



SERIES HLSW CONTROL STATIONS
Control Stations For Use In Zone Classified Hazardous Locations

1. General Safety Information:

CAUTION:

Before installing, make sure you are compliant with area classifications, failure to do so may result in bodily injury, death and property damage. Do not attempt installation until you are familiar with the following procedures. All installation must comply with the applicable Electrical Code.

Make sure that the circuit is De-energized before starting installation or maintenance.

Verify that the installation is grounded. Failure to ground will create electrical shock hazards, which can cause serious injury and or death.

IMPORTANT:

Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only

Technical information, advice and recommendations contained in these documents is based upon information that Larson believes to be reliable. All the information and advice contained in these documents is intended for use only by persons having been trained and possessing the requisite skill and know-how and to be used by such persons only at their own discretion and risk. The nature of these instructions is informative only and does not cover all of the details, variations or combinations in which this equipment may be used, its storage, delivery, installation, check out, safe operation and maintenance.

Since conditions of use of the product are outside of the care, custody and control of Larson, the purchaser should determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith.







2. Installation Instructions

a: Using a screwdriver with a #2 Phillips Head, a Standard Slotted or Robertson style head, unscrew the retained cover screws. Install the back box of the control station securely on a flat surface using mounting screws that shall fit the hole or slot (see dimensional drawing) and shall not damage supplied hole or slot. The use of a washer is allowed. Mounting dimensions are shown on this document. Also for convenience the non-metallic enclosures have this information molded into the back surface.

The non-metallic enclosures are identified with “TOP” molded on the inside of the cover and the back of the box. The stainless steel enclosures have the slots located at the bottom.

b: Install the conduit or cable to the box using fittings that are Certified as suitable for the area classification and service environment.

c: Connect conductors to the component terminals. Follow all wire stripping and terminal torque instructions for each component as described below.

Grounding connections are available at the din rail, earth continuity plate and internal external ground stud, if supplied* and hub locknut.

Bonding connections are available on covers and boxes of all stainless steel enclosures. All exposed metal should be bonded per applicable local electrical codes.

* An Internal - External ground stud with securement hardware is supplied on all stainless steel enclosures, and is offered as an option for installing into non-metallic (polymeric) enclosures.

d: Perform a continuity check to ensure the circuit is wired properly for the intended use.

e: Replace the enclosure cover making note of “TOP” molded inside the non-metallic covers and the orientation of the actuators for the stainless steel enclosures. Thread each cover screw half way into the threaded insert without completely tightening in a diagonal pattern. Then complete installation of cover by tightening screws in the same diagonal pattern to a minimum torque of 2.9 Nm (26 lb-in) to a maximum of 3.4 Nm (30 lb-ins.).

Before replacing cover, ensure all wires are neatly installed within the control station base and are well away from the lid base joint and gasketing area.

DO NOT OVERTIGHTEN OR USE AN IMPACT TOOL.

A consistent fit over the entire length of the cover joint should be verified at the time of installation.

f: Turn ON the supply circuit and test the system.

WARNING: Electrical shock or personal injury can result from device misalignment. Be sure actuators align with each control module.





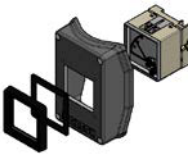












3. Certification Information

Hubbell Series HLSW Control Stations:

North American (NEC/CEC) Certifications***:

Class I, Zone 1 AEx de IIC Gb T6...T4
Zone 21 AEx tb IIIC Db T85°C...T135°C IP66 (U.S.)
Ex de IIC Gb T6...T4
Ex tb IIIC Db T85°C...T135°C IP66 (CAN)
Class I, Division 2, Groups A,B,C,D
Class II, Zone 21 & 22
Class II, Division 1 Groups E, F, G (Canada Only)
Class II, Division 2, Groups E, F, G; Class III
Type 3/4/4X/12/13 -50°C ≤ T ambient ≤ +60°C***

Standards Applied:

