
ADT161 Communication protocol

Data sending format:

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| A: X: Command; Parameter 0; Parameter 1; Parameter 2;; Parameter 5 | 0x00 |
| ASC code | Hexadecimal |

Data returning format:

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| A: F/E: Command; Parameter 0; Parameter 1; Parameter 2;; Parameter 5 | 0x00 |
| ASC code | Hexadecimal |

Note:

A: Address. It is the module's serial address, the range is 001~127, factory default setting is 001.

X: R/W, R=read, W=write.

Command: The specific items of commands.

F/E: F=command was sent correctly, E= command sent error.

| Commands | | | | | | | | | Description | Returned value |
|----------|---|-------|--------------|---------------|----|----|----|-----|---|---|
| A | X | Knnnn | C0 | C1 | C2 | C3 | C4 | EOS | | |
| | R | OADD | - | - | - | - | - | 0x0 | Read series port's address (001~127) | A: F: OADD: address +EOS |
| | W | OADD | address | - | - | - | - | 0x0 | Set series port's address (001~127) | A: F: OADD: OK+EOS |
| | W | OBAUD | Baud rate | - | - | - | - | 0x0 | Set Baud rate, 4800/9600/19200/38400/115200 | A: F: OBAUD: OK+EOS |
| | R | OVER | - | - | - | - | - | 0x0 | Read software version | A: F: OVER: version+ EOS |
| | R | OCODE | - | - | - | - | - | 0x0 | Read serial number | A: F: OCODE: serial number +EOS |
| | R | ODATE | - | - | - | - | - | 0x0 | Read production date, e.g. 2015-01-31 | A: F: ODATE: production date +EOS |
| | R | TAG | Label length | - | - | - | - | 0x0 | Read sensor label | A: F: TAG: sensor label +EOS |
| | W | TAG | Label length | Label content | - | - | - | 0x0 | Write sensor label | A: F: TAG: OK+EOS |
| | R | ORAN | - | - | - | - | - | 0x0 | Read range | A: F: ORAN: lower limit: high limit: sensor type accuracy+EOS |
| | W | MWORK | Work mode | - | - | - | - | 0x0 | Set work mode, 2=Linear correction 0= non linear correction | A: F: MWORK: OK+EOS |
| | R | MWORK | - | - | - | - | - | 0x0 | Read work mode, 2=Linear correction 0= non linear correction | A: F: MWORK: work mode +EOS |
| | W | OCS | - | - | - | - | - | 0x0 | Start user calibration | A: F: OCS: OK+EOS |

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|---|--------|------------------------|----------------------|-------------------|---|---|-----|---|--|
| W | OCP | Standard point | Standard value | - | - | - | 0x0 | Calibration point: Z-zero, M-middle, F-full scale Note: need run "OCS" before calibration. Need run "OCALD" before calibrating middle point and enable 3-point calibration | A: F: OCP: OK+EOS |
| W | OCPOK | 0 or 1 | - | - | - | - | 0x0 | Save calibration data and exit | A: F: OCPOK: OK+EOS |
| W | OFALT | - | - | - | - | - | 0x0 | Cancel user calibration | A: F: OFALT: OK+EOS |
| R | OCDATE | - | - | - | - | - | 0x0 | Read user calibration date, e.g. 2015-01-31 | A: F: OCDATE: calibration date +EOS |
| W | OCDATE | Calibration date | - | - | - | - | 0x0 | Write user calibration date, e.g. 2015-01-31 | A: F: OCDATE: OK+EOS |
| W | OCRAM | calibration point sign | Calibration pressure | Measured pressure | - | - | 0x0 | Write user calibration information, unit is kPa. Note: need run "OCS" at first. It can be 1,2 and 3, totally 3 points. When enabling "OCALD" for 3 point calibration, all the points are valid; when it is not enabled, only 2 and 3 can be used. After writing, it needs run "OCPOK" to start user calibration. | A: F: OCRAM: OK+EOS |
| R | OCRAW | calibration point sign | - | - | - | - | 0x0 | Read user calibration information, unit is kPa. | A: F: OCRAM: calibration point sign; standard pressure; measured |

