

# Supplemental sheet for special device **SERIES AZ17E-600**

Battery powered system with 868 MHz radio module

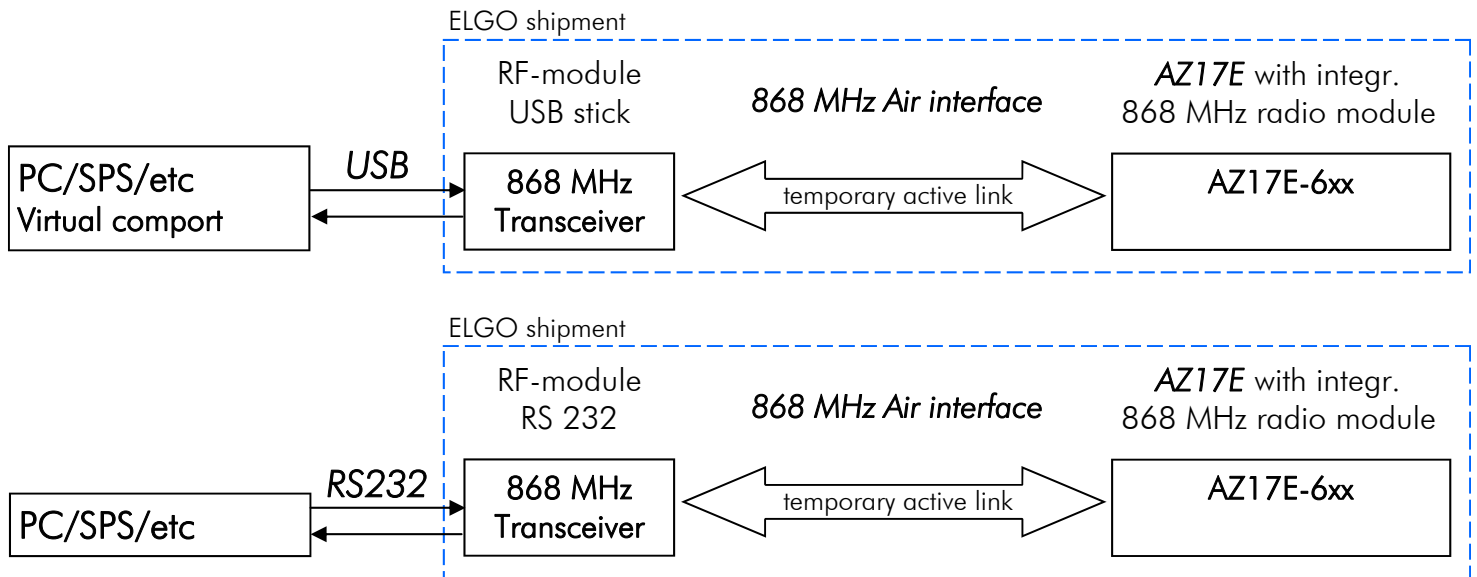


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## 1. General

The battery powered measuring system AZ17E-600 [SLAVE] with external sensor AZS is equipped with an 868MHz radio module (ISM band) for the transfer of the actual value. As an accessory an 868MHz transceiver [MASTER] with RS232 or as a USB stick is available. The two-way radio link serves as a cable replacement between MASTER and SLAVE:



## 2. Technical data

<b>AZ17E-600</b> – ELGO-measuring system	
Input supply voltage	1,5 V DC battery
<b>RF module 868 MHz RS232 [Master]</b>	
Input supply voltage	+10...30 VDC with inverse-polarity protection
Housing dimensions	W x H x D = 55 x 51 x 28 (without mounting clips)
Interface	RS232 9600 Baud / 8 data bits / 1 Stop bit / no parity
<b>RF module 868 MHz USB [Master]</b>	
Connector	USB 2.0 (Full-Speed)
communication	virtual COM-Port
Interface	USB 9600 Baud / 8 data bits / 1 Stop bit / no parity
Driver	USB Driver for WIN-2000 / -XP / -VISTA
<b>868 MHz specification</b>	
operating distance	up to 200 m ( at intervisibility )
HF- data rate	38 kbps
output rating	typ. 2 dBm e.i.r.p. ( 10 dBm at 50 Ω )
input sensitivity	up to -102 dBm ( -110 dBm at 50 Ω )
frequency range	868 - 868,6 MHz
channel raster	50 kHz
kind of modulation	2 - FSK, MSK
aerial	integrated ceramic aerial
topology	point to point
transmission	bidirectional / half-duplex / with receipt / with CRC check sum / 5 times repetition of non receipted radiograms
addressing	2 byte address range, max 64000 different addresses
conformity ( Europe )	EN 300220-1, EN 301489-1/-3, EN 60950-1, EN 50371

