

Teledyne AsciiDoc

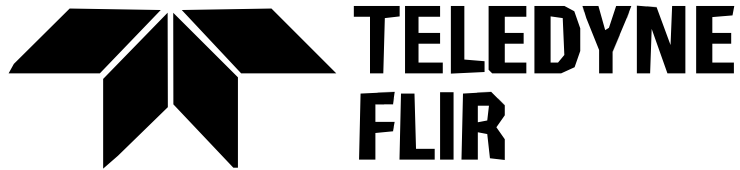
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0.0.1

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Revremark

TELEDYNE FLIR LLC
27700 SW Parkway Avenue
Wilsonville, OR 97070 USA
Phone: 800.868.0639



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U.S. PATENTS - The Star SAFIRE® 380-HD Series Systems are protected by the following patents: U.S. Patent No. 7,264,220; U.S. Patent No. 7,471,451; U.S. Patent No. 7,561,784; and U.S. Patent No. 7,671,311. Other U.S. and International Patents Pending.

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CONTACT

TELEDYNE FLIR LLC
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APPLICABILITY

This document applies to the following product configurations:

Product configuration 0 baseline.

1

General

NOTE

"Autogen" refers to content created or referenced by the DocBook-XSL stylesheets

2

Page Examples

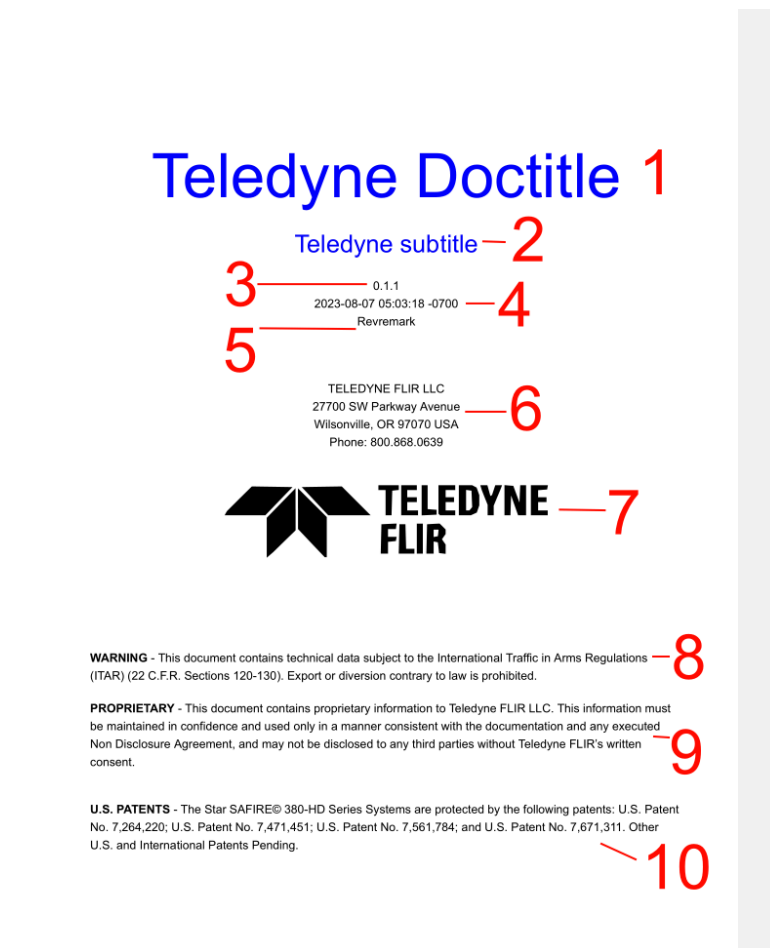


Figure 2.1. Cover Page Template (title recto)

