



## Video surveillance network in Hungary

**Information:** A video surveillance network for facility monitoring was setup for the Transdanubian Regional Waterworks Corporation, which serves more than 700,000 consumers in six counties of the Transdanubian region of Hungary. IVST Ltd. worked together with LigoWave's local distributor Accesspoint Kft to complete the project. A total of 13 sites, each equipped with 3 cameras, were connected using LigoWave and Deliberant wireless devices.

**Challenges:** The unusual landscape and network topology required a professional backhaul solution capable of delivering high throughput even to the most distant camera locations from the monitoring center. Low and stable latency was required to ensure smooth, high quality video data transmission. High PPS (packet per second rate) was necessary to ensure sufficient capacity for the realtime data transmission over the network. A single system for network monitoring and management was required by the customer to allow easy and flexible supervision and troubleshooting of the network.

**Solution:** The LigoPTP PRO and UNITY devices that were selected for the backbone of the network easily met the minimum required capacity of 130 Mbps for each backhaul link. A wide range of Deliberant devices were used for the project including an integrated sector antenna model (APC 5M-90) and a connectorized APC 5M as a base-stations. The APC 5M-12 and APC 5M-18 were used as client devices, meeting the throughput and distance requirements of the customer. The point to multipoint network distances varied from 600 meters to 6 km. Proprietary protocols used for data transmission ensure reliable, consistent communication with a high packet per second rate, which is important for video surveillance networks. LigoWave's WNMS was installed to meet the requirement for a single system for monitoring, statistical information gathering and device management. WNMS makes such deployments easy to service and troubleshoot from a remote location.

"The cooperation with LigoWave's local distributor and the performance of these devices was so great, that we will be using this equipment in all our future projects as well" - **IVST Ltd.**



### Wireless equipment performance details

	Distance	dBm	Speed (Mbit)		Device used
			64k	2048k	
<b>Point to Point</b>					
From Kozpont to Iroda	0,2 km	-50 / -55	116	186	LigoPTP Unity
From IZA to Kozpont	1,8 km	-58 / -59	123	160	LigoPTP Unity
From Nyirad to IZA	3,4 km	-47 / -50	122	149	LigoPTP Unity
From well 28 to Nyirad	5,3 km	-56 / -57	26	141	LigoPTP Pro
From well 28 to well 22	0,2 km	-56 / -59	22	89	APC 5M-12
<b>Point to multipoint</b>					
From IZA sector to well 8	1 km	-55 / -60	26	53	APC 5M-18
From IZA sector to well 18	1,7 km	-45 / -50	19	59	APC 5M-18
From IZA sector to well 3	0,5 km	-55 / -60	18	59	APC 5M-12
From Nyirad sector to well 14	3 km	-59 / -60	N/A	N/A	APC 5M-18
From Nyirad sector to well 21	1,7 km	-47 / -55	19	35	APC 5M-18
From Nyirad sector to well 34	1,5 km	-56 / -58	N/A	N/A	APC 5M-18
From Nyirad sector to well 37	1,3 km	-50 / -56	N/A	N/A	APC 5M-18
From Nyirad sector - Ordog	6,1 km	-65 / -65	8	28	APC 5M
From well 28 sector to well 35	0,8 km	-53 / -56	29	134	APC 5M-18
From well 28 sector to well 2	1,1 km	-54 / -55	28	128	APC 5M-18

Average latency on all cameras: 3,5 - 20 ms