

TERMS OF SERVICE FOR IP-ENABLED PRODUCTS

For a proper function of the TCS IP communication system the following needs to be fulfilled:

According to TCS experience, for each active call the following bandwidth needs to be available in the network.

Type of stream	Codec	Resolution	Framerate	Bandwidth
Voice	G.711	N/A	N/A	90 kbps
Video	H.264	VGA	5 fps	480 kbps
			10 fps	960 kbps
			15 fps	1.4 Mbps
	MJPEG		5 fps	1.2 Mbps
			10 fps	2.4 Mbps
			15 fps	3.6 Mbps

It is the responsibility of the customer to make sure that the required bandwidth is available in the network. TCS encourages the employment of techniques to guarantee the bandwidth to the door communication, such as dedicated networks or VLAN and to consider significant margins to the channel capacities.

The wiring of the network shall be made in accordance to EN50173 standard series.

All active Ethernet components shall be compliant to IEEE 802.3.

If the communication path includes wireless LAN, the devices shall be compliant to the IEEE 802.11 series of standards and compatible among each other. Due to interferences, range limitations and security problems the use of wireless LAN may be affected by unexpected losses of connectivity. TCS therefore does not recommend it's usage for critical applications.

If the communication path includes cellular data connections, the same limitations as for wireless LAN apply. Additionally, large temporal and spatial variations in the available bandwidth need to be considered. Furthermore data connections over cellular networks may cause additional cost and need to be covered by contractual agreements with a provider, which are out of the scope of the activities of TCS.

The routing in the IP network must allow bidirectional communication among the devices involved in the communication. If a firewall is used, it shall not impair SIP audio/video connections. This includes by default the server ports 80, 5060 (SIP), 5061 (SIP/TLS), 12000 (MJPEG stream on IP gateway). The ports actually used for the payload streams generally differ from the standard ports and may be negotiated by the control protocol. For example RTP and RTCP typically use random UDP ports from 1024 to 65535. Firewalls must be able to adapt to the behavior of the specific protocols. The used protocol may be either TCP or UDP type.

If server functions (e.g. SIP registrar/proxy server, SIP user agents) are used on the TCS device, the network administrator shall provide a static IP address.

If a NA(P)T router is installed, the network administrator must ensure that any required server function is accessible by the clients. If the WAN interface of that router has a dynamic IP address and server functions shall be accessed over the internet, then the customer shall use a dynamic DNS service (additional costs may apply). Please note that some protocols might require application layer gateway functions included in the NA(P)T routers in order to work properly.

TCS assumes no liability for security related network issues caused by malicious intruders.

SIP devices shall support the signaling of DTMF tones via SIP Info messages or according to RFC2833 (RFC4733) respectively.

Audio/video codecs of the user devices shall be compatible. Please check the product specifications.

TCS products are developed to be interoperable with other SIP devices, but the compatibility cannot be guaranteed for each and every device on the market anytime.

Genthin, 06.08.2016

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Welten 

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Ports of the TCS IP devices

	SIP	SIP Audio/Video (RTP)	Web interface	Video playback	Door broadcast	Syslog	Zeitserver
AVU940x0	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)	Port: 80 Protocol: TCP (HTTP)		Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
AVNxxxxx	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)	Port: 80 Protocol: TCP (HTTP)	Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
ASNxxxxx	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)		Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
FBI610x	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)			Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
FBI6110			Port: 80 Protocol: TCP (HTTP)	Port: 12000 Protocol: TCP (HTTP)	Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
FBI6119	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)	Port: 12000 Protocol: TCP (HTTP)	Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
FBI6121	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)	Port: 12000 Protocol: TCP (HTTP)	Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
FBI6122	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)	Port: 80 Protocol: TCP (HTTP)	Port: 12000 Protocol: TCP (HTTP)	Port: 32000 Protocol: UDP (Broadcast)	Port: 514 Protocol: UDP (Syslog)	Port: 123 Protocol: UDP (NTP)
TCS:APP	Port: 5060 Protocol: UDP, TCP (SIP)	Port: 5060 Protocol: UDP, TCP (RTP, RTCP)		Port: 12000 Protocol: TCP (HTTP)			