ZDUE-MOD-PLUS-V   Installation Instructions

General information:
The ZDUE-MOD-PLUS-V is compliant with the European EN60950 standard, Safety of information technology equipment.
The ZDUE-MOD-PLUS-V has been designed exclusively for permanent installation and only professionally trained electricians are authorized to perform such an installation according to the generally accepted technical rules and regulations governing the setting up of telecommunications equipment and end devices.
The ZDUE-MOD-PLUS-V is not designed to be connected to IT systems for electrical energy supply.
Please read through these installation instructions carefully before using the device.

Disconnection from the power supply circuit:
An easily accessible, all-pole circuit breaker in the power supply circuit is required for the house installation. Alternatively, a single-pole circuit breaker can be used in the outer conductor as long as a distinct neutral conductor has been integrated into the supply line. In Germany, the circuit breaker must at least meet the requirements of the DIN VDE series 0100 standard.

Installation fuse:
For the house installation, there must be an installation fuse that complies with the DIN VDE series 0100 standard and is properly adapted to the cable cross-section of the power supply line. The additional short-circuit protection must have a selectivity of $I \geq 1500A$.

Strain relief:
For the house installation, the lines leading to the ZDUE-MOD-PLUS-V must be protected with an adequate strain relief.
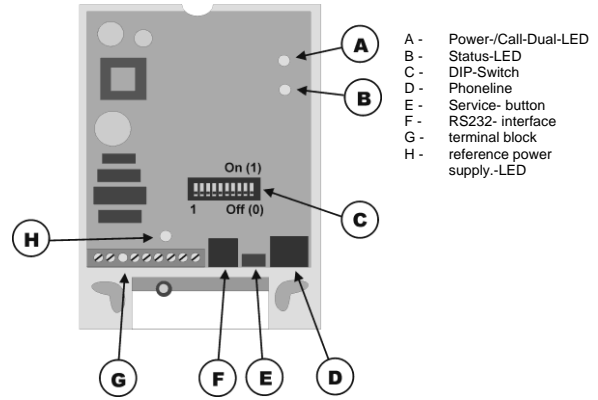
Uses:
The ZDUE-MOD-PLUS-V is a device designed for the remote inquiry and the remote monitoring of electricity, heat, gas and water meters. It has been designed for operation on the analog connection of public telephone networks.

Opening the device

In order to alter the settings with the DIP switch, you will first have to open the device:

1. First disconnect the telephone cable from the telephone jack if it is plugged in there.
2. Then disconnect all the poles of the device from the electricity supply if it is plugged in there.
3. Now unscrew the screw in the terminal cover and remove the cover.
4. Now remove the device lid.

A -   Power-/Call-Dual-LED
B -   Status-LED
C -   DIP-Switch
D -   Phoneline
E -   Service- button
F -   RS232- interface
G -   terminal block
H -   reference power supply.-LED

Altering the device settings

The basic settings of the ZDUE-MOD-PLUS-V are made with the DIP switches [C] inside the device. Select the desired settings before you connect the device.

1	2	3	4	5	6	7	8	9	10	Setting
0	x	x	x	x	x	x	x	x	x	V.42 / V.42bis / MNP always active
1	x	x	x	x	x	x	x	x	x	Negotiate V.42 / V.42bis / MNP
x	0	x	x	x	x	x	x	x	x	Password protection not active
x	1	x	x	x	x	x	x	x	x	Password protection active
x	x	0	0	x	x	x	x	x	x	Call answer 1x ring
x	x	1	0	x	x	x	x	x	x	Call answer 3x rings
x	x	0	1	x	x	x	x	x	x	Call answer 7x rings
x	x	1	1	x	x	x	x	x	x	Call answer 12x rings
x	x	x	x	0	x	x	x	x	x	Multi-standard handshake
x	x	x	x	1	x	x	x	x	x	V.22bis connections only
x	x	x	x	x	0	0	0	x	x	Local baud rate is 300 bit/sec
x	x	x	x	x	1	0	0	x	x	Local baud rate is 1200 bit/sec
x	x	x	x	x	0	1	0	x	x	Local baud rate is 2400 bit/sec
x	x	x	x	x	1	1	0	x	x	Local baud rate is 4800 bit/sec
x	x	x	x	x	0	0	1	x	x	Local baud rate is 9600 bit/sec
x	x	x	x	x	1	0	1	x	x	Local baud rate is 19200 bit/sec
x	x	x	x	x	0	1	1	x	x	Local baud rate is 38400 bit/sec
x	x	x	x	x	1	1	1	x	x	Reserved
x	x	x	x	x	x	x	x	0	x	Mode C operation on
x	x	x	x	x	x	x	x	1	x	Mode C operation off, fixed baud rate
x	x	x	x	x	x	x	x	x	0	Local character format 7E1
x	x	x	x	x	x	x	x	x	1	Local character format 8N1

