

# APPLICATION NOTE

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## Application note EE242-data logger via Modbus-RTU

Rev. 1.0 01/2012

### Relevant for:

E+E: EE242-Base Station  
[www.epluse.com](http://www.epluse.com)

Logger: ADFweb-Logger  
Datalogger Modbus RS 485  
HD67324-B2-U-458-2GB  
[www.adfweb.com](http://www.adfweb.com)

### Introduction:

External data logger for EE242-Base-Station (wireless system E+E; series EE240)  
Data communication via Modbus-RTU (RS485)

## 1 Check wireless system EE240 via Ethernet/Webserver

Before connecting the Modbus RTU, check the function of wireless-system via Ethernet/webserver. For details please have a look into „manual EE240“ -> page 11-25 „CONFIGURATION SOFTWARE“ WEBSERVER: There must be „active transmitters“ in the **Transmitter List**:



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### Transmitters

#### Transmitter List

Status	Data Age	Name	Serial Number	Type	Interval	
OK	1 sec	EE244-B1	1035931000207f	TM	20 sec	<a href="#">Edit</a>
OK	6 sec	EE244-B2	1120931000432A	Router	20 sec	<a href="#">Edit</a>

If everything is ok, you can go on:

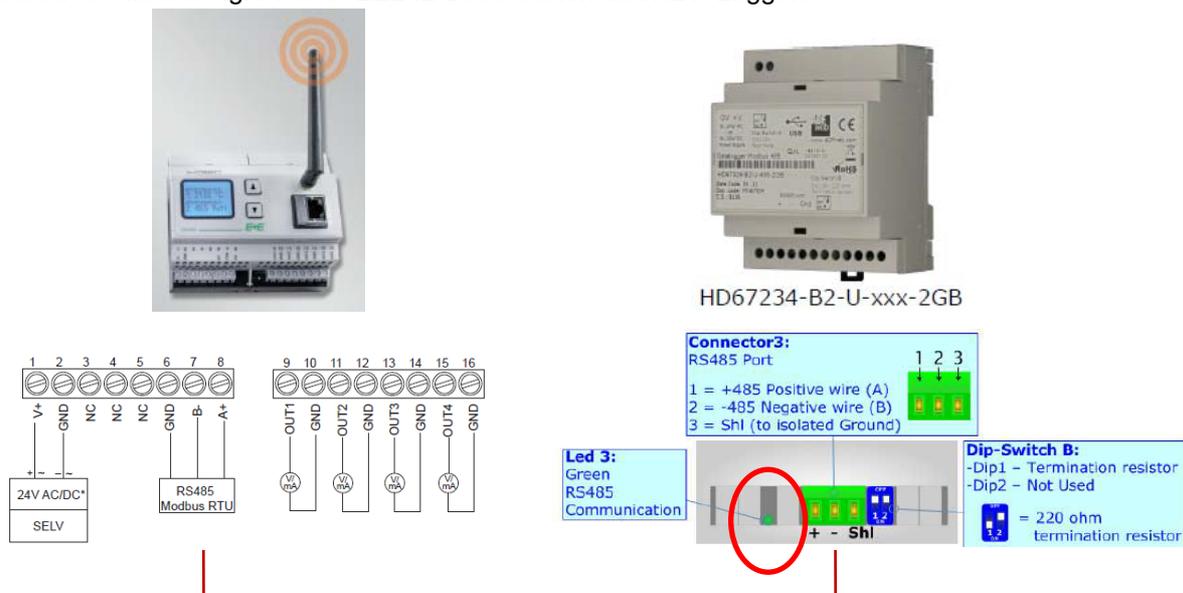
## 2 Installation of ADF-Logger:

Please follow the ADF-manual step by step.

ADF-Logger device works correctly only in WINDOWS XP systems. (see manual on page 3)  
 Software for Windows 7 version should be available 2Q 2012.

