

Thumbs Up Display System

Model: TU-001

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1. Introduction

The Brigade Thumbs Up Display System provides an additional level of safety by enabling clear communication between the machine operator and personnel on the ground.

During normal machine operation, the externally mounted cab display shows a red LED warning symbol to indicate that personnel must not approach the machine.

When it is safe to enter the working area, the operator can press the in-cab button to activate the green thumbs-up symbol. This gives a clear visual indication that the operator has acknowledged the person outside the vehicle and that it is safe to approach.

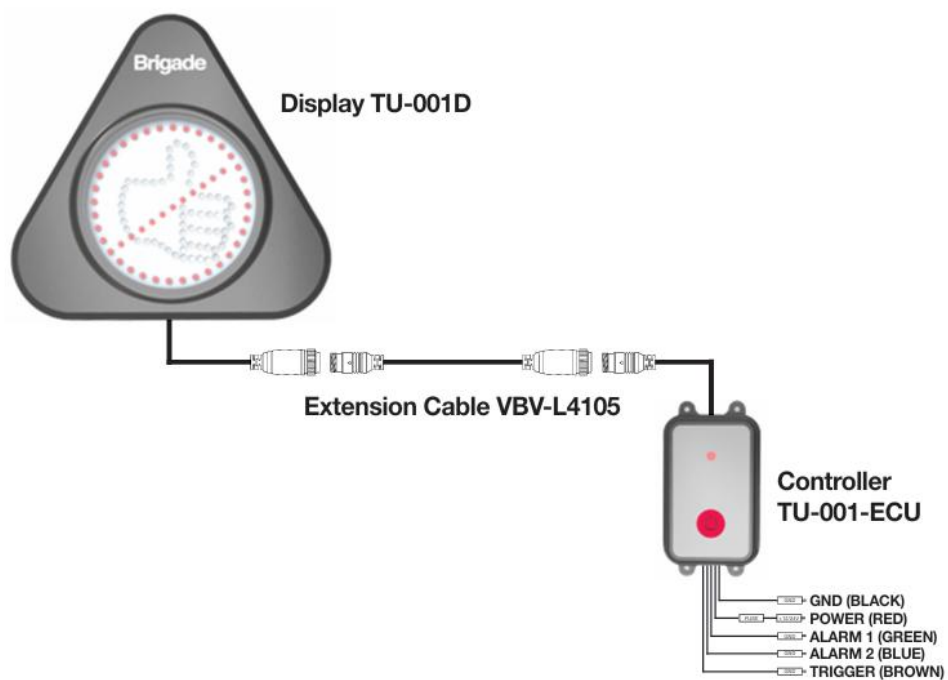
Red symbol / No Entry: Do not approach the machine. The operator has either not acknowledged your presence or the machine has not been placed in a safe state.

Green thumbs-up symbol: The machine is disabled and safe to approach. This provides visual confirmation, and optional audible confirmation where fitted, that the operator has seen you and granted access.

2. Kit contents

System	System Description	Sub-System	Qty
TU-001D	Thumbs Up Display		1
TU-001-ECU	Thumbs Up Control Unit		1
VBV-H405	5m extension cable		1
TU-001 (ALT)-QSG	Quick Start Guide		1

3. Installation diagram



4. Functional description

The green thumbs-up symbol is displayed only when:

- The trigger input (brown cable) is active AND The controller button has been pressed.

The red symbol is displayed when:

- Power is first applied to the system.
- The trigger input (brown cable) is not active.
- Any condition exists other than trigger input activation (brown cable) combined with a controller button press.

The control box LED follows the same colour logic as the display and defaults to red when the system is powered. The controller button can only be operated when the trigger input (brown cable) is active.

The trigger input (brown cable) can be connected and activated by the machine handbrake, the dead man switch, etc to only allow the green thumbs up symbol to activate under specific conditions.