### 3. Pin assignment

#### 3.1 indicator AZ17E-600 [Slave]

colour	function
black	0V / GND
red	+ 1,5 VDC

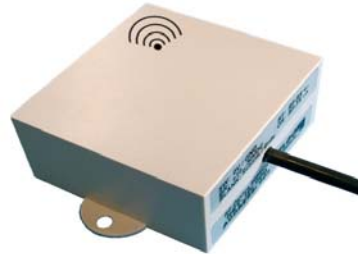
(Battery compartments optional)



#### 3.2 RF-module 868 MHz RS232 [Master]

colour	function
black	0V / GND
brown	+ 10..30 VDC
red	RS232 RF-RX ←
orange	RS232 RF-TX →
blank	shielding/earth

(Open wired / 1 Meter cable length standard)



## 4. Radio transmission

### 4.1 Necessary settings

Parameter	Function
P 01 / Bit 5	Here you can set if the transfer is to be made by pressing a key or automatically every 250 ms.
P23	Setting the destination network address of the Master
P24	Setting the destination address of the Masters
P25	Setting the transmission protocol type

#### Manual radio transmission



Press the button once

Pressing this button the current actual position (display value) is transmitted per radio with the protocol which is set in parameter P90. This works only if the device is not in sleep mode.

#### Reception Control:

A successful transfer will be signalled in the LCD with symbol. → The icon disappears automatically about 3 seconds after the last successful transfer.

#### Automatic radio transmission (P01 = 0xxxxx)

At this setting the current actual position (display value) is transmitted per radio with the protocol which is set in parameter P90 every 250 ms. This works only if the device is not in sleep mode.

#### Reception Control:

A successful transfer will be signalled in the LCD with symbol. → The icon disappears automatically about 3 seconds after the last successful transfer.

## Radio transmission protocol

Parameter P90 = 0: => RF – transmission deactivated

Parameter P90 = 1:

### Protocol Position (Type A: ASCII)

Start	Sign	Position	Position	Position	Position	Position	Position	Position	Position	Stop
0x02	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x03
STX										ETX
<b>Example: +123456,7 mm</b>										
	'+'	'1'	'2'	'3'	'4'	'5'	'6'	'7'		
0x02	0x2B	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x03	

Parameter P90 = 2:

