

ERL MAINTENANCE SUPPORT SDN BHD

Co. Reg. No. 199901023674 (498574-T)








**SYSTEMS (SYS) DEPARTMENT**

**SYS CORRECTIVE MAINTENANCE  
GUIDELINES**

Ref. No. E00.OME.M15000.BT.1011.A

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 2 of 74	SYS Corrective Maintenance Guidelines

**Release**

<b>Released:</b> †	Ham Mow Wai	Maintenance	13.4.21	
<b>Checked:</b>	Haryati Khalil	CEO Office	12/4/2021	
<b>Checked:</b>	Muhammad Azim Abdullah	CEO Office	12/4/21	
<b>Checked:</b> †	Anthony Arokianathan	Wayside	13.4.21	
<b>Author:</b>	Noel Devan	Systems	8/4/21	
	<b>Name</b>	<b>Dept.</b>	<b>Date</b>	<b>Signature</b>

Amendments or additions to this procedure must be indicated with a vertical black line in the adjacent left margin.

**Change Record and Configuration Control**

A	22.03.21	Department Re-structuring (ELT & SIG merged into SYS) Incorporated previous documents E00.OME.M15000.BT.0006.C and E00.OMW.M15000.BT.1001.C	Noel Devan
<b>Revision</b>	<b>Date</b>	<b>Modification</b>	<b>Name</b>

<b>Planning Of Changes Reference For Revision: E00.OME.M15000.BT.1011.A</b>					
<b>Issues To Consider</b>	<b>Checked</b> <i>(Please mark X)</i>				<b>Remarks</b>
1) Are there any negative impact?	YES		NO	X	
2) Will the integrity of QEMS be affected?	YES		NO	X	
3) Resources available?	YES	X	NO		
4) Allocation or relocation of responsibilities and authorities required?	YES		NO	X	

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 3 of 74	SYS Corrective Maintenance Guidelines

**TABLE OF CONTENTS**

**Page**

1.0 Purpose .....	4
2.0 Scope, Distribution & Access .....	4
3.0 Procedure .....	4
3.1 Corrective Maintenance .....	4
3.2 Maintenance Manuals .....	6
3.2.1 Track Vehicles .....	6
3.2.2 Overhead Contact Line Systems .....	7
3.2.3 Traction power sub-station Systems .....	7
3.2.4 Telecommunication .....	28
3.2.5 Signalling .....	57
3.2.6 IT .....	69
4.0 Major Failures Reporting .....	70
5.0 Communication During Unscheduled Maintenance .....	70
5.1 SYS ↔ OCC .....	70
5.2 SYS ↔ Internal Communication flow .....	70
6.0 Other Requirements .....	71
7.0 Attachments .....	71

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 4 of 74	SYS Corrective Maintenance Guidelines

## **1.0 Purpose**

The purpose of this document is to give guidance to the Systems (SYS) department of the corrective maintenance references to be used for the purpose of providing safe and on-time service of the ERL/CRS Systems.

This document also specifies the various maintenance manuals and processes that govern all maintenance activities within SYS department.

## **2.0 Scope, Distribution & Access**

This document provides technical references only, with all details and principles provided by the supplier's manuals for use by the relevant maintenance staff.

This document is applicable for all SYS personnel and can be accessed from the EDMS or E-MAS portal.

The symbol \* used in the document reference number refers to the latest version which are subject to change.

## **3.0 Procedure**

The corrective maintenance (CM) activities is an unplanned repair work due to genuine equipment failures or caused by 3<sup>rd</sup> parties hence affect train operations.

### **3.1 Corrective Maintenance**

3.1.1 On notification of failure (normally verbal notification by OCC/HOD) the maintenance personnel shall always proceed with the work immediately, following the safe working procedures laid down in the Company's Procedure Manual (CPM) Docs No. G00.OMQ.M11150.CA.0004.\*.

3.1.2 The OCC shall make the failure notification via SAP and the respective supervisors will generate a work order based on the notifications. Refer attachment 1 for a detailed work process of corrective maintenance activity.

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 5 of 74	SYS Corrective Maintenance Guidelines

3.1.3 For troubleshooting & rectification guidance and reference, the following Manuals listed below shall be used. All safety aspects described in the Manuals shall be complied to at all times.

**If there is any doubt in the references provided below, please refer to your superior immediately.**

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 6 of 74	SYS Corrective Maintenance Guidelines

## 3.2 Maintenance Manuals

### 3.2.1 Track Vehicles

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
Shunting Locomotive	84121	D00.DWE.84121.NZ.0001.B	Operation and Maintenance Manual	1 of 5	<b>Standard Operation and Maintenance Manuals</b>
Shunting Locomotive	84121	D00.DWE.84121.NZ.0001.B	Cab Air Condition Unit and Pneumatic Air Compressor	2 of 5	Standard Operation and Maintenance Manuals
Shunting Locomotive	84121	D00.DWE.84121.NZ.0001.B	Electrical Wiring Schematic	3 of 5	Standard Operation and Maintenance Manuals
Shunting Locomotive	84121	D00.DWE.84121.NZ.0001.B	Generator and Traction Inverter	4 of 5	Standard Operation and Maintenance Manuals
Shunting Locomotive	84121	D00.DWE.84121.NZ.0001.B	Simatic OP27	5 of 5	Standard Operation and Maintenance Manuals
Trailer with telescopic crane	84122	D00.DWE.84122.NZ.0001A	Operation and Maintenance Manual	1 of 1	Standard Operation and Maintenance Manuals
Service Trailer, Fixed Mechanical Installation	84123	D00.DWE.84123.NZ.0001A	Operation and Maintenance Manual	1 of 1	Standard Operation and Maintenance Manuals
Service Trailer	84124	D00.DWE.84124.NZ.0001.A	Operation and Maintenance Manual	1 of 1	Standard Operation and Maintenance Manuals
Unimog	84130	OMD.M12990.PG.0001.A	Instruction Manual & Spare Part List	1 of 1	Standard Operation and Maintenance Manuals

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 7 of 74	SYS Corrective Maintenance Guidelines

### 3.2.2 Overhead Contact Line Systems

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
<b>Overhead Contact Line</b>	<b>30000</b>	<b>G00.CLE.30000.NZ.0001.A</b>	<b>Overhead Contact Line</b>	<b>1 of 1</b>	<b>Operation and Maintenance Manual</b>
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	General	1 of 1	Part 01
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	Technical Description	1 of 1	Part 02
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	Preventive Maintenance	1 of 1	Part 03
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	Corrective Maintenance	1 of 1	Part 04
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	Maintenance Tools and Measuring Devices	1 of 1	Part 05
Overhead Contact Line	30000	G00.CLE.30000.NZ.0001.A	Operating Instructions	1 of 1	Part 06

### 3.2.3 Traction power sub-station Systems

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>1 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 8 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	High Voltage GIS including CTs, VTs and SF6 Bushings	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Operation and Maintenance Instruction	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Gas Monitoring Scheme Drawings	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Rating Plates	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Surge Arrestors	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Operation and Maintenance Instruction	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Outline Drawing	1 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Rating Plate Drawing	1 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>2 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Components of Local Control Panel	2 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Dilo Maintenance Chart	2 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>3 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>



**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 9 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	General Documents	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Dimension Drawing with Part List	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Core and Frame Earthing via Terminal Box	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Transport Drawing	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Rating Plate	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Piping Plan	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	ON-LOAD Tap Changer	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Conservator	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Bushings	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	HV Bushing	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	LV Bushing	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Current Transformer	3 of 10	Standard Operation and Maintenance Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 10 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Radiators	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Fans	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Buchhloz Relay	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Dual Type Thermometer (OTI) Protective Tube	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Dual Type Thermometer (WTI) Temperature Transmitter (Thermal replica)	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Oil Level Indicator	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Pressure Relief Valve	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Protective Relay	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Dehydrating Breather	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Fittings	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Corrosion Protection	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Preparing for Service and Commissioning	3 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 11 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	During installation, operation and maintenance of the equipment the relevant rules of technology and safety must be observed	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Safety Instructions	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Commissioning	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Commissioning and Pre-acceptance Inspection Reports	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Type Designations, Measurements Performance	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Measurement of the Winding Insulation Resistance	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Measurement of the Voltage Ratio and Functional Test of Tap Charger	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Measurement of No-load Currents	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Measurement of Winding Resistance	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Polarity Check of Current Transformers built into Transformers	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Troubleshooting	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Maintenance and Inspection	3 of 10	Standard Operation and Maintenance Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 12 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Monitoring and Maintenance Work on liquid immersed Transformer and Reactors and Monitoring and Maintenance Works with Time Intervals.	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Repairing of Leaks	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Taking a Gas Sample from the Buchholz Relay	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instructions	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	General Installation Instructions	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.00 Safety Instructions	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.01 General	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.02 Safety Regulations	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.03 Fire-protection Measures when Working on Oil-immersed Transformers	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.04 Memorandum on Labour Safety	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	101.05 How to Deal with Oil-immersed Transformer having Internal Defects	3 of 10	Standard Operation and Maintenance Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 13 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102. Checking the Equipment after Delivery	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.01 Inspection for Damage	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.03 Measuring the Gas Content of the Oil	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.04 Operation of the Gas Top-up Device	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.05 Replacement of Empty Gas Bottle	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.10 Quality Control of Core-earthing	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	102.30 Checklist	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103. Shipping	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.01 Transporting Oil Transformers	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.02 Storage	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.03 Oil-instruction Sheet for Shippers	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.04 Storage, Carriage and Loading of Transformer Oil Export-type Drums	3 of 10	Standard Operation and Maintenance Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 14 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.05 Handling Transformer Oil following Damage to Oil-filled Transformer and Vessels during Shipment	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	103.06 Handling Nitrogen in Pressurised Containers during Transportation	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	104 Installation of Foundation	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	104.01 Foundation Details	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	104.02 Shifting the Transformer by means of the Sliding Device	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105 Insulant	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.01 Transformer Oil-landing Instructions	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.03 Taking Liquid Samples	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.04 Shipment of Topping-up Oil	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.07 Filling Partly Filled Transformers with Oil under Full Vacuum	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.09 Degassing and Drying Transformer Oil	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.10 Drying by Heat	3 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 15 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.11 Notes concerning Oil Sample	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	105.50 Filling Empty Transformers with Oil under Full Vacuum	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	106 Installation of Attachments	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	106.01 Assembling Oil-tight Flange Joints	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	106.02 Installation of Conservators	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	106.03 Installation of Pipes and Fittings	3 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	106.04 Installation of Radiators – Vacuuming and Filling with Oil (partly, without conservator)	3 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>4 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SITRAS 8DA11/8DA12 SF6 Insulated Switchgear for AC Traction Power Supply, Product Information	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Medium Voltage Switchgear 8DA10 Installation Instructions	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Medium Voltage Switchgear 8DA10 Operating Instructions	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Medium Voltage Switchgear 8DA10 Maintenance Instructions	4 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 16 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Contactor Relay, 2NO+2NC, AC 110V 50 HZ / 120V 60HZ, Screw Connections, Size S00	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Contactor Relay, 4NO DC 110V Screw Connections, Size S00	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Contactor AC-3 3KW/400V, 1NO, DC 24V, 0.7...1.25*US, W. Varistor, 3-pole, Size S00	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Surge Suppressor, AC 48...127V, DC 70...150V, for Mounting onto Contactors, Size S00	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Accessory for 3SB1, LED Lamp, BA9S Base, DC 22 TO 32V, Yellow	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Complete Unit Square Indicator Light, Lampholder BA9S Clear Capitals	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Output Interface, 1C/O, Screw Terminal, 24V AC/DC Housing Width 6.2mm	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Circuit-Breaker for Voltage Tr., Size 3A Frequency 16 2/3 to 60 HZ with Auxiliary Contact 1NO+1NC, Overload Release (A) 3A, Overcurrent Release (N) 20A.	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Accessory for 3VU13/16 Circuit-Breakers, Auxiliary Contacts 1NO+1NF	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	N-Type AC/DC Mini Circ.-Breaker, AC 230/400V DC 220 V, 4.5 KA, C Characteristic, Single Pole, 0.5A	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	N-Type AC/DC Mini Circ.-Breaker, AC 400V DC 440 V, 4.5 KA, C Characteristic, Double-Pole, 6A	4 of 10	Standard Operation and Maintenance Manuals



# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 17 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	N-Type AC/DC Mini Circ.-Breaker, AC 400V DC 440 V, 4.5 KA, C Characteristic, Double-Pole, 10A	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	N-Type AC/DC Mini Circ.-Breaker, AC 400V DC 440 V, 4.5 KA, C Characteristic, Double-Pole, 1.6A	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Auxiliary Contact (can be mounted on), 1NO+1NC, for 5SX2+4+5	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Auxiliary Contact for Retrofitting, 2NC, for 5SX2-5 N-Type M.C.B.S	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SITOP Power 4, Universal Line Stabilised Load Power Supply Input: 120/230 VAC, Output:24V DC/4A	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Digital Input SM 321, Optically Isolated, 16DI, 24 VDC, 20 Pin	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Digital Output, SM 322, Optically Isolated, 16DO, 24V DC, 0.5A	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, CP 340 Communication Processor with RS232C Interface (V.24)	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Interface Module IM 361 in Expansion Rack for Connection to Central Rack (IM 360), 24 V DC Supply Voltage	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC C7-364/P, Compact Unit with Integrated Components: S7-300 CPU 315, OP 17, IM 360 16 DI, 16 DO, 4 AI, 4 AO, 4 UI	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Front Connector for SIMATIC S7-300, (6ES7392-1AJ00-0AA0) with 20 Single Cores 0.5 mm <sup>2</sup> , Packing Unit =1, L= 2.5m	4 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 18 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET, OLM/P4 (A2) for PROFIBUS; W.4 BFOC Conn., Optical Link Module, for Plastic Fibre Optic Cable, 4-CH Version, with Signal Contact, High Cascading Depth	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET, CP342-5, Communications Processor for Connection of SIMATIC S7-300 to PROFIBUS, DP, S5-Compatible PG/OP and S7 Communication	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET,830-1T Connecting Cable for PROFIBUS, to Connect Data Terminals with OLM assembled with Two Sub D Male Connectors, 9-Pin, Terminated on Both Ends 1.5m	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMEAS Transducer (G)MUU for AC, 50Hz, I/p Voltage AC 100V, O/p Signal DC 4 TO 20mA, Power Supply DC 88 – 264 V DC	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Numerical Overhead Contact Line Protection Relay 50/60 HZ, Rated Current: 1A,50/60HZ AC Rated Auxiliary Voltage:60,110,125 V DC	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Numerical Overcurrent Time Protection Relay Binary Input Voltage:24 TO 250V Rated Current:1A, 50/60Hz Rated Auxiliary Voltage DC 60,110,125 V in 7XP20 Case	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Thermostat for Heating Control	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Heating Resistor 30W	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal UPCV3K 4-G-7,62	4 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 19 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal URTK/SP	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal VBST 4-FS (6-2, 8-0,8)	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Unit – U32 PSM-EG-RS232/LWL-G	4 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Unit – T11 ZKSW70	4 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>5 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Transducer, Measuring Range: 0-200 C; 4-20mA; Power Supply DC 24V	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Voltmeter 0-250 V AC, moving iron, 96*96mm, cl. 1.5	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Key Operated Switch (5NO/1NC)	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Auxiliary Relay, 3NO/1NC Contacts	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Auxiliary Relay, 4NO Contacts	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Time Delayed Relay, Off-Delay	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Local/Remote Switch, Knob, 1NO	5 of 10	Standard Operation and Maintenance Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 20 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Complete Unit 16mm Indication Light Operating Voltage AC/DC 24 V red	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Label LOCAL/REMOTE	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Label holder	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Accessory for 3SB2 Wedge-base Incandescent Lamp W2X 4.60 24V	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Accessory for 3SB2 Lamp Grip	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Reset Push Button	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Trip Relay Reset Switch Unit	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	2 NO Contacts	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Lamp 110V DC	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Indication Lamp; green; 110V	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Indication lamp; red; 110V	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Undervoltage Relay, 230V AC, 4NO	5 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 21 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Relay 2NO, 2NS; DC24V	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Circuit Breaker 200A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Motor Drive for Circuit Breaker	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 1-pole, 6A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 1-pole, 16A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 1-pole, 32A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 1-pole, 50A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 2-pole, 3A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 2-pole, 4A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 2-pole, 10A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Miniature Circuit Breaker 1-pole, 63A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Fault Contacts for MCB 5SX...	5 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 22 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Three Phase Metrosil, Stabil, Resistor 220 Ohm	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SITOP Power 4; Input: 120/230 V AC; 110 V... 350 V DC; Output 24V DC/2.5A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SITOP Power 4; Input: 120/230 V AC; 110 V... 350 V DC; Output 24V DC/4A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, ET 200 M, Distributed I/O System, Max 8 S7-300 Module	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Digital Input, Opt. Isol. 16 DI, 24 V DC. 20 Pin	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Digital Output, Opt. Isol. 16DO, Relay Cont. (2 X 8 DO)	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-300, Analogue Input, Opt, Isol. U/I/Thermocouple/Resistance	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Front Plug for SIMATIC, 20 Pole, Screw Connection	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, UR2 Rack, Centralised and Distributed with 9 Slots	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, PS 405 Power Supply, Wide Range 10A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, CPU 416-2 1.6 MB Working Memory	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, Digital Input Module, Optic. Isolated, 32 DI, 24V DC	5 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 23 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, Digital Output Module, Optic. Isolated, 32 DO. 24 V DC, 0.5A	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7-400, Front Connector with Screw Type Contact, 48-pole	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC S7 Bus Connector	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET, Optical Link Module OLM/P4	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET, CP 443-5 Extended Communications Processor for Connecting	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIMATIC NET, 830-1T Connecting Cable for PROFIBUS, 9-pin, 1.5m	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Current Comparison Protection Relay 7SD512	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Directional Overcurrent Protection Relay 7AJ512	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Overcurrent & E E/F Protection Relay 7SJ600	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Transformer Differential Protection Relay 7UT512	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Synchrocheck Relay 7VK512	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Repeater 7XV	5 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 24 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Drop Indicator Relay; with 12 indications, MR 11	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Busbar Differential Protection MCAG 34	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Transformer Temperature Supervision Relay MSF 220K	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Busbar Supervision Relay MVTP 31	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Test Block; 2 Contacts RMLG01	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Temperature Supervision SK3112	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Cubicle Heating SK3116	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Cubicle Illuminaire	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Door Switch	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Self Reset Tripping Relay TR 112	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Lock-out-Relay TR 231	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal UK5N	5 of 10	Standard Operation and Maintenance Manuals



# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 25 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal UK10N	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal UKH150	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal URTK/S	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Terminal USLKG10N	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Trip Circuit Supervision Relay XR350	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	GEAFOL Cast-resin Transformers Operating Instructions	5 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Battery Charger QE110/40 Operating Instructions	5 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>6 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Batteries, Vented Stationary Lead-acid Batteries (GroE, Ogi, OPzS) Operating Instructions	6 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	S7-400, M7-400 Programmable Controllers Module Specifications Reference Manual	6 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>7 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	S7-400 and M7-400 Programmable Controller Hardware and Installation Manual	7 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 26 of 74	SYS Corrective Maintenance Guidelines

<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>8 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	S7-400 Programmable Controller CPU 412,414,416,417 Instruction List	8 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	CP 443-5 Extended Product Information SIMATIC S7-400	8 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	ET 200M Distributed I/O Device Manual	8 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>9 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	C7-633 / C7-634 Control Systems Manual	9 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	PROFIBUS CP 342-5 Product Information SIMATIC S7-300	9 of 10	Standard Operation and Maintenance Manuals
<b>Traction Power Supply</b>	<b>40000</b>	<b>USE-PSE-40000-NA-0001-A</b>	<b>Traction Power Supply</b>	<b>10 of 10</b>	<b>Standard Operation and Maintenance Manuals</b>
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	S7-300 and M7-300 Programmable Controllers Module Specifications Reference Manual	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Medium Voltage Cable SIENOPYR, Cross Section, 2XSH 1x240 RM/25 26/45(52) kV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIENOPYR FR Power Cables, XLPE Insulation, with Circular Conductors N2XH-O 1x 150 0.6/1kV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIENOPYR FR Power Cables, XLPE Insulation, with Concentric Conductors N2XCH 4x4, RE/4	10 of 10	Standard Operation and Maintenance Manuals

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 27 of 74	SYS Corrective Maintenance Guidelines

Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	SIENOPYR FR Sheathed Cables, XLPE Insulation, NHXMH-J 7x1.5 and 3x1.5 0.6/1kV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Operating Instructions for CONNEX Cable Connectors Size 3, 36kV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP-0567-7/700, Termination for POLYMERIC Insulated Cables 52KV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP-0317-3/88, Solderless Earth Connection for Metal Shielded Termination	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP-0741-2/98, Joint for Cable with PVC/PE Oversheth Joint	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP-0346-7/98, Joints for POLYMERIC Insulated Cables 72KV	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP-0030-INT 3/98, Cable Caps for Power Cables	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Installation Instruction EPP 0001 INT 9/96, Tubing for Power Cables	10 of 10	Standard Operation and Maintenance Manuals
Traction Power Supply	40000	<b>USE-PSE-40000-NA-0001-A</b>	Mains Monitoring Module NW400	10 of 10	Standard Operation and Maintenance Manuals

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 28 of 74	SYS Corrective Maintenance Guidelines

3.2.4 Telecommunication

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
Transmission System	61000	G00.TLE.61000.YR.0100.A	Transmission System Open Transport Network (OTN)	1 of 2	Operation and Maintenance Manual
Transmission System	61000	G00.TLE.61000.YR.0101.A	OTN-N22 Node	1 of 2	Attachment 01
Transmission System	61000	G00.TLE.61000.YR.0102.A	BORA NETWORK CARD (FB-52432-1A)	1 of 2	Attachment 02
Transmission System	61000	G00.TLE.61000.YR.0103.A	OTR600I, OTR600S, OTR600L and OTR600L2 Transceiver Cards (S30824-Q68-X100, (S30824-Q68-X, (S30824-Q68-X200, and (S30824-Q68-X300	1 of 2	Attachment 03
Transmission System	61000	G00.TLE.61000.YR.0104.A	-48 V Power Supply Modules (PSY 48 V) with or without Ringing Current Generator (RG-25) (FB-52412-A and B0A and FB-52454-A)	1 of 2	Attachment 04
Transmission System	61000	G00.TLE.61000.YR.0105.A	RS485 Interface Card	1 of 2	Attachment 05
Transmission System	61000	G00.TLE.61000.YR.0106.A	Two-wire Voice Interface Cards: 12LVOI-T and 12LVOI-P (FB-52449-A and FB-52450-A)	1 of 2	Attachment 06
Transmission System	61000	G00.TLE.61000.YR.0107.A	HQAUD-M and HQAUD-S Interface Cards (FB-52462-B0A and-C0A)	1 of 2	Attachment 07
Transmission System	61000	G00.TLE.61000.YR.0108.A	Video-IN and Video-Out Interface Cards (FB-52465-A and FB-52466-A)	1 of 2	Attachment 08
Transmission System	61000	G00.TLE.61000.YR.0109.A	E1 and T1 Interface Cards (S30824-Q32-X and S30824-Q32-X100)	1 of 2	Attachment 09

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 29 of 74	SYS Corrective Maintenance Guidelines

Transmission System	61000	G00.TLE.61000.YR.0110.A	S0 Interface Cards: S0-P and S0-T (FB-52473-A and FB-52474-A)	1 of 2	Attachment 10
Transmission System	61000	G00.TLE.61000.YR.0111.A	ET100 (Fast Ethernet 10/100Mbps) Interface Card (S30824-Q61-X)	1 of 2	Attachment 11
Transmission System	61000	G00.TLE.61000.YR.0112.A	RSXMM (Multichannel-Multidrop) Interface Card (S30824-Q70-X)	1 of 2	Attachment 12
Transmission System	61000	G00.TLE.61000.YR.0113.A	Open Transport Network-OTN Introduction	1 of 2	Attachment 13
Transmission System	61000	G00.TLE.61000.YR.0114.A	Open Transport Network-OTN General Description	1 of 2	Attachment 14
Transmission System	61000	G00.TLE.61000.YR.0115.A	Open Transport Network-OTN Nodes Description	1 of 2	Attachment 15
Transmission System	61000	G00.TLE.61000.YR.0116.A	Open Transport Network-OTN Network Cards	1 of 2	Attachment 16
Transmission System	61000	G00.TLE.61000.YR.0117.A	Open Transport Network-OTN Interface Cards	1 of 2	Attachment 17
Transmission System	61000	G00.TLE.61000.YR.0118.A	OMS Training	1 of 2	Attachment 18
Transmission System	61000	G00.TLE.61000.YR.0119.A	Open Transport Network-Oms-User Manual V2.3	2 of 2	Attachment 19
Transmission System	61000	G00.TLE.61000.YR.0120.A	List of Drawings	2 of 2	Attachment 20
Transmission System	61000	G00.TLE.61000.YR.0120.A	Installation Instruction	2 of 2	Attachment 21
IP Transmission	69000	G00.OMW.M69000.YR.1001.A	IP - IP TRANSMISSION User's Manual	-	User Manual
IP Transmission	69000	G00.OMW.M69000.YR.1002.A	IP - IP TRANSMISSION Layer 3	-	User Manual
IP Transmission	69000	G00.OMW.M69000.YR.1003.A	IP - IP TRANSMISSION MOXA EDS-405A	-	User Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 30 of 74	SYS Corrective Maintenance Guidelines

