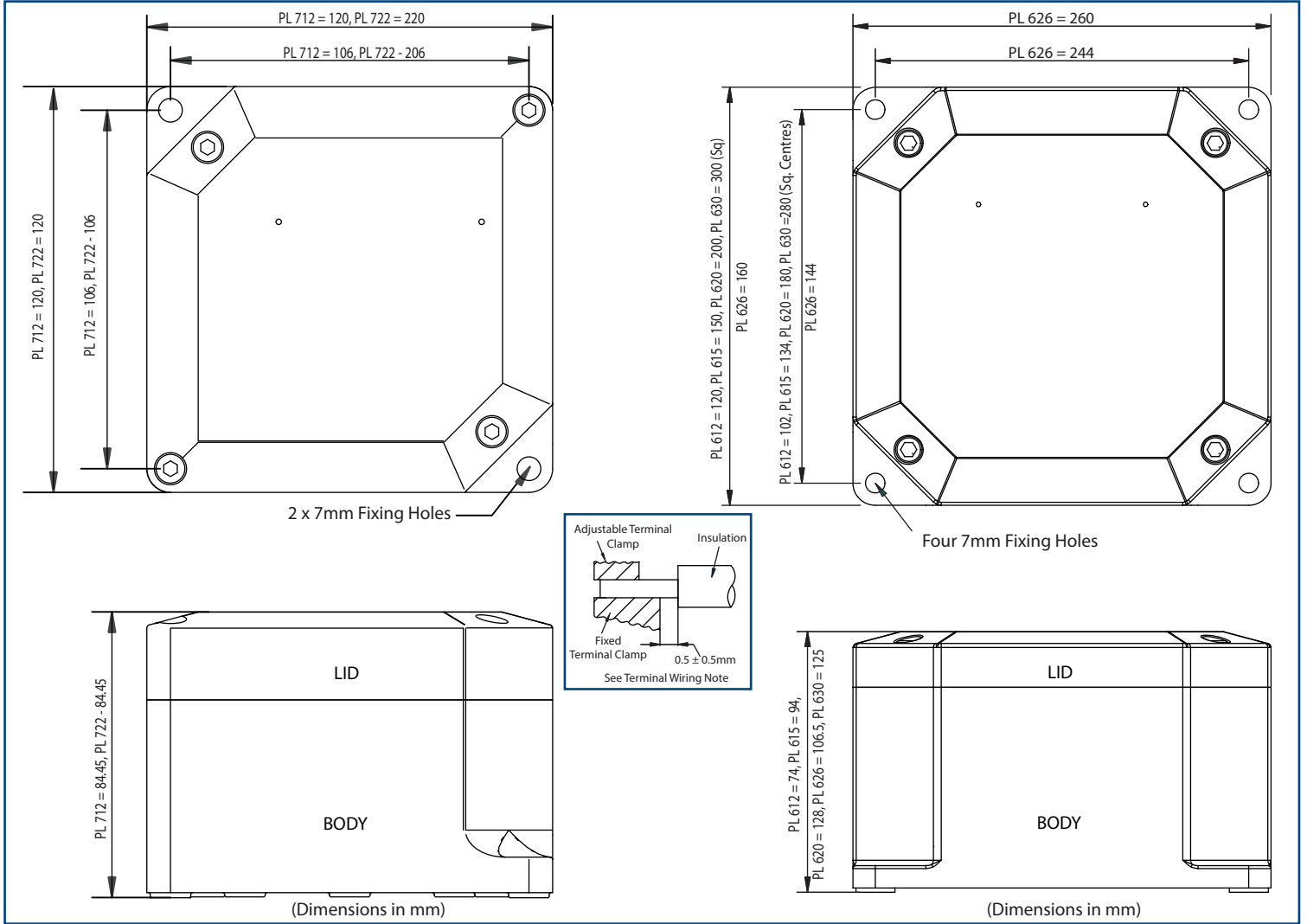
Class I Zone I AExe II

**Service Temperature**

PL 6\*\* -60°C to +75°C    PL 7\*\* -60°C to +75°C  
PL 7\*\* -20°C to +75°C (with moulded in plate)

**Minimum Installation Temperature: -5°C**

**Certification Details**  
Box Type: PL6\*\* & PL 7\*\* Series (UL Listed)



W = Maximum Dissipated Wattage    N = No. of Terminals Fitted    F = Combined Terminal Resistance    I = Maximum Current

$$W = N \times F \times I^2 \qquad N = W / F \times I^2 \qquad I = \text{Sqrt} (W / N \times F)$$

**Note:** Combined Terminal Resistance = Resistance of Maximum Conductor Length (see BS 6360 and table below) + Terminal Resistance

