# Break Fix - Corrective Maint
# Galaxy VX

May, 28 2020

| Customer | | | Customer Ref. : | |
|---|---|---|---|---|
| Customer Company | : | Digiplex | | |
| Site contact name | : | Geir Almquist | Site contact Tel | : |
| Site contact email | : | | | |
| Site company | : | Digiplex Norway AS - Ulvenveien | | |
| Site address | : | Selma Ellefsens vei 1, 0581 Oslo | | |
| Site country | : | Norway | Customer account | : |
| Room name | : | | | |

| Field Service Engineer | | | Service Request # / Activity : / WO-07851810 | |
|---|---|---|---|---|
| FSE name | : | Nils Ove Bjørke | Service District | : Schneider Electric Norge AS |
| FSE address | : | Sandstuveien 68, 0680 Oslo | | |

## Visit results

**No Issues, No recommendations, task completed**

## (FSE) Recommendations / required actions

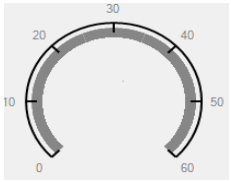
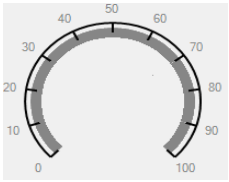
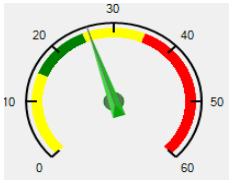
Replaced Power block L2B in section 5

## Signature

| Customer signature | Schneider Electric signature |
|---|---|
| Geir Almquist | Nils Ove Bjørke |

| Equipment data | | Customer Ref. : | |
|---|---|---|---|
| Equipment concerned | : Galaxy VX | Install/Startup date | : January, 24 2018 |
| UPS Power Rating | : 1500 kVA | Serial number | : U21711000742 |
| Phase Type | : 3:3 | Configuration | : Single unit |
| Designed backup time | : 9 min | | |
| Number of battery | : 8 x 17 | Battery date code | : 2018 |

**Main Information**

| Room & environmental conditions | UPS | Battery |
|---|---|---|
|  |  |  **26 °C** |
| Ambient temperature | Load percentage | Battery ambient temperature |
| | Used kVA : | |
| | Equipment age :<br>2 years, 4 months, 5 days | |

| Visit data | | Customer Ref. : | |
|---|---|---|---|
| Service Request # / Activity | : / WO-07851810 | | |
| Work time start | : May, 28 2020 12:00 | Work time end | : May, 28 2020 16:00 |
| Entitlement# | : (1) Year Advantage Ultra Service | Entitlement name | : |
| Account ID | : | ISX Solution | : |

