| Tlm Ch | | Bitpos | Startbit Info Frame | Source | Content Frame 1 | Bits | Unit | Transfer Function / Fixed Value |
|---|---|---|---|---|---|---|---|---|
| 0 | | **1** | 1600 | OBC1 *or* OBC2 | Elapsed Time Tag | 32 | s | [value] * 0.1 |
| 1 | | **33** | 1584 | | Bootcounter | 16 | - | [value] |
| 2 | | **49** | 1553 | | Framecounter | 31 | - | [value] |
| 3 | | **80** | 1552 | | Frame Type Identifier | 1 | | **$[0]_{bin}$** |
| 4 | | **81** | 1540 | PTRX_IMC | PTRX Doppler Voltage | 12 | mV | [value] * 3.226 |
| 5 | | **93** | 1528 | | PTRX Received Signal Strength | 12 | mV | [value] * 3.226 |
| 6 | | **105** | 1516 | | PTRX Reflected Power | 12 | mW | [value] * [value] * 0.000239 |
| 7 | | **117** | 1504 | | PTRX Forwarded Power | 12 | mW | [value] * [value] * 0.000239 |
| 8 | | **129** | 1492 | | PTRX Transmitter Supply Current | 12 | mA | [value] * 0.395 |
| 9 | | **141** | 1480 | | PTRX Receiver Supply Current | 12 | mA | [value] * 0.395 |
| 10 | | **153** | 1468 | | PTRX PA Temperature | 12 | °C | [value] * 0.322 - 50 |
| 11 | | **165** | 1456 | | PTRX Power Bus Voltage | 12 | V | [value] * 0.0161 |
| 12 | | **177** | 1455 | DAB1 *or* DAB2 | Deployment Status Solar Panel X- | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **178** | 1454 | | Deployment Status Solar Panel X+ | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **179** | 1453 | | Deployment Status Solar Panel Y- | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **180** | 1452 | | Deployment Status Solar Panel Y+ | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **181** | 1451 | | Deployment Status Antenna X- | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **182** | 1450 | | Deployment Status Antenna X+ | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **183** | 1449 | | Deployment Status Antenna Y- | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| | | **184** | 1448 | | Deployment Status Antenna Y+ | 1 | | $[0]_{bin}$=undeployed, $[1]_{bin}$=deployed |
| 13 | | **185** | 1440 | | DAB Temperature | 8 | °C | [value] * 0.3922 - 23.2 |
| 14 | | **193** | 1428 | | Main Bus Current | 12 | mA | [value] * 0.4884 |
| 15 | | **205** | 1416 | | Main Bus Voltage | 12 | V | [value] * 0.0034 |
| 16 | | **217** | 1408 | | Variable Bus Voltage | 8 | V | [value] * 0.1176 |
| 17 | | **225** | 1407 | | Power Status Solar Panel X+Z+ | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **226** | 1406 | | Power Status Solar Panel X+Z- | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **227** | 1405 | | Power Status Solar Panel X-Z+ | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **228** | 1404 | | Power Status Solar Panel X-Z- | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **229** | 1403 | | Power Status Solar Panel Y+Z+ | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **230** | 1402 | | Power Status Solar Panel Y+Z- | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **231** | 1401 | | Power Status Solar Panel Y-Z+ | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| | | **232** | 1400 | | Power Status Solar Panel Y-Z- | 1 | | $[0]_{bin}$=not MPP, $[1]_{bin}$=MPP |
