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### ADT161 Communication protocol

Data sending format:

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

Data returning format:

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

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: OGRAM: OK+EOS
R	OCRAW	calibration point sign	-	-	-	-	0x0	Read user calibration information, unit is kPa.	A: F: OGRAM: calibration point sign; standard pressure; measured

									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

								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.