TMS, DMS and CMS Usage Guide for Falcon BMS 4.38.1

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Contents

0.1 DMS Down: Toggle SOI Between Displays

DMS Down toggles the Sensor of Interest SOI among the displays available in the current master mode. As established in Section **??**, the set of valid SOI displays varies by mode: in NAV and A-G modes, the HUD is available; in air-to-air employment modes (A-A, DGFT, MSL OVRD), it is not

Consequently, DMS Down behaves in two distinct ways:

- In **NAV** and **A-G** modes, DMS Down toggles SOI through all available displays: HUD → L/R MFD → l/R MFD → HUD.
- In **air-to-air employment modes** (A-A, DGFT, MSL OVRD), DMS Down toggles SOI only between the two MFD (L/R MFD ↔ l/R MFD), since the HUD is not a valid SOI candidate

This design ensures that DMS Up and DMS Down work together to manage SOI across all available displays in each operational context. It is **important to note** that DMS Down transitions SOI between displays—HUD and the two MFD—without changing which format is currently displayed on any MFD. The pilot executes hands-on commands on whatever format is available at the selected display. Format transitions within an MFD are controlled by DMS Right and DMS Left, covered in Section **??**.

0.1.1 DMS Down Effectiveness in All Master Modes

DMS Down effectiveness depends on which displays can serve as SOI in the current master mode, as established in Section **??**.

Master Modes Where HUD Is a Valid SOI Candidate:

NAV (Navigation) Master Mode: In NAV, DMS Down toggles SOI through all valid candidates: HUD and both MFD. Repeated DMS Down presses create a continuous 3-step sequence: HUD → L/R MFD → L/R MFD → HUD. This allows the pilot to quickly move hands-on command focus between the HUD and the two MFD sensor displays for navigation and sensor management.

A-G in PRE (Preplanned Air-to-Ground) Mode: In A-G PRE, valid SOI candidates are the HUD and both MFD. DMS Down follows the same 3-step toggle pattern as NAV, moving SOI among the HUD and the two MFD. This allows the pilot to shift hands-on control focus while examining different sensor pages.

A-G in VIS (Visual Air-to-Ground: CCIP, DTOS, AGM-65 VIS, IAM-VIS): In A-G VIS modes, valid SOI candidates are the HUD and both MFD. DMS Down toggles through the same 3-step pattern as in NAV. However, in A-G VIS, DMS Down becomes **operationally critical** rather than merely convenient.

A-G VIS delivery is fundamentally HUD-centric: the pilot acquires and designates the target visually using the HUD pipper (CCIP) or target designator box (AGM-65 VIS, IAM-VIS). These visual cues are controlled by CURSOR and TMS inputs, which are routed to whichever display is currently SOI. If SOI migrates to an MFD—such as TGP for sensor refinement, WPN for weapon status, or

FCR/HSD for situational awareness—those same CURSOR and TMS commands will act on the MFD instead of the HUD, and visual designation on the HUD ceases to respond.

Therefore, DMS Down and DMS Up work in tandem in A-G VIS: DMS Down allows the pilot to temporarily move SOI to an MFD for sensor work or information review, while DMS Up immediately restores HUD SOI to resume visual designation. This up-down alternation is fundamental to efficient A-G VIS delivery and cannot be omitted without degrading command flow or situational awareness.

Master Modes Where HUD Is NOT a Valid SOI Candidate: In air-to-air employment (A-A, DGFT, and MSL OVRD) modes, the avionics architecture restricts SOI to the MFD only. The HUD cannot be designated as SOI in these modes (see Section **??** for the architectural rationale). Consequently, DMS Down is limited to toggling SOI between the two MFD (L/R MFD ↔ L/R MFD). This 2-way toggle allows the pilot to select which MFD sensor display receives hands-on command priority.

In A-A contexts, this is operationally essential: the pilot uses DMS Down to shift SOI focus between onde MFD and the ohter so he can access and have direct control over whichever format is being actually displayed: FCR for track management and missile employment, HSD for tactical picture and threat assessment or between the FCR and TGP for situational awareness or supplemental tracking. Efficient air-to-air engagement depends critically on rapid SOI management via DMS Down.

0.1.2 DMS Down Usage Table

Table 1: DMS Down Usage Across NAV, A-A, and A-G Master Modes

State	Dir	Act	Function	Effect / Nuance	Dash34	Train
NAV	Down	Short	Toggle SOI cycle through displays	DMS Down toggles SOI through HUD → L/R MFD → L/R MFD → HUD. With HUD as SOI, hands-on commands (CURSOR/ENABLE, TMS) manage HUD navigation symbology. Pressing DMS Down transfers SOI to the next display; the pilot can rotate through all three displays sequentially.	—	
A-A	Down	Short	Toggle SOI between MFD only	DMS Down toggles SOI only between the two MFD. The HUD cannot be SOI in A-A and remains a passive display. This is the primary HOTAS method for selecting which MFD sensor page receives hands-on command priority for track management, situational awareness, and weapons employment.	2.1.1.2.3, 2.1.6.3	TRN 18 BAR-CAP, TRN 17B IFF Intercept

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State	Dir	Act	Function	Effect / Nuance	Dash34	Train
A-G	Down	Short	Toggle SOI between HUD and MFD sensor pages	DMS Down toggles SOI through HUD → L/R MFD → L/R MFD → HUD. In A-G PRE, DMS Down is a convenience tool for shifting hands-on focus between HUD and MFD sensor pages. **In A-G VIS (CCIP, DTOS, AGM-65 VIS, IAM-VIS), DMS Down is operationally critical:** the HUD is the primary visual designation interface. DMS Down allows the pilot to alternate between HUD visual cueing (TMS/CURSOR steering, pipper control, TD box positioning) and MFD sensor work (TGP search/refine, WPN status, FCR A-G ranging). Loss of HUD SOI in A-G VIS prevents proper visual designation and must be recovered with DMS Up.	2.1.1.2.3, 2.1.6.3	TRN 10 GP Bombs, TRN 11 LGB, TRN 13 Maverick, TRN 14 Maverick Adv, TRN 15 IAM

0.1.3 DMS Down Exception States

In certain special states and submodes, DMS Down may be temporarily ineffective, even in master modes where SOI toggling normally works, as a reflection of DMS Up, as seen on Section **??**

- **Snowplow (SP) PRE State (Unstabilised)**

  When the pilot enters Snowplow mode (a specialised A-G ground-stabilisation mode for slewing to arbitrary ground positions) and the SP position has not yet been stabilised with TMS Up, the SOI is effectively "nowhere." Both the A-G radar and TGP MFD displays show `NOT SOI`, and neither display is designated as SOI. As a result, **DMS Down has no effect** in this state: the toggle mechanism has nowhere to advance SOI to.

  Once the SP position is stabilised with TMS Up (pressing TMS Up on the HUD), SOI returns to its previous designated display, and DMS Down resumes normal toggling behaviour.

- **MARK/OFLY Submode**

  In the MARK/OFLY submode (a specialised target-acquisition context documented in Dash-34 § 2.1.1.2.3), the SOI cannot be designated or changed at all. Consequently, **DMS Down has no effect** in MARK/OFLY: you cannot toggle SOI when SOI designation itself is locked. This submode is rare in normal operations but is important to recognise if you encounter it during unusual procedures or system states.