| Lifecycle Indicator | Parts replacement schedule |
|---|---|

| Part | 2023 |
|---|---|
| Fans | ✓ |

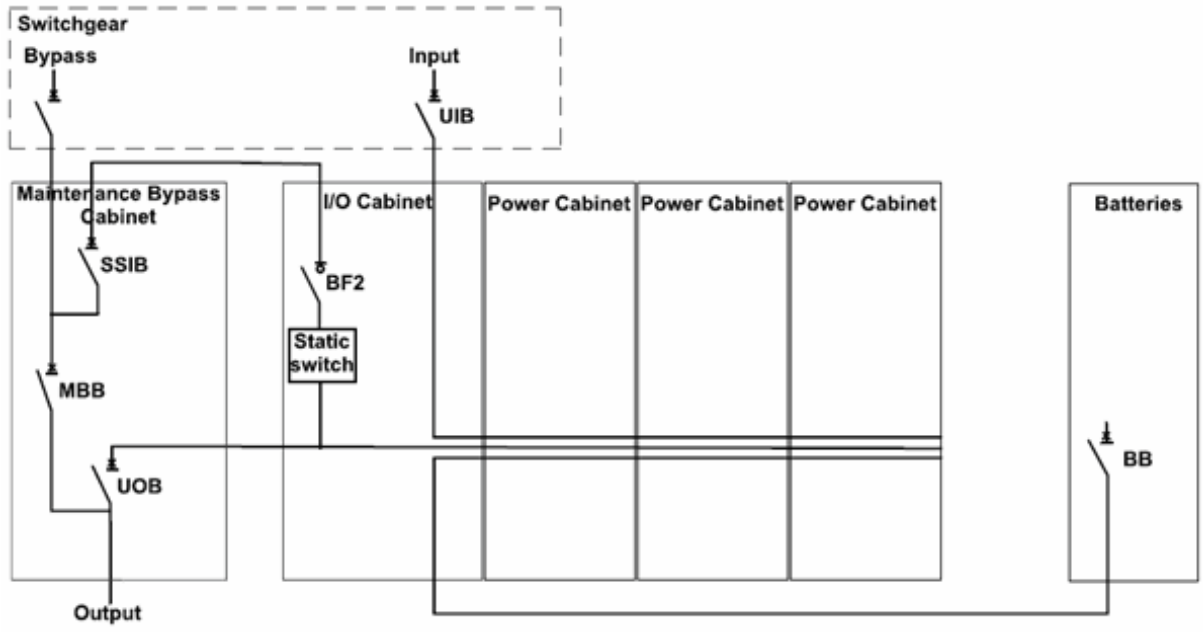
## Synthesis page

| Checks carried out | Status when leaving | Comments |
|---|---|---|
| Incident description | | |
| Investigation and analysis | | |
| **Service and parts** | | |
| Parts with life duration | | |
| Conclusion, system status & recommendation | | |
| **ERP feedbacks** | | |
| Load Condition | | |
| Diagnosis | | |
| Corrective action | | |
| **Optional controls** | | |
| Personalization | | |
| **System Room Check** | | |
| Battery characteristics | | |
| **Final Inspection** | | |
| Final Inspection | | |

## Maintenance summary

Replaced Power block L2B in section 5

## Installation configuration




## Comments

Customer

No comment

## Customer issues

Customer

No comment

Schneider Electric

No comment

## List of measurement devices

| Device type | Device model | Serial number | Last calibration date |
|---|---|---|---|
| Oscilloscope | Fluke 123B | 42240310 | 18 May 2018 |

# 1 Incident description

| | |
|---|---|
| Impact on customer | No disturbance |
| Condition of system upon arrival | UPS is on line |
| FSR observation | Section 5 disabled and locked due to error on Power block L2B section 5 |

# 2 Investigation and analysis

| | |
|---|---|
| Description of FSR action | Download eventlog for investigation on tuesday. Done planned bypass. Visual check of power block L2B. Fuse check. Started UPS agin. section 5 now in normal mode.<br>Done battery test , section 5 fails agin. Replaced L2B with new block. FW upgrade. Back to normal operation. New battery test for 5 min. No errors. UPS in Normal operation. |

# 3 Service and parts

## 3.1 Parts with life duration

### 3.1.1 Fans

| | |
|---|---|
| **Reference** | |
| **Quantity** | 0 |
| **Justification** | Other |
| **Installation date** | 24 January 2018 |
| **Next replacement date** | 2023 |

# 4 Conclusion, system status & recommendation

| | |
|---|---|
| Conclusion | Power block L2B in section 5 failed due to internal fault in the block. Block is replaced and UPS is tested without any faults. |

# 5 ERP feedbacks

## 5.1 Load Condition

| | |
|---|---|
| Condition of load equipment | No disturbance |
| Condition of system upon arrival | UPS is on line |

## 5.2 Diagnosis

| | |
|---|---|
| Circumstance of the fault | During battery operation |
| Premises and environment visual check | The premises are clean<br>The premises are well-ventilated |
| Identify fault present | Power module fault |
| Visual check of the unit and sub-assemblies | No component visibly faulty |

## 5.3 Corrective action

| | | |
|---|---|---|
| Origin of the fault | A part is defective | |
| The unit firmware has been upgraded. | Fw = 1.72.0.5 | Yes |

# 6 Optional controls

## 6.1 Personalization

### Alarms

The family "Alarms" contains no item to print.

