

## MODBUS REGISTER MAPPING OF IPS FOR RDPMS

## Annexure-I

To integrate all the IPS system parameters with RDPMS system, IPS parameters should be available on MODBUS protocol in serial communication mode i.e. MODBUS RTU over RS-485. In this case serial Communication and slave ID settings should be as below:-

- Slave ID: 1-255
- Baud Rate: 9600 /19200/38400/57600/115200
- Parity: None
- Stop Bits: 1
- Data Bits: 8

Master –slave communication over Modbus Protocol should support the following function codes to transmit and receive the data:-

- Read Holding Registers: 0x03 (function to read data from the holding registers (40101–49999))
- Read Input Registers: 0x04 (function to read data from the input registers (30001 - 39999))
- Write Single Register: 0x06 (function to write data to a single register, if applicable)

### MODBUS REGISTER LIST OF IPS SYSTEM

Default setting may be opted -(SLAVE ID: 100,BAUD RATE=9600,PARITY=None, DATA BITS= 8,STOP BIT= 1)

| S.NO | PARAMETER NAME        | PARAMETER TYPE<br>(SIGNED/UNSIGNED) | ADDRESS | SCALING    | READ/ WRITE | UNIT  | DESCRIPTION                 |
|------|-----------------------|-------------------------------------|---------|------------|-------------|-------|-----------------------------|
| 1    | DC LOAD voltage       | 16-bit unsigned int                 | 40100   | VALUE / 10 | Read Only   | VOL T | It is DC LOAD voltage       |
| 2    | TOTAL CURRENT OF SMRs | 16-bit unsigned int                 | 40102   | VALUE / 10 | Read Only   | AMP   | It is TOTAL CURRENT OF SMRs |
| 3    | Battery voltage       | 16-bit unsigned int                 | 40103   | VALUE / 10 | Read Only   | VOL T | It is Battery voltage       |
| 4    | Battery Current       | 16-bit signed int                   | 40104   | VALUE / 10 | Read Only   | AMP   | It is Battery Current       |
| 5    | I/P AC voltage        | 16-bit unsigned int                 | 40105   | VALUE / 10 | Read Only   | VOL T | It is I/P AC voltage        |
| 6    | I/P AC Current        | 16-bit unsigned int                 | 40106   | VALUE / 10 | Read Only   | AMP   | It is I/P AC Current        |
| 7    | SMR-1 voltage         | 16-bit unsigned int                 | 40107   | VALUE / 10 | Read Only   | VOL T | It is SMR-1 voltage         |
| 8    | SMR-1 current         | 16-bit unsigned int                 | 40108   | VALUE / 10 | Read Only   | AMP   | It is SMR-1 current         |
| 9    | SMR-2 voltage         | 16-bit unsigned int                 | 40109   | VALUE / 10 | Read Only   | VOL T | It is SMR-2 voltage         |
| 10   | SMR-2 current         | 16-bit unsigned int                 | 40110   | VALUE / 10 | Read Only   | AMP   | It is SMR-2 current         |
| 11   | SMR-3 voltage         | 16-bit unsigned int                 | 40111   | VALUE / 10 | Read Only   | VOL T | It is SMR-3 voltage         |
| 12   | SMR-3 current         | 16-bit unsigned int                 | 40112   | VALUE / 10 | Read Only   | AMP   | It is SMR-3 current         |
| 13   | SMR-4 voltage         | 16-bit unsigned int                 | 40113   | VALUE / 10 | Read Only   | VOL T | It is SMR-4 voltage         |
| 14   | SMR-4 current         | 16-bit unsigned int                 | 40114   | VALUE / 10 | Read Only   | AMP   | It is SMR-4 current         |

|    |                   |                     |       |            |           |       |                                                                   |
|----|-------------------|---------------------|-------|------------|-----------|-------|-------------------------------------------------------------------|
| 15 | SMR-5 voltage     | 16-bit unsigned int | 40115 | VALUE / 10 | Read Only | VOL T | It is SMR-5 voltage                                               |
| 16 | SMR-5 current     | 16-bit unsigned int | 40116 | VALUE / 10 | Read Only | AMP   | It is SMR-5 current                                               |
| 17 | SMR-6 voltage     | 16-bit unsigned int | 40117 | VALUE / 10 | Read Only | VOL T | It is SMR-6 voltage                                               |
| 18 | SMR-6 current     | 16-bit unsigned int | 40118 | VALUE / 10 | Read Only | AMP   | It is SMR-6 current                                               |
| 19 | SMR-7 voltage     | 16-bit unsigned int | 40119 | VALUE / 10 | Read Only | VOL T | It is SMR-7 voltage                                               |
| 20 | SMR-7 current     | 16-bit unsigned int | 40120 | VALUE / 10 | Read Only | AMP   | It is SMR-7 current                                               |
| 21 | SMR-8 voltage     | 16-bit unsigned int | 40121 | VALUE / 10 | Read Only | VOL T | It is SMR-8 voltage                                               |
| 22 | SMR-8 current     | 16-bit unsigned int | 40122 | VALUE / 10 | Read Only | AMP   | It is SMR-8 current                                               |
| 23 | SMR-9 voltage     | 16-bit unsigned int | 40123 | VALUE / 10 | Read Only | VOL T | It is SMR-9 voltage                                               |
| 24 | SMR-9 current     | 16-bit unsigned int | 40124 | VALUE / 10 | Read Only | AMP   | It is SMR-9 current                                               |
| 25 | SMR-10 voltage    | 16-bit unsigned int | 40125 | VALUE / 10 | Read Only | VOL T | It is SMR-10 voltage                                              |
| 26 | SMR-10 current    | 16-bit unsigned int | 40126 | VALUE / 10 | Read Only | AMP   | It is SMR-10 current                                              |
| 27 | SMR-11 voltage    | 16-bit unsigned int | 40127 | VALUE / 10 | Read Only | VOL T | It is SMR-11 voltage                                              |
| 28 | SMR-11 current    | 16-bit unsigned int | 40128 | VALUE / 10 | Read Only | AMP   | It is SMR-11 current                                              |
| 29 | SMR-12 voltage    | 16-bit unsigned int | 40129 | VALUE / 10 | Read Only | VOL T | It is SMR-12 voltage                                              |
| 30 | SMR-12 current    | 16-bit unsigned int | 40130 | VALUE / 10 | Read Only | AMP   | It is SMR-12 current                                              |
| 31 | SMR-13 voltage    | 16-bit unsigned int | 40131 | VALUE / 10 | Read Only | VOL T | It is SMR-13 voltage                                              |
| 32 | SMR-13 current    | 16-bit unsigned int | 40132 | VALUE / 10 | Read Only | AMP   | It is SMR-13 current                                              |
| 33 | SMR-14 voltage    | 16-bit unsigned int | 40133 | VALUE / 10 | Read Only | VOL T | It is SMR-14 voltage                                              |
| 34 | SMR-14 current    | 16-bit unsigned int | 40134 | VALUE / 10 | Read Only | AMP   | It is SMR-14 current                                              |
| 35 | SMR-15 voltage    | 16-bit unsigned int | 40135 | VALUE / 10 | Read Only | VOL T | It is SMR-15 voltage                                              |
| 36 | SMR-15 current    | 16-bit unsigned int | 40136 | VALUE / 10 | Read Only | AMP   | It is SMR-15 current                                              |
| 37 | SMR-16 voltage    | 16-bit unsigned int | 40137 | VALUE / 10 | Read Only | VOL T | It is SMR-16 voltage                                              |
| 38 | SMR-16 current    | 16-bit unsigned int | 40138 | VALUE / 10 | Read Only | AMP   | It is SMR-16 current                                              |
| 39 | SMRs fault status | 16-bit unsigned int | 40139 | VALUE      | Read Only |       | <b>Bitwise description is given in table -1 ( In other sheet)</b> |
| 40 | Spare-1           | 16-bit unsigned int | 40140 | VALUE      | Read Only |       | Reserved for future purpose                                       |
| 41 | Spare-2           | 16-bit unsigned int | 40141 | VALUE      | Read Only |       | Reserved for future purpose                                       |

