

## Tixi Alarm Modem

**DIN-rail-housing**

**Analog / ISDN / ISDN & Fax / GSM**



Intelligent Modem for

- Remote Maintenance
- Alarming
- Data Logging
- Remote Control

via

- Email
- Express-Email
- Fax
- SMS

### Tixi Alarm Modems I/O-Overview

x = M, D, F    M: Analog Modem 56k, D: ISDN, F: ISDN & Fax Modem / G: GSM    / PS = power supply, max. A

Modem	PS / max. A	RS232-F	RS232-M	RS485/422	Digital-Inputs	Digital-Outputs	Analog-Input	Relay
Hx10	1	yes	-	-	-	-	-	-
Hx11	1	yes	yes	-	-	-	-	-
Hx17	1	yes	yes	-	2	2	1	1
Hx41	2	yes	-	yes	-	-	-	-
Hx47	2	yes	-	yes	2	2	1	1
HG20	2	yes	-	-	-	-	-	-
HG21	2	yes	yes	-	-	-	-	-
HG27	2	yes	yes	-	2	2	1	1
HG41	2	yes	-	yes	-	-	-	-
HG47	2	yes	-	yes	2	2	1	1

### Tixi Alarm Modem 56k

2 MB Data Memory, SMS, Express-Email, Fax, Email

<b>HM10</b>	<b>Tixi Alarm Modem 56k + 1 x RS232</b> 1 x RS232-F, 1 x RJ11
<b>HM11</b>	<b>Tixi Alarm Modem 56k + 2 x RS232</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ11
<b>HM17</b>	<b>Tixi Alarm Modem 56k + 2 x RS232 + 6 I/Os</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ11 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay
<b>HM41</b>	<b>Tixi Alarm Modem 56k + 1 x RS485/422</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ11
<b>HM47</b>	<b>Tixi Alarm Modem 56k + 1 x RS485/422 + 6 I/Os</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ11 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay

<b>Tixi Alarm Modem GSM-EU (900/1800MHz)</b>	
2 MB Data Memory, SMS, Express-Email, Fax , Email	
<b>HG20</b>	<b>Tixi Alarm Modem GSM + 1 x RS232</b> 1 x RS232-F
<b>HG21</b>	<b>Tixi Alarm Modem GSM + 2 x RS232</b> 1 x RS232-F, 1 x RS232-M
<b>HG27</b>	<b>Tixi Alarm Modem GSM + 2 x RS232 + 6 I/Os</b> 1 x RS232-F, 1 x RS232-M 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay
<b>HG41</b>	<b>Tixi Alarm Modem GSM + 1 x RS485/422</b> 1 x RS232-F, 1 x RS485/422
<b>HG47</b>	<b>Tixi Alarm Modem GSM + 1 x RS485/422 + 6 I/Os</b> 1 x RS232-F, 1 x RS485/422 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay

<b>Tixi Alarm Modem ISDN</b>	
2 MB Data Memory, SMS, Express-Email, Fax , Email	
<b>HD10</b>	<b>Tixi Alarm Modem ISDN + 1 x RS232</b> 1 x RS232-F, 1 x RJ45
<b>HD11</b>	<b>Tixi Alarm Modem ISDN + 2 x RS232</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ45
<b>HD17</b>	<b>Tixi Alarm Modem ISDN + 2 x RS232 + 6 I/Os</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ11 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay
<b>HD41</b>	<b>Tixi Alarm Modem ISDN + 1 x RS485/422</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ45
<b>HD47</b>	<b>Tixi Alarm Modem ISDN + 1 x RS485/422 + 6 I/Os</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ45 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay

<b>Tixi Alarm Modem ISDN &amp; Fax</b>	
2 MB Data Memory, SMS, Express-Email, Fax , Email	
<b>HF10</b>	<b>Tixi Alarm Modem ISDN &amp; Fax + 1 x RS232</b> 1 x RS232-F, 1 x RJ45
<b>HF11</b>	<b>Tixi Alarm Modem ISDN &amp; Fax + 2 x RS232</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ45
<b>HF17</b>	<b>Tixi Alarm Modem ISDN &amp; Fax + 2 x RS232 + 6 I/Os</b> 1 x RS232-F, 1 x RS232-M, 1 x RJ11 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay
<b>HF41</b>	<b>Tixi Alarm Modem ISDN &amp; Fax + 1 x RS485/422</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ45
<b>HF47</b>	<b>Tixi Alarm Modem ISDN &amp; Fax + 1 x RS485/422 + 6 I/Os</b> 1 x RS232-F, 1 x RS485/422, 1 x RJ45 2 x digital input, 2 x digital output, 1 x analog input, 1 x relay

