Electrical interface control document

TC-300 G2

Document number	D-2000-0073	**Revision**	C
Project	**EN-0022**		
Product Name	**TC-300 G2**		
Product/-s Base Part Number	**2-0602**		
Customer			
Distribution	**Public**		
Created by	J. Pengermaa	**Date**	23 JAN 2024
Approval			
Accountable manager (AM)	D. Johansson	**Date**	
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1. Purpose

The purpose of this document is to describe the electrical interface for the TC-300 G2. The document describes the type of contact, pinout, and signal input.

2. Applicable product

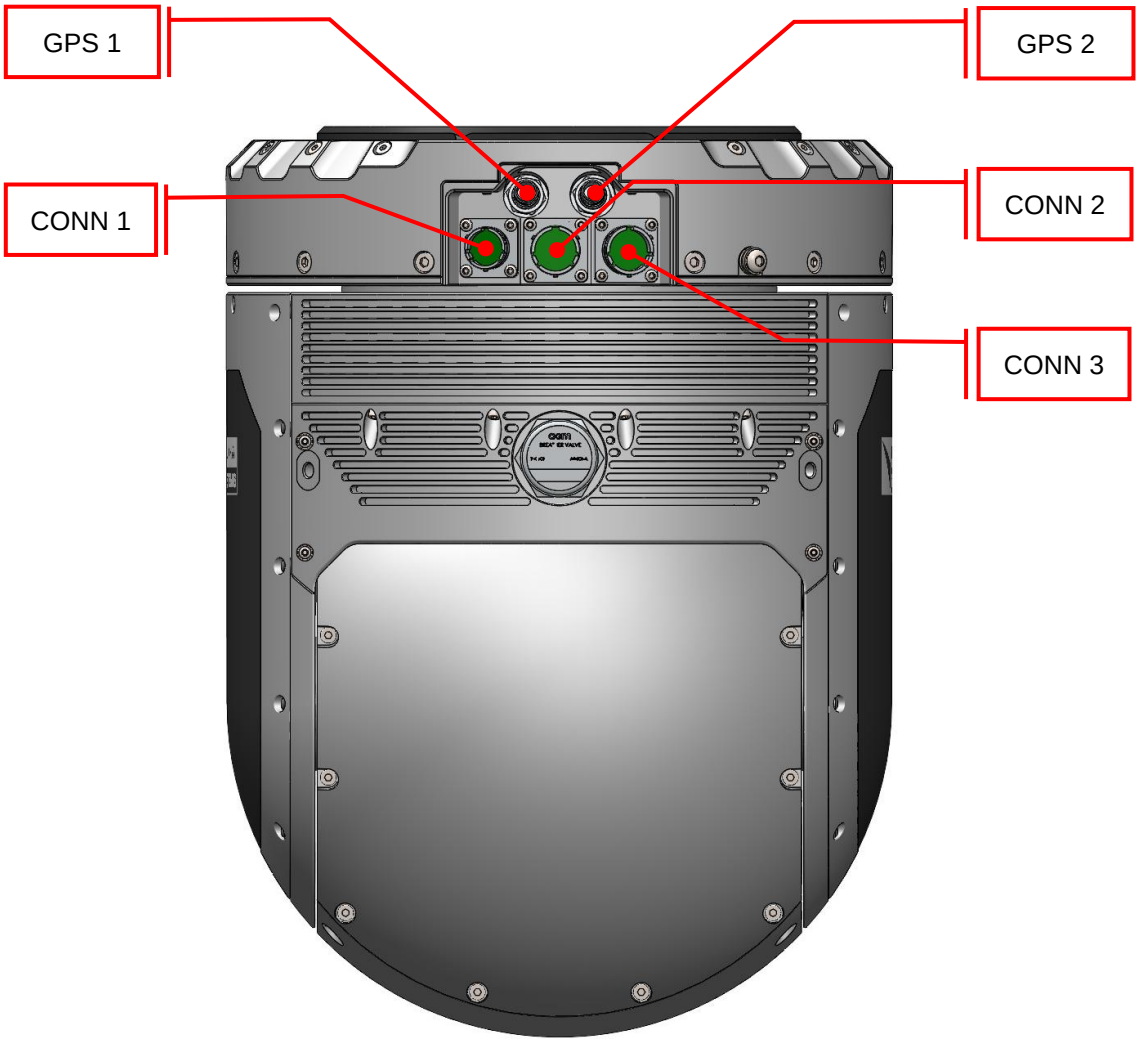
This document is applicable for product/-s in below table.

Table 1 - Applicable product/-s

Part number	Product name
2-0602(-configuration designators)	TC-300 G2

3. Connector position

Figure 1 - TC-300 G2 view from back



3.1. GPS 1, 2 connectors

The GPS connectors are used for external GPS antennas. GPS 1 is the primary GPS input to the TC-300 G2. GPS 2 is the secondary GPS input to the TC-300 G2. The secondary GPS is commonly used on fixed installations needing heading data.