| 18 | | **233** | 1392 | | Operational Power Point Solar Panel X+Z+ Current | 8 | mA | [value] * 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 19 | | **241** | 1384 | | Operational Power Point Solar Panel X+Z- Current | 8 | mA | [value] * 2 |
| 20 | | **249** | 1376 | | Operational Power Point Solar Panel X-Z+ Current | 8 | mA | [value] * 2 |
| 21 | | **257** | 1368 | | Operational Power Point Solar Panel X-Z- Current | 8 | mA | [value] * 2 |
| 22 | | **265** | 1360 | | Operational Power Point Solar Panel Y+Z+ Current | 8 | mA | [value] * 2 |
| 23 | | **273** | 1352 | | Operational Power Point Solar Panel Y+Z- Current | 8 | mA | [value] * 2 |
| 24 | | **281** | 1344 | G-EPS1 *or* G-EPS2 | Operational Power Point Solar Panel Y-Z+ Current | 8 | mA | [value] * 2 |
| 25 | | **289** | 1336 | | Operational Power Point Solar Panel Y-Z- Current | 8 | mA | [value] * 2 |
| 26 | | **297** | 1328 | | Operational Power Point Solar Panel X+Z+ Voltage | 8 | mV | [value] * 0.1 |
| 27 | | **305** | 1320 | | Operational Power Point Solar Panel X+Z- Voltage | 8 | mV | [value] * 0.1 |
| 28 | | **313** | 1312 | | Operational Power Point Solar Panel X-Z+ Voltage | 8 | mV | [value] * 0.1 |
| 29 | | **321** | 1304 | | Operational Power Point Solar Panel X-Z- Voltage | 8 | mV | [value] * 0.1 |
| 30 | | **329** | 1296 | | Operational Power Point Solar Panel Y+Z+ Voltage | 8 | mV | [value] * 0.1 |
| 31 | | **337** | 1288 | | Operational Power Point Solar Panel Y+Z- Voltage | 8 | mV | [value] * 0.1 |
| 32 | | **345** | 1280 | | Operational Power Point Solar Panel Y-Z+ Voltage | 8 | mV | [value] * 0.1 |
| 33 | | **353** | 1272 | | Operational Power Point Solar Panel Y-Z- Voltage | 8 | mV | [value] * 0.1 |
| 34 | | **361** | 1264 | | Solar Panel X+Z+ Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-98.6 |
| 35 | | **369** | 1256 | | Solar Panel X+Z- Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-101.3 |
| 36 | | **377** | 1248 | | Solar Panel X-Z+ Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-100.2 |
| 37 | | **385** | 1240 | | Solar Panel X-Z- Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-99.6 |
| 38 | | **393** | 1232 | | Solar panel Y+Z+ Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-98.5 |
| 39 | | **401** | 1224 | | Solar panel Y+Z- Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-100.9 |
| 40 | | **409** | 1216 | | Solar panel Y-Z+ Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-98.83 |
| 41 | | **417** | 1208 | | Solar panel Y-Z- Temperature | 8 | °C | 0.0011* [value]2+0.7281* [value]-101.4 |
| 42 | | **425** | 1200 | | Regulation Board Temperature | 8 | °C | [value] * 0.3922 - 22 |
| 43 | | **433** | 1192 | | Battery 1 Depth-of-Discharge | 8 | % | [value] * -0.4761 + 100 |