IP Transmission	69000	G00.OMW.M69000.YR.1004.A	IP - IP TRANSMISSION MOXA PT 7728-7828	-	User Manual
IP Transmission	69000	D00.TLE.M69000.YU.1001.A	KLIA2 - IP TRASMISION OCC RACK LAYOUT NETWORK EQUIPMENT	-	Drawing
IP Transmission	69000	G00.TLE.M69000.YQ.1001.A	KLIA2 - IP TRASMISION VLAN PLAN	-	Drawing
IP Transmission	69000	G00.TLE.M69000.YQ.1002.A	KLIA2 - IP TRASMISION BACKBONE RING DIAGRAM	-	Drawing
IP Transmission	69000	S40.TLE.M69000.YU.1001.A	KLIA2 - IP TRASMISION STS RACK LAYOUT NETWORK EQUIPMENT	-	Drawing
IP Transmission	69000	S50.TLE.M69000.YQ.1001.A	KLIA2 - IP TRASMISION KLIA IKS SWITCH VLAN PLAN	-	Drawing
IP Transmission	69000	S50.TLE.M69000.YU.1001.A	KLIA2 - IP TRASMISION KLIA RACK LAYOUT NETWORK EQUIPMENT	-	Drawing
IP Transmission	69000	S60.TLE.M69000.YQ.1001.A	KLIA2 - IP TRASMISION KLIA2 IKS SWITCH VLAN PLAN	-	Drawing
IP Transmission	69000	S60.TLE.M69000.YU.1001.A	KLIA2 - IP TRASMISION KLIA2 RACK LAYOUT NETWORK EQUIPMENT	-	Drawing
OTN	61000	D00.TLE.M61200.YU.1001.A	DRAWING: DEPOT - OTN SYSTEM CABINET B LAYOUT	-	Drawing
OTN	61000	D00.TLE.M61200.YU.1002.A	DRAWING: DEPOT - OTN SYSTEM OTN NODE 10 FRONT VIEW	-	Drawing
OTN	61000	D00.TLE.M61200.YU.1003.A	DRAWING: DEPOT - OTN SYSTEM MAIN DISTRIBUTION FRAME LAYOUT	-	Drawing
OTN	61000	D00.TLE.M61200.YU.1004.A	DRAWING: OTN SYSTEM - MAIN DISTRIBUTION FRAME LAYOUT	-	Drawing

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 31 of 74	SYS Corrective Maintenance Guidelines

OTN	61000	G00.OMW.M61100.YR.1001.A	MANUAL: OTN Download Tool	-	Manual
OTN	61000	G00.OMW.M61400.YR.1001.A	OTN Node 22 PSU	-	Manual
OTN	61000	G00.TLE.M61100.YR.1001.A	MANUAL: OTN OMS v9.3	-	Manual
OTN	61000	G00.TLE.M61100.YU.1001.A	DRAWING: OTN SYSTEM - SERVICES LIST	-	Drawing
OTN	61000	G00.TLE.M61150.YQ.1001.A	DRAWING: OTN SYSTEM - CHANNEL DISTRIBUTION TELEPHONE-1	-	Drawing
OTN	61000	G00.TLE.M61150.YQ.1002.A	DRAWING: OTN SYSTEM - CHANNEL DISTRIBUTION TELEPHONE-2	-	Drawing
OTN	61000	G00.TLE.M61150.YQ.1003.A	DRAWING: OTN SYSTEM - CHANNEL DISTRIBUTION RADIO SYSTEM	-	Drawing
OTN	61000	G00.TLE.M61150.YQ.1004.A	DRAWING: OTN SYSTEM - CHANNEL DISTRIBUTION FOR AFC, PC-NET, FIDS	-	Drawing
OTN	61000	G00.TLE.M61500.YM.1001.A	DRAWING: OTN SYSTEM - BLOCK DIAGRAM	-	Drawing
OTN	61000	S60.TLE.M61200.YU.1001.A	DRAWING: KLIA2 - OTN SYSTEM CABINET LAYOUT	-	Drawing
OTN	61000	S60.TLE.M61200.YU.1002.A	DRAWING: KLIA2 - OTN SYSTEM OTN NODE 25 FRONT VIEW	-	Drawing
OTN	61000	S60.TLE.M61200.YU.1003.A	DRAWING: KLIA2 - OTN SYSTEM OTN NODE 26 FRONT VIEW	-	Drawing
OTN	61000	S60.TLE.M61200.YU.1004.A	DRAWING: KLIA2 - OTN SYSTEM MAIN DISTRIBUTION FRAME LAYOUT 1	-	Drawing

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 32 of 74	SYS Corrective Maintenance Guidelines

OTN	61000	S60.TLE.M61200.YU.1005.A	DRAWING: KLIA2 - OTN SYSTEM MAIN DISTRIBUTION FRAME LAYOUT 2	-	Drawing
OTN	61000	S60.TLE.M61200.YU.1006.A	DRAWING: KLIA2 - OTN SYSTEM CABINET DB	-	Drawing
Fibre Optic Cable System	62000	G00.TLE.62000.YR.0100.A	Fibre Optic Cable System	1 of 1	Operation and Maintenance Manual
Fibre Optic Cable System	62000	G00.TLE.62000.YR.0101.A	Optical Fibre Cables, Product Information	1 of 1	Attachment 01
Fibre Optic Cable	62000	G00.TLE.62000.YR.0102.A	List of Drawings and Drawings	1 of 1	Attachment 02
Cables	62000	S60.TLE.M62000.YQ.1001.A	KLIA2 CCTV CABLE PLAN	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1002.A	KLIA2 CLOCK CABLEPLAN	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1003.A	KLIA2 PUBLIC ADDRESS CABLE PLAN	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1004.A	KLIA2 FIBER CABLE PLAN FOR IT	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1005.A	KLIA2 CARD ACCESS CABLE PLAN FOR PLATFORM	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1006.A	KLIA2 CARD ACCESS CABLE PLAN - LEVEL 2	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1007.A	KLIA2 TELEPHONE AND DATA CABLEPLAN	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1008.A	KLIA2 UPS CABLE PLAN	-	Drawing
Cables	62000	S60.TLE.M62000.YQ.1009.A	KLIA2 UPS CABLE PLAN	-	Drawing
Telephone System	63000	G00.TLE.63000.YR.0100.A	Telephone System	1 of 2	Operation and Maintenance Manual



# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 33 of 74	SYS Corrective Maintenance Guidelines

Telephone System	63000	G00.TLE.63000.YR.0101.A	Installation, Connectivity, and Service Guide, Phone Mail System	1 of 2	Attachment 01
Telephone System	63000	G00.TLE.63000.YR.0102.A	HICOM-Attendant Console AC-Win 3.0, Operating Instruction/Pages: 2-65	2 of 2	Attachment 02
Telephone System	63000	G00.TLE.63000.YR.0103.A	HICOM 300E-Operating Instruction	2 of 2	Attachment 03
Telephone System	63000	G00.TLE.63000.YR.0104.A	SIEMENS-User's Guide, euroset 2015	2 of 2	Attachment 04
Telephone System	63000	G00.TLE.63000.YR.0105.A	SIEMENS-User's Guide, euroset 2005	2 of 2	Attachment 05
Telephone System	63000	G00.TLE.63000.YR.0106.A	HICOM-Cordless E, Operating Instruction	2 of 2	Attachment 06
Telephone System	63000	G00.TLE.63000.YR.0107.A	SIEMENS-Quick Reference Guide for PhonMail Users	2 of 2	Attachment 07
Telephone System	63000	G00.TLE.63000.YR.0108.A	SIEMENS-HICOM 300E/300, Tradeboard Operating Instructions	2 of 2	Attachment 08
Telephone System	63000	G00.TLE.63000.YR.0019.A	AC-WIN V3.0-Operating Instruction	2 of 2	Attachment 09
Radio System	64000	G00.TLE.64000.YR.0101.A	Radio System	1 of 5	Operation and Maintenance Manual
Radio System	64000	G00.TLE.64000.YR.0101.A	List of Drawings and Drawings	1 of 5	Attachment 01
Radio System	64000	G00.TLE.64000.YR.0102.A	Dimetra EBTS System Manual, 68P81099E05 12/1/98/	2 of 5	Attachment 02
Radio System	64000	G00.TLE.64000.YR.0103.A	Centracom Gold Series, Compact Maintenance Manual, Centracom, Gold Series-68P81095E40-O	3 of 5	Attachment 03
Radio System	64000	G00.TLE.64000.YR.0104.A	Motorola, SmartZone, Manager User's Manual, 8P81049E80-O 8/15/95/Chapters:1-11+ Appendix A-D	4 of 5	Attachment 04

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 34 of 74	SYS Corrective Maintenance Guidelines

Radio System	64000	G00.TLE.64000.YR.0105.A	EC-8000 Digroup, Tellabs (Echocanceller)	5 of 5	Attachment 05
Radio System	64000	S60.TLE.M64000.XF.1001.A	KLIA2 - RADIO SYSTEM LOCATION OF PANEL ANTENNA	-	Drawing
Radio System	64000	S60.TLE.M64000.XF.1002.A	KLIA2 - RADIO SYSTEM BRACKET FOR PANEL ANTENNA	-	Drawing
Radio System	64000	S60.TLE.M64000.XF.1003.A	KLIA2 - RADIO SYSTEM BRACKET FOR GPS ANTENNA	-	Drawing
Radio System	64000	S60.TLE.M64000.XF.1004.A	KLIA2 - RADIO SYSTEM BRACKET FOR YAFI ANTENNA	-	Drawing
Radio System	64000	S60.TLE.M64311.YR.1001.A	KLIA2 - RADIO BASE STATION LAYOUT	-	Drawing
Radio System	64000	S60.TLE.M64700.YQ.1001.A	KLIA2 - RADIO SYSTEM WITH DIVERSITY ANTENNA	-	Drawing
Radio System	64000	S60.TLE.M64741.YD.1001.A	KLIA2 - PART OF LEVEL 1 FLOOR PLAN RADIO LAYOUT	-	Drawing
Radio System	64000	S60.TLE.M64741.YD.1002.A	KLIA2 - PART OF LEVEL 2 FLOOR PLAN RADIO LAYOUT	-	Drawing
Radio System	64000	G00.OMW.M64100.YR.1001.A	OVERVIEW	-	Drawing
Radio System	64000	G00.OMW.M64100.YR.1002.A	MASTER SITE	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1003.A	MCC7500C_DispatchConsole	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1004.A	RF SITE	-	Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 35 of 74	SYS Corrective Maintenance Guidelines

Radio System	64000	G00.OMW.M64100.YR.1005.A	MANAGEMENT	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1006.A	FAULT MANAGEMENT	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1007.A	CONFIGURATION MANAGEMENT	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1008.A	RADIO AND RADIO MANAGEMENT	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1009.A	PERFORMANCE MANAGEMENT	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1010.A	BACKUP RESTORE AND UPGRADE	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1011.A	BACKUP AND RESTORE INCLUDING FRUFRE	-	Manuals
Radio System	64000	G00.OMW.M64100.YR.1012.A	TOOLS	-	Manuals
CCTV System	65000	G00.TLE.65000.YR.0100.A	Closed Circuit Television System	1 of 2	Operation and Maintenance Manual
CCTV System	65000	G00.TLE.65000.YR.0101.A	Operation and Maintenance Manual- CCTV System ,JVC-Combination Camera-TK-C675B Instruction/Pages 1-23	1 of 2	Attachment 01
CCTV System	65000	G00.TLE.65000.YR.0102.A	Come Colour Camera-TK-C675BE	1 of 2	Attachment 02
CCTV System	65000	G00.TLE.65000.YR.0103.A	GVK-217 Colour CCD Camera with integrated Power Supply Unit Operation Manual	1 of 2	Attachment 03

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 36 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.TLE.65000.YR.0104.A	GEUTEBRUCK,GVK-064/S, GVK-075/S-Hemisphere Cameras	1 of 2	Attachment 04
CCTV System	65000	G00.TLE.65000.YR.0105.A	GEUTEBRUCK-Series 300 Dustproof Housings and Accessories	1 of 2	Attachment 05
CCTV System	65000	G00.TLE.65000.YR.0106.A	KDec-300-Camera Telemetry Decoder-Description	1 of 2	Attachment 06
CCTV System	65000	G00.TLE.65000.YR.0107.A	Serie SN-40 Pan/Tilt Heads Installation/Operating Manual	1 of 2	Attachment 07
CCTV System	65000	G00.TLE.65000.YR.0108.A	Operating Instruction JVC-Colour Video Monitor/Pages: 8, Version Nov.2000 No.51766	1 of 2	Attachment 08
CCTV System	65000	G00.TLE.65000.YR.0109.A	JVC-Colour Video Monitor TM-1700PN-Instructions	1 of 2	Attachment 09
CCTV System	65000	G00.TLE.65000.YR.0110.A	Installation Instruction for Motorised Zoom Lens Series Q	1 of 2	Attachment 10
CCTV System	65000	G00.TLE.65000.YR.0111.A	1/3" Variable Focal Length Lens Type GA5V40 & GA5V40-NA	1 of 2	Attachment 11
CCTV System	65000	G00.TLE.65000.YR.0112.A	Installation Guide for Motor Zoom Lenses	1 of 2	Attachment 12
CCTV System	65000	G00.TLE.65000.YR.0113.A	Installation Guide for Motor Zoom Lenses	1 of 2	Attachment 13
CCTV System	65000	G00.TLE.65000.YR.0114.A	User's Manual Color Quad Processor	1 of 2	Attachment 14
CCTV System	65000	G00.TLE.65000.YR.0115.A	Installation Manual M-1 asynchronous Short Haul Modem	1 of 2	Attachment 15
CCTV System	65000	G00.TLE.65000.YR.0116.A	Operating Instruction / MEINBERG FUNKUHREN DCF77 PCI32	1 of 2	Attachment 16