Operating logic

Condition	Display status	Control unit LED	Alarm 1	Alarm 2
Power on / power cycle	Red symbol	Red	Low	High
Trigger input active (brown cable) and controller button pressed	Green thumbs-up	Green	High	Low
Trigger input (brown cable) inactive	Red symbol	Red	Low	High
Controller button pressed without valid trigger input (brown cable)	Red symbol	Red	Low	High

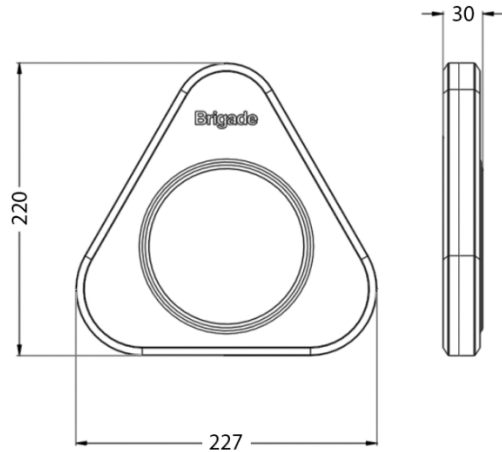
5. System specifications

Specification	TU-001D Thumbs Up Display	TU-001-ECU Control Unit
Operating voltage	–	9 to 32 VDC
Operating temperature	-30°C to 70°C	-30°C to 70°C
LED colour	Red and green	Red and green
External dimensions	226.8 x 219.8 x 30.0 mm	109.7 x 58.2 x 25.3 mm
IP rating	IP69K	IP67
Brightness	3632 cd/m ² red, 5202 cd/m ² green	–
Display active area	132 x 132 mm	–
Trigger output (Alarm1&2) when red symbol is active*	–	Alarm 2 (Blue) = 12 V output, 1 mA; Alarm 1 < 2 V
Trigger output (Alarm1&2) when green thumbs-up is active*	–	Alarm 1 (Green) = 12 V output, 1 mA; Alarm 2 < 2 V
Trigger input (brown cable)	–	12/24 VDC

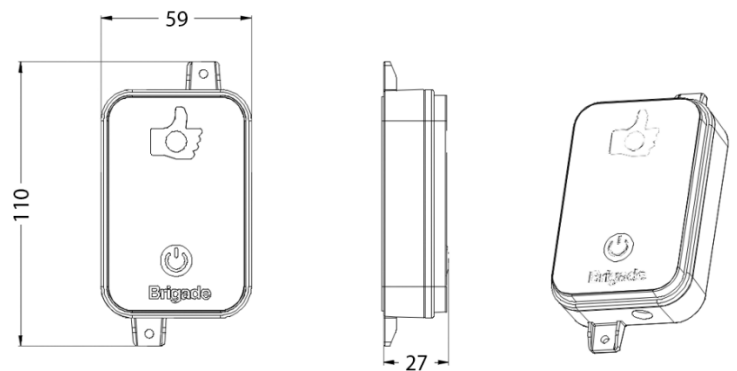
*Brigade recommends using LS-TS01 as a relay to connect Alarm 1 and Alarm 2 or to connect directly to a Brigade mobile recorder (MDR serie)

6. Product dimensions

TU-001D



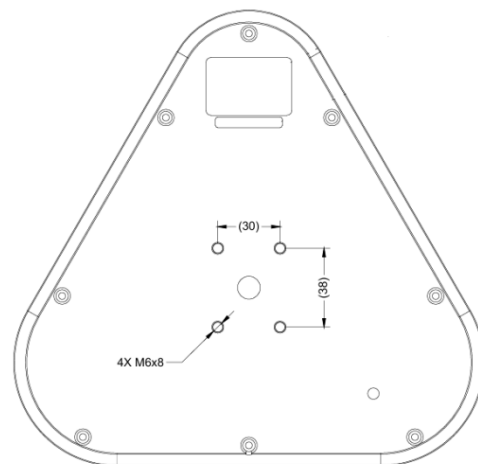
TU-001-ECU



7. Installation

Mount the Thumbs Up Display using an AMPS-pattern bracket and 4 x M6 screws. The bracket and screws are not supplied. Mount the display on the exterior of the machine, close to the cabin entry point, with the screen facing outward.

Install the control unit inside the vehicle cab in a secure location protected from damage, moisture, and accidental interference during operation using the double adhesive tape and / or with screws provided.



8. Product approvals and certifications

This product is listed with the following approvals and declarations:

- CE
- FCC
- ICES
- REACH
- WEEE
- RoHS 2

9. Cautions

The safe operation of this device depends on secure electrical connections. After installation or maintenance, always make sure all connectors are fully inserted and locked.

Using extension cables longer than 5 m may cause voltage drop and may reduce product performance.

Although the Thumbs Up Display is rated IP69K, high-pressure cleaning is permitted only within the specified limits for pressure, temperature, distance, and spray pattern. Use outside these limits, or direct prolonged spraying at close range, may damage the product and void the warranty.

