



EnvisaLink™ UNO TPI Programmer's Document

DEVELOPER DOCUMENTATION

VERSION 1.04
February 11, 2025

Minimum UNO Version: 1.0.124

1.0 Overview

The EnvisaLink™ Third Party Interface (TPI) consists of a set of commands and responses designed to allow third-party command and control applications to interface directly with the EnvisaLink™ UNO hybrid panel over a TCP/IP connection.

The goal in releasing this programmer's interface is not only to allow existing home-automation software greater interaction with the UNO panel, but also to encourage the development of third-party applications on mobile platforms.

This version of the TPI applies only to products running UNO firmware which includes the UNO hybrid panel, the Envisalink 4 running in Standalone Mode, and the Envisalink DUO running in Standalone Mode. The version is similar to our Honeywell TPI but has some significant differences.

Whenever we refer to the UNO product, it is implied that this will be the same Envisalink 4 in Standalone Mode, and the DUO in Standalone mode.

2.0 Connecting to the UNO

2.1 TCP Connection

The UNO acts as a server for the TCP connection and the user application is the client. The UNO listens on port 4025 and will only accept one client connection on that port. Any subsequent connections will be denied.

The UNO will close the connection if the client closes its side.

To initiate a connection, the application must first start a session by establishing a TCP socket. Once established the TPI will send a "Login" prompt.

The client should then, within 10 seconds, issue the login password (no username is used), followed by a CR (carriage return). The password is the same password used to log into the UNO's local page. Upon successful login, the UNO's TPI will respond with "OK". If the password is incorrect it will respond with "FAILED" and the socket will close. If a password is not received within 10 seconds, the TPI will issue a "Timed Out" and close the TCP socket.

Once the password is accepted, the session is created and will continue until the TCP connection is dropped.

Note, as with all network communications, it is possible the TCP socket could be lost due to a network disruption, or an exception at either the client or server end. Application programmers are advised to include some handling for dropped connections. The Poll command is a useful command to test if the connection is still alive.

3.0 Detailed Description of the Feature Set

3.1 Communications Protocol

All data is sent as hex ASCII codes. The format of packets from the TPI will be as follows

%CC,DATA\$

All packets are encapsulated within the %\$ sentinels and it is guaranteed that these symbols will not appear within a packet.

CC => 2 digit command code in HEX.

DATA => Arbitrary data based on the individual command

Commands to the TPI are either interpreted as keystrokes for the active partition (default 1), or follow an escaped packet format like below.

^CC,DATA\$

where

CC => 2 digit command code in HEX.

DATA => Arbitrary data based on the individual command

Upon successful reception the TPI will respond with:

^CC,EE\$

Where CC is the original command, and EE is an error/success code.

YOU MUST INCLUDE THE COMMA EVEN IF THE COMMAND HAS NO DATA.

When a character is transmitted outside of the ^\$ sentinels, it will be interpreted as a keystroke if it is within the set <0..9,#,*> and ignored otherwise.

3.2 Application Commands (To the UNO)

Description	Command	# of Data Bytes	Data Bytes
Poll The TPI will respond with a Command Acknowledge code. The Poll will also include command 0x05, Host Information Report	00	0	
Change Default Partition	01	1	Partition

This will change which partition keystrokes are sent to when using the virtual keypad. On power-up it defaults to 1.			<1-8>
Dump Zone Timers This will dump the internal UNO Zone Timers. See TPI Host command FF.	02	0	
Keypress to a Specific Partition The will send a keystroke to the panel from an arbitrary partition. Use this if you don't want to change the TPI default partition.	03	1,1	<Partition> <0..9,*,#>
Bypass A Zone	04	3	3 Digit Zone
Un-Bypass A Zone	05	3	3 Digit Zone
Bypass All Open Zones in a Partition	06	1	<Partition>
Un-Bypass All Zones in a Partition	07	1	<Partition>
Stay-Arm Partition If the partition is READY TO ARM, this will start Exit Delay in the partition, this arms without a code.	08	1	<Partition>
Away-Arm Partition If the partition is READY TO ARM, this will start Exit Delay in the partition, this arms without a code.	09	1	<Partition>
Future	0A		
Future	0B		
Request Initial State Dump The application can request that the TPI dump its zone, partition, and bypass state. Host commands 01, 02, and 04	0C	0	
Request Host Information The application can request the TPI dump the host information command	0D	0	
Future			
Control Door Chime Feature Request to turn the partition door chime ON/OFF. 1 = ON, 0 = OFF	10	1,1	<Partition> <0,1>
Panic Alarm Request WARNING: If the UNO is monitored this will trigger an immediate response from emergency services. Developers may choose to not implement this feature to avoid liability. Request either Fire, Medical, or Hold Up (PANIC) alarm by partition 0 = FIRE, 1 = MEDICAL EMERGENCY, 2 = Silent Police Panic Example: Medical Emergency partition5 ^11,5,1\$	11	1,1	<Partition> <0,1,2>
Disarm Partition with Code Request to disarm the partition with a 4 or 6 digit code	12	1,4-6	<Partition> <0..9>