Box Type	Maximum Power Dissipation (Watts)															Max. Cable Length Per Terminal (M)	
	T*	T**	T***	T*	T**	T***	T*	T**	T***	T*	T**	T***	T*	T**	T***		
	T6	80°C	-60°C +40°C	T6	80°C	-60°C +55°C	T6	80°C	-60°C +65°C	T5	80°C	-60°C +40°C	T5	80°C	-60°C +55°C		T5
PL 612		4.1		2.5		1.5		5.6		4.1		3.0		0.127			
PL 615		6.4		4.0		2.4		8.8		6.4		4.8		0.175			
PL 620		11.4		7.1		4.2		15.6		11.4		8.5		0.240			
PL 626		11.4		7.1		4.2		15.6		11.4		8.5		0.275			
PL 630		20.8		13.0		7.8		28.6		20.8		15.6		0.365			
PL 712		3.352		2.148		1.2		4.6		3.352		2.4		0.142			
PL 722		5.318		3.323		1.9		7.3		5.318		3.9		0.226			

#### TO OPEN THE LID:

1. Disconnect power (isolate all circuits).
2. Untighten the lid securing screws.
3. Carefully remove the lid ensuring the gasket is not displaced or damaged.

#### TO CLOSE THE LID:

1. Check that the gasket is correctly located in the groove in the underside of the lid and undamaged. Ensure that the correct lid is refitted.
2. Locate and tighten all the lid securing screws into the box body.

#### ENCLOSURE INSTALLATION (EI)

- a) The IP rating of the enclosure must be maintained for the area of use by the use of correct arrangement of cable/gland/sealing arrangements and in accordance with the NEC code, article 505.
- b) Where other certified components are part of the assembly, the user must take account of any limitations listed on relevant certificates.
- c) If an optional Breather/Drain as listed on the enclosure certificate is fitted the enclosure must be sited such that the Breather/Drain is pointing vertically downwards from the bottom of the box, and the IP rating of the selected Breather/Drain shall match the IP rating of the enclosure.
- d) The enclosure may be ready supplied with cable entries. Where the customer drills cable entries they must be installed in accordance with the following: a maximum clearance on the entry thread of 0.7mm for plain holes and where adjacent cable entries are installed sufficient clearance must be maintained to allow for the fitting of sealing/retaining washers and the rotation of the cable gland hexagons, and leave a minimum of material between adjacent holes inline with the above certificate number(s).
- e) All unused entry apertures must be sealed using a listed AExe II close-up / stopping plug and also the IP rating of the junction box shall be maintained.
- f) The apparatus must not be modified in anyway without reference to Hawke, as this will invalidate the certification, except for EI d) and e) and TW j) and k).

#### TERMINAL WIRING (TW)

- a) All wiring must be carried out in accordance with the relevant code of practice and/or instructions e.g. NEC code, article 505.
- b) The voltage, current and maximum dissipated power shown on the label must not be exceeded.
- c) When used as a general purpose junction box or marshalling box the circuits carrying currents  $\geq 1A$  shall be individually protected against over current such that the protective device operates effectively at no more than 1.45 times the current carrying capacity of the smallest conductor used in that circuit., in accordance with NEC code, articles 250 & 505.
- d) Where a major portion of the terminals are carrying maximum rate current the temperature at the branching point of the conductors may exceed 70°C. Under these circumstances the installer must ensure that the limiting temperature for the cable insulation used is acceptable e.g. 85°C (T6) or 100°C (T5).
- e) The wiring insulation must extend to within 1mm of the metal face of the terminal, unless the relevant certificates allow more. (See terminal schedule for limitations). All leads must be insulated for the appropriate voltage.
- f) Not more than one single or multiple stranded lead shall be connected into either side of the terminals, unless the relevant component certificate allows more, or unless the multiple conductors have been previously joined in a suitable manner (for example with an insulated crimped boot lace ferrule, mounted in a vertical position) such that they form a single cohesive item for insertion into the terminal way.
- g) A parallel shaft screwdriver of the correct size should be used.
- h) Only those terminals shown on Drg. D2592 terminal schedule may be incorporated in the box. The installer must ensure that the conditions of use for the terminals outlined are complied with.
- i) All terminal screws used and unused shall be fully tightened down.
- j) The installer shall ensure creepage and clearance distances are not reduced, in accordance with the NEC code, articles 501.20 & 725.555 for separation of Class 2 and Class 3 circuits from Class I circuits.
- k) The use of any cross connection devices between adjacent terminal ways shall be in accordance with the requirements of the relevant component certificate listed on Drg. D2592 held on UL File Number E181955.
- l) Use of the terminal box at ambient temperatures below -20°C is dependant upon the minimum service temperature of the terminals.
- m) When the terminals are fitted with conductors less than the maximum specified, the watts dissipation must be checked to ensure compliance. See formula on page 1

#### EARTHING:

- a) The earth leads must be in accordance with the NEC code, article 250 & 505.25.
- b) Junction boxes shall be earthed in accordance with NEC code, article 250 & 505.25.
  - i) The PL 6\*\* and PL 7\*\* series boxes are supplied fitted with an internal earth terminal.
  - ii) The PL 6\*\* and PL 7\*\* series boxes may be supplied fitted with or without an internal earth continuity plate.

