# ASST - ADCS IF Status

## NORMAL RESPONSE

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|  |  |  |  |  |
| **Byte** | **Bit** | **Description** |  |  |
| 1 | 2..0 | **Reset Source**  Provides information about last reset. The bit is cleared after the first read of the status  0 = No reset  1 = Power-on Reset  2 = External Reset (released by JTAG adapter)  3 = Watchdog Reset  4 = Brown-out Reset  5 = JTAG AVR Reset (logic reset by JTAG)  6 = Not used  7 = Not used |  |  |
| 3 | **ADCS IF ready**  This bit is set when ADCS is ready to read/write to units. In the boot of the ADCS IF shall be a time to initialize all modules and units. After initialization of the ADCS IF, modules and units, shall go to a ready state.  While ADCS IF is not ready, the available commands are:   * ASST * ASHK * ASCT |  | **BF(MIN=0;MAX=0)** |
| 4 | **OBC communication error**  This bit is set if a communication error between OBC and ADCS IF occurred in the last command. The bit is cleared after the first reading of the status  0 = No error  1 = Communication error |  | **BF(MIN=0;MAX=0)** |
| 7..5 | **Unit communication error**  This bit is set if a communication error between ADCS IF and ADCS unit occurred. The bit is cleared after the first read of the status  0 = No error  1 = Communication error |  | **BF(MIN=0;MAX=0)** |
| 2 | 7..0 | **Unit in error**  Provides a list of units in error.  0 = No error  1 = Unit error  Each bit is assigned to one unit:  Bit 0 = Gyroscope unit  Bit 1 = Reaction Wheel  Bit 2 = Magnetorquer  Bit 3 = Magnetometer  Bit 4 = Sun Sensor |  | **BF(MIN=0;MAX=0)** |
| 3 | 7..0 | **Watchdog Reset Counter**  Watchdog Reset counter value.  Increment in every watchdog reset.  Value is stored in non-volatile memory  To clear watchdog reset counter, shall be used the ASCF command. |  | **VAT(T=XXX;D=XXXX)** |
| 4 | 7..0 | **Overall Reset Counter**  Overall reset counter value.  Increment in every device reset.  Value is stored in non-volatile memory  To clear overall reset counter, shall be used the ASCF command. |  | **VAT(T=XXX;D=XXXX)** |
| 5 | 1..0 | **Gyroscope enable**  Enable/Disable status of nominal or redundant bus transceiver.  0 = Disabled both transceivers  1 = Enabled nominal transceiver only  2 = Enabled redundant transceiver only  3 = not existing (reserved for future needs) | **INT** | **INV(MIN=0;MAX=2)** |
| 4..2 | **Reaction Wheel enable**  Enabled/Disabled status of bus transceiver.  0 = Disabled transceiver  1 = Enabled transceiver  7..2 = not existing (reserved for future needs) |  | **BF(MIN=0;MAX=0)** |
| 7..5 | **3 axis Magnetorquer enable**  General Enable/Disable status of the Magnetorquer Driver for all three axis.  0 = Disabled  1 = Enabled  Bit assignement:  Bit 0 = Enabled/Disabled Driver  Bit 1 = 0 not used (reserved for future needs)  Bit 2 = 0 not used (reserved for future needs) |  | **BF(MIN=0;MAX=0)** |
| 6 | 1..0 | **Magnetometer enable**  Enable/Disable status of nominal or redundant bus transceiver.  0 = Disabled both transceivers  1 = Enabled nominal transceiver only  2 = Enabled redundant transceiver only  3 = not existing (reserved for future needs) |  | **INV(MIN=0;MAX=2)** |
| 7..2 | **Sun Sensor board ADC enable**  Enabled/Disabled Sun Sensor board ADC, see Note 3)  0 = Disabled  1 = Enabled  Each bit is assigned to one ADC:  Bit 0 = Enabled/Disabled ADC2  Bit 1 = Enabled/Disabled ADC3  Bit 2 = Enabled/Disabled ADC4  Bit 3 = Enabled/Disabled ADC5  Bit 4 = Enabled/Disabled ADC6  Bit 5 = Enabled/Disabled ADC7 |  | **BF(MIN=0;MAX=5)** |

## Error RSP

Error RSP Message has 1 byte of data

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| --- | --- | --- | --- | --- |
| **Byte** | **Bit** | **Description** |  |  |
| 1 | 7..0 | **Error type**  The possible errors are described in the Table 7. | **Hex** | **IV(VALUE=0x51)**  **IV(VALUE=0x52)**  **IV(VALUE=0x53)**  **IV(VALUE=0x54)**  **IV(VALUE=0x55)**  **IV(VALUE=0x57)**  **IV(VALUE=0x58)**  **IV(VALUE=0x59)**  **IV(VALUE=0x5A)**  **IV(VALUE=0x5B)**  **IV(VALUE=0x5C)** |