3.3 TPI Commands (From the Envisalink)

Description	Command	# of Data Bytes	Data Bytes
<p>Zone State Change</p> <p>This command is issued whenever the UNO determines that zone change-of-state has occurred The data payload is a packed 16 byte HEX string, representing a 128 bit bitfield. Each bit represents a zone from 1 to 128. The string is little endian and a binary 1 indicates that the zone is open/faulted.</p> <p>NOTE: While the string is little-endian, the individual 8 bytes are normal big-endian, MSbit on the left.</p> <p>Example: No Zones Open/Faulted 00000000000000000000000000000000</p> <p>Example: No Zones Open/Faulted FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF</p> <p>Example: Zone 1 and 64 Open/Faulted 01000000000000800000000000000000</p> <p>The UNO panel supports 128 zones, other variants for Standalone mode will only support up to 48 zones.</p>	01	32	HEX string little endian
<p>Partition State Change</p> <p>This command is issued whenever the UNO determines that partition change-of-state has occurred The data payload is a packed 8 byte HEX string, representing the status bytes of each partition. The sting is little-endian, with the MSB being in the right-most partition.</p> <p>Please see section 3.4 for a description of the partition states</p> <p>Example: Partition 1 READY, no other partitions 0100000000000000</p> <p>Example: Partition 1 and 3 READY, no other partitions 0100010000000000</p>	02	16	HEX string of all partition states
<p>Realtime CID Event</p> <p>When a system event happens that is signaled to either the Envisalerts servers or the central monitoring station, it is also presented through this command. The CID event differs from other TPI commands as it is a binary coded decimal, not HEX.</p> <p>QXXXPPZZZ0</p> <p>Where: Q = Qualifier. 1 = Event, 3 = Restoral XXX = 3 digit CID code PP = 2 digit Partition ZZZ = Zone or User (depends on CID code) 0 = Always 0 (padding)</p> <p>NOTE: The CID event Codes are ContactID codes. Lists of these codes are widely available but will not be reproduced here.</p>	03	10	ASCII Event String

<p>Example:</p> <p>3441010020</p> <p>3 = Restoral (Closing in this case) 441 = Armed in STAY mode 01 = Partition 1 002 = User 2 did it 0 = Always 0</p>			
<p>Zone Bypass State Change This command is issued whenever the UNO determines that a zone bypass change-of-state has occurred. The data payload is a packed 16 byte HEX string, representing a 128 bit bitfield. Each bit represents a zone from 1 to 128. If the zone has a 1 then it is bypassed. See TPI command 01 for more information</p>	04	32	HEX string little endian
<p>Host Information Report Reports host MAC address, device type, and firmware version string</p> <p>MAC,XXX,V-----V</p> <p>Where: MAC is 12 digit HEX string uniquely identifying the host XXX is three character device type, UNO, DUO, EVL Version string of variable length but generally of format MAJOR, MINOR, BUILD NUMBER</p> <p>Example: %05,001C2A45F894,UNO, 01.00.117 – BETA\$</p> <p>The host information report is issued after a successful login and after a POLL command</p>	05	12,3,Variable	<MAC> <TYPE> <VERSION STRING>
<p>Partition Trouble State Change This command is issued whenever the UNO determines that partition trouble state change has occurred The data payload is a packed 8 byte HEX string, representing the trouble bit-field of each partition. The sting is little-endian, with the MSB being in the right-most partition.</p> <p>Please see section 3.5 for a description of the trouble bit field</p>	06	16	HEX string of all partition states
Future	07-0F		
<p>Partition Chime This command is issued whenever the UNO determines that a zone in a partition should “chime” the keypads on the partition to indicate a change of state. The data payload is a packed 8 byte string, with the ASCII characters ‘0’ or ‘1’ indicating which partition(s), from 1-8, should chime.</p> <p>Examples</p> <p>%10,01000001\$</p> <p>Means that partition 2 and partition 8 should chime on reception of this command.</p>	10	8	[0,1]

Envisalink Zone Timer Dump This command contains the raw zone timers used inside the Envisalink. The dump is a 512 character packed HEX string representing 128 UINT16 (little endian) zone timers. Zone timers count down from 0xFFFF (zone is open) to 0x0000 (zone is closed too long ago to remember). Each “tick” of the zone time is actually 5 seconds so a zone timer of 0xFFFE means “5 seconds ago”. Remember, the zone timers are LITTLE ENDIAN so the above example would be transmitted as FEFF.	FF	512	HEX string of 128 little endian UINT16 words
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3.4 Partition Status Codes

The Envisalink uses abstracted partition states to provide a uniform interface across hardware platforms. The 02 command will present a list of all partition states on change. Here is the enumerated list of possible states.

- 00 – Partition is not Used/Doesn't Exist
- 01 – Ready
- 02 – Ready to Arm (Zones are Bypassed)
- 03 – Not Ready
- 04 – Armed in Stay Mode
- 05 – Armed in Away Mode
- 06 – Not Used
- 07 – Not Used
- 08 – Exit Delay
- 09 – Armed Zero Entry Delay – Away
- 0C – Entry Delay
- 11 – Partition in Alarm

NOTE: There may be other states that are “transitory”. They should be treated as BUSY from a User Interface point-of-view.

3.5 Major Trouble Bitfield

Major troubles are reported as an 8-bit field. Each bit represents a different issue on the panel.

BIT	DESCRIPTION
1	Service Required – Major Issue, see logs
2	AC Failure
3	Wireless Device in Low-Battery Fault
4	Server Offline
5	Zone has a trouble (fault, tamper)
6	System Battery Overcurrent
7	System Bell/Siren absent/fault
8	Wireless Device is Supervisory Fault

3.7 TPI Response Codes

After each application command, the TPI will respond with a response code

CODE	DESCRIPTION
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- 0 No Error – Command Accepted
- 1 Receive Buffer Overrun (a command is received while another is still being processed)
- 2 Unknown Command
- 3 Syntax Error. Data appended to the command is incorrect in some fashion
- 4 Receive Buffer Overflow
- 5 Receive State Machine Timeout (command not completed within 3 seconds)
- 6 The action command received cannot be completed for some reason. Examples would be trying to arm a partition that is already armed, or trying to arm a partition that is not ready.