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 37 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.TLE.65000.YR.0117.A	Teleste-Installation Instruction-CCU 001-Open Collector Alarms Card CCU 001	1 of 2	Attachment 17
CCTV System	65000	G00.TLE.65000.YR.0118.A	Teleste-Installation Instruction-CMA 011-Module Adapter CMA 011	1 of 2	Attachment 18
CCTV System	65000	G00.TLE.65000.YR.0119.A	Teleste-Installation Instruction-CMT 311, Video Transmitter	1 of 2	Attachment 19
CCTV System	65000	G00.TLE.65000.YR.0120.A	Teleste-Installation Instruction-CPS 372-Power Supply 372	1 of 2	Attachment 20
CCTV System	65000	G00.TLE.65000.YR.0121.A	Teleste-Installation Instruction-CPS 381-Power Supply 381	1 of 2	Attachment 21
CCTV System	65000	G00.TLE.65000.YR.0122.A	Teleste Document-Video Transmitter CPT 111	1 of 2	Attachment 22
CCTV System	65000	G00.TLE.65000.YR.0123.A	Teleste Document-Video Receiver CRR 113	1 of 2	Attachment 23
CCTV System	65000	G00.TLE.65000.YR.0124.A	Teleste Installation Instruction CRR 311 Video Receiver CCR 311	1 of 2	Attachment 24
CCTV System	65000	G00.TLE.65000.YR.0125.A	Teleste Installation Instruction, Installation Frame CSR 014, (Standard EMC),/	1 of 2	Attachment 25

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 38 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.TLE.65000.YR.0126.A	Design, Information and Control System, DICSY, Preliminary System Description, Version 4.02	1 of 2	Attachment 26
CCTV System	65000	G00.TLE.65000.YR.0127.A	GEUTEBRUCK-Multiscope II-Manager, Service Program for MSC2, Description	1 of 2	Attachment 27
CCTV System	65000	G00.TLE.65000.YR.0128.A	GEUTEBRUCK, CPX-24/8-SYS and CPX-48/8, Compact Video Matrix Systems, Description	2 of 2	Attachment 28
CCTV System	65000	G00.TLE.65000.YR.0129.A	Muvic-Server, Server for MUVIC-DRIVER-Description/Pages: 1-18	2 of 2	Attachment 29
CCTV System	65000	G00.TLE.65000.YR.0130.A	MULTISCOPE, Video Disc Recorder, Description for Stand alone operation, Version 2.5	2 of 2	Attachment 30
CCTV System	65000	G00.TLE.65000.YR.0131.A	Multiscope, Video Disc Recorder for system mode, Description Set-up, Version 2.07	2 of 2	Attachment 31
CCTV System	65000	G00.TLE.65000.YR.0132.A	GeViText, Configuration Surface for ViCros III, Description	2 of 2	Attachment 32
CCTV System	65000	G00.TLE.65000.YR.0133.A	CPTText, Text Programming for Compax-24/8 and Compax-48/8, Description, Version 1.10	2 of 2	Attachment 33
CCTV System	65000	G00.TLE.65000.YR.0134.A	VX3 Commands, Description of Control Commands, Version I	2 of 2	Attachment 34

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 39 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.TLE.65000.YR.0135.A	MULTIVIEW, Software for decentralised evaluation of MULTISCOPE pictures, Description	2 of 2	Attachment 35
CCTV System	65000	G00.TLE.65000.YR.0136.A	MUVIC-DRIVER, software Package for Multiple matrix Control, Description	2 of 2	Attachment 36
CCTV System	65000	G00.TLE.65000.YR.0137.A	CentreCOM AT-FS708, CentreCOM AT-FS708E, Fast Ethernet Switches, Installation Guide	2 of 2	Attachment 37
CCTV System	65000	G00.TLE.65000.YR.0138.A	GEUTEBRUCK, MULTISCOPE ii, Digital Picture Recording System, Operating Manual	2 of 2	Attachment 38
CCTV System	65000	G00.TLE.65000.YR.0139.A	aschenbrenner geraetebau gmbh, Manual, 10,5" LCD Display, Model: DAC1510/SBM/00675, ASC-No.: 00675/Pages: 1-27	2 of 2	Attachment 39
CCTV System	65000	G00.TLE.65000.YR.0140.A	Relay unit KL-STIVIS.R	2 of 2	Attachment 40
CCTV System	65000	G00.TLE.65000.YR.0141.A	List of Drawings-Drawings	2 of 2	Attachment 41
CCTV System	65000	G00.OMW.M65000.SH.1001.A	CCTV - Network Video Recorder	-	Manual
CCTV System	65000	G00.OMW.M65000.SH.1002.A	CCTV - Engineered Computer Appliance (ECA)	-	Manual

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 40 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.OMW.M65100.YR.1001.A	NUUO CCTV Manual	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1008.A	KLIA2 - NVT POWER-VIDEO-DATA CCTV PRODUCT INSTALLATION MANUAL	-	Manual
CCTV System	65000	R00.OMW.M65130.YW.1001.A	SIEMENS TRAIN NEW WIRING DIAGRAM FOR TRAINBORNE CCTV	-	Drawing
CCTV System	65000	G00.OMW.M65130.YR.1001.A	KLIA2 - GEUTEBRUCK SYSTEM MANUAL	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1002.A	KLIA2 - GEUTEBRUCK REPORTER INSTALLATION MANUAL	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1003.A	KLIA2 - GEUTEBRUCK CAM2IIP	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1004.A	KLIA2 - GEUTEBRUCK GSD-881 HIGH SPEED DOME CAMERA	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1005.A	KLIA2 - GEUTEBRUCK GVC-435, GVC-435/DC COLOUR VIDEO CAMERA	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1006.A	KLIA2 - NEC MULTISYNC LCD175M USER MANUAL	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1007.A	KLIA2 - QUADRANT DIVIDER BT03 & BT03M OPERATING MANUAL	-	Manual
CCTV System	65000	G00.OMW.M65130.YR.1008.A	KLIA2 - NVT POWER-VIDEO-DATA CCTV PRODUCT INSTALLATION MANUAL	-	Manual



**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 41 of 74	SYS Corrective Maintenance Guidelines

CCTV System	65000	G00.OMW.M65130.YR.1009.A	KLIA2 - GFD-621/DN DAY/NIGHT FIXDOME CAMERA	-	Manual
PA System	66000	G00.TLE.66000.YR.0100.A	Public Address System	1 of 2	Operation and Maintenance Manual
PA System	66000	G00.TLE.66000.YR.0101.A	av digital, VARIODYN, Central Processor Unit CPU-SC-A578, C98392-A9702-A578/	1 of 2	Attachment 01
PA System	66000	G00.TLE.66000.YR.0102.A	SIEMENS, VARIODYN-Distribution Board, C98392-A9702-A951	1 of 2	Attachment 02
PA System	66000	G00.TLE.66000.YR.0103.A	SIEMENS, VARIODYN-Bus Board, C98392-A9702-A952	1 of 2	Attachment 03
PA System	66000	G00.TLE.66000.YR.0104.A	SIEMENS-VARIODYN, Double pre- amplifier P, balanced, C98392- A9702-A137	1 of 2	Attachment 04
PA System	66000	G00.TLE.66000.YR.0105.A	SIEMENS-VARIODYN, Mixing Amplifier MA, C98392-A9702-A127	1 of 2	Attachment 05
PA System	66000	G00.TLE.66000.YR.0106.A	SIEMENS-VARIODYN, Gong and Alarmtone Generator 2 SG, C98392- A9702-A381	1 of 2	Attachment 06
PA System	66000	G00.TLE.66000.YR.0107.A	SIEMENS-VARIODYN, Matrix Module, C98392-A9702-A656	1 of 2	Attachment 07
PA System	66000	G00.TLE.66000.YR.0108.A	SIEMENS-VARIODYN, I/O module 2, C98392-A9702-A626	1 of 2	Attachment 08
PA System	66000	G00.TLE.66000.YR.0109.A	SIEMENS-VARIODYN, Interface Module 2, C98392-A9702-A622	1 of 2	Attachment 09

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 42 of 74	SYS Corrective Maintenance Guidelines

PA System	66000	G00.TLE.66000.YR.0110.A	SIEMENS-VARIODYN, Terminal Distributor, C98392-A9702-A916	1 of 2	Attachment 10
PA System	66000	G00.TLE.66000.YR.0111.A	SIEMENS-VARIODYN, Terminal Distributor 4 with Relais, C98392-A9702-A918	1 of 2	Attachment 11
PA System	66000	G00.TLE.66000.YR.0112.A	SIEMENS-VARIODYN, Interface Box , C98392-A9702-A956	1 of 2	Attachment 12
PA System	66000	G00.TLE.66000.YR.0113.A	VARIODYN 3000, Operating Instruction for Central Control Processor-A577 with System Control V7.02	1 of 2	Attachment 13
PA System	66000	G00.TLE.66000.YR.0114.A	Express Rail Link-PA System, Operating Manual PAMMI	1 of 2	Attachment 14
PA System	66000	G00.TLE.66000.YR.0115.A	Express Rail Link-PA System, Functional Description	1 of 2	Attachment 15
PA System	66000	G00.TLE.66000.YR.0116.A	Operating Manual (Hardware), Automatic volume control AVC2, C98392-A9702-A562	1 of 2	Attachment 16
PA System	66000	G00.TLE.66000.YR.0117.A	SCENIC/SCENIC xB/Pages: 1-55	1 of 2	Attachment 17
PA System	66000	G00.TLE.66000.YR.0118.A	Dustproof Long-life Computer for Desktop and 19" Rack with space for 6 devices	2 of 2	Attachment 18
PA System	66000	G00.TLE.66000.YR.0119.A	PCLD-782/782B, 16/24-channel Opto-isolated D/I Boards	2 of 2	Attachment 19
PA System	66000	G00.TLE.66000.YR.0120.A	PCLD-782/782B, 16/24-channel Relay Output Boards	2 of 2	Attachment 20

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 43 of 74	SYS Corrective Maintenance Guidelines

PA System	66000	G00.TLE.66000.YR.0121.A	Digigram-PCX 22-Professional Audio Card, User`s Manual	2 of 2	Attachment 21
PA System	66000	G00.TLE.66000.YR.0122..A	Digigram-PCX 924-Professional Audio Card, User`s Manual	2 of 2	Attachment 22
PA System	66000	G00.TLE.66000.YR.0123.A	Avocent-Switchview, Installer/User Guide	2 of 2	Attachment 23
PA System	66000	G00.TLE.66000.YR.0124.A	D-Link 10Base-T Ethernet Mini Hubs, Models DE-809TP, DE-809TC, User Guide	2 of 2	Attachment 24
PA System	66000	G00.TLE.66000.YR.0125.A	MicroLink ISDN/TLV.34, User`s Manual	2 of 2	Attachment 25
PA System	66000	G00.TLE.66000.YR.0126.A	Feedback Destroyer pro, DSP1124P, User`s Manual, Version 1.0 February 2001	2 of 2	Attachment 26
PA System	66000	G00.TLE.66000.YR.0127.A	Rane-Operation Manual ME15B/	2 of 2	Attachment 27
PA System	66000	G00.TLE.66000.YR.0128.A	Yamaha-D5000, Operating Manual	2 of 2	Attachment 28
PA System	66000	G00.TLE.66000.YR.0129.A	List of Drawings and Drawings	2 of 2	Attachment 29
PA System	66000	G00.OMW.M66100.YR.1001.A	PA - Aex VN 12 Network System Manager	-	Manuals
PA System	66000	G00.OMW.M66100.YR.1002.A	PA - Aex VN 21 Network Paging Station	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1001.A	PA - System Configuration	-	Manuals

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 44 of 74	SYS Corrective Maintenance Guidelines