### Battery Setting

| | |
|---|---|
| Battery solution/Classic Battery Solution | Present |
| Battery Runtime Calculation Scale | 0.74130 |
| Battery Runtime Calculation Expo | 1.14250 |
| Battery Runtime Calculation Rslope | 0.12550 |
| Battery Runtime Calculation Energy | 0.00001 |
| Battery Runtime Calculation Reference | 0 |
| Battery Runtime Calculation Method | CW |
| Charge Current Rate (CA rate) | 0.70 C |
| Maximum allowed string discharge current | 6.90 CA |
| Number of Battery Strings in Bank 1 | 8 |
| Battery Block Capacity in Bank 1 | 67 Ah |
| Number of Battery Strings in Bank 2 | 1 |
| Battery Block Capacity in Bank 2 | 67 Ah |
| Number of Battery Strings in Bank 3 | 1 |
| Battery Block Capacity in Bank 3 | 67 Ah |
| Number of Battery Strings in Bank 4 | 1 |
| Battery Block Capacity in Bank 4 | 67 Ah |
| Number of Batteries in Series | 17 |
| BB presence/BB1 | Present |
| BB presence/BB2 | Not Present |
| BB presence/BB3 | Not Present |
| BB presence/BB4 | Not Present |
| Energy Storage in Parallel System/Energy Storage | Individual |

### Settings

| | |
|---|---|
| Transfer from Battery to Normal Operation delay | 2 s |
| Energy Storage Type | Battery Storage |
| Frequency Converter as Operation Mode (*)/Frequency Converter Mode | Disable |
| Transformer on input present/Transformer | Not present |
| Mains configuration | Dual Mains |
| Output Frequency & Output Frequency Tolerance (*) | 50 Hz +/-10.0 Hz Hz |
| UPS Power Rating (*) | 1500 kVA |
| Transformer on output present/Transformer | Not present |
| Minimum Number of UPS Required to Supply Load | 1 |
| Parallel Redundancy | N + 0 |
| UPS Units Presence/UPS 1 | Present |
| UPS Units Presence/UPS 2 | Not Present |
| UPS Units Presence/UPS 3 | Not Present |
| UPS Units Presence/UPS 4 | Not Present |
| UPS Units Presence/UPS 5 | Not Present |
| SBP Breaker presence/UIB | Present |
| SBP Breaker presence/SSIB | Present |
| SBP Breaker presence/UOB | Present |
| SBP Breaker presence/BF2 | Present |
| SBP Breaker presence/MBB | Present |
| SBP Breaker presence/SIB | Not Present |
| Peak shaving mode | Disable |
| Minimum battery state-of-charge to allow peak shaving mode | 100 |
| Maximum utility current draw limit in peak shaving mode | 4000 A |
| Maximum utility draw limit in peak shaving mode | 100 |
| Nominal Output Voltage (*) | 400 V |

### Measurements

| | |
|---|---|
| Battery Runtime | 00:27 (h:mm) |
| Battery Charge in % | 100 % |
| Total Battery Capacity | 536 Ah |

| | |
|---|---|
| Classic Battery Temperature | 26 °C |
| Battery DC voltage | 572 V |
| Bypass Frequency | 50.0 Hz |
| L 1 Bypass AC Current | 0 A |
| L 1 - L 2 Bypass Voltage | 394 V |
| L 2 Bypass AC Current | 0 A |
| L 2 - L 3 Bypass Voltage | 398 V |
| L 3 Bypass AC Current | 0 A |
| L 3 - L 1 Bypass Voltage | 395 V |
| Ambient Temperature | 24 °C |
| Exhaust Air Temperature | 25 °C |
| Input Frequency | 50.0 Hz |
| Input Total Apparent Power | 607 kVA |
| Input Total Active Power | 606 kW |
| L 1 Input AC Current | 885 A |
| L 1 - L 2 Input Voltage | 395 V |
| L 2 Input AC Current | 881 A |
| L 2 - L 3 Input Voltage | 397 V |
| L 3 Input AC Current | 885 A |
| L 3 - L 1 Input Voltage | 397 V |
| Output Frequency | 50.0 Hz |
| Output Total Apparent Power | 609 kVA |
| Output Total Active Power | 587 kW |
| L 1 Output AC Current | 962 A |
| L 1 - L 2 Output Voltage | 400 V |
| L 2 Output AC Current | 843 A |
| L 2 - L 3 Output Voltage | 400 V |
| L 3 Output AC Current | 836 A |
| L 3 - L 1 Output Voltage | 401 V |