CSA 60079-0: 2nd Edition	*UL 60079-0: 6th Edition*
CSA 60079-7: 1st Edition	*UL 60079-7: 4th Edition*
CSA 60079-31: 1st Edition	*UL 60079-31: 1st Edition*
CSA 60079-1: 2nd Edition	*UL 60079-1: 6th Edition*
CSA No. 94.1 / 94.2 / No. 14	*UL50 / UL50E / UL508*

IEC 60529 Ed. 2.2 B:2013 (E-Stop Assemblies)

IEC / ATEX Certifications:

ATEX & IECEx Ratings:

CE 0539 Ex II 2 G Ex de IIC Gb T6...T4
II 2 D Ex tb IIIC Db T85°C...T135°C IP66
DEMKO 15 ATEX 1405 / IECEx UL15.0054
-50°C ≤ T ambient ≤ +60°C***

Standards Applied:

IEC 60947-5-5 Ed. 1.1 B:2005 (E-Stops)	
EN 60079-0:2012+A11:2013	*IEC 60079-0:2011 Ed. 6.0*
EN 60079-7 : 2007	*IEC 60079-7:2006-07 Ed. 4*
EN 60079-31: 2014	*IEC 60079-31:2013 Ed. 2*
EN 60079-1: 2007	*IEC 60079-1:2007-04 Ed. 6*

T-Codes in +60°C ambient application:

T4: when complete control station includes HLSW contact blocks or E-Stops, or ABB ZS4 terminal blocks, with continuous load currents greater than 10 Amps; or when it includes Weidmuller terminal blocks.

T5: when complete control station includes only pilot lights.

T6: when complete control station includes HLSW contact blocks or E-stops, or ABB ZS4 terminal blocks, with continuous load currents of 10 Amps OR LESS when using #14 AWG (2.5 mm^2) wire or larger..

Rocker Switch Assemblies available for switching lighting circuits up to 350VAC @ 20A. See IOM Form K1468.

***** - when CZ0205 Meters are installed, See IOM Form K1470 (cULus Certification and T-ambient ratings above do not apply).**

NOTE : T-Codes are dependent upon number of heat-producing components, See table below for maximum number of contact blocks and terminal blocks per enclosure size.

Enclosure Size	Max. No. of HLSW Contact Blocks	Max. No. of Terminal Blocks
2c	12	16
2a	8	16
1c	6	8
1b	4	6
1a	2	n/a



Panel mount N.O.contact block



DIN-rail mount N.C.contact block



DIN-rail mount Pilot Light



Panel mount Pilot Light

Complete Control Station Electrical Ratings:

The maximum Electrical Ratings of a complete control station are identical to those marked on the Series HLSW Contact Blocks and Emergency Stop Assemblies as noted below. *When installing Series HLSW Pilot Lights, the Electrical Ratings marked on the Pilot Light nameplates must be used.*

North American (NEC / CEC) Electrical Ratings:
690Vac, 20A, 50-60Hz
60 Vdc, 5A, 110 Vdc, 2A, 255 Vdc, 1.5A
½ HP @ 120 Vac, 1 HP @ 208 / 240 / 277 Vac
A600 / P600 – Pilot Duty
350 Vac – Tungsten Lamp

IEC Electrical Ratings:
AC690V 16A AC-12, 50-60Hz
AC230V 16A AC-15, 50-60Hz
DC60V 5A DC-13
DC125 1A DC-13

Wire range (use CU only):
WIRE STRIP – 3/8 in. TORQUE – 15 LB in.
WIRE RANGE with 1 OR 2 WIRES:
#22 to #12 AWG (SOL & STR) and #10 AWG (STR)

WIRE STRIP – 10mm TORQUE – 1.7 N m
WIRE RANGE with 1 OR 2 WIRES:
0.5 to 2.5mm^2 (SOL & STR) and 4.0mm^2 (STR)

Note - Normally-Open Contact Blocks have a white terminal housing. Normally-Closed are completely gray.