PA System	66000	G00.OMW.M66150.YR.1002.A	PA - Cabinet Setting KLIA	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1003.A	PA - Cabinet Setting KLIA2	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1004.A	PA - Aex PB 1000 Series Power Amplifier Op Manual	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1005.A	PA - Aex PS 05 24Vdc Power Supply	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1006.A	PA - Aex VA415 Column Speaker	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1007.A	PA - AEX VN 44 4 channel insert	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1008.A	PA - AEX VN 64A 4 channel extract	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1009.A	PA - Toa DPL2Digital Ambient Noise Controller	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1010.A	PA - KLIA ERL Pa system ip address list	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1011.A	PA - Aex AM 10 Monitor Panel	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1012.A	PA - Aex CE565 Ceiling Speaker	-	Manuals
PA System	66000	G00.OMW.M66150.YR.1013.A	PA - Aex LA 08 Integrated Supervisory Unit	-	Manuals
Clock System	67000	G00.TLE.67000.YR.0100.A	Centralised Clock system	1 of 1	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 45 of 74	SYS Corrective Maintenance Guidelines

Clock System	67000	G00.TLE.67000.YR.0101.A	Hopf Elektronik GmbH Technical Description, "Kuala Lumpur", Version 01.00/1-11 Doc.-No.: G00.TLE.67000.YR.0101.A	1 of 1	Attachment 01
Clock System	67000	G00.TLE.67000.YR.0102.A	Hopf Elektronik GmbH Technical Description, "General Information on the System Appendix GPS", Version 01.01/1-9 Doc.-No.: G00.TLE.67000.YR.0102.A	1 of 1	Attachment 02
Clock System	67000	G00.TLE.67000.YR.0103.A	Hopf Elektronik GmbH Technical Description, "What is GPS", Version 01.00/1-6 Doc.-No.: G00.TLE.67000.YR.0103.A	1 of 1	Attachment 03
Clock System	67000	G00.TLE.67000.YR.0104.A	Hopf Elektronik GmbH Technical Description, "Satellite Radio Clock 7001 GPS", Version 08.00/1-38 Doc.-No.: G00.TLE.67000.YR.0104.A	1 of 1	Attachment 04
Clock System	67000	G00.TLE.67000.YR.0105.A	Position Grid –Kuala Lumpur, System for OCC, Dwg.-No.: ZA00091101/1-2 Doc.-No.: G00.TLE.67000.YR.0105.A	1 of 1	Attachment 05
Clock System	67000	G00.TLE.67000.YR.0106.A	Position Grid –Kuala Lumpur, System for KLS, Dwg.-No.: ZA00091102/1-2 Doc.-No.: G00.TLE.67000.YR.0106.A	1 of 1	Attachment 06
Clock System	67000	G00.TLE.67000.YR.0107.A	Position Grid–Kuala Lumpur, System for BTS, Dwg.-No.: ZA00091103/1-2 Doc.-No.: G00.TLE.67000.YR.0107.A	1 of 1	Attachment 07
Clock System	67000	G00.TLE.67000.YR.0108.A	Position Grid –Kuala Lumpur, System for TPS, Dwg.-No.: ZA00091104/1-2 Doc.-No.: G00.TLE.67000.YR.0108.A	1 of 1	Attachment 08
Clock System	67000	G00.TLE.67000.YR.0109.A	Position Grid–Kuala Lumpur, System for PJS, Dwg.-No.: ZA00091105/1-2 Doc.-No.: G00.TLE.67000.YR.0109.A	1 of 1	Attachment 09
Clock System	67000	G00.TLE.67000.YR.0110.A	Position Grid –Kuala Lumpur, System for STS, Dwg.-No.: ZA00091106/1-2 Doc.-No.: G00.TLE.67000.YR.0110.A	1 of 1	Attachment 10
Clock System	67000	G00.TLE.67000.YR.0111.A	Position Grid –Kuala Lumpur, System for KLIA, Dwg.-No.: ZA00091107/1-2 Doc.-No.: G00.TLE.67000.YR.0111.A	1 of 1	Attachment 11

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 46 of 74	SYS Corrective Maintenance Guidelines

Clock System	67000	G00.TLE.67000.YR.0112.A	Hopf Elektronik GmbH Technical Description, "DCF Radio Controlled Clock 6855", Version 07.00/1-60 Doc.-No.: G00.TLE.67000.YR.0112.A	1 of 1	Attachment 12
Clock System	67000	G00.TLE.67000.YR.0113.A	Hopf Elektronik GmbH Technical Description, "Master Clock Board with two synchronous Clocks 7406", Version 01.00/1-14 Doc.-No.: G00.TLE.67000.YR.0113.A	1 of 1	Attachment 13
Clock System	67000	G00.TLE.67000.YR.0114.A	Hopf Elektronik GmbH Technical Description, "LAN Board 7270", Version 03.00/1-14 Doc.-No.: G00.TLE.67000.YR.0114.A	1 of 1	Attachment 14
Clock System	67000	G00.TLE.67000.YR.0115.A	Hopf Elektronik GmbH Technical Description, "Interface Board 7245", Version.06.00/1-41 Doc.-No.: G00.TLE.67000.YR.0115.A	1 of 1	Attachment 15
Clock System	67000	G00.TLE.67000.YR.0116.A	Hopf Elektronik GmbH Technical Description, "Optical Coupler and Relay Board 7201/7221", Version16.00/1-54 Doc.-No.: G00.TLE.67000.YR.0116.A	1 of 1	Attachment 16
Clock System	67000	G00.TLE.67000.YR.0117.A	Hopf Elektronik GmbH Technical Description, "Optical Coupler and Relay Board 7112/7121", Version19.00/1-35 Doc.-No.: G00.TLE.67000.YR.0117.A	1 of 1	Attachment 17
Clock System	67000	G00.TLE.67000.YR.0118.A	Board 6855 Block Diagram; Dwg. No.: ZC97082801, Sheets:1 Doc.-No.: G00.TLE.67000.YR.0118.A	1 of 1	Attachment 18
Clock System	67000	G00.TLE.67000.YR.0119.A	Board 7015 Block Diagram; Dwg. No.: ZC970507001, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0119.A	1 of 1	Attachment 19
Clock System	67000	G00.TLE.67000.YR.0120.A	Board 7121 Block Diagram; Dwg. No.: ZC97051301, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0120.A	1 of 1	Attachment 20

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 47 of 74	SYS Corrective Maintenance Guidelines

Clock System	67000	G00.TLE.67000.YR.0121.A	Board 7201 Block Diagram; Dwg. No.: 7201.cdr, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0121.A	1 of 1	Attachment 21
Clock System	67000	G00.TLE.67000.YR.0122..A	Board 7245 Block Diagram; Dwg. No.: ZC97050705, 1 Doc.-No.: G00.TLE.67000.YR.0122.A	1 of 1	Attachment 22
Clock System	67000	G00.TLE.67000.YR.0123.A	Board 7406 Block Diagram; Dwg. No.: ZC00022201, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0123.A	1 of 1	Attachment 23
Clock System	67000	G00.TLE.67000.YR.0124.A	Board 6855 Circuit Diagram; Dwg. No.: ZA98022301, Sheets: 2 Doc.-No.: G00.TLE.67000.YR.0124.A	1 of 1	Attachment 24
Clock System	67000	G00.TLE.67000.YR.0125.A	Board 7015 Circuit Diagram; Dwg. No.: 007015010102, Sheets: 3 Doc.-No.: G00.TLE.67000.YR.0125.A	1 of 1	Attachment 25
Clock System	67000	G00.TLE.67000.YR.0126.A	Board 7221 Circuit Diagram; Dwg. No.: ZA95070502, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0126.A	1 of 1	Attachment 26
Clock System	67000	G00.TLE.67000.YR.0127.A	Board 7201 Circuit Diagram; Dwg. No.: .ZA95070502, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0127.A	1 of 1	Attachment 27
Clock System	67000	G00.TLE.67000.YR.0128.A	Board 7245 Circuit Diagram; Dwg. No.: 7245Z95071101, Sheets: 1 Doc.-No.: G00.TLE.67000.YR.0128.A	1 of 1	Attachment 28
Clock System	67000	G00.TLE.67000.YR.0129.A	Board 7270 Circuit Diagram; Dwg. No.: ZA00030101, ZA00030102, Sheets: 3 Doc.-No.: G00.TLE.67000.YR.0129.A	1 of 1	Attachment 29

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 48 of 74	SYS Corrective Maintenance Guidelines

Clock System	67000	G00.TLE.67000.YR.0130.A	Board 7406 Circuit Diagram; Dwg. No.: ZA00012001, ZA00012002, Sheets: 2 Doc.-No.: G00.TLE.67000.YR.0130.A	1 of 1	Attachment 30
Clock System	67000	G00.TLE.67000.YR.0131.A	Serial Interface Board (Schnittstellen fuer)7201: NTP, hopf elektronik/1-2 Doc.-No.: G00.TLE.67000.YR.0131.A	1 of 1	Attachment 31
Clock System	67000	G00.TLE.67000.YR.0132..A	Serial Interface Board (Schnittstellen fuer)7245, hopf elektronik/1-2 Doc.-No.: G00.TLE.67000.YR.0132.A	1 of 1	Attachment 32
Clock System	67000	G00.TLE.67000.YR.0133.A	Master Clock Board (Hauptuhrenkarte)7406, hopf elektronik, Setting for: synchronous line with second pulse/1-2 Doc.-No.: G00.TLE.67000.YR.0133.A	1 of 1	Attachment 33
Clock System	67000	G00.TLE.67000.YR.0134.A	Master Clock Board (Hauptuhrenkarte)7406, hopf elektronik, Setting for: 2 minute lines/1-2 Doc.-No.: G00.TLE.67000.YR.0134.A	1 of 1	Attachment 34
Clock System	67000	G00.TLE.67000.YR.0135.A	List of Drawings	1 of 1	Attachment 35
Clock System	67000	S60.OMW.M67000.YR.1001.A	Digital Clock Manual	-	Manuals



**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 49 of 74	SYS Corrective Maintenance Guidelines

Clock System	67000	S60.TLE.M67000.YK.1001.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N404 PRODUCT LAYOUT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1002.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N404 MOUNTING CONCEPT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1003.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N406 PRODUCT LAYOUT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1004.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N406 MOUNTING CONCEPT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1005.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N704 PRODUCT LAYOUT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1006.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N704 MOUNTING CONCEPT	-	Drawing
Clock System	67000	S60.TLE.M67000.YK.1007.A	KLIA2 - CLOCK SYSTEM NETWORK TIME DISPLAY N704 CEILING HUNG MOUNTING CONCEPT	-	Drawing
UPS system	68000	G00.TLE.68000.YR.0101.A	Uninterruptible Power Supply System (UPS)	1 of 1	Operation and Maintenance Manual
UPS system	68000	G00.TLE.68000.YR.0101.A	SIEMENS Masterguard, UPS Series E 6-10kVA	1 of 1	Attachment 01

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 50 of 74	SYS Corrective Maintenance Guidelines

UPS system	68000	G00.TLE.68000.YR.0102.A	AcBel, -48V/10A/60A Pony System- 1.6m Cabinet	1 of 1	Attachment 02
UPS system	68000	G00.TLE.68000.YR.0103.A	Cabinet Layout Drawing, RECT SYS DRW of 07A-AAAB (1).2- 48V/10A/60A 6xRECT	1 of 1	Attachment 03
UPS system	68000	G00.TLE.68000.YR.0104.A	Principle of Operation	1 of 1	Attachment 04
UPS system	68000	G00.TLE.68000.YR.0105.A	Block Diagram	1 of 1	Attachment 05
UPS system	68000	G00.TLE.68000.YR.0106.A	Operation Instruction	1 of 1	Attachment 06
UPS system	68000	S60.OMW.M68100.YR.1001.A	UPS - ITA POD User Manual	-	Manual
UPS system	68000	S60.OMW.M68100.YR.1002.A	UPS - Liebert GXTMT Plus - UserManual (Simplified)	-	Manual
UPS system	68000	S60.OMW.M68100.YR.1003.A	Liebert GXTMT Plus - UserManual (Simplified)	-	Manual
UPS system	68000	S60.TLE.M68000.YS.1001.A	KLIA2 - 10kVA ELECTRICAL SINGLE LINE DIAGRAM (SCH 10KVA	-	Drawing
UPS system	68000	S60.TLE.M68000.YS.1002.A	KLIA2 - UPS OVERALL BLOCK DIAGRAM FOR ITA 10kVA / 9KW	-	Drawing

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 51 of 74	SYS Corrective Maintenance Guidelines