| 44 | | **441** | 1184 | | Battery 1 Charging Current | 8 | mA | [value] * 19.6078 |
| 45 | | **449** | 1176 | | Battery 1 Discharging Current | 8 | mA | [value] * 12.0784 |
| 46 | | **457** | 1168 | | Battery 1 Voltage | 8 | mV | [value] * 16.8627 |
| 47 | | **465** | 1160 | BAT1 | Battery 1 Temperature | 8 | °C | 0.0017* [value]2-0.7353* [value]+60.7 |
| 48 | | **473** | 1152 | | Battery 2 Depth-of-Discharge | 8 | % | [value] * -0.4761 + 100 |
| 49 | | **481** | 1144 | | Battery 2 Charging Current | 8 | mA | [value] * 19.6078 |
| 50 | | **489** | 1136 | | Battery 2 Discharging Current | 8 | mA | [value] * 12.0784 |
| 51 | | **497** | 1128 | | Battery 2 Voltage | 8 | mV | [value] * 16.8627 |
| 52 | | **505** | 1120 | | Battery 2 Temperature | 8 | °C | 0.0017* [value]2-0.7353* [value]+60.7 |
| 53 | | **513** | 1112 | | Battery 3 Depth-of-Discharge | 8 | % | [value] * -0.4761 + 100 |
| 54 | | **521** | 1104 | | Battery 3 Charging Current | 8 | mA | [value] * 19.6078 |
| 55 | | **529** | 1096 | | Battery 3 Discharging Current | 8 | mA | [value] * 12.0784 |
| 56 | | **537** | 1088 | | Battery 3 Voltage | 8 | mV | [value] * 16.8627 |
| 57 | | **545** | 1080 | BAT2 | Battery 3 Temperature | 8 | °C | 0.0017* [value]2-0.7353* [value]+60.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 58 | | **553** | 1072 | BAT2 | Battery 4 Depth-of-Discharge | 8 | % | [value] * -0.4761 + 100 |
| 59 | | **561** | 1064 | | Battery 4 Charging Current | 8 | mA | [value] * 19.6078 |
| 60 | | **569** | 1056 | | Battery 4 Discharging Current | 8 | mA | [value] * 12.0784 |
| 61 | | **577** | 1048 | | Battery 4 Voltage | 8 | mV | [value] * 16.8627 |
| 62 | | **585** | 1040 | | Battery 4 Temperature | 8 | °C | 0.0017* [value]2-0.7353* [value]+60.7 |
| 63 | | **593** | 1032 | | Valve Current | 8 | mA | [value] * 4.3294 |
| 64 | | **601** | 1024 | | Igniter Current | 8 | mA | [value] * 11.7647 |
| 65 | | **609** | 1016 | | Igniter Voltage | 8 | mV | [value] * 19.6078 |
| 66 | | **617** | 1008 | | Plenum Temperature | 8 | °C | [value] * 0.4902 - 40 |
| 67 | | **625** | 1000 | | Microcontroller Temperature | 8 | °C | [value] * 0.4902 - 40 |
| 68 | | **633** | 988 | | Plenum Pressure 1 (-1966.7 ms) | 12 | mbar | [value] * 1.4652 |
| 69 | | **645** | 976 | | Plenum Pressure 2 (-1933.3 ms) | 12 | mbar | [value] * 1.4652 |
| 70 | | **657** | 964 | | Plenum Pressure 3 (-1900.0 ms) | 12 | mbar | [value] * 1.4652 |
| 71 | | **669** | 952 | | Plenum Pressure 4 | 12 | mbar | [value] * 1.4652 |
| 72 | | **681** | 940 | | Plenum Pressure 5 | 12 | mbar | [value] * 1.4652 |
| 73 | | **693** | 928 | | Plenum Pressure 6 | 12 | mbar | [value] * 1.4652 |
| 74 | | **705** | 916 | | Plenum Pressure 7 | 12 | mbar | [value] * 1.4652 |
| 75 | | **717** | 904 | | Plenum Pressure 8 | 12 | mbar | [value] * 1.4652 |
| 76 | | **729** | 892 | | Plenum Pressure 9 | 12 | mbar | [value] * 1.4652 |
| 77 | | **741** | 880 | | Plenum Pressure 10 | 12 | mbar | [value] * 1.4652 |
