LOOP BOXES AND LOGIC BOXES SETS FOR 3-PHASE ELECTRIC LOCOMOTIVES

ARC/LBS/V1.0

USER MANUAL

AUGUST 2018

RELEASE 1.0

Advanced Rail Controls Private Limited

Bangalore-560092

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1.0 Introduction

Loop boxes are mainly used to test the physical signals entering and going out of the electronic rack or sensors, which are terminated, on sealed connectors. For troubleshooting purpose, without the loop boxes, the wire points cannot be accessed for measurements. By inserting a loop box in a cable loom, all the signals in the wire can be accessed and measured or observed, while the equipment is in operation.

The boxes are made out of polycarbonate, fully insulated type, with captive stainless steel fasteners. The connection sockets and bridge connectors & lugs are of gold plated from highly reputed brand offering low contact resistance and also not subjected to corrosion, pitting and wear. The cables will be of traction grade with flame retardant capability and of CLW approved make/s. The cables will enter the box through suitable cable glands, with IP67 ingress protection class. The box itself will be sealed and have an ingress protection class of minimum IP66, which we consider as adequate for the intended application. All the connectors (both circular & sub-D) are CLW approved.

2.0 Scope

The scope of supply of Loop Boxes Set for 3-Phase Electric Locomotives as per Specification No.CLW/ES/3/0538 ALT-A. The detailed scope of supply for the unit rate quoted is given below. Please note that, unit set comprises one loco set of loop boxes involving a total of 59 boxes. The tendered quantity is 01 set, which means 1 Loco Set, comprising 59 boxes.

2.1 Description and quantity

SL No	Type of Loop Box	Connector Type	Other Specifications	Qty Per Set (Nos) 1 set = 1 Loco set
1	5 Pin Loop Box	Circular Gimota	2 nos screened cable, 1m length each, one with a circular male & other with a circular female connector, 05 nos of shorting links.	06

2	7 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a circular male & other with a circular female connector, 07 nos of shorting links.	04
3	13 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a circular male & other with a circular female connector, 13 nos of shorting links.	03
4	19 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a special type (Liton type) circular male & other with a special type (Liton type) circular female connector, 19 nos of shorting links.	08
5	37 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a special type (Liton type) circular male & other with a special type (Liton type) circular female connector, 37 nos of shorting links.	04
6	22 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a circular male & other with a circular female connector, 22 nos of shorting links.	03
7	35 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a circular male & other with a circular female connector, 35 nos of shorting links.	03
8	61 Pin Loop Box	Circular Gimota	2 nos cable, 1m length each, one with a circular male & other with a circular female connector, 61 nos of shorting links.	02
9	9 Pin sub-D Loop Box	Sub-D Track	2 nos screened cable, 1m length each, one with a sub-D male & other with a sub-D female connector, 09 nos of shorting links.	06
10	15 Pin sub-D Loop Box	Sub-D Track	2 nos screened cable, 1m length each, one with a sub-D male & other with a sub-D female connector, 15 nos of shorting links.	04
11	25 Pin sub-D Loop Box	Sub-D Track	2 nos cable, 1m length each, one with a sub-D male & other with a sub-D female connector, 25 nos of shorting links.	04
12	50 Pin sub-D Loop Box	Sub-D Track	2 nos cable, 1m length each, one with a sub-D male & other with a sub-D female connector, 50 nos of shorting links.	02
13	SB1 & SB2 Logic Box	Sub-D Track	Each box should have 4 nos of cable 2.5 mtr each, out of which, 3 cables have 15 pin male sub-	08

			D connector & 1 has 25 pin male sub-D connector.	
14	BUR-1 Logic Box	Sub-D Track	Each box consists of 1 no of 15 pin D type male connector having 2.5 mtr cable each	01
15	BUR- 2&3 Logic Box	Sub-D Track	Each box should have 3 nos of cables 2.5 mtr each, out of which, 1 cable has 15 pin sub-D male connector & 2 nos of 25 pin sub-D type male connector.	01
Total types of Boxes for 1 Set = 15			**Total Numbers per set**	**59**