## Revisions

| | |
|---|---|
| SBC Firmware Revision | 1.1.0.2 |
| Display Fw rev. (AOS / APP / Boot) | v6.8.2/v6.8.2/v1.0.9 |
| Display Fonts (B1/B2) | v6.0.4/v6.0.4 |
| Display Firmware Compatibility Number | 10 |
| 10" Display Firmware Compatibility Number | 0.0 |
| Product Range Name | Galaxy VX |
| MC Firmware Revision | 1.72.0.5 |
| MC Firmware Compatibility Number | 10 |
| PC1 PCC Serial Number | ID1712500182 |
| PC2 PCC Serial Number | ID1928005454 |
| PC3 PCC Serial Number | ID1712000952 |
| PC4 PCC Serial Number | ID1712005603 |
| PC5 PCC Serial Number | ID1717000645 |
| PC6 PCC Serial Number | ID1712001683 |
| PC7 PCC Serial Number | 0.0.0.0 |
| I/O Cabinet Serial Number | U21711000742 |

## Dry Contacts

| | |
|---|---|
| contact 1 (J5502) | <NULL> |
| contact 2 (J5503) | <NULL> |
| contact 3 (J5504) | <NULL> |
| contact 4 (J5505) | <NULL> |
| contact 5 (J5510) | <NULL> |
| Relay 1 - Delay before activation | 0 s |
| Relay 1 (J4939)/Common Alarm | Not used |
| Relay 1 (J4939)/Normal Operation | Not used |
| Relay 1 (J4939)/Battery Operation | Not used |
| Relay 1 (J4939)/Maintenance Bypass | Not used |
| Relay 1 (J4939)/Static Bypass | Not used |
| Relay 1 (J4939)/UPS setup to use High Efficiency Mode | Not used |
| Relay 1 (J4939)/Output Overloaded | Not used |
| Relay 1 (J4939)/Fan Inoperable | Not used |
| Relay 1 (J4939)/Battery is not working correctly | Not used |
| Relay 1 (J4939)/Battery Disconnected | Not used |
| Relay 1 (J4939)/Battery Voltage Low | Not used |
| Relay 1 (J4939)/Input Out Of Tolerance | Not used |
| Relay 1 (J4939)/Bypass Out Of Tolerance | Not used |

