

Antrica

Antrica ANT-1776 Family — Remote Control API User Guide

Applies to: All products in the Antrica ANT-1776 Family (for example ANT-1776 and ANT-1776ZB). Every ANT-1776 Family product uses this guide.

Guide status: Customer quick-reference. Connection, message framing, checksum, Reboot and ACK/NAK behaviour have been **verified on real ANT-1776 Family hardware over UDP**. Get/Set Time & Date, Get Version (request), Set Factory Default, Get Configuration Number and Get Temperature have also been **field-verified on an ANT-1776ZB**. Items marked (per ICD) are taken from the ICD and have not been separately field-verified.

Document control

Item	Value
Document title	Antrica ANT-1776 Family — Remote Control API User Guide
Revision	1.1
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Based on	ANT-1776 ICD Requirements, version 1.0.8.b

Revision history

Revision	Date	Changes
1.0	5 Oct 2026	Initial release
1.1	14 Oct 2026	ANT-1776 Family naming, document control, temperature reply format, command tool availability

1. Purpose

This guide helps integrators control any ANT-1776 Family encoder from their own software or test tools. It covers how to connect, how messages are built, how the unit replies, and a few ready-to-send example messages.

It is a short introduction, not a replacement for the ICD. For the full list of commands and every parameter, see the ICD (Section 8).

2. Connecting to the encoder

2.1 Network discovery (verified)

The encoder sends a **broadcast message once per second** to:

Item	Value
Broadcast address	255.255.255.255
UDP port	30003

Listen on UDP port 30003 to find encoders on the network. You can then send commands to the IP address the broadcast came from. The broadcast message is used by our Maris Guard finder tool to discover boards on the network.

2.2 Control channel (verified)

Item	Value
Transport	UDP
Destination port on the encoder	3100
Encoding	Binary, little-endian

Send each command as one UDP datagram to `<encoder IP>:3100`. Replies (ACK, NAK or Get reply) come back to the sender over UDP.

2.3 RS232 serial interface (per ICD)

Setting	Value
Baud rate	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	None

The ICD lists these serial settings but does not describe serial message framing separately. Only the UDP interface has been field-verified.

3. Message format

3.1 Structure (verified)

Every message has a 4-byte header followed by a variable-length data section:

Byte	Field	Size	Value / meaning
0	Sync	1	Always 0xA5
1	Message ID	1	Command number (e.g. 15 = Reboot)
2	Checksum	1	See 3.2
3	Data Length	1	Number of bytes in the data section (0 if none)
4 ...	Data	N	Command parameters, as defined per command in the ICD

Fields longer than one byte (e.g. "Short" values) are sent **least significant byte first** (little-endian).

3.2 Checksum rule (verified)

Checksum = (sum of every byte in the message, except the checksum byte itself) AND 0xFF

In other words, add up the Sync, Message ID, Data Length and all data bytes, then keep only the lowest 8 bits.

3.3 Worked example — Reboot System (15) (verified on hardware)

Reboot takes 4 data bytes, the "magic" sequence 0D 0E 0A 0D, which protects against accidental reboots.

Byte	Field	Hex	Decimal
0	Sync	A5	165
1	Message ID	0F	15
2	Checksum	EA	(calculated)
3	Data Length	04	4
4	Magic 1	0D	13
5	Magic 2	0E	14
6	Magic 3	0A	10
7	Magic 4	0D	13

Checksum: $165 + 15 + 4 + 13 + 14 + 10 + 13 = 234 = 0xEA$ (already below 256, so nothing is dropped).

Complete message:

A5 0F EA 04 0D 0E 0A 0D

The encoder sends an ACK and then reboots.

4. Replies: ACK, NAK and Get replies

4.1 Data flow (per ICD; ACK behaviour verified)

You send	Encoder replies on success	Encoder replies on failure
Set command (changes something, or an action such as Reboot)	ACK	NAK
Get command (reads something)	Reply message with the same Message ID, carrying the data	NAK

4.2 ACK / NAK format (verified)

Byte	Field	Value
0	Sync	A5
1	Message ID	FF (always, for ACK/NAK)
2	Checksum	Varies — same rule as Section 3.2
3	Data Length	03
4	ACK / NAK	BB = ACK (success), CC = NAK (failure)
5	Message ID being answered	e.g. 0F for Reboot
6	Error number	Varies

So a reply looks like:

```
A5 FF <chk> 03 BB <msg_id> <err>    ← ACK
A5 FF <chk> 03 CC <msg_id> <err>    ← NAK
```

Notes:

- The ICD states the error number is "not implemented now". Do not rely on its value. Use byte 4 (BB / CC) to decide whether the command worked.
- Always check byte 5 to confirm which command is being answered.
- You can check any reply with the same checksum rule.