Series HLSW Pilot (Indicator) Light Ratings:

North American (NEC/CEC) Electrical Ratings:
12 - 250 Vac / Vdc, 50-60 Hz
0.6 Watts

IEC Electrical Ratings:
12 - 254 Vac / Vdc, 50-60 Hz
0.6 Watts

Wire range (use CU only):
WIRE STRIP – 3/8 in. TORQUE – 15 LB in.
WIRE RANGE with 1 OR 2 WIRES:
#22 to #12 AWG (SOL & STR) and #10 AWG (STR)
WIRE STRIP – 10mm TORQUE – 1.7 N m
WIRE RANGE with 1 OR 2 WIRES:
0.5 to 2.5mm^2 (SOL & STR) and 4.0mm^2 (STR)



Weidmuller Series WDU 2.5 and WPE 2.5 Terminal Blocks:

ATEX Ratings:

Ex I M 2 G D Ex eb I/II/IIIC
-50°C ≤ T ambient ≤ +100°C
-60°C ≤ T ambient ≤ +40°C (T6)
KEMA 98 ATEX 1683U (Issue 4)
(EN 60079-0:2006 / EN 60079-7: 2007

IECEx Ratings:

Ex eb I/II/IIIC
-60°C ≤ T ambient ≤ +70°C (T4)
IECEx ULD 14.0005U (issue 0)
(IEC 60079-0:2011 / IEC 60079-7: 2006-07)

Wire range (use CU only):
0.5 – 4mm² (20 – 12 AWG); Strip length 3/8" (10mm)
Wiring Terminal Torque: 0.4 - 0.8 Nm (3.5 - 7 LB in.)
UL Conditions of Acceptability: The WDU / WPE 2.5 plastic body/insulating material is rated 105C

Electrical Ratings**:
UL: 25A, 600V CSA: 20A, 600V
IECEx: 20A, 690V ATEX: 21A, 690V

Weidmuller Series WDU 4 and WPE 4 Terminal Blocks:

ATEX Ratings:

Ex I M 2 G D Ex eb I/II/IIIC
-50°C ≤ T ambient ≤ +100°C
-60°C ≤ T ambient ≤ +40°C (T6)
KEMA 98 ATEX 1683U (Issue 4)
(EN 60079-0:2006 / EN 60079-7: 2007)

IECEx Ratings:

Ex eb I/II/IIIC
-60°C ≤ T ambient ≤ +70°C ***(T4)***
IECEx ULD 14.0005U (issue 0)
(IEC 60079-0:2011 / IEC 60079-7: 2006-07)

Wire range (use CU only):
0.5 – 6mm² (20 – 10 AWG); Strip length 3/8" (10mm)
Wiring Terminal Torque: 0.5 - 1.0 Nm (4.4 - 8.8 LB in.)
UL Conditions of Acceptability: *The WDU / WPE 4 plastic body/insulating material is rated 105C.*

Electrical ratings**:
UL: 35A, 600V CSA: 35A, 600V
IECEx: 32A, 690V ATEX: 28A, 690V



ABB Series ZS4 Terminal Blocks:

ATEX Ratings:

Ex I M 2 G D Ex eb I/II/IIIC
-50°C ≤ T ambient ≤ +120°C
LCIE 08 ATEX 0007U (Issue 3)
(EN 60079-0:2012 / EN 60079-7: 2007)

IECEx Ratings:

Ex eb I/II/IIIC
-55°C ≤ T ambient ≤ +105°C
IECEx LCI 08.0031U (Issue 5)
(IEC 60079-0:2011 / IEC 60079-7: 2006-07)

Wire range (use CU only):
0.5 – 6mm² (20 – 10 AWG); Strip length 13/32" (10.3mm)
Wiring Terminal Torque: 0.6 Nm (5.3 LB in.)
UL Conditions of Acceptability: *The ZS4 plastic body/insulating material is rated 105C*

Electrical Ratings**:
UL: 20A, 600V CSA: 20A, 600V
IECEx: 32A, 693V ATEX: 32A, 693V
***** - Do Not Exceed 20A Load Current (The Assembled Control Station MAXIMUM CURRENT RATING = 20A)***

Requirements for proper installation

For US/CAN Applications:
Series HLSW Contact Blocks and E-Stops, and Series WDU, WPE and ZS terminal blocks shall be mounted to provide a minimum clearance of 14 mm and min. creepage of 21.6 mm.