|    |                      |                     |       |            |           |       |                             |
|----|----------------------|---------------------|-------|------------|-----------|-------|-----------------------------|
| 42 | Spare-3              | 16-bit unsigned int | 40142 | VALUE      | Read Only |       | Reserved for future purpose |
| 43 | Spare-4              | 16-bit unsigned int | 40143 | VALUE      | Read Only |       | Reserved for future purpose |
| 44 | AC_bus1_voltage      | 16-bit unsigned int | 40144 | VALUE / 10 | Read Only | VOL T | It is ac bus1 voltage       |
| 45 | AC_bus1_current      | 16-bit unsigned int | 40145 | VALUE / 10 | Read Only | AMP   | It is ac bus1 current       |
| 46 | AC_bus2_voltage      | 16-bit unsigned int | 40146 | VALUE / 10 | Read Only | VOL T | It is ac bus2 voltage       |
| 47 | AC_bus2_current      | 16-bit unsigned int | 40147 | VALUE / 10 | Read Only | AMP   | It is ac bus2 current       |
| 48 | Inverter-1 voltage   | 16-bit unsigned int | 40148 | VALUE / 10 | Read Only | VOL T | It is Inverter-1 voltage    |
| 49 | Inverter-1 current   | 16-bit unsigned int | 40149 | VALUE / 10 | Read Only | AMP   | It is Inverter-1 current    |
| 50 | Inverter-2 voltage   | 16-bit unsigned int | 40150 | VALUE / 10 | Read Only | VOL T | It is Inverter-2 voltage    |
| 51 | Inverter-2 current   | 16-bit unsigned int | 40151 | VALUE / 10 | Read Only | AMP   | It is Inverter-2 current    |
| 52 | Inverter-3 voltage   | 16-bit unsigned int | 40152 | VALUE / 10 | Read Only | VOL T | It is Inverter-3 voltage    |
| 53 | Inverter-3 current   | 16-bit unsigned int | 40153 | VALUE / 10 | Read Only | AMP   | It is Inverter-3 current    |
| 54 | Inverter-4 voltage   | 16-bit unsigned int | 40154 | VALUE / 10 | Read Only | VOL T | It is Inverter-4 voltage    |
| 55 | Inverter-4 current   | 16-bit unsigned int | 40155 | VALUE / 10 | Read Only | AMP   | It is Inverter-4 current    |
| 56 | Inverter-5 voltage   | 16-bit unsigned int | 40156 | VALUE / 10 | Read Only | VOL T | It is Inverter-5 voltage    |
| 57 | Inverter-5 current   | 16-bit unsigned int | 40157 | VALUE / 10 | Read Only | AMP   | It is Inverter-5 current    |
| 58 | Inverter-6 voltage   | 16-bit unsigned int | 40158 | VALUE / 10 | Read Only | VOL T | It is Inverter-6 voltage    |
| 59 | Inverter-6 current   | 16-bit unsigned int | 40159 | VALUE / 10 | Read Only | AMP   | It is Inverter-6 current    |
| 60 | TXR-1 Module voltage | 16-bit unsigned int | 40160 | VALUE / 10 | Read Only | VOL T | It is TXR-1 Module voltage  |
| 61 | TXR-1 Module current | 16-bit unsigned int | 40161 | VALUE / 10 | Read Only | AMP   | It is TXR-1 Module current  |
| 62 | TXR-2 Module voltage | 16-bit unsigned int | 40162 | VALUE / 10 | Read Only | VOL T | It is TXR-2 Module voltage  |
| 63 | TXR-2 Module current | 16-bit unsigned int | 40163 | VALUE / 10 | Read Only | AMP   | It is TXR-2 Module current  |
| 64 | TXR-3 Module voltage | 16-bit unsigned int | 40164 | VALUE / 10 | Read Only | VOL T | It is TXR-3 Module voltage  |
| 65 | TXR-3 Module current | 16-bit unsigned int | 40165 | VALUE / 10 | Read Only | AMP   | It is TXR-3 Module current  |
|    |                      |                     |       |            |           |       |                             |