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|---|-------|-----------------------------|---|---|---|---|-----|--|-----------------------------------|
| | | | | | | | | | pressure+EOS |
| R | OCALD | - | - | - | - | - | 0x0 | Read the forced 3-point calibration sign: 0=3 point calibration is invalid, 1=3 point calibration is valid | A: F: OCALD: calibration sign+EOS |
| W | ODLEN | Data length | - | - | - | - | | Write output data length, 5--9 | A: F: ODLEN: OK+EOS |
| W | OZERO | - | - | - | - | - | 0x0 | Zero, valid when pressure deviation less than 2%FS, only for current mode | A: F: OZERO: OK+EOS |
| W | MZERO | - | - | - | - | - | 0x0 | Cancel zero offset, only for current mode | A: F: MZERO: OK+EOS |
| W | ABSZ | Current barometric pressure | - | - | - | - | 0x0 | Absolute pressure zero, also for calibrating current standard, standard pressure | A: F: ABSZ: OK+EOS |
| R | MRMD | - | - | - | - | - | 0x0 | Read current measured value, return measured value | A: F: MRMD: measured data +EOS |
| R | MRMN | - | - | - | - | - | 0x0 | Read the data without any corrections | A: F: MRMN: measured data +EOS |
| W | OCONT | Reading status | - | - | - | - | 0x0 | Read the measured data sent by the device, 1=continuous send, 0=end | A: F: OCONT: OK+EOS |
| R | OSENS | - | - | - | - | - | 0x0 | Read sensor type, A(absolute), D(differential), G(gauge) | A: F: OSENS: sensor type+EOS |
| R | MRATE | - | - | - | - | - | 0x0 | Read the rate of sensor output data, unit: times/s, default is 50 | A: F: MRATE: output rate+EOS |
| R | OCALI | - | - | - | - | - | 0x0 | Read calibration data:1/0(factory | A: F: OCALI: factory calibration |

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|---|--------|---------------------|---|---|---|---|-----|---|--|
| | | | | | | | | calibrated):1/0(user calibrated): 2/3(number of current valid calibration points) | status: user calibration status; number of calibration points+EOS |
| R | OACCY | - | - | - | - | - | 0x0 | Read device accuracy, parameter: 20(0.2%)、10(0.1%)、 5(0.05%)、2(0.02%)、1(0.01%) | A: F: OACCY: device accuracy+EOS |
| R | OPFILT | - | - | - | - | - | 0x0 | Read status for pressure filter and first-order coefficient | V03.xx version: A:F:OPFILT: filter status: first-order coefficient +EOS; V08.xx version: A:F:OPFILT:low rate filter: high rate filter: first-order coefficient +EOS |
| R | BMP | - | - | - | - | - | 0x0 | Read barometric sensor measured value, returned value, unit kPa | A: F: BMP: measure data: KPA+EOS |
| W | OCALD | Calibration sign | - | - | - | - | 0x0 | Write forced 3-point calibration sign, 0=cancel, 1=enable | A: F: OCALD: OK+EOS |
| R | OTFILT | - | - | - | - | - | 0x0 | Read status for temperature filter and first-order coefficient | A: F: OTFILT: filter sign: first-order coefficient +EOS |
| R | ODLEN | - | - | - | - | - | 0x0 | Read the output data length | A: F: ODLEN: data length +EOS |

Error code:

- ◆ 1015 The parameter is too long.
- ◆ 1025 The series address is out of range 001~127.
- ◆ 1007 Parameter is wrong.
- ◆ 1030 data is out of zero range.
- ◆ 1006 Illegal range.
- ◆ 1005 Illegal unit.

- ◆ 1001 Out-of-channel operation.
- ◆ 1013 The total number of linear points is out of range.
- ◆ 1014 Working mode is wrong.
- ◆ 1023 Pressure unit name is wrong.
- ◆ 1024 Non-selectable pressure unit.
- ◆ 1031 Erase ferroelectric storage verification errors.
- ◆ 1040 No zero in absolute mode.