### ASHK - ADCS IF HK

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Byte** | **Bit** | **Description** |  |  |
| 1 | 7..0 | **VCC1N**  OBC Nominal transceiver circuit voltage |  | **VAT(T=XX;D=XX)** |
| 2 | 7..0 |  |  |
| 3 | 7..0 | **VCC1R**  OBC Redundant transceiver circuit voltage |  | **VAT(T=XX;D=XX)** |
| 4 | 7..0 |  |  |
| 5 | 7..0 | **VCC2**  Gyroscope transceiver/UART circuit voltage |  |  |
| 6 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 7 | 7..0 | **VCC3**  Magnetometer transceiver/UART circuit voltage |  |  |
| 8 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 9 | 7..0 | **VCC4**  Reaction Wheel transceiver/UART circuit voltage |  |  |
| 10 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 11 | 7..0 | **VCCa**  Internal power supply (5.5V), measured with ADC0 |  |  |
| 12 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 13 | 7..0 | **VCCb**  Internal power supply (5.5V), measured with ADC1 |  |  |
| 14 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 15 | 7..0 | **VBUS**  Unit input bus voltage |  | **VAT(T=XX;D=XX)** |
| 16 | 7..0 |  |  |
| 17 | 7..0 | **VCC5**  Supply voltage for ADC2, ADC3, ADC4 and VCCB1.  Sun-sensor PCB |  | **VAT(T=XX;D=XX)** |
| 18 | 7..0 |  |  |
| 19 | 7..0 | **VCC6**  Supply voltage for ADC5, ADC6, ADC7 and VCCB2.  Sun-sensor PCB |  |  |
| 20 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 21 | 7..0 | **VCC5\_IN**  LDO input voltage for ADC2, ADC3, ADC4 and VCCB1.  Sun-sensor PCB |  |  |
| 22 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 23 | 7..0 | **VCC6\_IN**  LDO input voltage for ADC5, ADC6, ADC7 and VCCB2.  Sun-sensor PCB |  |  |
| 24 | 7..0 |  | **VAT(T=XX;D=XX)** |
| 25 | 7..0 | **VCC\_SW1**  SSB internal switched power supply, measured by ADC3  Remark: the voltage VCC\_SW is measured 2 times with two different ADC. This allows to compare the results and conclude for a drift in the ADC’s. |  | **VAT(T=XX;D=XX)** |
| 26 | 7..0 |  |  |
| 27 | 7..0 | **VCC\_SW2**  SSB internal switched power supply, measured by ADC6  Remark: the voltage VCC\_SW is measured 2 times with two different ADC. This allows to compare the results and conclude for a drift in the ADC’s. |  | **VAT(T=XX;D=XX)** |
| 28 | 7..0 |  |  |
| 29 | 7..0 | **T\_PCB\_TEMP1**  Main Board PCB Temperature, sensor 1  Temperature of VCC DC/DC regulator.  Remark: 1/2 is measured on the same place, it’s to compare the values to discover a measurement failure |  | **VAT(T=XX;D=XX)** |
| 30 | 7..0 |  |  |
| 31 | 7..0 | **T\_PCB\_TEMP2**  Main Board PCB Temperature, sensor 2  Temperature of VCC DC/DC regulator.  Remark: 1/2 is measured on the same place, it’s to compare the values to discover a measurement failure |  |  |
| 32 | 7..0 |  | **VOR(MIN=XX; MAX=XX;D=XX)** |
| 33 | 7..0 | **T\_PCB\_TEMP3a**  Sun Sensor Board PCB Temperature, sensor 3a.  Temperature of VCC5 LDO regulator.  Remark: 3a/b is measured on the same place, it’s to compare the values to discover a measurement failure |  | **VOR(MIN=XX; MAX=XX;D=XX)** |
| 34 | 7..0 |  |  |
| 35 | 7..0 | **T\_PCB\_TEMP3b**  Sun Sensor Board PCB Temperature, sensor 3b.  Temperature of VCC5 LDO regulator.  Remark: 3a/b is measured on the same place, it’s to compare the values to discover a measurement failure |  | **VOR(MIN=XX; MAX=XX;D=XX)** |
| 36 | 7..0 |  |  |
| 37 | 7..0 | **T\_PCB\_TEMP4**  Sun Sensor Board PCB Temperature, sensor 4. Temperature of VCC6 LDO regulator. |  | **VOR(MIN=XX; MAX=XX;D=XX)** |