AMiT HW programming and communication methods

Abstract

Application note describes programming methods and communication options supported by the AMiT company.

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Attachments

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–	None

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Revision history

Version	Date	Changes by	Changes
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1 Programming stations

Due to innovation of stations, it is possible to programme them using one of two methods. Stations with NOS operating system need to be programmed using the older method (PseDet section). Stations lacking the NOS operating system need to be programmed using the newer method (EsiDet section). The table below shows the possibilities of individual stations. Marked fields denote the programming method.

Station	PseDet (NOS)	EsiDet
ADiR	X	
AMiNi-ES	X	
AMiNi4(D)W2(/G)	X	
ART4000W3	X	
AMiRiS99W3	X	
AMAP99W3	X	
AD-CPUW2	X	
AMR-CP24/01		X
AMR-CP4x/DM		X
ACOS200		X
AMR-OP87(/x)		X
AMR-OP84(/G)		X
AMR-OP10/90		X
AMR-CU70B		X
AMR-FCT10		X
AMR-IRC10		X
AMR-RTV10		X
AMR-RTV20/DM		X
AMR-DI2RDO2		X
AMR-UI2RDO2(/DM)		X
AMR-OP7xRHx		X
AMR-OP60		X
AMR-OP4x(RHC)		X
AMR-OP3xRH		X

There is a special group – industrial computers of APT401xAT series – that cannot be programmed with either method. “AT” type industrial computers have their own IDE – TouchDet – that is used for their parametrisation (industrial computers support only pre-defined elements for displaying and editing data).

2 Serial interfaces

Communication via serial interfaces can be divided to two groups:
- directly supported communication possibilities,
- communication requiring converters from the AMiT company.

2.1 Directly supported communication

Table below shows communication options possible directly on the serial interface of stations without the need for a converter. Marked fields denote the possibility of usage of the given protocol.

Station		DB-Net	ARION	MODBUS RTU	MODBUS ASCII	M-BUS	CAN	UserCom [1])
ADiR	Master	X	X	X	X			X
	Slave	X		X	X			X
AMiNi-ES	Master	X	X	X	X			X
	Slave	X		X	X			X
AMiNi4(D)W2(/G)	Master	X	X	X	X			X
	Slave	X		X	X			X
ART4000W3	Master	X	X	X	X			X
	Slave	X		X	X			X
AMiRiS99W3	Master	X	X	X	X	X [2])	X [3])	X
	Slave	X		X	X		X [3])	X
AMAP99W3	Master	X	X	X	X	X [2])	X [3])	X
	Slave	X		X	X		X [3])	X
AD-CPUW2	Master	X	X	X	X		X [4])	X
	Slave	X		X	X		X [4])	X
AMR-CP24/01	Master	X		X				X
	Slave	X	X	X				X
AMR-CP4x/DM	Master	X		X				X
	Slave	X	X	X				X
ACOS200	Master	X		X			X [5])	X
	Slave	X	X	X			X [5])	X
AMR-OP87(/x)	Master	X		X				X
	Slave	X	X	X				X
AMR-OP84(/G)	Master	X		X				X
	Slave	X	X	X				X
AMR-OP10/90	Master	X		X				X
	Slave	X	X	X				X
AMR-CU70B	Master	X		X				X
	Slave	X	X	X				X
AMR-FCT10	Master	X		X				
	Slave	X	X	X				
AMR-IRC10	Master	X		X				
	Slave	X	X	X				
AMR-RTV10	Master	X		X				
	Slave	X	X	X				
AMR-RTV20/DM	Master	X		X				
	Slave	X	X	X				
AMR-DI2RDO2	Master							
	Slave		X	X				
AMR-UI2RDO2	Master							
	Slave		X	X				

Station		DB-Net	ARION	MODBUS RTU	MODBUS ASCII	M-BUS	CAN	UserCom [1])
AMR-OP7xRHx	Master	X		X				
	Slave	X	X	X				
AMR-OP60	Master	X		X				
	Slave	X	X	X				
AMR-OP4x(RHC)	Master							
	Slave		X	X				
AMR-OP3xRH	Master							
	Slave		X	X				
APT4010AT	Master							
	Slave							
APT4015AT	Master							
	Slave							

[1]) UserCom is a special SW equipment allowing the user to implement custom protocol (while adhering to the HW specifications of the given interface – see the DetStudio help).

[2]) While using an **AM-MBUS** module (up to 3 slave modules).