|    |                        |                     |       |            |           |       |                              |
|----|------------------------|---------------------|-------|------------|-----------|-------|------------------------------|
| 66 | TXR-4 Module voltage   | 16-bit unsigned int | 40166 | VALUE / 10 | Read Only | VOL T | It is TXR-4 Module voltage   |
| 67 | TXR-4 Module current   | 16-bit unsigned int | 40167 | VALUE / 10 | Read Only | AMP   | It is TXR-4 Module current   |
| 68 | TXR-5 Module voltage   | 16-bit unsigned int | 40168 | VALUE / 10 | Read Only | VOL T | It is TXR-5 Module voltage   |
| 69 | TXR-5 Module current   | 16-bit unsigned int | 40169 | VALUE / 10 | Read Only | AMP   | It is TXR-5 Module current   |
| 70 | TXR-6 Module voltage   | 16-bit unsigned int | 40170 | VALUE / 10 | Read Only | VOL T | It is TXR-6 Module voltage   |
| 71 | TXR-6 Module current   | 16-bit unsigned int | 40171 | VALUE / 10 | Read Only | AMP   | It is TXR-6 Module current   |
| 72 | TXR-7 Module voltage   | 16-bit unsigned int | 40172 | VALUE / 10 | Read Only | VOL T | It is TXR-7 Module voltage   |
| 73 | TXR-7 Module current   | 16-bit unsigned int | 40173 | VALUE / 10 | Read Only | AMP   | It is TXR-7 Module current   |
| 74 | TXR-8 Module voltage   | 16-bit unsigned int | 40174 | VALUE / 10 | Read Only | VOL T | It is TXR-8 Module voltage   |
| 75 | TXR-8 Module current   | 16-bit unsigned int | 40175 | VALUE / 10 | Read Only | AMP   | It is TXR-8 Module current   |
| 76 | TXR-9 Module voltage   | 16-bit unsigned int | 40176 | VALUE / 10 | Read Only | VOL T | It is TXR-9 Module voltage   |
| 77 | TXR-9 Module current   | 16-bit unsigned int | 40177 | VALUE / 10 | Read Only | AMP   | It is TXR-9 Module current   |
| 78 | TXR-10 Module voltage  | 16-bit unsigned int | 40178 | VALUE / 10 | Read Only | VOL T | It is TXR-10 Module voltage  |
| 79 | TXR-10 Module current  | 16-bit unsigned int | 40179 | VALUE / 10 | Read Only | AMP   | It is TXR-10 Module current  |
| 80 | TXR-11 Module voltage  | 16-bit unsigned int | 40180 | VALUE / 10 | Read Only | VOL T | It is TXR-11 Module voltage  |
| 81 | TXR-11 Module current  | 16-bit unsigned int | 40181 | VALUE / 10 | Read Only | AMP   | It is TXR-11 Module current  |
| 82 | TXR-12 Module voltage  | 16-bit unsigned int | 40182 | VALUE / 10 | Read Only | VOL T | It is TXR-12 Module voltage  |
| 83 | TXR-12 Module current  | 16-bit unsigned int | 40183 | VALUE / 10 | Read Only | AMP   | It is TXR-12 Module current  |
| 84 | TXR-13 Module voltage  | 16-bit unsigned int | 40184 | VALUE / 10 | Read Only | VOL T | It is TXR-13 Module voltage  |
| 85 | TXR-13 Module current  | 16-bit unsigned int | 40185 | VALUE / 10 | Read Only | AMP   | It is TXR-13 Module current  |
| 86 | TXR-14 Module voltage  | 16-bit unsigned int | 40186 | VALUE / 10 | Read Only | VOL T | It is TXR-14 Module voltage  |
| 87 | TXR-14 Module current  | 16-bit unsigned int | 40187 | VALUE / 10 | Read Only | AMP   | It is TXR-14 Module current  |
| 88 | AC-AC-1 Module voltage | 16-bit unsigned int | 40188 | VALUE / 10 | Read Only | VOL T | It is AC-AC-1 Module voltage |
| 89 | AC-AC-1 Module current | 16-bit unsigned int | 40189 | VALUE / 10 | Read Only | AMP   | It is AC-AC-1 Module current |
| 90 | AC-AC-2 Module voltage | 16-bit unsigned int | 40190 | VALUE / 10 | Read Only | VOL T | It is AC-AC-2 Module voltage |

