

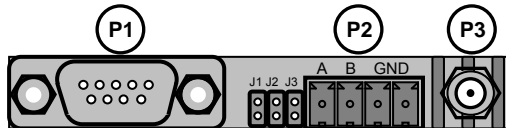
# OPERATING INSTRUCTIONS

## XM1600S / XM1610S GSM Terminal



**xmodus**  
SWISS

### 1. Connectors Top



**P1:** **RS-232 - Serial Interface**  
Type: Serial V.24 (EIA/TIA-232-E).  
Connector: D-SUB 9 female  
Pin designation:

1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

#### Switch over between RS232 and RS485:

As default, the RS232 interface is enabled. The RS485 interface will be enabled by placing a jumper (wire) between terminal 3 of P4 and GND (P4-2).

**P2:** **RS-422 / RS-485 Interface**  
Type: 2-wire, half-duplex, ¼ unit load.  
Isolation: 3000 VDC (1 minute)  
Termination: 390R / 390R / 220R  
Pin designation:

1	A - wire
2	B - wire
3	GND Signal
4	GND Signal
J1	390R (A)
J2	220R (A-B)
J3	390R (B)

#### Bus Termination:

Plugging in the jumpers J1,J2,J3 connects the bus with the resistors for bus termination. All three jumpers should be jointly plugged either in or out.

#### Sending AT commands with RS-485:

To allow sending of AT commands to a modem using the half-duplex RS-485 interface, the command line echo must be disabled in the modem using the ATE0 command. This task should be done, using the RS232 interface, prior to use the RS485 interface.

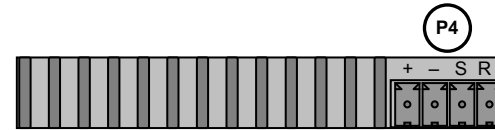
**P3:** **GSM Antenna Interface**

GSM 850	TX	824 – 849 MHz
	RX	869 – 893 MHz
GSM 900	TX	880 – 915 MHz
	RX	925 – 960 MHz
DCS 1800	TX	1710 – 1785 MHz
	RX	1805 – 1880 MHz
PCS 1900	TX	1850 – 1910 MHz
	RX	1930 – 1990 MHz
Gain:	0 dBi (unity) gain or greater	
Impedance:	50 Ohm	
VSWR:	Typical: 1.5:1 Worst case: 2.5:1	
Connector:	SMA female	

#### Antenna Installation:

A minimum separation distance of 20 cm needs to be maintained between the antenna and all persons. The transmitter effective radiated power must be less than 3.0 Watts ERP (4.9 Watts or 36.9 dBm EIRP). This requires that the combination of antenna gain and feed line loss does not exceed 16 dBi.

### 2. Connectors Bottom



**P4:** **Power Supply**  
Input voltage: 9...32 V<sub>DC</sub>  
Power input: 270mA @ 9V<sub>DC</sub> (average)  
500mA @ 9V<sub>DC</sub> (peak)

1	+	DC INPUT
2	-	GND
3	S	Enable RS485
4	R	External Reset

#### External Reset:

Pin 4 provides an external Reset signal input. Leave open if not used. To activate the Reset input, simply connect it to ground (pin 2), using an external relay. After releasing the reset input, the modem starts up again.

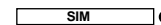


Do not connect the modem to the main power directly.

### 3. Front side

Led indicators:	ON	Power On
	DCD	Modem Connected
	TXD	Transmitted Data
	RXD	Received Data

#### SIM Card Interface:



Push loading drawer with lock. Push the unlock button to eject the drawer.

- 3.0V SIM cards supported.
- STK 3.1 supported

### 4. Operating conditions

#### Environmental conditions:

Operating temp.	-20°C to +60°C
Storage temp.	-40°C to +85°C
Rel. humidity:	≤ 75% acc. EN60068-2-30
Protection type:	IP50 acc. IEC529
Vibration:	acc. EN60068-2-6
Shock :	acc. EN60068-2-27
Dimensions:	120 x 101 x 23 mm
Mounting:	any direction

#### ESD Protection:

RS232 Interface:	+/- 15kV HBM 8kV IEC 61000-4-2
All other ports:	+/- 15kV IEC 61000-4-2, level 4

### 5. Operation

The proper and safe operation of this device assumes that the operating instructions and the safety warnings given in this document are read carefully.

Make sure that all cables are not live when making the connections! Impending danger by high input voltage or high power supply voltage!

Electrical connections are observed. The device should only be handled by appropriately trained personnel who

**xmodus swiss GmbH**  
Dachlernstrasse 63  
CH – 8048 Zürich  
Phone +41 44 438 88 82  
Fax +41 44 438 88 83  
e-mail: info@xmodus.ch  
<http://www.xmodus.ch>



Document-#: XM1600S-E00-101

## AT Commands, Software Documentation and Manuals:

The according Software and AT-Commands Manual should be downloaded from our homepage which will be updated frequently. Please look at:

<http://www.xmodus.ch/manuals.html>

For additional documentation look also at the corresponding socket modem manuals on our homepage. The XM1600S GSM terminal is based on the XM7000S socket modem which contains the G24.Lite module from Motorola. The XM1610S GSM terminal is based on the AL7024E socket modem which contains the G24.EDGE module from Motorola.



XM1600S-C00-100

### EC-Declaration of Conformity

Manufacturer: **xmodus swiss GmbH**  
Responsible person: **Andreas Bircher**  
Address: **Dachslernstrasse 63**  
**CH-8048 Zürich**  
**Switzerland**  
declares that the product:  
Type: **GSM Terminal**  
Model: **XM1600S / XM1610S**  
Intended use: **Telecommunication equipments**

complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards has been applied:

#### 1 Safety (Article 3.1.a of the R&TTE Directive)

applied standard(s) EN 60950-1:2005 Issue 2005  
EN 50371:2002 Issue 2002


#### 2 Electromagnetic compatibility (Article 3.1.b of the R&TTE Directive)

applied standard(s) EN 55022 +A1 +A2:2003 Class B Issue 2003  
EN 55024 +A1 +A2:2003 Issue 2003

#### 3. Efficient use of the radio frequency spectrum (Article 3.2 of the R&TTE Directive)

applied standard(s) EN 301 511 V.9.0.2 : 2003 Issue 2003  
GCF CC Version 3.9.1 Hardware Tests Issue 3.9.1

Zürich, 21. Des. 2009  
(Place and date of the declaration of conformity)

  
Andreas Bircher  
Executive Director  
(Name, title and signature)