4.3 Get replies (per ICD)

A Get reply uses the normal header (Section 3.1). Its Message ID matches the request and its data section holds the requested values. Example layouts are in Section 5.

5. Quick-start examples

All packets below were built with the checksum rule from Section 3.2. Reboot is field-verified on ANT-1776 Family hardware. Set Factory Default, Get Version (request), Get Temperature, Set/Get Time & Date and Get Configuration Number are field-verified on an ANT-1776ZB. Anything marked (per ICD) comes from the ICD only.

5.1 Reboot System (15) — verified

```
A5 0F EA 04 0D 0E 0A 0D
```

Reply: ACK, then the unit reboots.

5.2 Set Factory Default (12) — field-verified

Uses the same magic bytes as Reboot:

```
A5 0C E7 04 0D 0E 0A 0D
```

(Checksum: $165 + 12 + 4 + 13 + 14 + 10 + 13 = 231 = 0xE7$.) This restores factory settings, so use it with care.

5.3 Get Version (11) — request field-verified

Request (no data):

```
A5 0B B0 00
```

Reply:

Byte	Field	Notes
0-3	Header	Message ID = 11 (0B), Data Length = 4
4-7	Version	4 bytes

Example version bytes observed in a reply during field testing: 6C C9 01 00.

Interpretation not yet confirmed. The ICD does not say how the 4 version bytes should be read, and the interpretation is still pending confirmation from Antrica/Maris. Until then, show or log them as four separate bytes and do not convert them to a version number.

5.4 Get Temperature (110) — field-verified

Request (no data):

```
A5 6E 13 00
```

Reply: the temperature is returned as **null-terminated ASCII text**, not as a binary byte.

Byte	Field	Notes
0-3	Header	Message ID = 110 (6E), Data Length = 3 in the example below
4 ...	Temperature	ASCII digits in degrees Celsius, followed by a 00 terminator

Example reply (field-verified, confirmed against the unit's web page):

```
A5 6E 7A 03 33 31 00
```

(Data Length 03; data 33 31 00 = the text "31" plus the null terminator, meaning **31 °C**. Checksum = 378 AND 0xFF = 0x7A.)

⚠ **Differs from the ICD.** ICD 1.0.8.b describes the temperature as "Byte, Celsius". Field testing showed the unit returns ASCII text as shown above. Read the text up to the 00 terminator and use the Data Length from the header rather than assuming a single binary byte.

5.5 Set Time & Date (9) — field-verified

Data length 6:

Byte	Field	Range
4	Hour	0-23
5	Minute	0-59
6	Second	0-59
7	Day	1-31
8	Month	1-12
9	Year	Last two digits of the year, counted from 2000 (e.g. 2026 → 26)

Example: set 14:30:00 on 5 October 2026:

```
A5 09 09 06 0E 1E 00 05 0A 1A
```

(Hour 0E=14, Minute 1E=30, Second 00, Day 05, Month 0A=10, Year 1A=26. Checksum = 265 AND 0xFF = 0x09.)

Reply: ACK / NAK.

5.6 Get Time & Date (10) — field-verified

Request (no data):

```
A5 0A AF 00
```

Reply: same six fields as Set Time & Date, in the same order, **but the Year byte is encoded differently**:

Byte	Field	Encoding
9	Year	Year – 1900 (e.g. 2026 → 126 = 0x7E)

⚠ **Year encoding differs between Set and Get:** Set (9) uses year – 2000, Get (10) returns year – 1900. Account for this in your software.

5.7 Get Configuration Number (14) — field-verified

Request (no data):

```
A5 0E B3 00
```

Reply: a Get reply with Message ID 14 (0E) carrying the current configuration number. Example from field testing: with configuration **CFG4** selected, the unit returned **3**.

6. Command categories (overview)

The ICD defines over 100 commands. The table below groups them by function so you can find the right section of the ICD. Numbers are Message IDs. Titles follow the ICD's table of contents.