|     |                         |                     |       |            |           |       |                               |
|-----|-------------------------|---------------------|-------|------------|-----------|-------|-------------------------------|
| 91  | AC-AC-2 Module current  | 16-bit unsigned int | 40191 | VALUE / 10 | Read Only | AMP   | It is AC-AC-2 Module current  |
| 92  | AC-AC-3 Module voltage  | 16-bit unsigned int | 40192 | VALUE / 10 | Read Only | VOL T | It is AC-AC-3 Module voltage  |
| 93  | AC-AC-3 Module current  | 16-bit unsigned int | 40193 | VALUE / 10 | Read Only | AMP   | It is AC-AC-3 Module current  |
| 94  | AC-AC-4 Module voltage  | 16-bit unsigned int | 40194 | VALUE / 10 | Read Only | VOL T | It is AC-AC-4 Module voltage  |
| 95  | AC-AC-4 Module current  | 16-bit unsigned int | 40195 | VALUE / 10 | Read Only | AMP   | It is AC-AC-4 Module current  |
| 96  | AC-AC-5 Module voltage  | 16-bit unsigned int | 40196 | VALUE / 10 | Read Only | VOL T | It is AC-AC-5 Module voltage  |
| 97  | AC-AC-5 Module current  | 16-bit unsigned int | 40197 | VALUE / 10 | Read Only | AMP   | It is AC-AC-5 Module current  |
| 98  | AC-AC-6 Module voltage  | 16-bit unsigned int | 40198 | VALUE / 10 | Read Only | VOL T | It is AC-AC-6 Module voltage  |
| 99  | AC-AC-6 Module current  | 16-bit unsigned int | 40199 | VALUE / 10 | Read Only | AMP   | It is AC-AC-6 Module current  |
|     |                         |                     |       |            |           |       |                               |
| 100 | AC-AC-7 Module voltage  | 16-bit unsigned int | 40200 | VALUE / 10 | Read Only | VOL T | It is AC-AC-7 Module voltage  |
| 101 | AC-AC-7 Module current  | 16-bit unsigned int | 40201 | VALUE / 10 | Read Only | AMP   | It is AC-AC-7 Module current  |
| 102 | AC-AC-8 Module voltage  | 16-bit unsigned int | 40202 | VALUE / 10 | Read Only | VOL T | It is AC-AC-8 Module voltage  |
| 103 | AC-AC-8 Module current  | 16-bit unsigned int | 40203 | VALUE / 10 | Read Only | AMP   | It is AC-AC-8 Module current  |
| 104 | AC-AC-9 Module voltage  | 16-bit unsigned int | 40204 | VALUE / 10 | Read Only | VOL T | It is AC-AC-9 Module voltage  |
| 105 | AC-AC-9 Module current  | 16-bit unsigned int | 40205 | VALUE / 10 | Read Only | AMP   | It is AC-AC-9 Module current  |
| 106 | AC-AC-10 Module voltage | 16-bit unsigned int | 40206 | VALUE / 10 | Read Only | VOL T | It is AC-AC-10 Module voltage |
| 107 | AC-AC-10 Module current | 16-bit unsigned int | 40207 | VALUE / 10 | Read Only | AMP   | It is AC-AC-10 Module current |
| 108 | AC-AC-11 Module voltage | 16-bit unsigned int | 40208 | VALUE / 10 | Read Only | VOL T | It is AC-AC-11 Module voltage |
| 109 | AC-AC-11 Module current | 16-bit unsigned int | 40209 | VALUE / 10 | Read Only | AMP   | It is AC-AC-11 Module current |
| 110 | AC-AC-12 Module voltage | 16-bit unsigned int | 40210 | VALUE / 10 | Read Only | VOL T | It is AC-AC-12 Module voltage |
| 111 | AC-AC-12 Module current | 16-bit unsigned int | 40211 | VALUE / 10 | Read Only | AMP   | It is AC-AC-12 Module current |
| 112 | AC-AC-13 Module voltage | 16-bit unsigned int | 40212 | VALUE / 10 | Read Only | VOL T | It is AC-AC-13 Module voltage |
| 113 | AC-AC-13 Module current | 16-bit unsigned int | 40213 | VALUE / 10 | Read Only | AMP   | It is AC-AC-13 Module current |

|     |                               |                     |             |            |           |       |                                                                   |
|-----|-------------------------------|---------------------|-------------|------------|-----------|-------|-------------------------------------------------------------------|
| 114 | AC-AC-14 Module voltage       | 16-bit unsigned int | 40214       | VALUE / 10 | Read Only | VOL T | It is AC-AC-14 Module voltage                                     |
| 115 | AC-AC-14 Module current       | 16-bit unsigned int | 40215       | VALUE / 10 | Read Only | AMP   | It is AC-AC-14 Module current                                     |
| 116 | AVR-1 Module voltage          | 16-bit unsigned int | 40216       | VALUE / 10 | Read Only | VOL T | It is AVR-1 Module voltage                                        |
| 117 | AVR-1 Module current          | 16-bit unsigned int | 40217       | VALUE / 10 | Read Only | AMP   | It is AVR-1 Module current                                        |
| 118 | AVR-2 Module voltage          | 16-bit unsigned int | 40218       | VALUE / 10 | Read Only | VOL T | It is AVR-2 Module voltage                                        |
| 119 | AVR-2 Module current          | 16-bit unsigned int | 40219       | VALUE / 10 | Read Only | AMP   | It is AVR-2 Module current                                        |
| 120 | AVR-3 Module voltage          | 16-bit unsigned int | 40220       | VALUE / 10 | Read Only | VOL T | It is AVR-3 Module voltage                                        |
| 121 | AVR-3 Module current          | 16-bit unsigned int | 40221       | VALUE / 10 | Read Only | AMP   | It is AVR-3 Module current                                        |
| 122 | AVR-4 Module voltage          | 16-bit unsigned int | 40222       | VALUE / 10 | Read Only | VOL T | It is AVR-4 Module voltage                                        |
| 123 | AVR-4 Module current          | 16-bit unsigned int | 40223       | VALUE / 10 | Read Only | AMP   | It is AVR-4 Module current                                        |
| 124 | AC Modules fault status       | 48-bit unsigned int | 40224-40226 | VALUE      | Read Only |       | <b>Bitwise description is given in table -2 ( in other sheet)</b> |
| 125 | Spare-5                       | 16-bit unsigned int | 40227       | VALUE      | Read Only |       | Reserved for future purpose                                       |
| 126 | Spare-6                       | 16-bit unsigned int | 40228       | VALUE      | Read Only |       | Reserved for future purpose                                       |
| 127 | Spare-7                       | 16-bit unsigned int | 40229       | VALUE      | Read Only |       | Reserved for future purpose                                       |
| 128 | Spare-8                       | 16-bit unsigned int | 40230       | VALUE      | Read Only |       | Reserved for future purpose                                       |
| 129 | DC-DC_group-1 Module voltage  | 16-bit unsigned int | 40231       | VALUE / 10 | Read Only | VOL T | It is DC-DC_group-1 Module voltage                                |
| 130 | DC-DC_group -1 Module current | 16-bit unsigned int | 40232       | VALUE / 10 | Read Only | AMP   | It is DC-DC_group -1 Module current                               |
| 131 | DC-DC_group -2 Module voltage | 16-bit unsigned int | 40233       | VALUE / 10 | Read Only | VOL T | It is DC-DC_group -2 Module voltage                               |
|     |                               |                     |             |            |           |       |                                                                   |
| 132 | DC-DC_group -2 Module current | 16-bit unsigned int | 40234       | VALUE / 10 | Read Only | AMP   | It is DC-DC_group -2 Module current                               |
| 133 | DC-DC_group -3 Module voltage | 16-bit unsigned int | 40235       | VALUE / 10 | Read Only | VOL T | It is DC-DC_group -3 Module voltage                               |
| 134 | DC-DC_group -3 Module current | 16-bit unsigned int | 40236       | VALUE / 10 | Read Only | AMP   | It is DC-DC_group -3 Module current                               |
| 135 | DC-DC_group -4 Module voltage | 16-bit unsigned int | 40237       | VALUE / 10 | Read Only | VOL T | It is DC-DC_group -4 Module voltage                               |
| 136 | DC-DC_group -4 Module current | 16-bit unsigned int | 40238       | VALUE / 10 | Read Only | AMP   | It is DC-DC_group -4 Module current                               |