3.1.1 GPS connector specification

Table 2 - GPS connector specification

Type
TNC female bulkhead jack

3.1.2 GPS connector pinout and description

Table 3 - GPS connector pinout and description

PIN	Description
Inner	GPS antenna - signal IN
Outer	GPS antenna - GND

3.1.3 GPS mating connector requirements

Table 4 - GPS mating connector requirements

Connector attribute	Description
Connector type	TNC male plug
Cable type	RG142, RG400
Impedance	50 Ω
Frequency range	0 – 12 GHz

3.2. CONN 1 power connector

This connector is used for system input power.

3.2.1 CONN 1, connector part number

Table 5 - CONN 1 connector part number

Application	MFG P/N	Color
Airborne, ground	MS27499E12B4P	MIL green
Maritime	TVPS00RB-13-04PN	Brass

3.2.2 CONN 1, connector pinout and description

Table 6 - CONN 1 connector pinout and description

PIN	Description	Contact MFG P/N
A	22-36 Vdc (Power In. Supply power to TCU)	M39029/58-364
B	RTN (Pin A & C)	M39029/58-364
C	22-36 Vdc (Power In. Supply power to TCU)	M39029/58-364
D	RTN (Pin A & C)	M39029/58-364

3.2.3 CONN 1, mating connector part number

Table 7 - CONN 1 mating connector part number

Application	MFG P/N	Contact MFG P/N
Airborne, ground	M27484T12B4S	M39029/57-358
Maritime	TVS06RB-13-04SN	M39029/57-352

3.3. CONN 2 signal connector

The signal connector is used for external communications with the TC-300 G2 system.

3.3.1 CONN 2, connector part number

Table 8 - CONN 2 connector part number

Application	MFG P/N	Color
Airborne, ground	MS27499E14B35S	MIL green
Maritime	TVPS00RB-15-35SN	Brass

3.3.2 CONN 2, connector pinout and description

Table 9 - CONN 2 connector part number

PIN	Description	Contact MFG P/N
1	Laser ARM Enable	M39029/57-354
2	RTN Laser ARM	M39029/57-354
3	RTN (22-36 Vdc Power Out 5 W)	M39029/57-354
4	22-36 Vdc (Power Out 5 W)	M39029/57-354
5-6	N/C	M39029/57-354
7	RS422 GND COM 6	M39029/57-354
8	RS422 RX- COM 6	M39029/57-354
9	RS422 RX+ COM 6	M39029/57-354
10	RS422 TX- COM 6	M39029/57-354
11	RS422 TX+ COM 6	M39029/57-354
12	RS232 GND COM 4	M39029/57-354
13	RS232 RX COM 4	M39029/57-354
14	RS232 TX COM 4	M39029/57-354
15	RS422 GND COM 5	M39029/57-354
16	RS422 RX- COM 5	M39029/57-354
17	RS422 RX+ COM 5	M39029/57-354
18	RS422 TX- COM 5	M39029/57-354
19	RS422 TX+ COM 5	M39029/57-354
20	RS232 GND COM 3	M39029/57-354
21	RS232 RX COM 3	M39029/57-354
22	RS232 TX COM 3	M39029/57-354
23	RS232 GND COM 2	M39029/57-354
24	RS232 RX COM 2	M39029/57-354
25	RS232 TX COM 2	M39029/57-354
26	RS232 RX COM 1	M39029/57-354

…Table continues on next page.

27	RS232 GND COM 1	M39029/57-354
28	RS232 TX COM 1	M39029/57-354
29	RS422 GND COM HCU (Hand control unit)	M39029/57-354
30	RS422 RX- COM HCU	M39029/57-354
31	RS422 RX+ COM HCU	M39029/57-354
32	RS422 TX- COM HCU	M39029/57-354
33	RS422 TX+ COM HCU	M39029/57-354
34	ON/OFF (Close circuit to pin 35 to start the system)	M39029/57-354
35	ON/OFF (Close circuit to pin 34 to start the system)	M39029/57-354
36	RTN 22-36 Vdc	M39029/57-354
37	22-36 Vdc (Power Out)	M39029/57-354

3.3.3 CONN 2, mating connector part number

Table 10 - CONN 2 mating connector part number

Application	MFG P/N	Contact MFG P/N
Airborne, ground	MS27484T14B35P	M39029/58-360
Maritime	TVS06RB-15-35PN	M39029/58-360

3.4. CONN 3 ethernet/video connector

The ethernet connector is used for streaming video as well as controlling the TC-300 G2.