Legend for Cover Page Template

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2. AsciiDoc PM (map) subtitle
3. AsciiDoc PM (map) revnumber
4. AsciiDoc PM (map) revdate
5. AsciiDoc PM (map) revremark
6. CIR element from DMC-DEM0-000-00-00-01A-998Z-A.adoc with role contact
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8. CIR element from DMC-DEMO-000-00-00-01A-998Z-A.adoc with role export
9. CIR element from DMC-DEMO-000-00-00-01A-998Z-A.adoc with role proprietary
10. CIR element from DMC-DEMO-000-00-00-01A-998Z-A.adoc with role uspatent



Figure 2.2. Book title verso

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Figure 2.6. Intentionally Blank Page (autogen)

6

System Control/Symbology

Successful operating missions require operators to have a solid understanding of the system operating modes; how to select and control these operating modes; and how to select and interpret the display screen symbology. This chapter provides System Control Unit (SCU) and display screen symbology for the Star SAFIRE® 380-HD system.

6.1. Operational Limitations

This section provides operation recommendations including airspeed, if applicable, and crash damage.

6.1.1. Airspeed

Teledyne FLIR recommends a maximum airspeed for system operations.

CAUTION

Flights exceeding a maximum airspeed of 415 Knots could damage the TFU.

6.1.2. Crash Damage

In the event of a crash, systems are known to exhibit broken windows with cracked or large shards of glass fragments inside the TFU and on the ground at the crash site. Proper handling of Teledyne FLIR equipment (LRUs) are covered in this section.

First Responders

First Responders include Rescue Crew, Aircrew, and Aircraft Maintenance Crew. This section provides hazards and equipment requirements.

WARNING

While there are no specialized identified Personal Protective Equipment (PPE), Teledyne FLIR strongly recommends use of thick or heavy leather gloves while handling of TFUs with broken windows or fractured housing material.

WARNING

Use extreme care when handling shards of broken or cracked glass fragments.

Requirements are as follows:

- Environmental Hazards: None

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Figure 2.7. Chapter title page (always recto side)

1 System Control/Symbology

- Chemical Hazards: None
- Ozone Depleting Chemicals: None
- Personal Protective Equipment (PPE): Protective gloves (for broken glass)

6.2. Operational Techniques

Test change.

Understanding the concepts of infrared (IR) imaging, good crew coordination, learning and practicing the various system modes of operation, and sharing information and techniques with other operators and departments will ensure successful missions.

6.2.1. Crew Operation

Good communication between the aircraft pilot, ground personnel, or another ground station results in safer, more successful missions. One operating challenge is to correctly determine the direction and tracking of a moving target and then follow it. The system needs to be constantly adjusted for platform movement, target movement, and Line-of-Sight (LOS). Crew coordination is key to success.

6.2.2. Successful Operating Ideas

In order to maximize successful mission completion, operators should become familiar with the system. Here are some tips and suggestions to increase mission success. The following operating suggestions are provided to aid operators:

CAUTION

For non-maritime model TFUs, do not install, operate, or store the TFU in the ball up configuration when exposed to the elements. Water intrusion may occur in the skillet during heavy inclement weather.

CAUTION

Do not store the TFU for long periods with the lenses facing the sun. Long term exposure to the sun will damage the system optics.

NOTE

The following target approaches can cause erratic gimbal behavior and should be avoided during operation:

1. ball-down systems, ~90° elevation (nadir)
2. ball-up systems, +90° elevation (zenith).

NOTE

If the IR sensor approaches over-heating (in extreme high temperature environments such as in the desert), the system will shut the IR sensor down. This is similar to the hibernate mode. If this occurs,

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Figure 2.8. Content page, left side (verso)

Legend for Content, Verso

1. AsciiDoc DM (module/topic) chapter title
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3. Chapter number - Page number autogen
4. AsciiDoc PM (map) revremark + revnumber
5. CIR element from DMC-DEM0-000-00-00-01A-998Z-A.adoc with role proprietary_short
6. CIR element from DMC-DEM0-000-00-00-01A-998Z-A.adoc with role export_short

all other sensors will be available. Once the system cools down, the IR sensor will again be available for use.