|     |                                   |                        |       |               |              |          |                                         |
|-----|-----------------------------------|------------------------|-------|---------------|--------------|----------|-----------------------------------------|
| 137 | DC-DC_group -5<br>Module voltage  | 16-bit unsigned<br>int | 40239 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -5<br>Module voltage  |
| 138 | DC-DC_group -5<br>Module current  | 16-bit unsigned<br>int | 40240 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -5<br>Module current  |
| 139 | DC-DC_group-6<br>Module voltage   | 16-bit unsigned<br>int | 40241 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group-6<br>Module voltage   |
| 140 | DC-DC_group -6<br>Module current  | 16-bit unsigned<br>int | 40242 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -6<br>Module current  |
| 141 | DC-DC_group -7<br>Module voltage  | 16-bit unsigned<br>int | 40243 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -7<br>Module voltage  |
| 142 | DC-DC_group -7<br>Module current  | 16-bit unsigned<br>int | 40244 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -7<br>Module current  |
| 143 | DC-DC_group -8<br>Module voltage  | 16-bit unsigned<br>int | 40245 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -8<br>Module voltage  |
| 144 | DC-DC_group -8<br>Module current  | 16-bit unsigned<br>int | 40246 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -8<br>Module current  |
| 145 | DC-DC_group -9<br>Module voltage  | 16-bit unsigned<br>int | 40247 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -9<br>Module voltage  |
| 146 | DC-DC_group -9<br>Module current  | 16-bit unsigned<br>int | 40248 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -9<br>Module current  |
| 147 | DC-DC_group -10<br>Module voltage | 16-bit unsigned<br>int | 40249 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -10<br>Module voltage |
| 148 | DC-DC_group -10<br>Module current | 16-bit unsigned<br>int | 40250 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -10<br>Module current |
| 149 | DC-DC_group-11<br>Module voltage  | 16-bit unsigned<br>int | 40251 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group-11<br>Module voltage  |
| 150 | DC-DC_group -11<br>Module current | 16-bit unsigned<br>int | 40252 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -11<br>Module current |
| 151 | DC-DC_group -12<br>Module voltage | 16-bit unsigned<br>int | 40253 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -12<br>Module voltage |
| 152 | DC-DC_group -12<br>Module current | 16-bit unsigned<br>int | 40254 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -12<br>Module current |
| 153 | DC-DC_group -13<br>Module voltage | 16-bit unsigned<br>int | 40255 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -13<br>Module voltage |
| 154 | DC-DC_group -13<br>Module current | 16-bit unsigned<br>int | 40256 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -13<br>Module current |
| 155 | DC-DC_group -14<br>Module voltage | 16-bit unsigned<br>int | 40257 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -14<br>Module voltage |
| 156 | DC-DC_group -14<br>Module current | 16-bit unsigned<br>int | 40258 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -14<br>Module current |
| 157 | DC-DC_group -15<br>Module voltage | 16-bit unsigned<br>int | 40259 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -15<br>Module voltage |
| 158 | DC-DC_group -15<br>Module current | 16-bit unsigned<br>int | 40260 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -15<br>Module current |
| 159 | DC-DC_group-16<br>Module voltage  | 16-bit unsigned<br>int | 40261 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group-16<br>Module voltage  |

|     |                                   |                        |       |               |              |          |                                         |
|-----|-----------------------------------|------------------------|-------|---------------|--------------|----------|-----------------------------------------|
| 160 | DC-DC_group -16<br>Module current | 16-bit unsigned<br>int | 40262 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -16<br>Module current |
| 161 | DC-DC_group -17<br>Module voltage | 16-bit unsigned<br>int | 40263 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -17<br>Module voltage |
|     |                                   |                        |       |               |              |          |                                         |
| 162 | DC-DC_group -17<br>Module current | 16-bit unsigned<br>int | 40264 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -17<br>Module current |
| 163 | DC-DC_group -18<br>Module voltage | 16-bit unsigned<br>int | 40265 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -18<br>Module voltage |
| 164 | DC-DC_group -18<br>Module current | 16-bit unsigned<br>int | 40266 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -18<br>Module current |
| 165 | DC-DC_group -19<br>Module voltage | 16-bit unsigned<br>int | 40267 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -19<br>Module voltage |
| 166 | DC-DC_group -19<br>Module current | 16-bit unsigned<br>int | 40268 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -19<br>Module current |
| 167 | DC-DC_group -20<br>Module voltage | 16-bit unsigned<br>int | 40269 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -20<br>Module voltage |
| 168 | DC-DC_group -20<br>Module current | 16-bit unsigned<br>int | 40270 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -20<br>Module current |
| 169 | DC-DC_group -21<br>Module voltage | 16-bit unsigned<br>int | 40271 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -21<br>Module voltage |
| 170 | DC-DC_group -21<br>Module current | 16-bit unsigned<br>int | 40272 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -21<br>Module current |
| 171 | DC-DC_group -22<br>Module voltage | 16-bit unsigned<br>int | 40273 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -22<br>Module voltage |
| 172 | DC-DC_group -22<br>Module current | 16-bit unsigned<br>int | 40274 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -22<br>Module current |
| 173 | DC-DC_group -23<br>Module voltage | 16-bit unsigned<br>int | 40275 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -23<br>Module voltage |
| 174 | DC-DC_group -23<br>Module current | 16-bit unsigned<br>int | 40276 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -23<br>Module current |
| 175 | DC-DC_group -24<br>Module voltage | 16-bit unsigned<br>int | 40277 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -24<br>Module voltage |
| 176 | DC-DC_group -24<br>Module current | 16-bit unsigned<br>int | 40278 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -24<br>Module current |
| 177 | DC-DC_group -25<br>Module voltage | 16-bit unsigned<br>int | 40279 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -25<br>Module voltage |
| 178 | DC-DC_group -25<br>Module current | 16-bit unsigned<br>int | 40280 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -25<br>Module current |
| 179 | DC-DC_group -26<br>Module voltage | 16-bit unsigned<br>int | 40281 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -26<br>Module voltage |
| 180 | DC-DC_group -26<br>Module current | 16-bit unsigned<br>int | 40282 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -26<br>Module current |
| 181 | DC-DC_group -27<br>Module voltage | 16-bit unsigned<br>int | 40283 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -27<br>Module voltage |
| 182 | DC-DC_group -27<br>Module current | 16-bit unsigned<br>int | 40284 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -27<br>Module current |
| 183 | DC-DC_group -28<br>Module voltage | 16-bit unsigned<br>int | 40285 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -28<br>Module voltage |