Regardless of the DIP switch settings, the device can be adjusted locally via one of the meter interfaces or remotely via communication commands according to EN 62056-21. In this case, the device will then operate using the parameters that have been set. If the device is reset to the default settings, it will operate using the DIP switch settings.

Connecting the device

First connect the meter to the device, and then the telephone line and finally the power supply.

L N HS- HS+ RTX- RTX+ RT- RT+ 1 4 1 6
terminal block   RJ11   button   RJ12

The device is equipped with 3 different meter interfaces. Only one of them can be used at any one time.

ZDUE-MOD-PLUS-V Installation Instructions

RS-232 interface (RJ11 jack):

Pin	Signal	Description
1	DCD	Output; Active for connection
2	GND	Signal ground
3	RXD	Output; Data to meter
4	TXD	Input; Data from meter

Signals and levels according to V.24 / V.28.
All other pins are reserved.

RS485 interface (terminal block):

Signal	Description
RT-	Negative RS-485 interface signal
RT+	Positive RS-485 interface signal

Dual-wire RS485 interface to connect up to 32 transceivers. The bus connection is terminated to Z=120 Ω (nominal) (RT+ to RT-) and the cable length is limited to 1000m.

CL1 interface (terminal block):

Signal	Description
RTX-	Negative CL1 interface signal
RTX+	Positive CL1 interface signal

20mA power interface (current loop) to connect meters with the power supply interface according to DIN EN 62056-21. Approx. 4 meters can be connected to this interface.

Important:
If there is no meter connected to the CL1 interface, the RTX- and RTX+ have to be connected with a wire jumper. Otherwise, the other interfaces will not be ready to operate.

Auxiliary power source (terminal block):

Signal	Description
HS-	Negative pole of the auxiliary power supply
HS+	Positive pole of the auxiliary power supply

Auxiliary power supply of 9V / max. 100mA
The auxiliary power supply is not available for all the ZDUE-MOD-PLUS V models.

Telephone network connection (RJ12 jack):

Pin	Signal	Description
3	a/b-line	Connection telephone line
4	a/b-line	Connection telephone line

All other pins are reserved.

Power supply (terminal block):

Signal	Description
L	AC: U_{nom} = 100VAC ... 230VAC
N	DC: U_{nom} = 60VDC ... 100VDC
I_{nom} = 35mA … 19mA	

Light-emitting diodes (LEDs)

Power/Call Dual LED (A)

Green on	Power supply available
Orange flashing	Incoming call
Orange on	Modem connection established

Status LED (B)

Green flashing	Device is operating on default settings
Green on	Trouble-free operation following user settings made using the command interface

The reference power supply LED (H) lights up or flashes in operation, but does not have any other significance for the user.

Service button

Reset the parameters to the DIP switch settings
If you press the button marked (E) for longer than 5 seconds, the data settings made via the telephone line or on location will be deleted and the DIP switch settings will be used.

Output of the firmware version on the application interface
If you press the button marked (E) when you switch the ZDUE-MOD-PLUS V on, the current firmware version will be output (19200 bps; 8N1) on the service interface (RS232).

Changing the LED status from "default settings" to "user settings"
Press the button marked (E) 1x for 1 to 3 seconds to alter the LED status from "default settings" to "user settings".

Conformity

Electro-magnetic compatibility	**1995/5/EG** EN55022:Class B; EN55024:EN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-11
Electrical equipment safety	**73/23/EWG** EN60950
Radio and telecommunications terminal equipment	**1999/5/EC** ES 203 021-1,2,3 EG 201 121 Advisory Notes

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