| | |
|---|---|
| Relay 1 (J4939)/UPS Informational | Not used |
| Relay 1 (J4939)/UPS Warning | Not used |
| Relay 1 (J4939)/UPS Critical | Not used |
| Relay 1 (J4939)/Parallel Redundancy Lost | Not used |
| Relay 1 (J4939)/External Fault | Not used |
| Relay 1 (J4939)/UPS Maintenance Mode | Not used |
| Relay 1 (J4939)/System Informational | Not used |
| Relay 1 (J4939)/System Critical | Not used |
| Relay 1 (J4939)/System Warning | Not used |
| Relay 1 (J4939)/System Common Alarm | Not used |
| Relay 1 (J4939)/EPO Activated | Not used |
| Relay 1 (J4939)/Transfer to static bypass is deactivated | Not used |
| Relay 2 - Delay before activation | 0 s |
| Relay 2 (J4940)/Common Alarm | Not used |
| Relay 2 (J4940)/Normal Operation | Not used |
| Relay 2 (J4940)/Battery Operation | Not used |
| Relay 2 (J4940)/Maintenance Bypass | Not used |
| Relay 2 (J4940)/Static Bypass | Not used |
| Relay 2 (J4940)/UPS setup to use High Efficiency Mode | Not used |
| Relay 2 (J4940)/Output Overloaded | Not used |
| Relay 2 (J4940)/Fan Inoperable | Not used |
| Relay 2 (J4940)/Battery is not working correctly | Not used |
| Relay 2 (J4940)/Battery Disconnected | Not used |
| Relay 2 (J4940)/Battery Voltage Low | Not used |
| Relay 2 (J4940)/Input Out Of Tolerance | Not used |
| Relay 2 (J4940)/Bypass Out Of Tolerance | Not used |
| Relay 2 (J4940)/UPS Informational | Not used |
| Relay 2 (J4940)/UPS Warning | Not used |
| Relay 2 (J4940)/UPS Critical | Not used |
| Relay 2 (J4940)/Parallel Redundancy Lost | Not used |
| Relay 2 (J4940)/External Fault | Not used |
| Relay 2 (J4940)/UPS Maintenance Mode | Not used |
| Relay 2 (J4940)/System Informational | Not used |
| Relay 2 (J4940)/System Critical | Not used |
| Relay 2 (J4940)/System Warning | Not used |
| Relay 2 (J4940)/System Common Alarm | Not used |
| Relay 2 (J4940)/EPO Activated | Not used |
| Relay 2 (J4940)/Transfer to static bypass is deactivated | Not used |
| Relay 3 - Delay before activation | 0 s |
| Relay 3 (J4941)/Common Alarm | Not used |
| Relay 3 (J4941)/Normal Operation | Not used |
| Relay 3 (J4941)/Battery Operation | Not used |
| Relay 3 (J4941)/Maintenance Bypass | Not used |
| Relay 3 (J4941)/Static Bypass | Not used |
| Relay 3 (J4941)/UPS setup to use High Efficiency Mode | Not used |
| Relay 3 (J4941)/Output Overloaded | Not used |
| Relay 3 (J4941)/Fan Inoperable | Not used |
| Relay 3 (J4941)/Battery is not working correctly | Not used |
| Relay 3 (J4941)/Battery Disconnected | Not used |
| Relay 3 (J4941)/Battery Voltage Low | Not used |
| Relay 3 (J4941)/Input Out Of Tolerance | Not used |
| Relay 3 (J4941)/Bypass Out Of Tolerance | Not used |
| Relay 3 (J4941)/UPS Informational | Not used |
| Relay 3 (J4941)/UPS Warning | Not used |
| Relay 3 (J4941)/UPS Critical | Not used |
| Relay 3 (J4941)/Parallel Redundancy Lost | Not used |
| Relay 3 (J4941)/External Fault | Not used |
| Relay 3 (J4941)/UPS Maintenance Mode | Not used |
| Relay 3 (J4941)/System Informational | Not used |
| Relay 3 (J4941)/System Critical | Not used |
| Relay 3 (J4941)/System Warning | Not used |
| Relay 3 (J4941)/System Common Alarm | Not used |
| Relay 3 (J4941)/EPO Activated | Not used |
| Relay 3 (J4941)/Transfer to static bypass is deactivated | Not used |
| Relay 4 - Delay before activation | 0 s |
| Relay 4 (J5524)/Common Alarm | Not used |
| Relay 4 (J5524)/Normal Operation | Not used |
| Relay 4 (J5524)/Battery Operation | Not used |
| Relay 4 (J5524)/Maintenance Bypass | Not used |