| 78 | | **753** | 868 | | Plenum Pressure 11 | 12 | mbar | [value] * 1.4652 |
| 79 | | **765** | 856 | | Plenum Pressure 12 | 12 | mbar | [value] * 1.4652 |
| 80 | | **777** | 844 | | Plenum Pressure 13 | 12 | mbar | [value] * 1.4652 |
| 81 | | **789** | 832 | | Plenum Pressure 14 | 12 | mbar | [value] * 1.4652 |
| 82 | | **801** | 820 | | Plenum Pressure 15 | 12 | mbar | [value] * 1.4652 |
| 83 | | **813** | 808 | | Plenum Pressure 16 | 12 | mbar | [value] * 1.4652 |
| 84 | | **825** | 796 | | Plenum Pressure 17 | 12 | mbar | [value] * 1.4652 |
| 85 | | **837** | 784 | | Plenum Pressure 18 | 12 | mbar | [value] * 1.4652 |
| 86 | | **849** | 772 | | Plenum Pressure 19 | 12 | mbar | [value] * 1.4652 |
| 87 | | **861** | 760 | | Plenum Pressure 20 | 12 | mbar | [value] * 1.4652 |
| 88 | | **873** | 748 | | Plenum Pressure 21 | 12 | mbar | [value] * 1.4652 |
| 89 | | **885** | 736 | | Plenum Pressure 22 | 12 | mbar | [value] * 1.4652 |
| 90 | | **897** | 724 | | Plenum Pressure 23 | 12 | mbar | [value] * 1.4652 |
| 91 | | **909** | 712 | | Plenum Pressure 24 | 12 | mbar | [value] * 1.4652 |
| 92 | | **921** | 700 | | Plenum Pressure 25 | 12 | mbar | [value] * 1.4652 |
| 93 | | **933** | 688 | | Plenum Pressure 26 | 12 | mbar | [value] * 1.4652 |
| 94 | | **945** | 676 | | Plenum Pressure 27 | 12 | mbar | [value] * 1.4652 |
| 95 | | **957** | 664 | T3µPS | Plenum Pressure 28 | 12 | mbar | [value] * 1.4652 |
| 96 | | **969** | 652 | | Plenum Pressure 29 | 12 | mbar | [value] * 1.4652 |

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|---|---|---|---|---|---|---|---|
| 97 | | **981** | 640 | Plenum Pressure 30 | 12 | mbar | [value] * 1.4652 |
| 98 | | **993** | 628 | Plenum Pressure 31 | 12 | mbar | [value] * 1.4652 |
| 99 | | **1005** | 616 | Plenum Pressure 32 | 12 | mbar | [value] * 1.4652 |
| 100 | | **1017** | 604 | Plenum Pressure 33 | 12 | mbar | [value] * 1.4652 |
| 101 | | **1029** | 592 | Plenum Pressure 34 | 12 | mbar | [value] * 1.4652 |
| 102 | | **1041** | 580 | Plenum Pressure 35 | 12 | mbar | [value] * 1.4652 |
| 103 | | **1053** | 568 | Plenum Pressure 36 | 12 | mbar | [value] * 1.4652 |
| 104 | | **1065** | 556 | Plenum Pressure 37 | 12 | mbar | [value] * 1.4652 |
| 105 | | **1077** | 544 | Plenum Pressure 38 | 12 | mbar | [value] * 1.4652 |
| 106 | | **1089** | 532 | Plenum Pressure 39 | 12 | mbar | [value] * 1.4652 |
| 107 | | **1101** | 520 | Plenum Pressure 40 | 12 | mbar | [value] * 1.4652 |
| 108 | | **1113** | 508 | Plenum Pressure 41 | 12 | mbar | [value] * 1.4652 |
| 109 | | **1125** | 496 | Plenum Pressure 42 | 12 | mbar | [value] * 1.4652 |
| 110 | | **1137** | 484 | Plenum Pressure 43 | 12 | mbar | [value] * 1.4652 |
| 111 | | **1149** | 472 | Plenum Pressure 44 | 12 | mbar | [value] * 1.4652 |
| 112 | | **1161** | 460 | Plenum Pressure 45 | 12 | mbar | [value] * 1.4652 |
| 113 | | **1173** | 448 | Plenum Pressure 46 | 12 | mbar | [value] * 1.4652 |
| 114 | | **1185** | 436 | Plenum Pressure 47 | 12 | mbar | [value] * 1.4652 |