[3]) While using an **AM-CAN** module (CANopen communication according to ISO 11898; the device needs to meet the requirements of minimum capability device). Communication is incompatible with [5]).

[4]) While using an **AD-CAN** module (CANopen communication according to ISO 11898; the device needs to meet the requirements of minimum capability device). Communication is incompatible with [5]).

[5]) While using a **CM-CAN** module (communication according to DS-301). Communication is incompatible with [3]) and [4]).

2.2 Using AMiT converters

Table below shows communication options requiring converters developed by AMiT company connected to the serial interface. Marked fields denote the possibility of usage of the given protocol.

Station		M-BUS [6])	MP-BUS [7])	OpenTherm/+ [8])
ADiR	Master	X	X	X
	Slave			
AMiNi-ES	Master	X	X	X
	Slave			
AMiNi4(D)W2	Master	X	X	X
	Slave			
AMiNi4(D)W2/G	Master		X	X
	Slave			
ART4000W3	Master	X	X	X
	Slave			
AMiRiS99W3	Master	X	X	X
	Slave			
AMAP99W3	Master	X	X	X
	Slave			
AD-CPUW2	Master	X	X	X
	Slave			
AMR-CP24/01	Master	X	X	X
	Slave			
AMR-CP4x/DM	Master	X	X	X
	Slave			

Station		M-BUS [6])	MP-BUS [7])	OpenTherm/+ [8])
ACOS200	Master	X	X	X
	Slave			
AMR-OP87(/x)	Master		X	X
	Slave			
AMR-OP84(/G)	Master		X	X
	Slave			
AMR-OP10/90	Master		X	X
	Slave			
AMR-CU70B	Master		X	X
	Slave			
AMR-FCT10	Master		X	X
	Slave			
AMR-IRC10	Master		X	X
	Slave			
AMR-RTV10	Master		X	X
	Slave			
AMR-RTV20/DM	Master		X	X
	Slave			
AMR-DI2RDO2	Master			
	Slave			
AMR-UI2RDO2	Master			
	Slave			
AMR-OP7xRHx	Master		X	X
	Slave			
AMR-OP60	Master		X	X
	Slave			
AMR-OP4x(RHC)	Master			
	Slave			
AMR-OP3xRH	Master			
	Slave			
APT4010AT	Master			
	Slave			
APT4015AT	Master			
	Slave			

[6]) While using a **DM-MBUS64** converter (connected through the RS232 interface).

[7]) While using a **DM(M)-MPBUS** converter. Stations without NOS support **DMM-MPBUS** only.

[8]) While using a **DM(M)-OT** converter. Stations without NOS support **DMM-OT** only.

2.3 GSM and GPRS

Stations featuring the RS232 interface (without the stations with embedded modem) support connection with **DM-GSM3**. The **DM-GSM3** modem – or the embedded one – can be used (depends on the station) either to send and receive SMS or to communicate via GPRS (selected station support both sending SMS and communicating via GPRS at the same time). Table below lists communication options. Marked fields denote the possibility of usage of the given method of contact.

Station	SMS		GPRS		SMS + GPRS	
	Internal	DM-GSM3	Internal	DM-GSM3	Internal	DM-GSM3
ADiR		X		X		
AMiNi-ES		X		X		
AMiNi4(D)W2		X		X		
AMiNi4(D)W2/G	X					

Station	SMS		GPRS		SMS + GPRS	
	Internal	DM-GSM3	Internal	DM-GSM3	Internal	DM-GSM3
ART4000W3		X		X		
AMiRiS99W3		X		X		
AMAP99W3		X		X		
AD-CPUW2		X		X		
AMR-CP24/01						
AMR-CP40/DM						
AMR-CP42/DM	X		X		X	
AMR-CP44/DM						
AMR-CP46/DM	X		X		X	
ACOS200		X		X		X
AMR-OP87/G	X		X		X	
AMR-OP84/G	X		X		X	
APT4010AT						
APT4015AT						

3 Ethernet interface

Table below shows communication options possible directly on the Ethernet interface. Marked fields denote the possibility of usage of the given protocol.