Mai 2004 Irrtümer und Technische Änderungen vorbehalten

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Intelligent Modem for

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Main functions	
<b>Remote dial-in / Teleservice</b>	<p>Tixi Alarm Modems can be configured with a password via remote dial-in. You can also dial into a control unit via a Tixi Alarm Modem without having the control unit programmed for it.</p> <p>The R-Con Tixi-Software establishes a connection to a Tixi Modem and passes all data from the local RS232 to the RS232 of the remote Tixi, so that remote devices connected there can be operated as if connected locally.</p>
<b>Fault detector</b>	<p>Tixi Alarm Modem sends freely defineable messages, triggered by I/O ports of the Tixi Alarm Modem or through directly connected devices. Messages may be sent to a random number of recipients via fax, SMS, email and Express-Email.</p> <ul style="list-style-type: none"> <li>• Transmission Receipts</li> <li>• Insertion of PLC variables into alarm messages</li> <li>• Alarm Cascading</li> <li>• Priorizing Messages</li> </ul>
<b>Data logger</b>	<p>All events and variables can be stored in a log file with a time and date stamp for each entry and sent via email at specific times.</p> <p>Remote reading of the logged data possible via modemconnection.</p> <p>The logged data can be sent as a text message at predefined time (via the scheduler) to certain recipients. The data can be sent as</p> <ul style="list-style-type: none"> <li>• Email via the internet</li> <li>• Express-Email</li> <li>• Fax</li> </ul>
<b>Telecontrol</b>	<p>Incoming messages can trigger switching commands to output ports or in the PLC and then optionally notify or record the status of the Tixi modem and the connected devices. The switching commands, e.g. via SMS, may contain a password. A message can be generated and sent automatically via the successful or erroneous implementation of the commands.</p>
<b>PLC-Protocols</b>	<p>Tixi Alarm Modems communicate with the following PLCs using their respective protocols so that no programs, drivers or functional blocks have to be loaded into the PLCs. Tixi can read and write all important variables or ports of the PLC.</p> <p><b>Supported PLCs:</b> Mitsubishi Alpha, MELSEC FX1, FX2, Moeller EASY relays 400-800,MFD, Siemens S7-200, VIPA 100V-300V, Allen Bradley, Pico, Saia Burgess PCD, Conrad C-Control I+II, ABB AC 010, AC 31, a.o.</p> <p><b>Industrial Bus Systems:</b> Modbus (ASCII and RTU), M-Bus, CAN-Bus (coming soon)</p>

<b>Communication Ways</b>	
<b>SMS</b>	Sending and receiving of SMS SMS over land line: Deutsche Telekom, AnyWay (Germany, other countries on request) GSM: T-Mobile, Vodafone, E-Plus, O2 (Germany, other countries on request), Pager
<b>Fax</b>	Sending of Text Fax 2400 bps – 14,4 kbps ITU-T (V.17, V.29, V.27ter) Data compression: MNP2, V.42bis
<b>Email</b>	Sending and receiving email via SMTP and POP3 (Internet access and email account required)
<b>Express-Email</b>	Email without Internet, ie. email being sent via telephone lines directly from one Tixi Modem to another, including a receipt for the sender - without PC or with the PC switched off. Express-Email is as safe and reliable as sending a fax or commissioning a messenger
<b>Pager</b>	Cityruf (Germany)
<b>Webserver</b>	Built in web server to easy access Tixi Alarm Modem and PLC data with standard web browsers or from Internet application servers. HTML web server with push technology and CGI support. Data values could be read and changed. Complete and partial data logging files could be read out. Alarm messages could be automatically send to other Internet application servers. The web content is freely configurable as HTML, Java Applets, Flash, etc. Depending to the device type the Tixi Alarm Modem web server is accessible via telephone, ISDN, GSM dialup, GPRS, Ethernet. Optional available are auto connect Internet Machine-to-Machine (M2M) portals

<b>System Architecture</b>	
<b>CPU</b>	32-bit RISC Processor ARM7
<b>Program Memory</b>	2 MB Flash ROM, 1MB SRAM
<b>Data / File Memory</b>	2 MB NAND Flash memory on-board Data storage without operating voltage expandable with 32 MB, 64 MB (128 MB, 256 MB) NAND Flash Modules
<b>System Clock</b>	Real-time-clock with battery back-up, automatically time synchronisation via internet time server
<b>Operating System</b>	Commercial <b>RTOS</b> (real-time multitasking operating system) with C++ abstraction layer
<b>Filesystem</b>	Commercial <b>DOS compatible Flash file system</b> with true wear leveling to extend the life of the flash memory, with C++ abstraction layer