|     |                                   |                        |       |               |              |          |                                         |
|-----|-----------------------------------|------------------------|-------|---------------|--------------|----------|-----------------------------------------|
| 184 | DC-DC_group -28<br>Module current | 16-bit unsigned<br>int | 40286 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -28<br>Module current |
| 185 | DC-DC_group -29<br>Module voltage | 16-bit unsigned<br>int | 40287 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -29<br>Module voltage |
| 186 | DC-DC_group -29<br>Module current | 16-bit unsigned<br>int | 40288 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -29<br>Module current |
| 187 | DC-DC_group -30<br>Module voltage | 16-bit unsigned<br>int | 40289 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -30<br>Module voltage |
| 188 | DC-DC_group -30<br>Module current | 16-bit unsigned<br>int | 40290 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -30<br>Module current |
| 189 | DC-DC_group -31<br>Module voltage | 16-bit unsigned<br>int | 40291 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -31<br>Module voltage |
| 190 | DC-DC_group -31<br>Module current | 16-bit unsigned<br>int | 40292 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -31<br>Module current |
| 191 | DC-DC_group -32<br>Module voltage | 16-bit unsigned<br>int | 40293 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -32<br>Module voltage |
| 192 | DC-DC_group -32<br>Module current | 16-bit unsigned<br>int | 40294 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -32<br>Module current |
| 193 | DC-DC_group -33<br>Module voltage | 16-bit unsigned<br>int | 40295 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -33<br>Module voltage |
| 194 | DC-DC_group -33<br>Module current | 16-bit unsigned<br>int | 40296 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -33<br>Module current |
| 195 | DC-DC_group -34<br>Module voltage | 16-bit unsigned<br>int | 40297 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -34<br>Module voltage |
| 196 | DC-DC_group -34<br>Module current | 16-bit unsigned<br>int | 40298 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -34<br>Module current |
| 197 | DC-DC_group -35<br>Module voltage | 16-bit unsigned<br>int | 40299 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -35<br>Module voltage |
| 198 | DC-DC_group -35<br>Module current | 16-bit unsigned<br>int | 40300 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -35<br>Module current |
| 199 | DC-DC_group -36<br>Module voltage | 16-bit unsigned<br>int | 40301 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -36<br>Module voltage |
| 200 | DC-DC_group -36<br>Module current | 16-bit unsigned<br>int | 40302 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -36<br>Module current |
| 201 | DC-DC_group -37<br>Module voltage | 16-bit unsigned<br>int | 40303 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -37<br>Module voltage |
| 202 | DC-DC_group -37<br>Module current | 16-bit unsigned<br>int | 40304 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -37<br>Module current |
| 203 | DC-DC_group -38<br>Module voltage | 16-bit unsigned<br>int | 40305 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -38<br>Module voltage |
| 204 | DC-DC_group -38<br>Module current | 16-bit unsigned<br>int | 40306 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -38<br>Module current |
| 205 | DC-DC_group -39<br>Module voltage | 16-bit unsigned<br>int | 40307 | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -39<br>Module voltage |
| 206 | DC-DC_group -39<br>Module current | 16-bit unsigned<br>int | 40308 | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -39<br>Module current |

|     |                                    |                        |                 |               |              |          |                                                                      |
|-----|------------------------------------|------------------------|-----------------|---------------|--------------|----------|----------------------------------------------------------------------|
| 207 | DC-DC_group -40<br>Module voltage  | 16-bit unsigned<br>int | 40309           | VALUE<br>/ 10 | Read<br>Only | VOL<br>T | It is DC-DC_group -40<br>Module voltage                              |
| 208 | DC-DC_group -40<br>Module current  | 16-bit unsigned<br>int | 40310           | VALUE<br>/ 10 | Read<br>Only | AMP      | It is DC-DC_group -40<br>Module current                              |
| 209 | DC-DC_group<br>Module fault status | 48-bit unsigned<br>int | 40311-<br>40312 | VALUE         | Read<br>Only |          | <b>Bitwise description is given<br/>in table -3 (in other sheet)</b> |
| 210 | IPS SYSTEM<br>ALARM                | 16-bit unsigned<br>int | 40313           | VALUE         | Read<br>Only |          | <b>Bitwise description is given<br/>in table -4 (in Other Sheet)</b> |
| 211 | Spare-9                            | 16-bit unsigned<br>int | 40314           | VALUE         | Read<br>Only |          | Reserved for future purpose                                          |
| 212 | Spare-10                           | 16-bit unsigned<br>int | 40315           | VALUE         | Read<br>Only |          | Reserved for future purpose                                          |
| 213 | Spare-11                           | 16-bit unsigned<br>int | 40316           | VALUE         | Read<br>Only |          | Reserved for future purpose                                          |
| 214 | Spare-12                           | 16-bit unsigned<br>int | 40317           | VALUE         | Read<br>Only |          | Reserved for future purpose                                          |
| 215 | Spare-13                           | 16-bit unsigned<br>int | 40318           | VALUE         | Read<br>Only |          | Reserved for future purpose                                          |