UPS system	68000	S60.TLE.M68000.YS.1003.A	KLIA2 - UPS 1 kVA ELECTRICAL SINGLE LINE DIAGRAM & ELECTRICAL BLOCK DIAGRAM (SCH 1KVA)	-	Drawing
UPS system	68000	S60.TLE.M68000.YU.1001.A	KLIA2 - UPS ISOMETRIC VIEW FOR 10kVA UPS	-	Drawing
UPS system	68000	S60.TLE.M68000.YU.1002.A	KLIA2 - UPS ISOMETRIC VIEW FOR 1kVA UPS	-	Drawing
UPS system	68000	S60.TLE.M68000.YV.1001.A	KLIA2 - UPS LAYOUT PLAN FOR BATTERY CABINET & BATTERY TERMINAL CONNECTION - 10kVA UPS	-	Drawing
UPS system	68000	S60.TLE.M68000.YV.1002.A	KLIA2 - UPS LAYOUT PLAN FOR BATTERY CABINET & BATTERY TERMINAL CONNECTION - 1kVA UPS	-	Drawing
SCADA system	58000	G00-SCE-15200-NA-0001-A	VICOS P500 Manual	2 of 10	SCADA Operation Manual
SCADA system	58000	G00-SCE-15300-PG-0001-A	SCADA Maintenance Manual / SCADA Software Manual	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15300-PG-0001-A	SCADA Maintenance Manual	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NF-0001-A	Windows NT Setup from Fujitsu SIEMENS Computer	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NF-0003-A	IEC 870-2-101 Telegram Structure	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NA-0003-A	Celcius 400/600 Computer Manual	3 of 10	SCADA Maintenance Manual / SCADA Software Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 52 of 74	SYS Corrective Maintenance Guidelines

SCADA system	58000	G00-SCE-15200-NA-0014-A	Computer Graphic Card MGA G100 / PRODUCTIVA from MATROX	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NA-0015-A	EtherLink PCI Network Interface Card from 3Com	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NA-0016-A	Audio Board D1133	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NA-0017-A	CD-ROM Drive	3 of 10	SCADA Maintenance Manual / SCADA Software Manual
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	4 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0006-A	21 P3 Monitor Manual from Fujitsu SIEMENS Computer	4 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0007-A	MCM 17 P2 Monitor Manual from Fujitsu SIEMENS Computer	4 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0004-A	Lifebook E Series Easy Guide from Fujitsu SIEMENS Computer	4 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	5 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0008-A	Intel NetportExpress Print Server Setup Guide	5 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0010-A	Printer HPDeskjet 895Cxi User's Guide	5 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0011-A	Printer HP Laserjet 2100M User Guide	5 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	6 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0009-A	Printer Canon BJC-5500 User's Guide	6 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	7 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0013-A	Telecontrol Interface TCI Technical Description Cover	7 of 10	SCADA Standard Equipment

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 53 of 74	SYS Corrective Maintenance Guidelines

SCADA system	58000	G00-SCE-15200-NA-0013-A	Telecontrol Interface TCI Technical Description	7 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0012-A	HUB AT-3012 SL Installation Guide from Allied Telesysn International	7 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0020-A	SIMATIC NET Profibus CP 342-5 Product Information	7 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0005-A	UPS HF Top Line 930's User's Manual from Meta Systems	7 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	8 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0018-A	S7-300 Programmable Controller Hardware and Installation Manual	8 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-00XX-A	SCADA Standard Equipment	9 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-15200-NA-0019-A	S7-300 Programmable Controller Module Specification Reference	9 of 10	SCADA Standard Equipment
SCADA system	58000	G00-SCE-582**-PB-00XX-A	SCADA Parts Catalogue	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0001-A	Celcius 620 Workstation Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0002-A	21P3 Monitor Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0003-A	MCM 17 P2 Monitor Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0004-A	Lifebook E6650 Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0005-A	Intel NetportExpress Print Server Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0006-A	Canon BJC-5500 Colour Bubble Jet Printer Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0007-A	HPDeskjet 895Cxi Printer Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0008-A	HP Laserjet 2100M Printer Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0009-A	HUB AT-3012 SL Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58210-PB-0010-A	PS-407 Power Supply Module Technical Data	10 of 10	SCADA Parts Catalogue

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 54 of 74	SYS Corrective Maintenance Guidelines

SCADA system	58000	G00-SCE-58220-PB-0001-A	PS-307 Power Supply Module Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0002-A	CPI 315 Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0003-A	TIM 3V Transmission Processor Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0004-A	SM 321 Digital Input Module Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0005-A	SM 322 Digital Output Module Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0006-A	Phoenix Interface Converter RS232/RS422 Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0007-A	Phoenix MT V11 Module Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0008-A	CP 343-4 Communication Processor Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0009-A	Optical Link Module (OLM) Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0010-A	DEHNguard 275 Single Pole Surge Arrester Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00-SCE-58220-PB-0011A	SMAC Control Unit for Mast Mounted OCL Switches Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	68000	G00-SCE-58220-PB-0012-A	UPS HF Top Line 930 Technical Data	10 of 10	SCADA Parts Catalogue
SCADA system	58000	G00.OMW.M58000.YR.1001.A	SCADA - SCADA SMART RELAY ioLogik E2200	-	Data Sheet
SCADA system	58000	G00.OMW.M58000.YR.1002.A	SCADA - SCADA SMART RELAY Click&Go	-	Data Sheet
SCADA system	58000	G00.OMW.M58000.YR.1003.A	SCADA - SCADA SMART RELAY Data Sheet	-	Data Sheet
SCADA system	58000	G00.SCE.M58000.YQ.1001.A	KLIA2 - SCADA SYSTEM IO SIGNAL DIAGRAM	-	Drawing
SCADA system	58000	G00.SCE.M58000.YQ.1002.A	KLIA2 - SCADA SYSTEM IO SIGNAL DIAGRAM	-	Drawing
SCADA system	58000	G00.SCE.M58000.YU.1001.A	KLIA2 - SCADA SYSTEM KLIA EXPRESS IO BOX CABINET LAYOUT	-	Drawing

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 55 of 74	SYS Corrective Maintenance Guidelines

SCADA system	58000	S50.SCE.M58000.YQ.1001.A	KLIA2 - SCADA SYSTEM KLIA IO BOX SETUP 1 EQUIPMENT WIRING DIAGRAM	-	Drawing
SCADA system	58000	S50.SCE.M58000.YU.1001.A	KLIA2 - SCADA SYSTEM KLIA IO BOX SETUP 1 CABINET LAYOUT WITH EQUIPMENT	-	Drawing
SCADA system	58000	S60.SCE.M58000.YQ.1001.A	KLIA2 - SCADA SYSTEM KLIA2 IO BOX SETUP 1 EQUIPMENT WIRING DIAGRAM	-	Drawing
SCADA system	58000	S60.SCE.M58000.YU.1001.A	KLIA2 - SCADA SYSTEM KLIA2 IO BOX SETUP 1 CABINET LAYOUT WITH EQUIPMENT	-	Drawing
Card Access System	24000	D00.TLE.M24000.SH.1001.A	ELID CARD ACCESS SYSTEM TRAINING	-	User guide
Card Access System	24000	D00.TLE.M24000.YD.1001.A	Card Access ADM - GF Layout	-	Drawing
Card Access System	24000	D00.TLE.M24000.YD.1002.A	Card Access ADM - Level 1 <b>Layout</b>	-	Drawing
Card Access System	24000	D00.TLE.M24000.YD.1003.A	Card Access MWS – GF <b>Layout</b>	-	Drawing
Card Access System	24000	D00.TLE.M24000.YD.1004.A	Card Access MWS - Level 1 <b>Layout</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1001.A	Card Access Overview – Overall <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1002.A	Card Access Overview – KLS <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1003.A	Card Access Overview - BTS, XCR, TPS & PCS <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1004.A	Card Access Overview – Depot <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1005.A	Card Access Overview – STS <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1006.A	Card Access Overview - KLIA <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1007.A	Card Access Overview - KLIA2 <b>Single Line Diagram</b>	-	Drawing
Card Access System	24000	G00.TLE.M24000.YQ.1008.A	Card Access Device Tag name - KLS to STS	-	User manual

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 56 of 74	SYS Corrective Maintenance Guidelines

Card Access System	24000	G00.TLE.M24000.YQ.1009.A	Card Access Tag Name - Depot & KLIA1	-	User manual
Card Access System	24000	G00.TLE.M24000.YQ.1010.A	Card Access Tag Name - KLIA2	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1001.A	EL5030 Installation Manual	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1002.A	EL5030 Logical Configuration Manual	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1003.A	EL5030 Telnet Guide	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1004.A	MatrixV Software Installation Guide	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1005.A	MatrixV Software Launching Guide	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1006.A	MatrixV System Walkthrough	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1007.A	MatrixV Operation & Maintenance	-	User manual
Card Access System	24000	G00.OMW.M24000.PG.1008.A	MatrixV Advanced Guide	-	User manual
Card Access System	24000	G00.OMW.M24000.DC.1001.A	Card Access System Technical Data Spec	-	User manual
Card Access System	24000	S60.OMW.M24000.PG.1001.A	PoleSwing Turnstile User Manual	-	User manual



# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 57 of 74	SYS Corrective Maintenance Guidelines

## 3.2.5 Signalling

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
Signalling System	50000	G00-INT-50610-CE-0004-B	"Signalling Principles System Definition"	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50610-CE-0003-B	- Operation Manual "Signals Aspects and Principles"	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50670-PG-0001-A	- Maintenance Manual "Service Concept"	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50610-PB-0001-A	- Signalling 50000 Special Tools	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50610-PB-0002-A	Parts Catalogue (Down to Repair Unit)	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50610-PB-0003-A	Spare Parts List (Recommended Spares)	Vol 1	Operation and Maintenance Manual
Signalling System	50000	G00-INT-50620-QF-0022-C	SAR Journal based on the lot Signalling	Vol 1	Operation and Maintenance Manual
PLC	51000	G00-INT-51210-PG-0001-A	Maintenance Manual "Programmable Logic Controller"	Vol 2	Operation and Maintenance Manual
Interlocking Do70-E	51000	G00-INT-51220-PG-0001-A (Manufacturer's file HTA 191/12)	- Maintenance Manual "Electrical Equipment Safety"	Vol 3	Operation and Maintenance Manual
Interlocking Do70-E	51000	G00-INT-51220-PG-0002-B	- Maintenance Manual "Do70-E"	Vol 3	Operation and Maintenance Manual
Interlocking Do70-E	51000	G00-INT-51220-PG-0003-A (Manufacturer's file JGL300)	- Maintenance Manual "Do70-E Typical Circuit"	Vol 3	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 58 of 74	SYS Corrective Maintenance Guidelines

Interlocking Do70-E	51000	G00-INT-51230-NA-0001-A (Manufacturer's file HTZ 239/706)	- Operational Manual "MSTT-DigIO/MSTT-DigIO"	Vol 3	Operation and Maintenance Manual
Interlocking Do70-E	51000	G00-INT-51230-NA-0002-A (Manufacturer's file HTA 536/11)	- Operation Manual "PSION Operating device for MSTT Signal"	Vol 3	Operation and Maintenance Manual
Interlocking Do70-E	51000	G00-INT-51240-PG-0001-A	- Maintenance Manual "Power Supply"	Vol 3	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-NA-0001-A (Manufacturer's file A52830-C7-A1-3-7620)	- Operation Manual "S700V Point Machine"	Vol 4	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-NA-0002-A	- Operation Manual "SIWES 5 Point Control System"	Vol 4	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-NA-0003-A (Manufacturer's file A25000-X22-Q9-2-7620)	- Operation Manual "SIMAX ELP 319 End Position Detector"	Vol 4	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-NA-0004-A (Manufacturer's file HTA 528/21)	- Operation Manual "Latching Lock CKA12"	Vol 4	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-NA-0005-A (Manufacturer's file 501035 OI 22 11.93)	- Operation Manual "CKA12-S700V Integrated Point Operation System"	Vol 4	Operation and Maintenance Manual
Point Machine	52000	G00-INT-52250-PG-0001-A	- Maintenance Manual "Pawl Point Lock CKA12" Instruction for Replacing Pawl	Vol 4	Operation and Maintenance Manual
Axle Counter	52000	G00-INT-52320-NA-0001-A	- Operation Manual "Mounting Instruction for Lightning Protection BSI 180-K"	Vol 5	Operation and Maintenance Manual
Axle Counter	52000	G00-INT-52320-NA-0002-A	- Operational Manual "Technical Documentation for the Axle Counter System AZF"	Vol 5	Operation and Maintenance Manual
Axle Counter	52000	G00-INT-52320-PG-0001-A	Maintenance Manual "Installation and Maintenance for the wheel Sensor RSR 180"	Vol 5	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 59 of 74	SYS Corrective Maintenance Guidelines