**Note :** *There is no integral connection from the internal earth continuity plate through to the external of the box.*

**SCHEDULE OF TERMINALS FITTED (T6 40C AND T5 55C)**

PL 612 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	10	17	10	17	0.0010396506	10	0.4 - 0.8
WDU4	22	10	600	10	22	10	22	0.0007528109	10	0.5 - 1.0
WDU6	20	8	550	7	20	7	29	0.0005566695	12	0.8 - 1.6
WDU10	16	6	550	5	24	6	40	0.0003756918	12	1.2 - 2.4
BK6	22	12	275	1	20	N/A	N/A	N/A	8	0.5 - 0.7
MK6/6	22	10	275	1	26	N/A	N/A	N/A	9	1.2 - 2.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

PL 615 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	14	17	14	17	0.0013078650	10	0.4 - 0.8
WDU4	22	10	600	12	22	12	22	0.0009201725	10	0.5 - 1.0
WDU6	20	8	550	9	29	9	29	0.0006612375	12	0.8 - 1.6
WDU10	16	6	550	7	40	7	40	0.0004420950	12	1.2 - 2.4
WDU16	14	6	600	6	52	5	53	0.0003920950	16	2.0 - 4.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

PL 620 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	24	16	23	17	0.0016710720	10	0.4 - 0.8
WDU4	22	10	600	20	22	20	22	0.0011468080	10	0.5 - 1.0
WDU6	20	8	550	15	29	15	29	0.0008028400	12	0.8 - 1.6
WDU10	16	6	550	12	40	12	40	0.0005320160	12	1.2 - 2.4
WDU16	14	6	600	9	51	8	53	0.0004820160	16	2.0 - 4.0
WDU35	12	2	600	6	87	6	87	0.0002309920	18	4.0 - 5.0
WDU70N	6	00	600	4	134	4	134	0.0001267920	22	8.0 - 12.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

PL 626 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	38	10	14	17	0.0018666450	10	0.4 - 0.6
WDU4	22	10	600	32	13	12	22	0.0012688425	10	0.5 - 1.0
WDU6	20	8	550	24	19	10	29	0.0008790875	12	0.8 - 1.6
WDU10	16	6	550	19	27	8	40	0.0005804350	12	1.2 - 2.4
WDU16	14	6	600	16	36	7	53	0.0005304350	16	2.0 - 4.0
WDU35	12	2	600	12	60	6	87	0.0002500950	18	4.0 - 5.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

If glands are installed in Faces B and D, maximum terminal quantities may be reduced.

PL 630 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	76	10	30	17	0.0023695470	10	0.4 - 0.8
WDU4	22	10	600	64	14	27	22	0.0015826455	10	0.5 - 1.0
WDU6	20	8	550	48	20	23	29	0.0010751525	12	0.8 - 1.6
WDU10	16	6	550	36	28	18	40	0.0007049410	12	1.2 - 2.4
WDU16	14	6	600	30	32	11	53	0.0006549410	16	2.0 - 4.0
WDU35	12	2	600	22	56	9	87	0.0002992170	18	4.0 - 5.0
WDU70N	6	00	600	11	108	7	134	0.0001615795	22	8.0 - 12.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

PL 712 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	10	17	10	17	0.001123468	10	0.4 - 0.8
WDU4	22	10	600	10	20	8	22	0.000805111	10	0.5 - 1.0
WDU6	20	7	550	7	28	7	29	0.000589347	12	0.8 - 1.6
WDU10	16	6	550	6	37	6	40	0.000396443	12	1.2 - 2.4
BK6	22	1	275	1	20	N/A	N/A	N/A	8	0.5 - 0.7
MK6/6	22	1	275	1	26	N/A	N/A	N/A	9	1.2 - 2.0

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.

PL 722 Terminal Capacity Data										
Terminal Type	Conductor Size (AWG)		Max. Volts	Maximum Physical Terminal Content		Reduced Terminal Content at Maximum Terminal Amps		Combined Terminal Resistance (Ohms)	Insulation Stripping Length (mm)	Terminal Tightening Torque (Nm)
	Min	Max		Term. Qty.	Amps	Term. Qty.	Amps			
WDU2.5	22	10	550	35	9	11	17	0.001592843	10	0.4 - 0.8
WDU4	22	10	600	29	12	10	22	0.001097994	10	0.5 - 1.0
WDU6	20	8	550	22	17	8	29	0.000772341	12	0.8 - 1.6
WDU10	16	6	550	17	24	6	40	0.000512648	12	1.2 - 2.4

**Note:** Terminals listed are only suitable for a minimum operating temperature of -50°C.