Category	Main commands (Message ID)
System & maintenance	Power Off (1, not implemented) · Set/Get Time & Date (9/10) · Get Version (11) · Set Factory Default (12) · Set/Get Configuration Number (13/14) · Reboot (15) · Set/Get Log Bits (19/20) · Get Temperature (110) · Get System Info (113) · Get Application Name (204) · Get Update Status (253) · Hardware errors: count / info / reset (94/95/96)
Cameras & sensors	Camera Interface Config (16/17) · CSI Camera Name (18) · Cameras Count (21) · Camera Info (22) · Capture Camera Status (40) · Generic Camera (25/26, not yet implemented) · Sensors (185–188) · Virtual Video (195/196) · Camera Lose Mode (233/234) · Next Vision Camera (219; 220 not yet implemented) · Sony Block Command/Response (221/222)
Video encoding & image	Fast Encode (38/39) · Video Encoding (47/48) · Frame Rate (49/50) · ROI (51/52) · Capture Overlay (53/54) · PIP (64/65) · Deinterlace (66/67) · Video Codec Name (81) · Extended Video Codec (82/83) · Split Parameters (89/90) · Quad Parameters (241/242) · VMD (205/206) · Snapshot quality / start (127/128/129)
Audio	Audio Source Mode (45/46) · Audio Codec (61)
Streaming & network	Network Interface (27/28) · Streaming Mux setup/get (41/42) · Streaming Operation (43) · Active Interface Network (55) · Active Mux State (59) · Jitter Buffer (68/69) · TTL (97/98) · RTSP Server (111/112)
Network playback	Network Stream Player Operation (70) · Network Player State (72) · Playback Parameters (74/75)
Recording & storage	Record Auto Delete (30/31) · Recording Operation (58) · Current Mount (86) · Record Mode (87/88) · Storage Information (100) · Format Device / status (164/165)
Display output	Display Driver Config (118) · Display Config (119/120) · Display Modes (121/122/123) · Display Operation (134) · Display Rotate (172/173)
Serial & data	UART Config (23/24) · UART Device (101) · UART-to-Ethernet (102/103) · Data Source (106/107) · Fake KLV (263/264)
GPS & time source	Time Source (141/142) · GPS Device (143/144) · GPS Status (147)
AI	Load/Get AI Module (76/77) · AI Discovery Level (78/79)
ONVIF	ONVIF Enable Mode (183/184)
Extension commands (≥ 256)	Network Camera (256/257) · GigE State (258/259) · Sony Params (260/261) · Fake KLV (263/264)
Private	Maris private messages (168–169)

About extension commands (IDs 256 and above) (per ICD): the Message ID is only one byte, so commands numbered 256 and above use **Message ID 3** in the header, followed by a **2-byte opcode** that carries the real command number. Check the exact header layout and Data Length rules in Section 3 of the ICD before using these commands. They have not been field-verified.

7. Practical notes and caveats

1. **Settings are saved.** (per ICD) Each command that changes the configuration is written to the unit's configuration file, so changes stay in place after a reboot.
2. **Year encoding differs between Set and Get.** See Section 5.6.

3. **Some commands are not implemented.** (per ICD) Power Off (1), Set/Get Generic Camera (25/26) and Get Next Vision Camera (220) are listed as not yet implemented. ICD 1.0.8.b removed commands 145 and 146 because they did not work. Do not rely on these commands in your integration.
 4. **Error numbers.** Use the ACK/NAK byte (BB/CC), not the error byte, to decide whether a command worked (Section 4.2).
 5. **Destructive commands.** Reboot (15) and Factory Default (12) need the magic bytes 0D 0E 0A 0D. Ask for confirmation in your software before sending them.
 6. **Check every reply.** Confirm the Sync byte (A5), the checksum, and that the Message ID (or, for ACK/NAK, byte 5) matches your request.
 7. **Testing tools.** To try commands by hand, use:
 8. **Packet Sender** (free, cross-platform): send a hex UDP packet to <encoder IP>:3100, e.g. A5 0F EA 04 0D 0E 0A 0D, and watch for the reply.
 9. The **Antrica ANT-1776 Command Tool**, available from Antrica on request: a simple GUI that builds packets, works out checksums, and decodes ACK/NAK replies.
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8. Getting the full ICD

This guide covers only the basics. Every command, parameter, value range and the configuration file format are defined in:

ANT-1776 ICD Requirements, version 1.0.8.b (ANT-1776_icd_req_1.0.8.b, 87 pages)

Ask your Antrica contact for the latest ICD. The ICD itself says that some tables (for example, camera codes) change often, so make sure you are using the latest version.

Antrica ANT-1776 Family — Remote Control API User Guide, Revision 1.1, 14 October 2026. Based on ICD 1.0.8.b, with UDP connection, framing, checksum, Reboot and ACK/NAK verified on ANT-1776 Family hardware, and further commands field-verified as marked.