TMS	53000	G00-INT-53070-NA-0001-A	- Operation Manual "Interlocking Unit Do70-E (Iltis Instruction Manual B)"	Vol 6	Operation and Maintenance Manual
TMS	53000	G00-INT-53070-NA-0002-A (Manufacturer's file HTA 580/11)	- Operation Manual "ILTIS - Train Data Base Operating"	Vol 6	Operation and Maintenance Manual
TMS	53000	G00-INT-53070-NA-0003-A (Manufacturer's file HTA xyz/11)	- Operation Manual "ILTIS Route Setting"	Vol 6	Operation and Maintenance Manual
TMS	53000	G00-INT-53070-NA-0004-A (Manufacturer's file HTA 603/12)	- Operation Manual "Time Distance Diagram"	Vol 6	Operation and Maintenance Manual
TMS	53000	G00-INT-53510-YR-0003-C	- Operation Manual "Do70-E Symbol Catalogue"	Vol 6	Operation and Maintenance Manual
TMS	53000	G00-INT-53070-PG-0001-A	- Maintenance Manual "Interduction to the MXU Submenu"	Vol 6	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1001.A	Service Maintenance with ILTIS N Explorer	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1002.A	- System Description ILTIS N	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1003.A	- Manual Train Data Editor for Operator	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1004.A	- Data Transfer Tools guideline	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1005.A	- Installation and Configuration of the ILTIS data transfer tool	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1006.A	- Maintenance workplace data transfer security concept	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1007.A	- ILTIS Software Configuration Cell CST	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1008.A	- Manual for Automatic Route Setting	-	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 60 of 74	SYS Corrective Maintenance Guidelines

TMS – ILTIS	53000	G00.OMW.M53000.CZ.1009.A	- Task Description ILTIS N	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1010.A	- IXL Standard Operation for operator	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1011.A	- Corrective Maintenance Manual for ILTIS N	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1012.A	- Additional Functions for Maintainer	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1013.A	- Commission and Decommission of Printers	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1014.A	- Commission and Decommission of Workplaces	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1015.A	- Exchange Manual for ILTIS N LAN-Equipment	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1016.A	- Manual TTS Maintenance for Operator	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1017.A	- System-Operation for Operator	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1018.A	- Element List Bandar Tasik Selatan	-	Operation and Maintenance Manual
TMS – ILTIS	53000	G00.OMW.M53000.CZ.1019.A	- Element List Crossover	-	Operation and Maintenance Manual
ATP	54000	G00-INT-54080-PG-0001-A (Manufacturer's file HTA 403.4)	Maintenance Manual "Interlocking Equipment"	Vol 7	Operation and Maintenance Manual
ATP	54000	G00-INT-54080-PG-0002-A (Manufacturer's file HTA 404.4)	Maintenance Manual "Transmission Equipment"	Vol 7	Operation and Maintenance Manual
ATP	54000	G00-INT-54080-PG-0003-A (Manufacturer's file HTA 405.4)	Maintenance Manual "Trainborne Equipment"	Vol 7	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 61 of 74	SYS Corrective Maintenance Guidelines

PIDS	55000	G00-INT-55080-NA-0001-A (Manufacturer's file HTA 601/12)	- Operation Manual "ILTIS - FIA"	Vol 8	Operation and Maintenance Manual
PIDS	55000	G00-INT-55080-PG-0001-A (Manufacturer's file SaF GmbH - Kassel, Germany)	- Maintenance Manual "ERL - FIA System"	Vol 8	Operation and Maintenance Manual
PIDS Industronics	55000	G00.OWM.M55000.CZ.1001.A	- Industronics PIDS Operations Manual	-	Operation and Maintenance Manual
PIDS Industronics	55000	G00.OWM.M55000.CZ.1002.A	- Industronics PIDS & Clock Hardware Maintenance Training Manual	-	Operation and Maintenance Manual
PIDS Industronics	55000	S50.INT.M55000.YD.1001.A	- KLIA - PIDS ERL Platform Part Of Ground Floor Plan	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YD.1002.A	- KLIA2 - PIDS Floor Plan Level 2	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YD.1001.A	- KLIA2 - PIDS System Floor Plan (Level 1)	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YQ.1001.A	- KLIA2 - PIDS System Layout	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.YQ.1001.A	- KLIA - PIDS System Layout	-	Drawing
PIDS Industronics	55000	G00.INT.M55000.YQ.1001.A	- PROJECT WIDE - PIDS Overall System Layout	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YV.1003.A	- KLIA2 - PIDS Relay Box Wiring Diagram	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YV.1002.A	- KLIA2 - PIDS Ticketing Counter Display Hardware Component Diagram	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.YV.1001.A	- KLIA2 - PIDS Concourse Display Hardware Component Diagram	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.YV.1002.A	- KLIA - PIDS Relay Box Wiring Diagram	-	Drawing

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 62 of 74	SYS Corrective Maintenance Guidelines

PIDS Industronics	55000	S50.INT.M55000.YV.1001.A	-	KLIA - PIDS Concourse Display Hardware Component Diagram	-	Drawing
PIDS Industronics	55000	G00.INT.M55000.YV.1001.A	-	PROJECT WIDE - PIDS Platform Display Hardware Component Diagram	-	Drawing
PIDS Industronics	55000	G00.INT.M55000.XF.1001.A	-	PROJECT WIDE - PIDS Platform Display Product Layout	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.XF.1004.A	-	KLIA - PIDS Concourse Display Mounting Concept	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.XF.1003.A	-	KLIA - PIDS Concourse Display Product Layout	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.XF.1002.A	-	KLIA - PIDS Platform Display Mounting Concept For Platform 4	-	Drawing
PIDS Industronics	55000	S50.INT.M55000.XF.1001.A	-	KLIA - PIDS Platform Display Mounting Concept For Platform 1	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.XF.1005.A	-	KLIA2 - PIDS Ticket Counter Display (EM 5216 MESSENGER) Installation Layout	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.XF.1004.A	-	KLIA2 - PIDS Ticket Counter Display (EM 5216 MESSENGER) Installation Layout	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.XF.1003.A	-	KLIA2 - PIDS Platform Display Mounting Concept	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.XF.1002.A	-	KLIA2 - PIDS Concourse Display Product Layout	-	Drawing
PIDS Industronics	55000	S60.INT.M55000.XF.1001.A	-	KLIA2 - PIDS Platform Display Mounting Concept	-	Drawing
Cables and Signals	57000	G00-INT-57210-PG-0001-B	-	Maintenance Manual "Cables"	Vol 9	Operation and Maintenance Manual

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 63 of 74	SYS Corrective Maintenance Guidelines

Cables and Signals	57000	G00-INT-57210-PG-0002-B	- Maintenance Manual "Signals"	Vol 9	Operation and Maintenance Manual
Signals	12950	G00.OMW.M12950.CZ.1026.A	- SIG Specification for LED Route Indicator (MA 480 LED Multiple Indicator)	-	Technical specification
Signals	12950	G00.OMW.M12950.CZ.1027.A	- SIG Specification for LED Main Signal (Signalguard Style LS Direct LED)	-	Technical specification
Signals	12950	G00.OMW.M12950.CZ.1028.A	- SIG Specification for LED Shunt Signal (LED Transit colorlight Signal Modules)	-	Technical specification
Signalling	50000	A0135	As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10)	Folder 1	As-built Documentation
Signalling	50000	A0136	General Documentation As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20)	Folder 1	As-built Documentation
Signalling	50000	A0140	General Documentation As-built Documentation Interlocking Room Cross-Over (X00)	Folder 1	As-built Documentation
Signalling	50000	A0137	As-built Documentation Interlocking Room Putrajaya Station (S30)	Folder 1	As-built Documentation
Signalling	50000	A0138	General Documentation As-built Documentation Interlocking Room Salak Tinggi (S40)	Folder 1	As-built Documentation
			General Documentation		

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 64 of 74	SYS Corrective Maintenance Guidelines

Signalling	50000	A0134	As-built Documentation Interlocking Room Depot (D00)	Folder 1	As-built Documentation
Signalling	50000	A0139	General Documentation AS-built Documentation Interlocking Room KLIA (S50)	Folder 1	As-built Documentation
Signalling	50000	A0142	General Documentation As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10)	Folder 2	As-built Documentation
Signalling	50000	A0143	PLC,UPS, Points As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20)	Folder 2	As-built Documentation
Signalling	50000	A0147	PLC,UPS, Points As-built Documentation Interlocking Room Cross-Over (X00)	Folder 2	As-built Documentation
Signalling	50000	A0144	PLC,UPS, Points As-built Documentation Interlocking Room Putrajaya Station (S30)	Folder 2	As-built Documentation
Signalling	50000	A0145	PLC,UPS, Points As-built Documentation Interlocking Room Salak Tinggi (S40)	Folder 2	As-built Documentation
Signalling	50000	A0141	PLC,UPS, Points As-built Documentation Interlocking Room Depot (D00)	Folder 2	As-built Documentation



# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 65 of 74	SYS Corrective Maintenance Guidelines

				PLC,UPS, Points	
Signalling	50000	A0146		AS-built Documentation Interlocking Room KLIA (S50)	Folder 2 As-built Documentation
				PLC,UPS, Points	
Signalling	50000	A0149		As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	
Signalling	50000	A0150		As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	
Signalling	50000	A0153		As-built Documentation Interlocking Room Cross-Over (X00)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	
Signalling	50000	A0718		As-built Documentation Interlocking Room Putrajaya Station (S30)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	
Signalling	50000	A0151		As-built Documentation Interlocking Room Salak Tinggi (S40)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	
Signalling	50000	A0148		As-built Documentation Interlocking Room Depot (D00)	Folder 3 As-built Documentation
				PIDS, TMS, ATP	

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 66 of 74	SYS Corrective Maintenance Guidelines

Signalling	50000	A0152	AS-built Documentation Interlocking Room KLIA (S50)  PLC,UPS, Points	Folder 3	As-built Documentation
Signalling	50000	A0606	As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0186	As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0187	As-built Documentation Interlocking Room Cross-Over (X00)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0197	As-built Documentation Interlocking Room Putrajaya Station (S30)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0193/A0191	As-built Documentation Interlocking Room Salak Tinggi (S40)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0185	As-built Documentation Interlocking Room Depot (D00)  Schematics	Folder 4	As-built Documentation
Signalling	50000	A0189	AS-built Documentation Interlocking Room KLIA (S50)	Folder 4	As-built Documentation

# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 67 of 74	SYS Corrective Maintenance Guidelines

			Schematics		
Signalling	50000	A0192	As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10)	Folder 5	As-built Documentation
Signalling	50000	A0190	Occupancies As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20)	Folder 5	As-built Documentation
Signalling	50000	A0196	As-built Documentation Interlocking Room Cross-Over (X00)	Folder 5	As-built Documentation
Signalling	50000	A0195	Occupancies As-built Documentation Interlocking Room Putrajaya Station (S30)	Folder 5	As-built Documentation
Signalling	50000	A0194	As-built Documentation Interlocking Room Salak Tinggi (S40)	Folder 5	As-built Documentation
Signalling	50000	A0188	Occupancies As-built Documentation Interlocking Room Depot (D00)	Folder 5	As-built Documentation
Signalling	50000	A721	AS-built Documentation Interlocking Room KLIA (S50)	Folder 5	As-built Documentation
			Occupancies		

**ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 68 of 74	SYS Corrective Maintenance Guidelines

Signalling	50000	A0607	As-built Documentation Interlocking Room Kuala Lumpur Sentral Station (S10) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0608	As-built Documentation Interlocking Room Bandar Tasik Selatan Station (S20) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0161	As-built Documentation Interlocking Room Cross-Over (X00) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0158	As-built Documentation Interlocking Room Putrajaya Station (S30) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0160	As-built Documentation Interlocking Room Salak Tinggi (S40) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0157	As-built Documentation Interlocking Room Depot (D00) Station wise outdoor equipment	Folder 6	As-built Documentation
Signalling	50000	A0159	AS-built Documentation Interlocking Room KLIA (S50) Station wise outdoor equipment	Folder 6	As-built Documentation

## **ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011	A	22.03.2021	Page 69 of 74	SYS Corrective Maintenance Guidelines

### 3.2.6 IT

<b>System</b>	<b>System Code</b>	<b>Doc. No.</b>	<b>Description</b>	<b>File no.</b>	<b>Content</b>
UPS	15100	G00.OME.M15120.PG.1001.A	Galleon Pro 3P-3P Tower Rack Manual - 3/ 3 10 K 3 0 K Online UPS	-	Operation and Maintenance Manual

# **ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011.A	A	22.03.2021	Page 70 of 74	Systems Corrective Maintenance Guidelines

## **4.0 Major Failures Reporting**

In the event of a failure that causes service disruption or considered a failure of a critical system, an incident report shall be created. This incident report will contain all details (time, location, personnel/material involved) relating to the failure and clearly specify the chronology of the event. Suggestions and comments for improvement should also be included in the incident reports.

The comprehensive incident reports are to be created by ESD personnel and concurred by the relevant subsystem supervisor. The incident report is then submitted to HOD – SYS for verification.

After obtaining the HOD – SYS's signature, a copy of report is submitted to the Maintenance Manager for further action (if any). The hardcopy is filled for reference and failure analysis.