| | |
|---|---|
| Relay 4 (J5524)/Static Bypass | Not used |
| Relay 4 (J5524)/UPS setup to use High Efficiency Mode | Not used |
| Relay 4 (J5524)/Output Overloaded | Not used |
| Relay 4 (J5524)/Fan Inoperable | Not used |
| Relay 4 (J5524)/Battery is not working correctly | Not used |
| Relay 4 (J5524)/Battery Disconnected | Not used |
| Relay 4 (J5524)/Battery Voltage Low | Not used |
| Relay 4 (J5524)/Input Out Of Tolerance | Not used |
| Relay 4 (J5524)/Bypass Out Of Tolerance | Not used |
| Relay 4 (J5524)/UPS Informational | Not used |
| Relay 4 (J5524)/UPS Warning | Not used |
| Relay 4 (J5524)/UPS Critical | Not used |
| Relay 4 (J5524)/Parallel Redundancy Lost | Not used |
| Relay 4 (J5524)/External Fault | Not used |
| Relay 4 (J5524)/UPS Maintenance Mode | Not used |
| Relay 4 (J5524)/System Informational | Not used |
| Relay 4 (J5524)/System Critical | Not used |
| Relay 4 (J5524)/System Warning | Not used |
| Relay 4 (J5524)/System Common Alarm | Not used |
| Relay 4 (J5524)/EPO Activated | Not used |
| Relay 4 (J5524)/Transfer to static bypass is deactivated | Not used |
| Relay 5 - Delay before activation | 0 s |
| Relay 5 (J5525)/Common Alarm | Not used |
| Relay 5 (J5525)/Normal Operation | Not used |
| Relay 5 (J5525)/Battery Operation | Not used |
| Relay 5 (J5525)/Maintenance Bypass | Not used |
| Relay 5 (J5525)/Static Bypass | Not used |
| Relay 5 (J5525)/UPS setup to use High Efficiency Mode | Not used |
| Relay 5 (J5525)/Output Overloaded | Not used |
| Relay 5 (J5525)/Fan Inoperable | Not used |
| Relay 5 (J5525)/Battery is not working correctly | Not used |
| Relay 5 (J5525)/Battery Disconnected | Not used |
| Relay 5 (J5525)/Battery Voltage Low | Not used |
| Relay 5 (J5525)/Input Out Of Tolerance | Not used |
| Relay 5 (J5525)/Bypass Out Of Tolerance | Not used |
| Relay 5 (J5525)/UPS Informational | Not used |
| Relay 5 (J5525)/UPS Warning | Not used |
| Relay 5 (J5525)/UPS Critical | Not used |
| Relay 5 (J5525)/Parallel Redundancy Lost | Not used |
| Relay 5 (J5525)/External Fault | Not used |
| Relay 5 (J5525)/UPS Maintenance Mode | Not used |
| Relay 5 (J5525)/System Informational | Not used |
| Relay 5 (J5525)/System Critical | Not used |
| Relay 5 (J5525)/System Warning | Not used |
| Relay 5 (J5525)/System Common Alarm | Not used |
| Relay 5 (J5525)/EPO Activated | Not used |
| Relay 5 (J5525)/Transfer to static bypass is deactivated | Not used |
| Relay 6 - Delay before activation | 0 s |
| Relay 6 (J5528)/Common Alarm | Not used |
| Relay 6 (J5528)/Normal Operation | Not used |
| Relay 6 (J5528)/Battery Operation | Not used |
| Relay 6 (J5528)/Maintenance Bypass | Not used |
| Relay 6 (J5528)/Static Bypass | Not used |
| Relay 6 (J5528)/UPS setup to use High Efficiency Mode | Not used |
| Relay 6 (J5528)/Output Overloaded | Not used |
| Relay 6 (J5528)/Fan Inoperable | Not used |
| Relay 6 (J5528)/Battery is not working correctly | Not used |
| Relay 6 (J5528)/Battery Disconnected | Not used |
| Relay 6 (J5528)/Battery Voltage Low | Not used |
| Relay 6 (J5528)/Input Out Of Tolerance | Not used |
| Relay 6 (J5528)/Bypass Out Of Tolerance | Not used |
| Relay 6 (J5528)/UPS Informational | Not used |
| Relay 6 (J5528)/UPS Warning | Not used |
| Relay 6 (J5528)/UPS Critical | Not used |
| Relay 6 (J5528)/Parallel Redundancy Lost | Not used |
| Relay 6 (J5528)/External Fault | Not used |
| Relay 6 (J5528)/UPS Maintenance Mode | Not used |
| Relay 6 (J5528)/System Informational | Not used |
| Relay 6 (J5528)/System Critical | Not used |

| | |
|---|---|
| Relay 6 (J5528)/System Warning | Not used |
| Relay 6 (J5528)/System Common Alarm | Not used |
| Relay 6 (J5528)/EPO Activated | Not used |
| Relay 6 (J5528)/Transfer to static bypass is deactivated | Not used |
| Energized check mode | Disable |

### 6.2 System Room Check

#### 6.2.1 Battery characteristics

| | |
|---|---|
| Manufacturer | SEITB |
| Model | Lithium Ion |
| Battery capacity | 67 Ah |
| Date code | 2018 |
| Quantity of battery blocks per strings | 17 |
| Type of battery block | 16 V |
| Quantity of battery cells (2V/Cell) per string | 136 |
| Quantity of battery strings | 8 |
| Backup time | 9 min |
| Float voltage | 572 V |
| Open circuit voltage per cell | 2.27 V |
| Minimum battery voltage | 540 V |
| Ambient temperature | 26 °C |

## 7 Final Inspection

### 7.1 Final Inspection

#### Equipment operation

| | | |
|---|---|---|
| The state and revision of parts insured proper operation of the unit | Yes | |
| The unit firmware has been upgraded | | Yes |
| All operational tests are passed successfully and system is functional | Yes | |

#### Customer Relationship

List any customer concerns about the unit.