| 115 | | **1197** | 424 | Plenum Pressure 48 | 12 | mbar | [value] * 1.4652 |
| 116 | | **1209** | 412 | Plenum Pressure 49 | 12 | mbar | [value] * 1.4652 |
| 117 | | **1221** | 400 | Plenum Pressure 50 | 12 | mbar | [value] * 1.4652 |
| 118 | | **1233** | 388 | Plenum Pressure 51 | 12 | mbar | [value] * 1.4652 |
| 119 | | **1245** | 376 | Plenum Pressure 52 | 12 | mbar | [value] * 1.4652 |
| 120 | | **1257** | 364 | Plenum Pressure 53 | 12 | mbar | [value] * 1.4652 |
| 121 | | **1269** | 352 | Plenum Pressure 54 | 12 | mbar | [value] * 1.4652 |
| 122 | | **1281** | 340 | Plenum Pressure 55 | 12 | mbar | [value] * 1.4652 |
| 123 | | **1293** | 328 | Plenum Pressure 56 | 12 | mbar | [value] * 1.4652 |
| 124 | | **1305** | 316 | Plenum Pressure 57 | 12 | mbar | [value] * 1.4652 |
| 125 | | **1317** | 304 | Plenum Pressure 58 | 12 | mbar | [value] * 1.4652 |
| 126 | | **1329** | 292 | Plenum Pressure 59 (-33.3 ms) | 12 | mbar | [value] * 1.4652 |
| 127 | | **1341** | 280 | Plenum Pressure 60 (-0.0 ms) | 12 | mbar | [value] * 1.4652 |
| 128 | | **1353** | 276 | I-V curve ID | 4 | | [01]-[07]=Cell A1-A7, [08]-[14]=Cell B1-B7 |
| | | **1357** | 274 | Empty | 2 | | =[00] |
| 129 | | **1359** | 273 | Status Cell Temperature Sensor Y- | 1 | | [0]=fault, [1]=OK |
| 130 | | **1360** | 272 | Status Cell Temperature Sensor Y+ | 1 | | [0]=fault, [1]=OK |
| 131 | | **1361** | 256 | I-V Curve: Current 1 | 16 | µA | [value] * 0.09766 |
| 132 | | **1377** | 240 | I-V Curve: Current 2 | 16 | µA | [value] * 0.09766 |
| 133 | | **1393** | 224 | I-V Curve: Current 3 | 16 | µA | [value] * 0.09766 |

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|---|---|---|---|---|---|---|---|---|
| 134 | | **1409** | 208 | | I-V Curve: Current 4 | 16 | µA | [value] * 0.09766 |
| 135 | | **1425** | 192 | | I-V Curve: Current 5 | 16 | µA | [value] * 0.09766 |
| 136 | | **1441** | 176 | | I-V Curve: Current 6 | 16 | µA | [value] * 0.09766 |
| 137 | | **1457** | 160 | SDM | I-V Curve: Current 7 | 16 | µA | [value] * 0.09766 |
| 138 | | **1473** | 144 | | I-V Curve: Current 8 | 16 | µA | [value] * 0.09766 |
| 139 | | **1489** | 128 | | I-V Curve: Voltage 1 | 16 | mV | [value] * 0.01563 |
| 140 | | **1505** | 112 | | I-V Curve: Voltage 2 | 16 | mV | [value] * 0.01563 |
| 141 | | **1521** | 96 | | I-V Curve: Voltage 3 | 16 | mV | [value] * 0.01563 |
| 142 | | **1537** | 80 | | I-V Curve: Voltage 4 | 16 | mV | [value] * 0.01563 |
| 143 | | **1553** | 64 | | I-V Curve: Voltage 5 | 16 | mV | [value] * 0.01563 |
| 144 | | **1569** | 48 | | I-V Curve: Voltage 6 | 16 | mV | [value] * 0.01563 |
| 145 | | **1585** | 32 | | I-V Curve: Voltage 7 | 16 | mV | [value] * 0.01563 |
| 146 | | **1601** | 16 | | I-V Curve: Voltage 8 | 16 | mV | [value] * 0.01563 |
| 147 | | **1617** | 8 | | Cell Temperature Y- | 8 | °C | [value] * 0.8328 - 46.34 |
| 148 | | **1625** | 0 | | Cell Temperature Y+ | 8 | °C | [value] * 0.8328 - 39.74 |