Series HLSW Pilot Lights shall be mounted to provide a minimum clearance of 5.0 mm and min. creepage of 8.0 mm.

For ATEX/IECEx Applications:
Series HLSW Contact Blocks and E-Stops, and Series WDU, WPE and ZS terminal blocks shall be mounted to provide a minimum clearance of 10 mm and minimum creepage of 16 mm.

Series HLSW Pilot Lights shall be mounted to provide a min. clearance of 5.0 mm and min. creepage of 8.0 mm.

For DIN-rail mounting and removal of Contact Blocks and Pilot Lights, care should be taken not to damage the integral flexible clip.

The Series WDU Terminal Blocks require an additional accessory (end section, partition, or circuit separator) when a jumper bar with "cut extremity" is used.

Series WDU, WPE and ZS terminals can accomodate one or two Solid or Stranded CU wires. When two wires are installed under a single terminal, they must be of the same type (STR or SOL) and of equal sizes.

The Series HLSW Polymeric enclosure cover screws should be torqued at 3 Nm to 4 Nm. The Series HLSW Stainless Steel enclosure cover screws should be tightened to Hand Tight. ***DO NOT OVERTIGHTEN****. A tight fit over the entire length of the cover joint should be verified at the time of installation.*

All unused conduit openings must be fitted with a certified close-up/stopping plug of equivalent minimum required IP rating as required.

To maintain the IP66 rating or Dust Protection method "tb", all actuator / enclosure sealing gaskets must be installed in accordance with these installation instructions.

Series HLSW Control Stations are provided without cable glands /conduit entries. When installing glands or entries, the cable glands /conduit entries must be certified as increased safety or flameproof, for protection type "tb", and have a minimum IP66 rating. ***To assure the IP ratings are not compromised, Cable Gland and Conduit Entry holes must not exceed the maximum dimensions noted in the gland/ entry manufacturer's installation instructions.***

The end user shall provide bonding means as necessary. For IECEx and ATEX applications, the polymeric enclosures may be supplied with an optional internal/external IP66-rated Earthing Lug Kit.

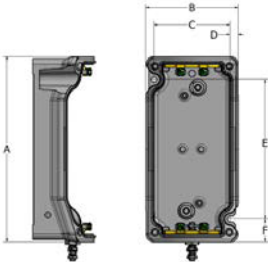
All unused wiring terminals shall be tightened.

All conductors shall be suitable for the minimum ambient and maximum temperature achieved in service - use 90C Conductors (minimum) for T6 applications, and 105C conductors (minimum) for T5 and T4 applications. All conductors shall be sized per the National or Local Electrical Codes for the maximum continuous current or max. motor load of the installation.

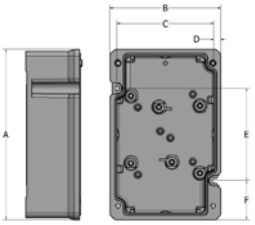
All installations must comply with Electrical Installations design, selections, and erection standard IEC/EN 60079-14 and be maintained in accordance with Electrical installations inspection and maintenance standard IEC/EN 60079-17.