## 3 Electrical Connection MODBUS

Screw terminal assignment of EE242-Base-station and ADF-Logger:



After connecting the bus, make sure both devices are powered on !

Check: If the green LED of ADF-Logger (LED 3, left to the ADF Modbus connector) is blinking very fast all the time, the electrical bus connection is active.

## 4 Modbus Configuration of EE240-system:

### 4.1. Modbus Management of EE242

WEBSERVER\_EE242 -> Main menu -> Management -> Modbus:

Modbus

Byte Order:	MSB First (Big Endian)	
Float counts as:	1 Register (1 Register = 1 Value)	1 Register ! (for integer)
TCP Address:	0 (1..247, 0 = disabled)	
Serial Address:	1 (1..247, 0 = disabled)	Serial Address of Modbuslave = e.g. 1
Serial Mode:	RTU	
Baudrate:	9600	
Parity:	Even	
Databits:	8	
Apply Modbus Settings		

### 4.2. Configuration Modbus Register EE242

WEBSERVER\_EE242 -> Main menu -> Modbus Register Map -> Modbus:

Status	Data Age	#	Current Value	Assigned To	Serial Number	Port	Measurand	Unit	Failsafe Value	Data Type	Factor	Offset	Reg. Value	
OK	16 sec	1	22.57 °C	Transmitter	1035931000207f (EE244-09)	2	Temperature	°C	999.00 °C	Integer (16 bit)	100	0	2257	<a href="#">Edit</a>
OK	16 sec	2	30.0 %rH	Transmitter	1035931000207f (EE244-09)	any	Humidity	%rH	500.0 %rH	Integer (16 bit)	100	0	3004	<a href="#">Edit</a>
OK	2 min 55 sec	3	23.95 °C	Transmitter	mf1108/03.0001 (EE245-09)	1	Temperature	°C	999.00 °C	Float (32 bit)	1	0	23.95	<a href="#">Edit</a>
OK	2 min 55 sec	4	26.9 %rH	Transmitter	mf1108/03.0001 (EE245-09)	2	Humidity	%rH	500.0 %rH	Float (32 bit)	1	0	26.94	<a href="#">Edit</a>
OK	2 min 55 sec	5	23.95 °C	Probe	mf1108/03.0001 (EE245-09)	n/a	Temperature	°C	0.00 °C	Float (32 bit)	1	0	23.95	<a href="#">Edit</a>
OK	2 min 55 sec	6	26.9 %rH	Probe	1103931903110E0 (EE245-09)	n/a	Humidity	%rH	999.0 %rH	Float (32 bit)	1	0	26.94	<a href="#">Edit</a>

[Add new Modbus Register](#)

### Edit Modbus Register Configuration

Register Number:	1	Beginning at 1 !
Assigned To:	Transmitter	
Serial Number:	1035931000207f (empty = any Probe/Transmitter)	
Transmitter Port:	n/a (1..3 = specific Transmitter Port, 255 = any Port)	
Measurand and Unit:	Temperature [°C]	
Failsafe Value:	999 n/a	
Data Type:	Integer (16 bit)	Integer !
Factor:	100	Factor = 100 Offset = 0 or 1000 (if you expect neg. values)
Offset:	0	
<input type="button" value="Create Register"/> <a href="#">Back to Modbus Register Map</a>		

## 5 Modbus Configuration of ADF-Logger:

Please follow the ADF-manual step by step; on the next 2 pages you can find only the most important settings.

### Datalogger Setting

- Configuration Setting
- Download Data
- Date & Time Setting

### Modbus Setting

#### Main Option

Select Type of Datalogger

Master ← ADF Logger must be Master, because EE242 acts as a Slave  
 Slave  
 Sniffer  
 Slave + Sniffer

Serial Baudrate:   
 Serial Parity:

Start Record when Reboot  
 Cyclical Memory

### Main Functions

- New Configuration
- Load Configuration
- Save Configuration

### Modbus Setting

#### Main Option

→ Polls Table...
→ IDs List...