3.4.1 CONN 3, connector part number

Table 11 - CONN 3 connector part number

Application	MFG P/N	Color
Airborne, ground	MS27499E14B97S	MIL green
Maritime	TVPS00RB-15-97SN	Brass

3.4.2 CONN 3, connector pinout and description

Table 12 - CONN 3 connector pinout and description

PIN	Description	Contact MFG P/N
A	Ethernet DA+	M39029/57-358
B	Ethernet DA-	M39029/57-358
C	Video 1 HD-SDI	M39029/78-432
D	Ethernet DB+	M39029/57-358
E	Ethernet DB-	M39029/57-358
F	Ethernet DC+	M39029/57-358
G	Video 2 HD-SDI	M39029/78-432
H	Ethernet DC-	M39029/57-358
J	Ethernet DD+	M39029/57-358
K	Ethernet DD-	M39029/57-358
L	Video 3 HD-SDI	M39029/78-432
M	Video 4 HD-SDI	M39029/78-432

3.4.3 CONN 3, ethernet/video mating connector part number

Table 13 - CONN 3 connector part number

Application	MFG P/N	Contact MFG P/N
Airborne, ground	MS27484T14B97P	M39029/58-363 / M39029/76-424
Maritime	TVS06RB-15-97PN	M39029/58-363 / M39029/58-264

4. System input voltage

Table 14 - System input voltage

Parameter	Value
Nominal	28 Vdc (Recommended)
Absolute Min	22 Vdc
Absolute Max	36 Vdc

5. System power consumption

Table 15 - System power consumption

Parameter	Value
Nominal Steady state (airspeed dependent)	100 W to 200 W (+55 W when heater is on)
Max Peak	350 W

Above numbers refer to basic system configuration: A TC-300 G2 and a control unit.
External devices such as monitors are not applicable.

6. Grounding to vehicle

The TC-300 G2 must make a good electrical bond to the vehicle grounding point. Figure 2 shows the location of the grounding point. The picture in Figure 2 is for reference only, location of grounding point may differ depending on damper configuration.

Wire at least 4 AWG and resistance R < 5 mΩ.

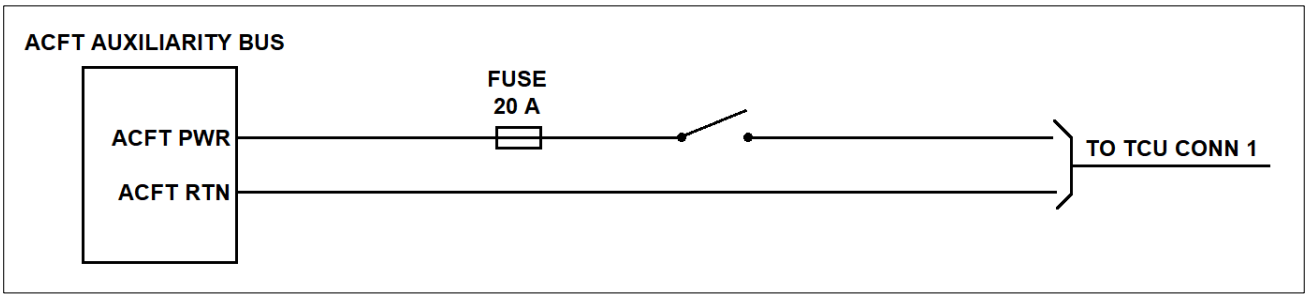
Grounding point screw size is M6.

Figure 2 – Location of grounding point

7. Recommended power supply circuit

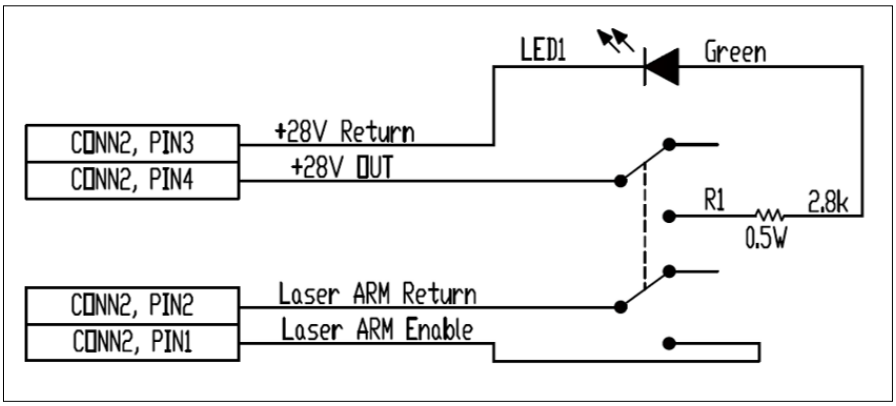
The below schematic shows a suggestion on how to connect the TC-300 G2 to vehicle power.
See figure 3 for connection to TC-300 G2.

Figure 3 - How to connect the TC-300 G2 to vehicle power



8. Recommended laser arming and annunciator circuit

Figure 4 – Recommended laser arming and annunciator circuit



9. Revision history

Date	Rev	By	Ref	Comment / Change description
23 JAN 2024	A	JP		Initial release
21 MAY 2024	B	JP		3.4.2: “Video 4 SD/COMPOSITE” changed to “Video 4 HD-SDI”.
16 APR 2025	C	JP		3.3.3: Mating signal connector part number TVPS00RB-15-35PN corrected to TVS06RB-15-35PN. 3.4.1: Ethernet/video connector part number TVP00RB-15-97SN corrected to TVPS00RB-15-97SN 3.4.3: Mating video connector part number TVS006RB-15-97PN corrected to TVS06RB-15-97PN