innovaphone
Pure IP-Telephony

*Technical Specification*

# IP phone IP110

## Interfaces

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| Ethernet**:** | 2 x RJ 45 interface<br>10/100-BASE-TX (auto negotiation)<br>with internal 2 port switch<br>and Power over LAN, Class 1 (IEEE 802.3af) |

## Hardware

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|---|---|---|
| Power supply: | Power over LAN, Class 1 or<br>Mains adapter<br>primary: 110-240 V, 50 Hz, 45mA,<br>secondary: 12V DC 800mA, | |
| Memory: | 8 MB DRAM<br>4 MB Flash | |
| Operation environment: | Operation temperature:<br>Humidity:<br>Storage temperature: | 0°C to +45°C,<br>10% to 90% non-condensing<br>-10°C to +70°C |
| Display: | 128 x 64 Pixel - or - 7 lines with 21 characters | |
| Keyboards: | numeric,<br>2 arrow keys,<br>4 free programmable function keys<br>volume and free speech keys | |

## Protocols

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|---|---|
| DHCP | dynamic host configuration protocol - IP interfaces settings |
| ICMP | Internet control message protocol - for Ping tests |
| SNTP | simple network time protocol – to receive date and time values |
| LDAP | lightweight directory access protocol – access for LDAP compatible database |
| PPPoE | PPP over Ethernet – direct access to DSL modem |
| PPTP | point-to-point tunneling protocol – to setup VPN tunnels to the corporate network |
| MPPE | Microsoft point-to-point encryption - encryption in PPTP |
| NAT | network address translation – to translate official IP addresses in unofficial addresses and vice versa (inclusive SIP und H.323) |
| HTTP | for configuration sing Web browser |
| SNMP | sending traps to the management software |

**Voice over IP**

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| H.323: | H.323 version 5, H.245 fast connect, Enblock dialing, Overlapped sending<br>RAS Gatekeeper routed signaling (support for external Gatekeeper)<br>Security (encrypted password authentication H.235) |
| Supplementary Services: | H.450.1<br>H.450.2 Call transfer<br>H.450.3 Call diversion<br>H.450.4 Call hold<br>H.450.5 Call Pick-up<br>H.450.6 Call waiting<br>H.450.7 Message Waiting Indication<br>H.450.8 Name identification<br>H.450.9 Call Completion busy (CCBS) and Call Completion no Reply (CCNR)<br>DTMF: H.245 “Alphanumeric” oder “Signal Type” |
| SIP: | SIP version 2 (including HTTP digest authentication) conform RFC 3261<br>SIP over UDP, TCP, TLS (SIPS, V 7.0 or higher) |
| SIP services: | MWI (rfc3842/rfc3265 "Subscription für message-summary")<br>DTMF (rfc2833 "RTP payload for DTMF")<br>Name Identification (Display String, rfc3325 "Asserted Identity")<br>Hold/Retrieve (rfc3264 "Offer/Answer Model for SDP")<br>Transfer (rfc3515 "REFER Method", rfc3891 "Replaces Header)<br>Coder Change, T.38 (rfc3264 "Re-Negotiation")<br>Call Forwarding (PBX internal, "183 Call Is Being Forwarded", "Diversion Header")<br>Overlap Dialing (rfc3578)<br>Dialoge State monitoring, partner Key (rfc 4235)<br>Instant Messaging (rfc 3428) |
| supported SIP-RFCs: | RFC 1889 RTP: Real-Time Transport Protocol<br>RFC 2327 SDP: Session Description Protocol<br>RFC 2396 Uniform Resource Identifiers (URI): Generic Syntax<br>RFC 2543 SIP: Session Initiation Protocol (obsolete)<br>RFC 2616 Hypertext Transfer protocol (HTTP/1.1)<br>RFC 2617 HTTP Authentication: Basic and Digest Access Authentication<br>RFC 2782 A DNS RR for specifying the location of services (DNS SRV)<br>RFC 2976 The SIP INFO Method<br>RFC 3261 SIP: Session Initiation Protocol<br>RFC 3263 Session Initiation Protocol (SIP): Locating SIP Servers<br>RFC 3264 An Offer/Answer Model with the Session Description Protocol (SDP)<br>RFC 3265 SIP-Specific Event Notification<br>RFC 3326 The Reason Header Field for the Session Initiation Protocol<br>RFC 3389 RTP Payload for Comfort Noise<br>RFC 3515 The Session Initiation Protocol (SIP) Refer Method<br>RFC 3550 RTP: Transport Protocol for Real-Time Applications<br>RFC 3551 RTP Profile for A/V Conferences with Minimal Control<br>RFC 3555 MIME Type Registration of RTP Payload Formats<br>RFC 3578 Mapping of ISDN User Part (ISUP) Overlap Signalling to the SIP<br>RFC 3680 SIP Event Package for Registrations<br>RFC 3764 enumservice registration for SIP Adresses-of-Record<br>RFC 3824 Using E.164 numbers with SIP<br>RFC 3891 The Session Initiation Protocol ‘Replaces Header’<br>RFC 3892 The SIP Referred-By Mechanism -SIP-aware filtering (to prevent SIP attacks)<br>RFC 3842 SIP Message Waiting<br>RFC 3311 re-INVITE<br>RFC 2833 DTMF via RTP Channel , RTP payload for DTMF<br>RFC 3325 Name identification<br>RFC 3578 Overlap Dialing<br>RFC 3420 Internet Media Type message/sipfrag |