### Protocol Position (Type B: ASCII & Frame-Info)

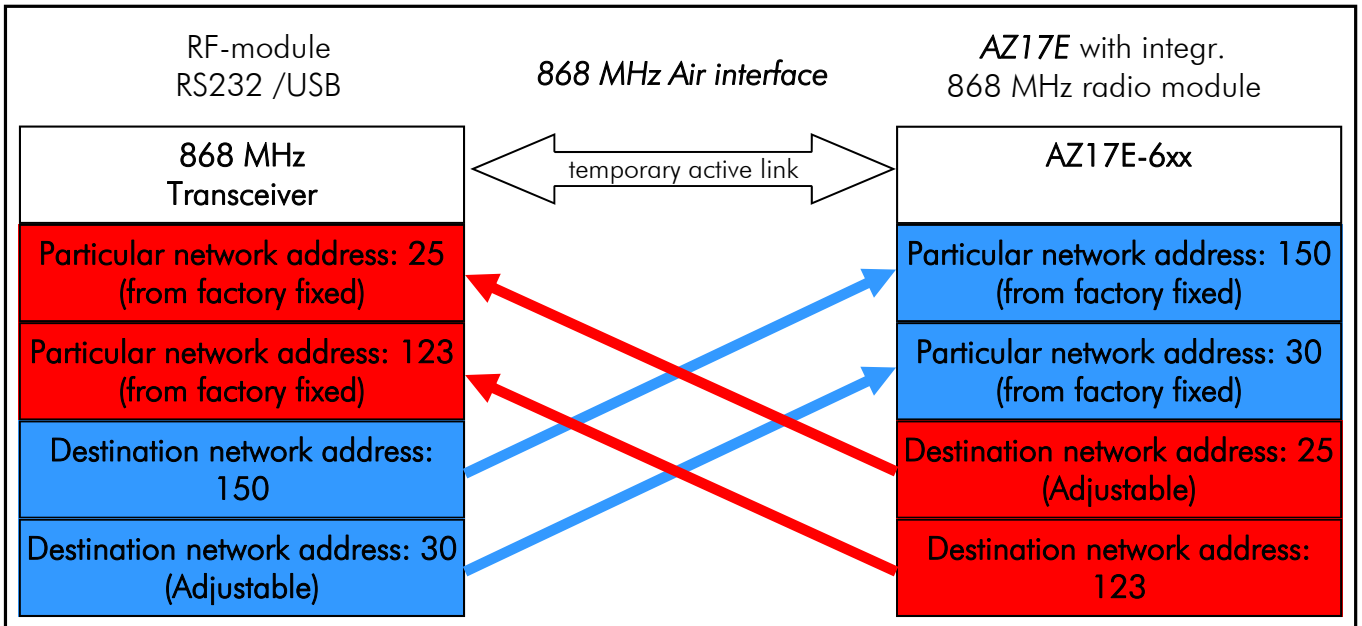
Start	Packet Type	Opcode	Data-Length_0	Data-Length_1	Checksum	Sign	Position	Position	Position	Position	Position	Position	Position	Status	Stop
0x02	0x59	0x81	0x09	0x00	0xE3	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x..	0x03
STX					BCC	Data								ETX	
<b>Example: +123456,7 mm</b>															
						'+'	'1'	'2'	'3'	'4'	'5'	'6'	'7'		
0x02	0x59	0x81	0x09	0x00	0xE3	0x2B	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x00	0x03

**STATUS:    Sensor-Gap-Error:    BIT\_7 = 1**  
**Position-Error:        BIT\_6 = 1**  
**Sensor-Com-Error:    BIT\_0 = 1**

## Addressing

Both participants in the point-to-point connection must be clearly addressed to each other according to the following chart:

### Example addressing



## 5. Parameter list

Parameter:	Description:	Default:
P01: ABCDEF	system configuration: A = 0: RF-transmission every 250 ms A = 1: RF-transmission pressing "SET" B = 0: LCD in SLEEP mode deactivated B = 1: LCD in SLEEP mode activated C = 0: reserved, without function C = 1: reserved, without function D = 0: mm / Inch symbol deactivated D = 1: mm / Inch symbol activated E = 0: mm mode ( resolution 0,1 mm ) E = 1: Inch mode ( resolution 0,001 Inch ) F = 0: counting direction positive F = 1: counting direction negative	111100
P03:	decimal point ( 0...3)	1
P04:	Auto-Power-Off-Time ( 1...99 seconds )	10 s
P05: ABC	key lock A: button "Set" ( 1 = active / 0 = not active ) B: button "Incr/Abs" ( 1 = active / 0 = not active ) C: button "*" ( 1 = active / 0 = not active )	111
P08:	multiplication factor ( 0,001 ... 9,999 )	1,000
P09:	reference value ( -999999,9 ... + 999999,9 )	0,0
P10:	tool offset 1 ( -999999,9 ... + 999999,9 )	10,0
P11:	tool offset 2 ( -999999,9 ... + 999999,9 )	20,0
P12:	tool offset 3 ( -999999,9 ... + 999999,9 )	30,0
P20: *	radio channel in preparation	0
P21:	display: own RF network address (fixed)	xxx
P22:	display: own RF address (fixed)	xxx
P23:*	destination RF network address ( 0...255)	0
P24:*	destination RF address ( 0...255)	0
P90:	type of protocol (0..2) 0: RF-transmission deactivated	2
P99:	display: firmware version	x.xx

**\* CAUTION:**

After a change in the parameters P20, P23 and P24 the device AZ17E-600-3-xx.x-1 has to be disconnected from the supply voltage for 1 minute, so that the parameters will be saved!

## **6. Installation of Driver for RF module 868 MHz USB**

### **File:**

TREIBER\_RF MODUL USB\_W2K\_XP\_S2K3\_VISTA

### **Install:**

Run the file "AMBDriverInstaller.exe" and follow the instructions until the installation has been completed successfully.