- Develop a solid understanding of thermal imaging as opposed to visible light, and the impact of environmental factors on the images.
- Build video libraries for review, instruction, and reference. Share tactics, techniques, and procedures with other operators and departments.
- Learn to adjust the system according to the existing or changing environmental conditions. Proper Grayscale, Scene Temperature, and Gain / Level adjustment enhances the display for even minor target temperature variations.
- Practice finding and tracking various thermal cues, which can be 'hot,' 'cold,' or somewhere in between, depending on the situation. When using an Infrared (IR) sensor, the operator must keep in mind the visual cues he/she is used to seeing with his/her eyes will be presented differently. The operator needs to understand how to interpret the scene in order to provide useful narration or direction to others during a mission.
- Search in wider fields of view and identify in narrower fields of view.

6.3. Modes of Operation

Various turret control modes and image optimization settings are available to help operators successfully complete mission objectives. The most commonly used functions are shown in the table below.

Table 6.1. Modes of Operation

Turret Control Mode	Image Optimization
Cage (CAGE) & Stow (STOW)	Polarity (POL)
Inertial Point (IP)	Focus - Auto & Manual
Heading Hold (HH)	Gain and Level /Exposure (Auto, Manual, Histogram)
Rate Aid (RA)	Non-Uniformity Correction (NUC)
Geopoint (GEOPOINT); Image Aid Geopoint(GEOPOINT-IA)	Field-of-View Change
Tracking	Scene Temperature

Figure 2.9. Content page, right side (recto)

Index

A

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S

Sword

 Broadsword

 Excalibur, 1

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Figure 2.10. Index (autogen)

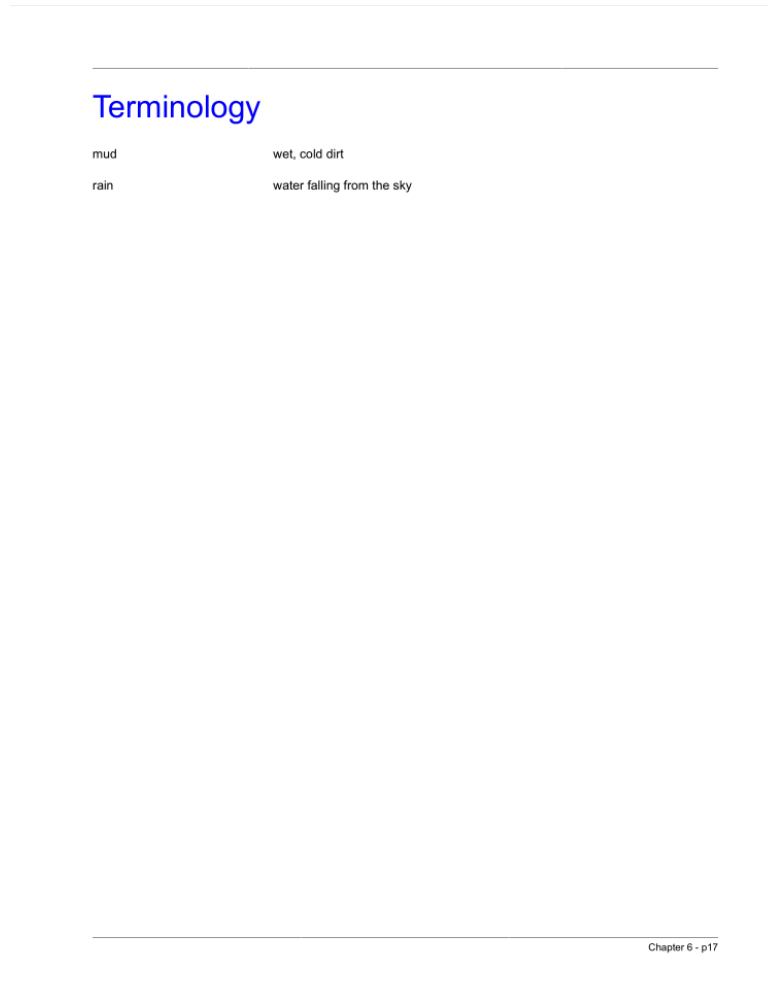


Figure 2.11. Glossary (gentext label "Terminology")