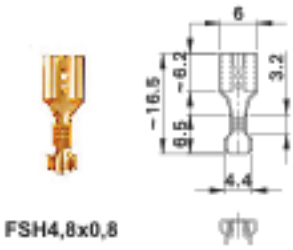
3.0 Makes/Brand of Components identified to be used in the Loop Boxes

(i)	Polycarbonate Boxes	: Highly reputed imported sources.
(ii)	Cables	: CLW approved source.
(iii)	Cable Glands	: LAPP make or equivalent.
(iv)	Contact Socket	: Staubli/Multi-Contact or equivalent.
(v)	Bride Connectors	: Staubli/Multi-Contact or equivalent.
(vi)	Cable Lug	: Staubli/Multi-Contact or equivalent.
(vii)	Circular & Sub-D Connectors	: Gimota / Switzerland or Equivalent CLW approved makes, providing one to one interface with the locomotive connectors.

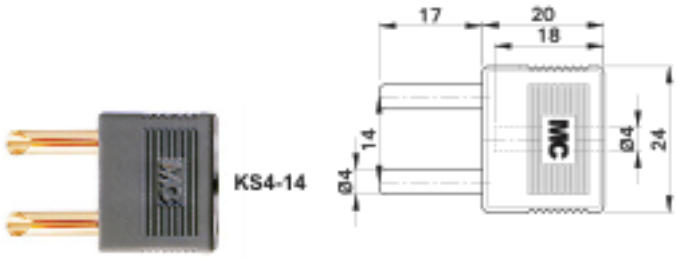
3.1 Images of Some of the Components identified for Use

A. Socket (Multi-Contact)

B. Faston Lug (Multi-Contact)



C. Bridge Connector (Multi-Contact)

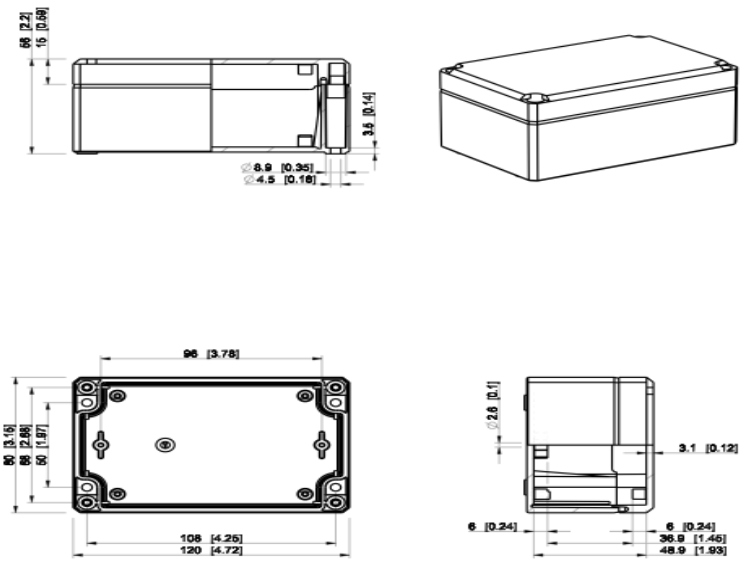


D. Cables

EB irradiated cables from CLW's approved makes will be used. The image of typical 25x0.5 sq.mm Radiant Cable proposed to be used in 25 pin Sub-D Loop Box is given below for reference. For other loop boxes, same type of cable with suitable number of cores will be used.

E. Polycarbonate Box

The dimensional drawing and data sheet of a typical polycarbonate enclosure of size 120x80x56mm is attached. This is for representative reference only. All the boxes quoted shall be according to the relative parameters of this reference enclosure.



Dimensions in mm [inches]

Material:	Polycarbonate, fiberglass-reinforced	Color:	RAL 7035

F. Connectors

Gimota / Switzerland or Equivalent CLW approved makes, providing one to one interface with the locomotive connectors. The images shown below is 35 pin circular connector for reference. For other loop boxes, same type of connectors with suitable number of pins will be used in case of circular and sub-D.

4.0 Contact Details

For any warranty/service related queries, please contact

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