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| | RFC 4235 Dialoge State monitoring (partner Key)<br>RFC 3428 Extension for Instant Messaging |
| Quality of Service: | priorisation of IP packets via TOS and DiffServ<br>VLAN priority (IEEE 802.1p / 802.1q)<br>RTP real time protocol – for speech transport<br>SRTP – secure speech transport (V 7.0 or higher)<br>RTCP real time control protocol |
| Voice Codecs: | G.711 A-law / µ-law (64 kbps),<br>G.723.1 (5.3 und 6.3 kbps),<br>G.729A (16 kbps)<br>VAD (Voice Activity Detection),<br>CNG (Comfort Noise Generation),<br>Dynamic Jitter Buffering |
| Echo Compensation: | G.168 |

**Administration**

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| Access: | via Web browser with HTML<br>Password protected with secure authentication |
| Bug tracking: | log and trace files<br>Display of interface and connection status<br>Ping – connection test for Internet Protocol<br>sending SNMP Traps |
| Update: | save and reload config files<br>boot code and firmware update via HTML-Upload<br>automatic update via update server |

**Supplementary services**

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| Call Transfer | with and without consultation |
| Call Diversion / Redirection | |
| Call Hold / Retrieve | with music on hold |
| Call waiting | acoustic and optical signaling of waiting calls |
| Message Waiting | displays a waiting message on the phone |
| Partner Pickup | displays on the phone the possibility for pickup |
| Pickup-List | displays on the phone the list on pickup able calls |
| Name Display | additional name signaling on the phone |
| Call Completion | on busy and no reply |
| 3party conference | conference with 3 subscribers, inclusive external subscriber |
| Calling line identification | for different ring tones depending an the call (external, VIP, ...) |
| Direct speech | partner function, the remote phone device accepts the call automatically in loudspeaker mode<br>with short signal tone before conference start<br>remote microphone in mute<br>needs IP 200 phone |

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| Call Diversion break through | partner function, authorized subscriber can call an other subscriber with active call diversion |
| Busy lamp field | partner function, shows the actual status of the partner phone<br>related key supports pickup when ringing and speed dial when free<br>needs IP 200 phone |
| partner key: | partner status display „free", „Ringing" or" busy"<br>speed dial in status „free"<br>pickup in status „Ringing" |
| DTMF | DTMF tone detection & ringing |
| Security: | password-protected configuration<br>PIN protected phone access |
| Ring tones: | general MIDI compatible synthesizer / interpreter (RTTTL)<br>24 sequences downloadable<br>selective ring tones for internal, external and special phone connections specified in phone book |
| Call lists: | last 100 outgoing calls,<br>last 100 incoming calls,<br>combined list for incoming and outgoing calls<br>information about date, time and success of the call |
| Multiple registrations: | up to 6 subscribers can be registered to one phone<br>Multiple registrations of the same subscriber on different phones supported (supported by innovaphone PBX) |
| Free speech: | free speech in on hook mode |
| Mute: | switch off the microphone |

**Phone book**

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| internal: | for private entities, only for this phone<br>notes and special ring tone for all phonebook entries |
| global: | automatic access to all PBX subscribers |
| external: | import from LDAP compatible database |
| Usability: | search separate or global in all phone books<br>Character wise resolution during name entering<br>Name resolution of incoming phone numbers |

**innovaphone® AG**
Böblinger Straße 76 71065 Sindelfingen
Tel +49 7031 7 30 09-0 Fax +49 70 31 7 30 09-99
www.innovaphone.com
e-mail: info@innovaphone.com