Station		DB-Net/IP		MODBUS TCP	IEC 60870-5-104	SNMP	UserCom [11])	FTP [12])
		UDP	TCP					
AMiNi-ES	Client	X						
	Server	X				X		
AMiNi4(D)W2(/G)	Client	X		X [9])				
	Server	X	X [9])	X [9])	X	X		X
ART4000W3	Client	X		X [9])				
	Server	X	X [9])	X [9])	X	X		X
AMiRiS99W3	Client	X		X [9])				
	Server	X	X [9])	X [9])	X	X		X
AMAP99W3	Client	X		X [9])				
	Server	X	X [9])	X [9])	X	X		X
AD-CPUW2	Client	X		X [9])				
	Server	X	X [9])	X [9])	X	X		X
AMR-CP24/01	Client	X		X [10])			X	
	Server	X		X			X	X
AMR-CP4x/DM	Client	X		X [10])			X	
	Server	X		X			X	X
ACOS200	Client	X		X [10])			X	
	Server	X		X			X	X
AMR-OP87(/x)	Client	X		X [10])			X	
	Server	X		X			X	X
AMR-OP84(/G)	Client	X		X [10])			X	
	Server	X		X			X	X
AMR-OP10/90	Client	X		X [10])			X	
	Server	X		X			X	
APT4010AT	Client	X						
	Server							
APT4015AT	Client	X						
	Server							

[9]) Cannot function as a server and a client at the same time. It can connect up to 4 TCP connections at a time (via any of the supported protocols).

[10]) Up to 5 MODBUS TCP connections can be established at a time.

[11]) UserCom is a special SW equipment allowing the user to implement custom protocol into the station (possible to communicate both via UDP and TCP).

[12]) Only for accessing µSD card data. Only a single client can be connected at a time.

Note

In case of MODBUS TCP, it means a true MODBUS TCP communication, not MODBUS over TCP. It is possible to rout into DB-Net network by using DB-Net/IP protocol (see application notes AP0006 and AP0053).

3.1 Using AMiT converters

At the moment of publishing this AP, AMiT offers two converters that support communication over Ethernet:

- DM-DI4MB2ET,
- DM-MBUS64.

Both converters are primarily meant for converting frames from Ethernet to M-Bus (the DM-DI4MB2ET features 4 counter inputs; statuses of the counter inputs are accessible via Ethernet). In both cases, the Ethernet side of communication can use more communication methods (see the corresponding HW documentation).

Converters can be connected to any station supporting communication via MODBUS/TCP (client) or communication via UserCom over Ethernet interface.

Namely the following stations:

- AMiNi4(D)W2(/G),
- ART4000W3,
- AMiRiS99W3,
- AMAP99W3,
- AD-CPUW2,
- AMR-CP24/01,
- AMR-CP4x/DM,
- ACOS200,
- AMR-OP87(/x),
- AMR-OP84(/G),
- AMR-OP10/90.

3.2 Web server and e-mail

Selected stations also feature a web server. It is implemented in a way that also features sending e-mails (it is possible to send e-mails only without the need for authorisation – SMTP server needs to run on port 25). Table below shows the stations that can function as a web server. Marked fields denote the possibility of using a web server or e-mail.

Station	Web server	E-mail
AMiNi-ES		
AMiNi4(D)W2(/G)	X	X
ART4000W3	X	X
AMiRiS99W3	X	X
AMAP99W3	X	X
AD-CPUW2	X	X
AMR-CP24/01	X	
AMR-CP4x/DM	X	
ACOS200	X	
AMR-OP87(/x)	X	
AMR-OP84(/G)	X	
AMR-OP10/90	X	
APT4010AT	X	
APT4015AT	X	

4 Interface for 868 MHz (Poseidon)

Selected stations (see the list below) are (or may be) equipped with a wireless interface for 868 MHz for communication in the Poseidon network:

- AMR-CP24/01,
- AMR-CP44/DM,
- AMR-CP46/DM,
- AMR-OP87/P,
- AMR-OP70RHP.

5 SCADA

It is possible to get communication drivers for third-party SCADA systems on the AMiT company web site (after signing up). The following table lists the most frequent SCADA systems along with the used communication driver.

SCADA	Communication driver
Control Web	DDBNET32
Promotic	AtouchX
Reliance	AtouchX
RcWare	AtouchX
Merbon	AtouchX
InTouch	AtouchX
Tirs.Net	Atouch32

Since AtouchX features ActiveX objects, it is generally possible to use any of SCADA systems supporting ActiveX objects.

Note
Communication drivers are meant to be used for OS Windows. They are available both as a 32-bit and as a 64-bit version. Using the 64-bit version requires using a 32-bit version of visualisation.

6 Technical support

The AMiT Technical Support Department provides all information regarding communication with AMiT stations. It is best to contact the Technical support via e-mail at **support@amit.cz**.

7 Warning

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