#### Polls Table

Insert in the table the Polls. Only if use Master DataLogger

Index	ID Device	Function	Address Reg.	N° Points	Poll Time (ms)	Description
0	1	3	0	3	1000	EE242-Registers
1						
2						

3 = „read“ registers

3 registers = 3 values

ADF Logger “address register”, starting at 0

In other words: Connection of 1pc EE242 with ADF-Logger

### Modbus

Byte Order:

Float counts as:

TCP Address:  (1..247, 0 = disabled)

Serial Address:  (1..247, 0 = disabled)

Serial Mode:

Baudrate:

Parity:

Databits:

Overview Transmitters Outputs Modbus Map Management

### Modbus Register Map

#### Registers

Status	Data Age	#	Current Value	Assigned To	Serial Number	Port	M
OK	16 sec	1	22.57 °C	Transmitter	1035931000207f (EE244-09)	2	Te
OK	16 sec	2	30.0 %rH	Transmitter	1035931000207f (EE244-09)	any	Hu
OK	2 min 55 sec	3	23.95 °C	Transmitter	mfi108/03.0001 (EE245-09)	1	Te

Address Reg = EE242# - 1  
 e.g.: 1-1 = 0

#### Main Functions

- 
- 
-

#### Modbus Setting

**Polls Table**

Insert in the table the Polls. Only in use Master Data Logger

Index	ID Device	Function	Address Reg.	# Points	Poll Time (ms)	Description
0	1	3	0	3	1000	EE242-Registers
1						
2						

## 6 ADF-Logger memory data:

### 6.1. Example: 1 slave = 1xEE242

Download Data						
Grid						
Index	Date Time	Slave ID	Data Type	Address R	Number of	Data
1	24/11/2011				3	START_RECORD
2	24/11/2011	1	Holding Re 0		3	[2229] [3653] [670]
3	24/11/2011	1	Holding Re 0		3	[2229] [3653] [670]
4	24/11/2011	1	Holding Re 0		3	[2229] [3653] [670]

Example of data: ( 3 registers = 3 values; integer; factor = 100; offset = 0 )  
 [2157] = 21,57°C; [3636] = 36,36%RH; [600]=6,00°Ctd

### 6.2. Example: 3 slaves = 2xEE242, 1xEE071)

Download Data						
Grid						
Index	Date Time	Slave ID	Data Type	Address R	Number of	Data
1	20/12/2011 11.25.8.997.4					START_RECORD
2	20/12/2011 11.25.9.290.5	1	Holding Re 0		1	[2167]
3	20/12/2011 11.25.9.423.5	2	Holding Re 0		1	[2166]
4	20/12/2011 11.25.9.502.6	247	Holding Re 32		1	[2180]

## 7 save data as \*.csv file:

**Datalogger Setting**

- Configuration Setting
- Download Data
- Date & Time Setting

9	24/11/2011
10	24/11/2011
11	24/11/2011
12	24/11/2011
13	24/11/2011
14	24/11/2011
15	24/11/2011
16	24/11/2011
17	24/11/2011

Save in CSV file

## 8 General Modbus-Information:

### Example 1: 1pc EE242 ( 9600; even; 8; data type = integer)

Modbus-Reg.	EE242-Reg#	ADF-Logger „address register“
0	1	0
1	2	1
2	3	2

*data type = integer:*

*Be careful ! – do you expect negative numbers ? – then you have to add an „offset“ ! (see page 3)*

### Example 2: 2pcs EE242 ( 9600; even; 8; data type = integer)

Modbus-Reg.	EE242_A-Reg#	EE242_B-Reg#	ADF-Logger „address register“
0	1		0
1	2		1
2	3		2
3		1	3
4		2	4

-> no problem, when different slaves, use the same register number, because each register is addressed in following way: **address = slavenumber.registernumber**

## Contact information

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