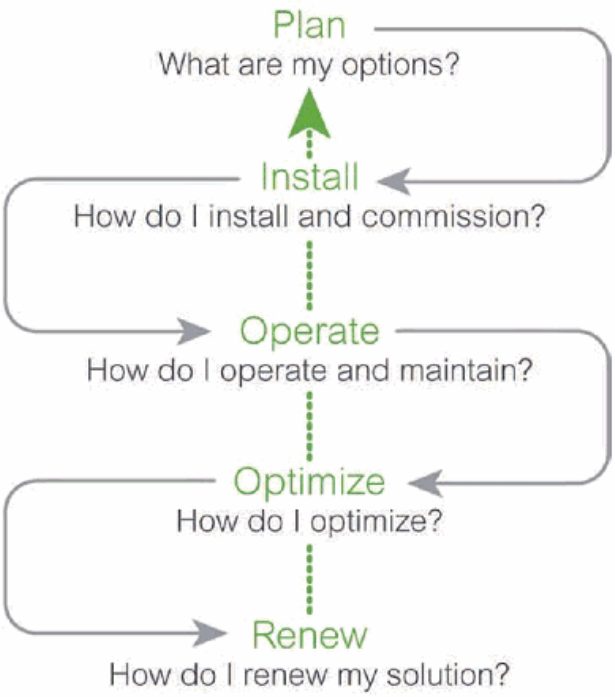
#### Site

| | |
|---|---|
| Leave the site clean and tidy | Yes |

# SERVICES SOLUTIONS FROM A TRUSTED ADVISOR

Rely on Schneider Electric Critical Power & Cooling Services to protect your UPS from unexpected issues and downtime. Trained and trusted professionals are at your disposal to support and provide high quality service for your equipments.

## Life Cycle Services




Schneider Electric Critical Power & Cooling Services (CPCS) provides the expertise, services, and support you need for your building, industry, power, or data center infrastructure.

- Experience: Our proud 170-year history has led us to worldwide recognition as the thought leader in energy management, power and cooling infrastructure, and energy efficiency.
- Reputation: Our highly trained teams — technical support, project managers, Field Service Engineers (FSEs) — and our strong commitment to quality service have earned us a reputation as a trusted advisor in the industries we serve.
- Availability: Our extensive worldwide service network is one of the largest in the world. This enables us to deliver service where and when you need it.
- Expertise: Our highly skilled, certified FSEs are trained directly by the product developers themselves. This provides them with the highest level of system knowledge, resulting in accurate and quick diagnosis and repair.
- Speed: If equipment issues should arise, our technical support team is only a phone call away, ready to help you quickly diagnose the problem. When on-site help is required, our service plans dispatch a FSE rapidly, ensuring your system is up and running as fast as possible.

### Plan

**Assessment:** Site survey, engineering analysis, environmental inspection.

**Design Planning:** Free online tools to plan and design tailor-made solutions.

### Install

**Project Management:** Assistance in completing rollouts on time and within budget.

**Installation:** Equipment implementation and optimization, physical assembly and logistics coordination.

**Start-up**: Initial setup, installation, verification.

**Training:** Onsite equipment orientation, operational and maintenance education.

### Operate

**Service Plans:** comprehensive onsite service packages with either Next-Business-Day availability or response upgrades to 4-hour and 8-hour.

**Monitoring Service:** 24*7 digital monitoring service with instant access to data and experts through Smartphone apps well as operational insights and analytics.

**Preventive Maintenance:** Corrective maintenance, system cleaning, environmental inspection, functional verification, and free firmware upgrades.

### Optimize

**Asset Capacity Trending:** proactive asset planning guidance, along with analysis of critical power, cooling, and room layout domains.

**Data Center Health Check:** Site-level assessment as well as inventory list for Schneider Electric and 3rd party vendor equipment.

### Renew

**Modular Power Revitalization:** comprehensive on-site UPS refresh service for modular UPS solutions, updated by certified service professionals.

**Modernization Services:** solutions to protect your aging UPS from unexpected issues and downtime. Assets' availability will increase and investments maximized.

For more information, please visit Critical Power & Cooling Services website at:
http://www.schneider-electric.com/b2b/en/services/field-services/critical-power-and-cooling/