TMS, DMS and CMS Usage Guide for Falcon BMS 4.38.1

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Contents

Chapter 1

HOTAS Fundamentals

1.1 Overview of TMS, DMS, and CMS

This chapter introduces the three HOTAS switches central to this guide: the Target Management Switch (TMS), Display Management Switch (DMS), and Countermeasures Management Switch (CMS). It assumes familiarity with basic F-16 operation as described in the primary sources—particularly Dash-34 sections 2.1 (Cockpit Controls and Displays) and 2.1.5 (Hands-On Controls)—including master modes, HOTAS layout, and Sensor of Interest (SOI) concepts (detailed in Section 4.1). Readers new to Falcon BMS should consult these references and the ones below, before proceeding to switch-specific chapters of this guide.

TMS: The TMS manages target designation, data manipulation, and sensor cueing in both air-to-air and air-to-ground contexts. Its actions vary significantly by master mode, sensor state, and weapon configuration, making it the most context-sensitive of the three switches (see Chapter **??** for complete explanation). For example, in air-to-air, TMS directions designate bugs, break tracks, or slave missiles, while in air-to-ground, they support ground stabilization and weapon release cues (Dash-34 § 2.1.5.1).

DMS: The DMS serves as the transversal display manager, selecting the Sensor of Interest (SOI) among HUD and MFDs, and cycling MFD formats. Unlike the TMS's tactical focus, DMS behavior is primarily master mode-dependent: there are restrictions when in A-A (see Chapter**??** for complete explanation).

CMS: The CMS controls the Countermeasures Management System (CMDS) dispensing and Electronic Countermeasures (ECM) programming through a unified consent architecture that operates independently of master mode or SOI status. All directions converge on consent logic, for SEMI or AUTO CMDS operation modes, and direct systems operation while in MANUAL CMDS mode. There are also operational nuances for external vs internal ECM pods (see Chapter**??** for complete explanation and *TO 1F-16CMAM-34-1-1*, Dash-34, sections `2.1.1.11, 2.1.13`).

Together, these switches form the core HOTAS interface for situational awareness, targeting, display management, and self-protection. Their behaviors are tightly coupled to master mode and SOI (detailed in Section **??**), but each has unique scope: TMS is tactical/contextual, DMS is display-routing, and CMS is defensive/consent-based.

The chapters that follow (3 — TMS, 4 — DMS and 5 — CMS) provide direction-specific tables organized by operational context, with cross-references to Dash-34 sections and BMS training missions for practical validation. Use this overview to orient yourself before diving into the detailed HOTAS behaviors.

1.2   Master Modes and Context Principles

Master modes define the operational context that governs TMS, DMS, and CMS responses in Falcon BMS 4.38.1 (Dash-34 2.1.1.2.1). The primary modes are NAV (flexible situational awareness, full SOI options), A-A (air-to-air engagement, MFD/SOI restricted to FCR/HSD/TGP, HUD passive), A-G PRE/VIS (air-to-ground preplanned/visual, HUD SOI critical for designation), DGFT (dogfight, A-A-like restrictions), and MSL OVRD (missile override, MFD-only). These modes determine switch effectiveness—DMS toggles vary (3-way NAV/A-G vs 2-way A-A), TMS actions adapt (bug/track A-A vs ground-stab A-G), while CMS remains mode-independent for immediate defense (fwd Chapters 3-5 tables).

Context-sensitive behavior emerges from mode + SOI + sensor/weapon interactions (Dash-34 2.1.1.2.3). For instance, NAV permits HUD/MFD SOI flexibility for TMS waypoint/marking and DMS cycling, while A-A prioritizes radar-driven tactics with TMS track management routed exclusively to FCR/HSD (HUD no-SOI, fwd 4.1). A-G VIS demands HUD-DMS alternation for visual cueing (TMS TD box on HUD, fwd 4.2-4.3), and CMS consent operates universally regardless—short presses dispense chaff/flares, long program ECM (mode-agnostic, fwd 5.1-5.2). This hierarchy ensures switches align with tactical priorities without pilot reconfiguration.

Timing distinctions—short (0.6s tap) vs long/hold presses—further refine behaviors but are switch-granular and detailed in Chapters 3-5 tables rather than generalized here (Dash-34 2.1.5 Hands-On Controls). With these principles established, readers can navigate the mode-dependent tables that form the guide's core: Chapter 3 (TMS tactical actions), Chapter 4 (DMS SOI/format management), and Chapter 5 (CMS defensive programming). Cross-references to Dash-34 sections and BMS training missions enable immediate practical application