Avoid prolonged exposure to high LED brightness, particularly in low ambient light conditions.

Do not install the display in a position where it may be struck by loose material, tools, or other equipment.

To clean the system, wipe it with a damp cloth only. Do not use harsh cleaning chemicals or solvents on plastic parts. Do not expose the product to naked flame.

10. Intended Use

The Thumbs Up Display System ("**System**") is designed solely as an auxiliary visual communication aid to assist communication between the operator of a vehicle or machine and personnel working in the surrounding area.

The System is intended to provide an additional indication of the operator's status and should only be used as part of a wider site safety management system and safe system of work.

The System does not control, monitor, detect, prevent, or otherwise influence the operation, movement, or safety of any vehicle, machine, equipment, operator, or any person in the vicinity of the vehicle or machine, including site personnel, workers, contractors, visitors, or other individuals.

The System, and particularly the display of the System, must not be installed in locations where it may be exposed to impact from materials or equipment.

11. Limitations of Use

The System is not a safety device and must not be relied upon as the sole means of determining whether a vehicle or machine is operating, stationary, safe to approach, safe to board, safe to service, or safe to work around.

Users must be aware that:

- The System relies on the user or operator to manually switch between red and green states.
- The System provides a visual indication only and does not verify the actual operating condition of the vehicle or machine.
- The displayed indication is dependent upon manual activation by the operator and may not accurately reflect the actual status of the vehicle or machine at all times.
- The System may be affected by environmental conditions, visibility, lighting conditions, weather, dirt, damage, obstruction, installation location, viewing angle, or other factors outside the manufacturer's control.
- The display is mounted at a specific location on the vehicle or machine and may not be visible from all directions, positions, or angles.
- Personnel positioned outside the display's field of visibility may not be able to see the displayed indication.

- The System does not eliminate blind spots, restricted visibility areas, or other operational hazards associated with vehicles or machinery.
- The System does not replace established safety procedures, risk assessments, training requirements, lockout/tagout procedures, site rules, traffic management controls, or operator and pedestrian vigilance. The risk of user or operator error (e.g. failure to return to red state), and the potential safety implications should be factored into on site procedures and should be considered in future design or risk assessments.

12. Operator and User Responsibilities

Operators, site managers, employers, contractors, and all personnel remain responsible for ensuring safe working practices at all times.

Before approaching, boarding, servicing, maintaining, loading, unloading, inspecting, or working around any vehicle or machine, personnel must independently verify that it is safe to do so in accordance with applicable laws, site rules, risk assessments, and safety procedures.

The System must not be used as the sole basis for any decision relating to personal safety or operational safety.

Users must conduct regular inspections of the System and immediately remove it from service if it is damaged, malfunctioning, obscured, or otherwise unable to operate as intended.

To clean the System, or any components thereof, just wipe over with a damp cloth. Do not expose plastics to or clean them with any harsh cleaning chemicals or solvents. Do not expose to a naked flame.

Prolonged exposure of the System, or any component thereof, to high LED brightness should be avoided, especially in low ambient light conditions.

The System must be installed by a qualified technician.

13. Disclaimer

The System is provided solely as an auxiliary communication and status-indication aid. It is only intended to communicate information from operators to personnel, and is not designed, intended or supplied to perform a safety function. In particular the System

does not control, prevent, restrict, monitor or influence the operation or movement of any vehicle, machine or equipment, and does not determine whether any area, work zone, vehicle, machine or equipment is safe to approach, enter or access. It should therefore not be relied upon as the sole or primary means of assessing risk, determining the operating status of any vehicle or machine or deciding whether it is safe for personnel to approach, enter or work within a particular area. Users remain solely responsible for maintaining appropriate safety procedures, exercising due care, and complying with all applicable laws, regulations, site requirements, and safe working practices.

The manufacturer shall not be liable for any loss, damage, injury, death, delay, interruption, cost, or expense arising from:

- misuse of the System;
- failure to follow applicable safety procedures;
- failure to verify the actual status of the vehicle or machine;
- failure of an operator or user to correctly activate or operate the System and display;
- obstruction or non-visibility of the display from a particular location or angle;
- environmental, operational, or site-specific conditions affecting visibility or performance; or
- any reliance placed upon the System as a safety device or component.

Nothing in this disclaimer excludes or limits liability where such exclusion or limitation is prohibited by applicable law.