### **Connection USB sticks:**

The USB stick is used to connect to the PC to an available USB port. Windows will automatically recognize the new connected device.

The Windows routine assignment for the driver will start automatically:

1. Highlight in the first window "No, not this time" and click "Next".
2. Highlight in the following window "software from a List or specific location" and click on "Next".
3. Highlight in the following window "not search but search the driver to install itself" and click "Next".
4. In the next window is a list of potential drivers. Select "AMB2560/AMB8460 RF module USB Flash" and click on "next".
5. Continue the following warning with click "Continue".
6. Click "Finish" in the last window

At the initial installation a second time the Windows routine will be opened and steps 1. through 6. need to be progressed again.

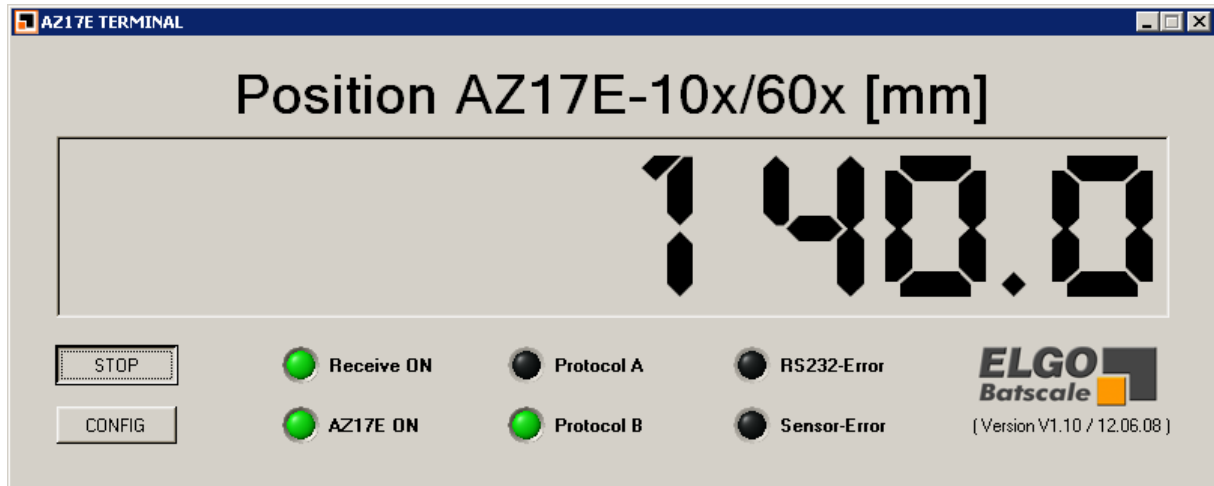
### **Serial Interface:**

The driver creates now a virtual serial port. The interface parameters are at shipment 9600 baud, 8 data bits, no parity and 1 stop bit.

→ For use with the terminal program, the corresponding COM port in the device manager needs to be determined.

## 7. RS232 Terminal

For the commissioning of the system for the PC a small Terminal program is available:



Over the button "CONFIG" the appropriate COM port can be set. The button "Start" or "STOP" opens or closes the set COM port.

File: PC terminal RS232\_Windows\_V1-1

Install: Run the "setup.exe" and follow the instructions until the Installation is completed successfully.

## 8. Mounting

The AZ17E-600 should not be installed in a closed metal housing (the control cabinet, etc.) due to the integrated aerial/antenna. The device should be mounted 10cm away to metal parts and at least 1m distance to potential sources of interferences.

The RF-MODULE 868MHz RS232/USB should be based on an elevated position and should not be hid by metal parts. A minimum distance of 1m from possible sources of interference has to be kept.

Through the installation of MASTER and SLAVE resulting range has to be checked and may be optimized possibly by repositioning.

## 9. Order Designation

Absolute Measuring system with radio module (SLAVE): AZ17E-600-3-xx.x-1

External sensor (xx.x = cable length in meter): AZS-000-1-xx.x-1

868MHz- Transceiver (MASTER) RS232: RF-MODULE 868MHz RS232

868MHz- Transceiver (MASTER) USB: RF-MODULE 868MHz USB