## **5.0 Communication During Unscheduled Maintenance**

### **5.1 SYS ↔ OCC**

OCC will contact SYS personnel (DEPOT/TPSS) when a failure occurs. The mode of communication will be via hand portable radio. In case the personnel cannot be reached via hand portable radio, OCC shall contact the personnel via the shift hand phone. Communication flow between SYS and OCC is shown in attachment 2.

### **5.2 SYS ↔ Internal Communication flow**

The first point of communication regarding a failure is between OCC and the shift technician. The technician will then proceed to the site to rectify the failure. The technicians are required to inform their supervisors if the problem could not be solved within 15 minutes of troubleshooting. The supervisor shall then arrange for the necessary assistance for the technicians. The supervisors are also required to inform the HOD of similar failures. Do refer attachment 3 for SYS internal communication flows.

# **ERL Maintenance Support Sdn Bhd**

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011.A	A	22.03.2021	Page 71 of 74	Systems Corrective Maintenance Guidelines

## **6.0 Other Requirements**

While performing maintenance activities, all HRD related issues including the statutory requirements, which are addressed in the HRD Procedures - Employee handbook (*Doc. No: G00.OMH.M11750.ZG.0001.\**) and the Safety and Security Department requirements as stated in Safety Procedure (*Doc. No: G00.OMZ.M11451.NP.0006.\**) shall be complied at all time.

## **7.0 Attachments**

Attachment 1: Corrective Maintenance Process

Attachment 2: Communication between SYS and OCC

Attachment 3: SYS Internal Communication Flow

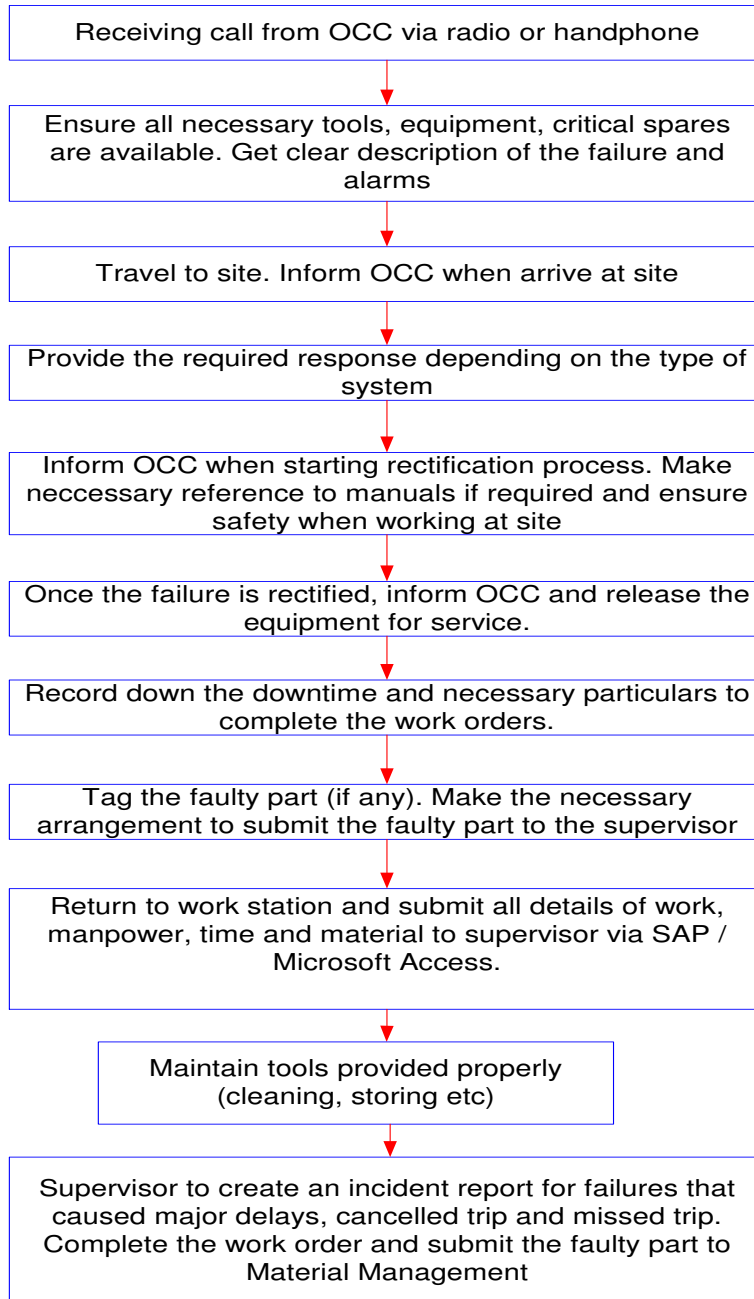
# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

<i>Location</i>	<i>Reference</i>	<i>Rev.</i>	<i>Date</i>	<i>Page No.</i>	<i>Document Title</i>
E-MAS Offices	E00.OME.M15000.BT.1011.A	A	22.03.2021	Page 72 of 74	Systems Corrective Maintenance Guidelines

## **Attachment – 1**

### Corrective Maintenance Process





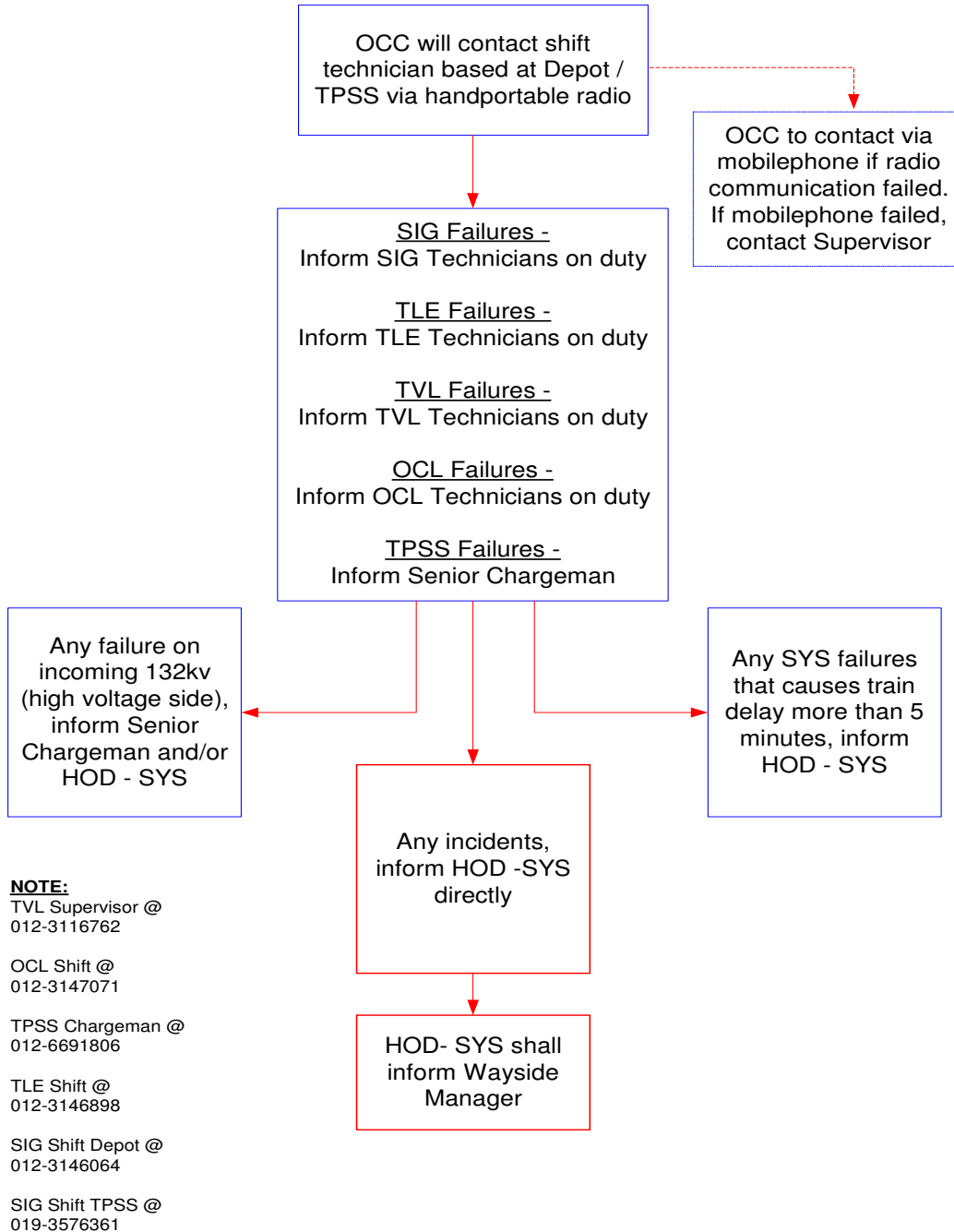
# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011.A	A	22.03.2021	Page 73 of 74	Systems Corrective Maintenance Guidelines

## Attachment – 2

### Communication Between SYS and OCC



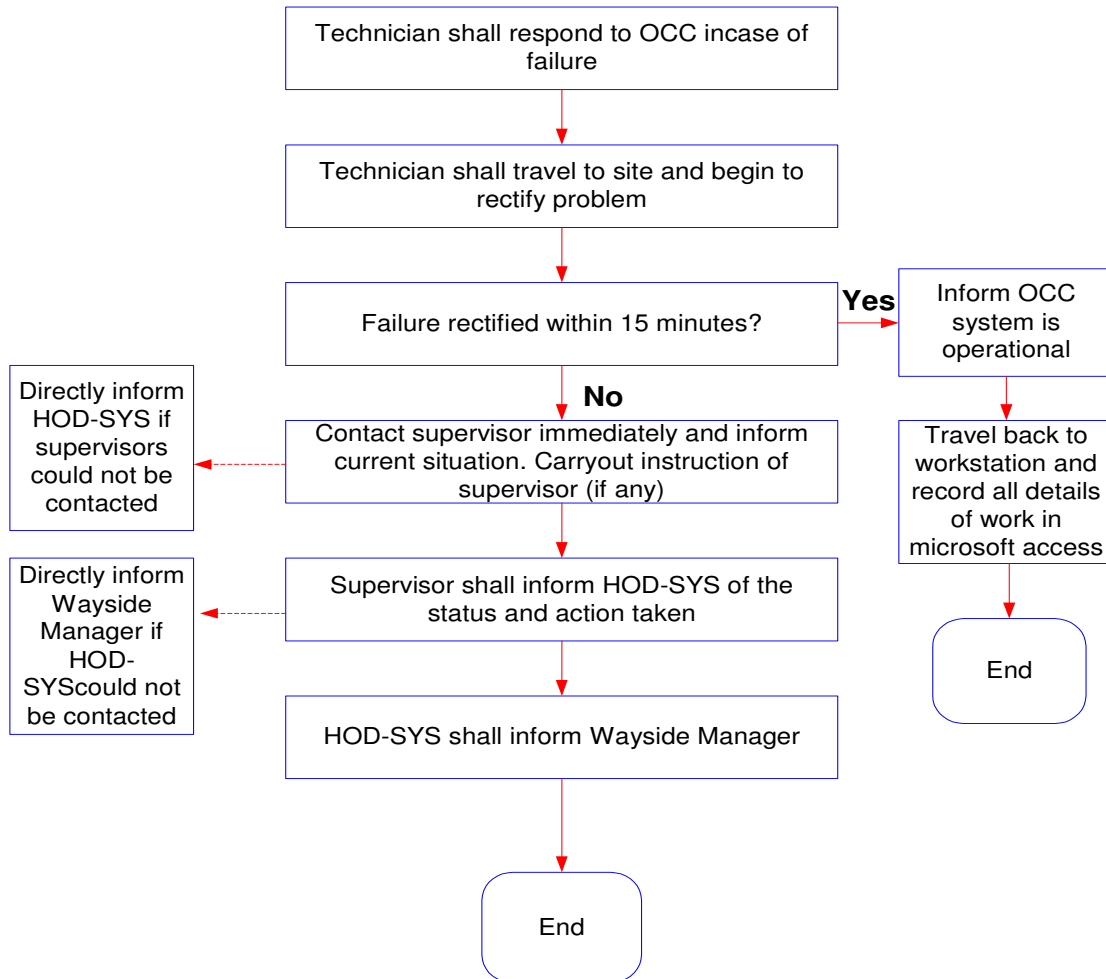
# ERL Maintenance Support Sdn Bhd

Co. Reg. No. 199901023674 (498574-T)

Location	Reference	Rev.	Date	Page No.	Document Title
E-MAS Offices	E00.OME.M15000.BT.1011.A	A	22.03.2021	Page 74 of 74	Systems Corrective Maintenance Guidelines

## Attachment – 3

### SYS Internal Communication Flow



**Note:**

- A suitable instant messaging app (eg - Whatsapp, Telegram, Signal) shall also be used for communication within SYS and its subgroups
- Supervisors & HOD are responsible to ensure information flow is established and practised within SYS and its subgroups