<b>Modem Data</b>	
<b>PSTN / Analog</b> <b>Type HMxx</b>	Analog telephone connection (a/b Interface), RJ11 data: 300bps – 56kbps ITU-T (V.90, V.34+, V.32bis, V.32, V.22bis, V.22, V.21), Bell 212A, Bell103 fax: 2400bps – 14,4kbps, ITU-T (V.17, V.29, V.27ter, V.21 ch2) Fax Group 3 / Class 1 error correction / data compression: V.42 / MNP 2-4, V.42bis / MNP5
<b>ISDN</b> <b>Type HDxx</b>	ISDN-BRI (Basic Rate Interface) S <sub>0</sub> / I.430-Schnittstelle, RJ45 D-channel-protocol: DSS1 (Euro-ISDN) B-channel-protocol: HDLC transparent, X.75, T.70 NL, T.90 NL PPP synchronous-asynchronous, channel bundling ML-PPP
<b>ISDN &amp; Fax</b> <b>Type HFxx</b>	like <b>HDxx</b> with faxmodem and fax- function: Fax: 2400 bps – 14,4kbps, ITU-T (V.17, V.29, V.27ter, V.21 ch2) error correction / data compression: V.42 / MNP 2-4, V.42bis / MNP5 Fax Group 3 / Class 1
<b>GSM</b> <b>Type HGxx</b>  <b>Antenna connection:</b>  <b>Frequency range</b>	<b>GSM/GPRS-Class 10, Dual Band 900 / 1800 MHz</b> Data: 300 – 14,4 kbps async., transparent / non-transparent ITU-T (V.21,V.22, V.22bis, V.26ter, V.32, V.34, V110) Fax: Fax Group 3 / Class 1 and 2. 2400 bps – 14,4 kbps ITU-T (V.17, V.29, V.27ter) data compression: MNP2, V.42bis FME-plug (male), coaxial, impedance 50 Ohm SIM-card reader Receiver frequency: 925 - 960 MHz, 1805 - 1880 MHz Transmission frequency: 880 - 915 MHz, 1710 - 1785 MHz

<b>Interfaces</b>	
<b>RS232</b>	<b>RS 232 (1), D-Sub</b> 9-pin, female / <b>RS 232 (2), D-Sub</b> 9-pin, male FIFO 16550, max. 230400 bps, Signals: DTR, DSR, RTS, CTS, DCD, GND, RI, RxD, TxD
<b>RS485/422</b>	<b>RS 422/485</b> mit FIFO 16550, max. 10 Mbit/s terminator configurable via DIP-switch 5-pin screw terminal, pitch 5,08 mm, 2,5 mm <sup>2</sup>
<b>Digital Inputs</b>	TTL compatible: logical 1 if U > 2,4 V (or open), logical 0 if U < 0,4 V (e.g. 0V/GND)
<b>Digital Outputs</b>	Potential free outputs, max load voltage AC/DC 125 V, load current 130 mA
<b>Relay Output</b>	230V AC, 3A
<b>Analog Input</b>	0 – 10V, 12 Bit resolution
<b>Antenna connector (HGxx)</b>	FME connector (male), co-axial, impedance 50 Ohm
<b>Mechanical I/O Port</b>	Screw terminal, pitch 5,08 mm, 2,5 mm <sup>2</sup>

<b>General Technical Data</b>	
<b>LEDs</b>	Power, Process, Line, Data out, Modem Mode
<b>Power Supply</b>	<b>HGxx</b> 10 ... 30 VDC, max 0,7A (2 pin screw clamp, pitch 5,08mm, 2,5mm <sup>2</sup> ) or  <b>HMxx / HDxx / HFxx</b> 10 - 30 V DC, max. 0,7 A, screw terminal
<b>Dimensions / weight</b>	DIN-Rail housing: 88 x 57 x 90 mm (BxHxT), weight: 165 g
<b>Operating temperature</b>	0 – 50 °C
<b>Storage temperature</b>	°C
<b>Ambient temperature</b>	°C

<b>Conformity</b>				
<b>EMV / safety</b>	CE, EN 50081-1, EN 50082-1, EN 55022, EN 60950, ETS 300342-1(GSM)			
<b>Product-Code</b>	<b>HMxx</b>	<b>HDxx</b>	<b>HFxx</b>	<b>HGxx</b>
<b>Telecom</b>	R&TTE, TS 103 021	R&TTE, TBR3, TBR3 A1		R&TTE TBR19, TBR31