## MODBUS REGISTER MAPPING OF IPS FOR RDPMS

**TABLE-1** (Bitwise description OF **SMRS FAULTS** status)

| Sr.<br>No. | Bit Details | Bit Description                            |
|------------|-------------|--------------------------------------------|
| 1          | Bit0        | If bit0=1, means SMR-1 FAIL else healthy   |
| 2          | Bit1        | If bit1=1, means SMR-2 FAIL else healthy   |
| 3          | Bit2        | If bit2=1, means SMR-3 FAIL else healthy   |
| 4          | Bit3        | If bit3=1, means SMR-4 FAIL else healthy   |
| 5          | Bit4        | If bit4=1, means SMR-5 FAIL else healthy   |
| 6          | Bit5        | If bit5=1, means SMR-6 FAIL else healthy   |
| 7          | Bit6        | If bit6=1, means SMR-7 FAIL else healthy   |
| 8          | Bit7        | If bit7=1, means SMR-8 FAIL else healthy   |
| 9          | Bit8        | If bit8=1, means SMR-9 FAIL else healthy   |
| 10         | Bit9        | If bit9=1, means SMR-10 FAIL else healthy  |
| 11         | Bit10       | If bit10=1, means SMR-11 FAIL else healthy |
| 12         | Bit11       | If bit11=1, means SMR-12 FAIL else healthy |
| 13         | Bit12       | If bit12=1, means SMR-13 FAIL else healthy |
| 14         | Bit13       | If bit13=1, means SMR-14 FAIL else healthy |
| 15         | Bit14       | If bit14=1, means SMR-15 FAIL else healthy |
| 16         | Bit15       | If bit15=1, means SMR-16 FAIL else healthy |

**TABLE-2** (Bitwise description OF **AC PANEL'S** modules fault status)

| Sr. No. | Bit Details | Bit Description                                     |
|---------|-------------|-----------------------------------------------------|
| 1       | Bit0        | If bit0=1, means Inverter-1 FAIL else healthy       |
| 2       | Bit1        | If bit1=1, means Inverter-2 FAIL else healthy       |
| 3       | Bit2        | If bit2=1, means Inverter-3 FAIL else healthy       |
| 4       | Bit3        | If bit3=1, means Inverter-4 FAIL else healthy       |
| 5       | Bit4        | If bit4=1, means Inverter-5 FAIL else healthy       |
| 6       | Bit5        | If bit5=1, means Inverter-6 FAIL else healthy       |
| 7       | Bit6        | If bit6=1, means TXR-1 FAIL else healthy            |
| 8       | Bit7        | If bit7=1, means TXR-2 FAIL else healthy            |
| 9       | Bit8        | If bit8=1, means TXR-3 FAIL else healthy            |
| 10      | Bit9        | If bit9=1, means TXR-4 FAIL else healthy            |
| 11      | Bit10       | If bit10=1, means TXR-5 FAIL else healthy           |
| 12      | Bit11       | If bit11=1, means TXR-6 FAIL else healthy           |
| 13      | Bit12       | If bit12=1, means TXR-7 FAIL else healthy           |
| 14      | Bit13       | If bit13=1, means TXR-8 FAIL else healthy           |
| 15      | Bit14       | If bit14=1, means TXR-9 FAIL else healthy           |
| 16      | Bit15       | If bit15=1, means TXR-10 FAIL else healthy          |
| 17      | Bit16       | If bit16=1, means TXR-11 FAIL else healthy          |
| 18      | Bit17       | If bit17=1, means TXR-12 FAIL else healthy          |
| 19      | Bit18       | If bit18=1, means TXR-13 FAIL else healthy          |
| 20      | Bit19       | If bit19=1, means TXR-14 FAIL else healthy          |
| 21      | Bit20       | If bit20=1, means AVR-1 FAIL else healthy           |
| 22      | Bit21       | If bit21=1, means AVR-2 FAIL else healthy           |
| 23      | Bit22       | If bit22=1, means AVR-3 FAIL else healthy           |
| 24      | Bit23       | If bit23=1, means AVR-4 FAIL else healthy           |
| 25      | Bit24       | If bit24=1, means AC-AC-1 MODULE FAIL else healthy  |
| 26      | Bit25       | If bit25=1, means AC-AC-2 MODULE FAIL else healthy  |
| 27      | Bit26       | If bit26=1, means AC-AC-3 MODULE FAIL else healthy  |
| 28      | Bit27       | If bit27=1, means AC-AC-4 MODULE FAIL else healthy  |
| 29      | Bit28       | If bit28=1, means AC-AC-5 MODULE FAIL else healthy  |
| 30      | Bit29       | If bit29=1, means AC-AC-6 MODULE FAIL else healthy  |
| 31      | Bit30       | If bit30=1, means AC-AC-7 MODULE FAIL else healthy  |
| 32      | Bit31       | If bit31=1, means AC-AC-8 MODULE FAIL else healthy  |
| 33      | Bit32       | If bit32=1, means AC-AC-9 MODULE FAIL else healthy  |
| 34      | Bit33       | If bit33=1, means AC-AC-10 MODULE FAIL else healthy |
| 35      | Bit34       | If bit34=1, means AC-AC-11 MODULE FAIL else healthy |

|    |       |                                                     |
|----|-------|-----------------------------------------------------|
| 36 | Bit35 | If bit35=1, means AC-AC-12 MODULE FAIL else healthy |
| 37 | Bit36 | If bit36=1, means AC-AC-13 MODULE FAIL else healthy |
| 38 | Bit37 | If bit37=1, means AC-AC-14 MODULE FAIL else healthy |
| 39 | Bit38 | NA                                                  |
| 40 | Bit39 | NA                                                  |
| 41 | Bit40 | NA                                                  |
| 42 | Bit41 | NA                                                  |
| 43 | Bit42 | NA                                                  |
| 44 | Bit43 | NA                                                  |
| 45 | Bit44 | NA                                                  |
| 46 | Bit45 | NA                                                  |
| 47 | Bit46 | NA                                                  |
| 48 | Bit47 | NA                                                  |