POLYMERIC ENCLOSURE MOUNTING DIMENSIONS

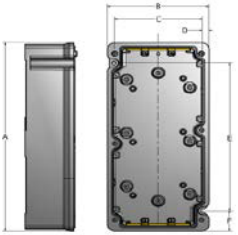
1A, 1B, 1C



2A



2C



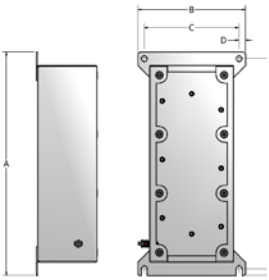
ENCLOSURE MOUNTING DIMENSIONS

SIZE	A in [mm]	B in [mm]	C in [mm]	D in. [mm]	E in. [mm]	F in. [mm]
1a	4.21 [106.9]	3.97 [100.8]	3.27 [83.0]	.35 [8.9]	2.20 [55.9]	.99 [25.0]
1b	6.08 [154.4]	3.97 [100.8]	3.27 [83.0]	.35 [8.9]	4.09 [103.9]	.99 [25.0]
1c	7.96 [202.1]	3.97 [100.8]	3.27 [83.0]	.35 [8.9]	5.98 [152.0]	.99 [25.0]
2a	8.45 [214.5]	5.48 [139.1]	4.80 [122.0]	.34 [8.5]	4.57 [116.0]	1.94 [49.3]
2c	11.78 [299.2]	5.48 [139.1]	4.80 [122.0]	.34 [8.5]	9.24 [234.7]	1.27 [32.2]

Mounting hole/slot size .24” [6mm] diameter.

STAINLESS STEEL ENCLOSURE MOUNTING DIMENSIONS

1A,1B,1C,2A,2C



SS ENCLOSURE MOUNTING DIMENSIONS

SIZE	A in [mm]	B in [mm]	C in [mm]	D in. [mm]	E in. [mm]	F in. [mm]
1a	5.5 [139.7]	5.38 [136.5]	4.63 [117.5]	.38 [9.5]	4.75 [120.6]	.38 [9.5]
1b	7.75 [196.9]	5.38 [136.5]	4.63 [117.5]	.38 [9.5]	7.00 [177.8]	.38 [9.5]
1c	9.63 [244.6]	5.38 [136.5]	4.63 [117.5]	.38 [9.5]	8.88 [225.6]	.38 [9.5]
2a	9.63 [244.6]	6.25 [158.8]	5.50 [139.7]	.38 [9.5]	8.88 [225.6]	.38 [9.5]
2c	12.75 [323.9]	6.25 [158.8]	5.50 [139.7]	.38 [9.5]	12.00 [304.8]	.38 [9.5]

Mounting hole/slot size .34” [9mm] diameter.

CUSTOMER IDENTIFICATION LABELS / NAMEPLATES MOUNTING DIMENSIONS AND INSTRUCTIONS

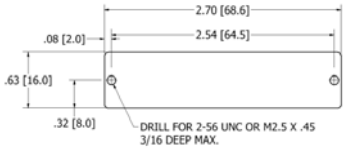
The covers of each polymeric control station include a designated (flat) area (at the "top" of each cover) for mounting a "customer identification" nameplate.

Nameplate sizes above are recommended with mounting hole locations shown below.

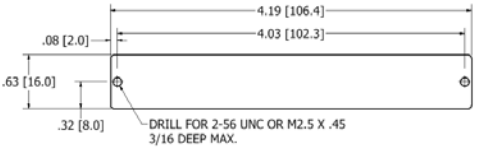
It is allowable to drill and tap nameplate mounting holes in the cover as described below.

To maintain the IP (Ingress Protection) levels and the NEMA / TYPE ratings of the Series HLSW enclosures when mounting with screws or rivets (**polymeric enclosures ONLY**), **the nameplate mounting holes must not penetrate the interior wall of the enclosure.**

Size 1a, 1b, 1c enclosure .Customer Identification Nameplate Dimensions



Size 2a, 2c enclosure. Customer Identification Nameplate Dimensions



DO NOT ALTER THE CONTROL STATION OTHER THAN AS DIRECTED BY THESE INSTRUCTIONS, AS ALTERATIONS MAY VOID THE CERTIFICATION(S).

DO NOT REMOVE THE TAMPER-PROOF SCREWS OR ATTEMPT TO OPEN OR ALTER THE SERIES HLSW CONTACT BLOCKS.

TO MAINTIAN PROPER IP RATINGS, BE SURE TO FOLLOW ALL MFR's. MOUNTING INSTRUCTIONS WHEN INSTALLING CERTIFIED CABLE GLANDS OR CONDUIT ENTRIES.

Series HLSW Component E-Stop assemblies are provided with an adhesive nameplate. When installing Series HLSW Component E-Stop Assemblies, the Adhesive E-Stop nameplate label should be affixed to the inside of the control station cover adjacent to the panel-mounted E-Stop assembly, on the nearest flat/smooth surface.