**TABLE-3** (Bitwise description OF Group of **DC-DC MODULES** fault status)

| Sr. No. | Bit Details | Bit Discription                                    |
|---------|-------------|----------------------------------------------------|
| 1       | Bit0        | If bit0=1, means DC-DC_group-1 FAIL else healthy   |
| 2       | Bit1        | If bit1=1, means DC-DC_group-2 FAIL else healthy   |
| 3       | Bit2        | If bit2=1, means DC-DC_group-3 FAIL else healthy   |
| 4       | Bit3        | If bit3=1, means DC-DC_group-4 FAIL else healthy   |
| 5       | Bit4        | If bit4=1, means DC-DC_group-5 FAIL else healthy   |
| 6       | Bit5        | If bit5=1, means DC-DC_group-6 FAIL else healthy   |
| 7       | Bit6        | If bit6=1, means DC-DC_group-7 FAIL else healthy   |
| 8       | Bit7        | If bit7=1, means DC-DC_group-8 FAIL else healthy   |
| 9       | Bit8        | If bit8=1, means DC-DC_group-9 FAIL else healthy   |
| 10      | Bit9        | If bit9=1, means DC-DC_group-10 FAIL else healthy  |
| 11      | Bit10       | If bit10=1, means DC-DC_group-11 FAIL else healthy |
| 12      | Bit11       | If bit11=1, means DC-DC_group-12 FAIL else healthy |
| 13      | Bit12       | If bit12=1, means DC-DC_group-13 FAIL else healthy |
| 14      | Bit13       | If bit13=1, means DC-DC_group-14 FAIL else healthy |
| 15      | Bit14       | If bit14=1, means DC-DC_group-15 FAIL else healthy |
| 16      | Bit15       | If bit15=1, means DC-DC_group-16 FAIL else healthy |
| 17      | Bit16       | If bit16=1, means DC-DC_group-17 FAIL else healthy |
| 18      | Bit17       | If bit17=1, means DC-DC_group-18 FAIL else healthy |
| 19      | Bit18       | If bit18=1, means DC-DC_group-19 FAIL else healthy |
| 20      | Bit19       | If bit19=1, means DC-DC_group-20 FAIL else healthy |

|    |       |                                                    |
|----|-------|----------------------------------------------------|
| 21 | Bit20 | If bit20=1, means DC-DC_group-21 FAIL else healthy |
| 22 | Bit21 | If bit21=1, means DC-DC_group-22 FAIL else healthy |
| 23 | Bit22 | If bit22=1, means DC-DC_group-23 FAIL else healthy |
| 24 | Bit23 | If bit23=1, means DC-DC_group-24 FAIL else healthy |
| 25 | Bit24 | If bit24=1, means DC-DC_group-25 FAIL else healthy |
| 26 | Bit25 | If bit25=1, means DC-DC_group-26 FAIL else healthy |
| 27 | Bit26 | If bit26=1, means DC-DC_group-27 FAIL else healthy |
| 28 | Bit27 | If bit27=1, means DC-DC_group-28 FAIL else healthy |
| 29 | Bit28 | If bit28=1, means DC-DC_group-29 FAIL else healthy |
| 30 | Bit29 | If bit29=1, means DC-DC_group-30 FAIL else healthy |
| 31 | Bit30 | If bit30=1, means DC-DC_group-31 FAIL else healthy |
| 32 | Bit31 | If bit31=1, means DC-DC_group-32 FAIL else healthy |
| 33 | Bit32 | If bit32=1, means DC-DC_group-33 FAIL else healthy |
| 34 | Bit33 | If bit33=1, means DC-DC_group-34 FAIL else healthy |
| 35 | Bit34 | If bit34=1, means DC-DC_group-35 FAIL else healthy |
| 36 | Bit35 | If bit35=1, means DC-DC_group-36 FAIL else healthy |
| 37 | Bit36 | If bit36=1, means DC-DC_group-37 FAIL else healthy |
| 38 | Bit37 | If bit37=1, means DC-DC_group-38 FAIL else healthy |
| 39 | Bit38 | If bit38=1, means DC-DC_group-39 FAIL else healthy |
| 40 | Bit39 | If bit39=1, means DC-DC_group-40 FAIL else healthy |
| 41 | Bit40 | NA                                                 |
| 42 | Bit41 | NA                                                 |
| 43 | Bit42 | NA                                                 |
| 44 | Bit43 | NA                                                 |
| 45 | Bit44 | NA                                                 |
| 46 | Bit45 | NA                                                 |
| 47 | Bit46 | NA                                                 |
| 48 | Bit47 | NA                                                 |

**TABLE-4 (Bitwise description OF IPS SYSTEM ALARMS)**

| Sr. No. | Bit Details | Bit Discription                                        |
|---------|-------------|--------------------------------------------------------|
| 1       | Bit0        | If bit0=1, means BATTERY FAIL (BATTERY FL)             |
| 2       | Bit1        | If bit1=1, means MAINS FAIL (I/P MAINS FL)             |
| 3       | Bit2        | If bit2=1, means SMR FAIL (SMR FL)                     |
| 4       | Bit3        | If bit3=1, means BATTERY CURRENT NOT AVAILABLE (DC FL) |
| 5       | Bit4        | If bit4=1, means AC BUS FAIL (AC BUS FAIL)             |
| 6       | Bit5        | If bit5=1, means AC BUS OVER LOAD (AC BUS OL)          |
| 7       | Bit6        | If bit6=1, means INVERTER FAIL (INV FL)                |
| 8       | Bit7        | If bit7=1, means AVR FAIL (AVR FL)                     |
| 9       | Bit8        | If bit8=1, means STEP DOWN TRANSFORMER FAIL (TX FL)    |
| 10      | Bit9        | If bit10=1, means AC-AC Converter FAIL (AC-AC FL)      |

|    |       |                                                  |
|----|-------|--------------------------------------------------|
| 11 | Bit10 | If bit9=1, means DC-DC Converter FAIL (DC-DC FL) |
| 12 | Bit11 | If bit11=1, means SPD FAIL (SPD FL)              |
| 13 | Bit12 | If bit12=1, means FAN FAIL (FAN FL)              |
| 14 | Bit13 | NA                                               |
| 15 | Bit14 | NA                                               |
| 16 | Bit15 | NA                                               |