Asterix category 063 - Sensor Status Reports

category: 063

edition: 1.7

date: 2025-06-05

Preamble

Surveillance data exchange.

Description of standard data items

I063/010 - Data Source Identifier

definition: Identification of the radar station from which the data are received.

Group

I063/010/SAC - System Area Code

Element
bit size: 8
Raw Content

I063/010/SIC - System Identification Code

Element
bit size: 8
Raw Content

Note: The defined SACs are on the EUROCONTROL ASTERIX website (www.eurocontrol.int/asterix)

I063/015 - Service Identification

definition: Identification of the service provided to one or more users.

Element
bit size: 8
Raw Content

The service identification is allocated by the SDPS

I063/030 - Time of Message

definition: Absolute time stamping of the message, in the form of elapsed time since last midnight, expressed as UTC.

Element
bit size: 24
Unsigned quantity
LSB = $1/2^7$ s $\approx 7.8125e-3$ s
unit: ”s”

The time of the day value is reset to zero at every midnight.

I063/050 - Sensor Identifier

Group

I063/050/SAC - System Area Code

Element
bit size: 8
Raw Content

I063/050/SIC - System Identification Code

Element
bit size: 8
Raw Content

- The up-to-date list of SACs is published on the EUROCONTROL Web Site (http://www.eurocontrol.int/asterix).
- If the SAC/SIC refers to an SDPS used as input, the respective sensor status information will be transmitted using the Reserved Expansion Field.

I063/060 - Sensor Configuration and Status

definition: Configuration and status of the sensor

Extended

I063/060/CON

Element
bit size: 2
Values:

0: Operational
1: Degraded
2: Initialization
3: Not currently connected

I063/060/PSR

Element
bit size: 1
Values:

0: PSR GO
1: PSR NOGO

I063/060/SSR

Element
bit size: 1
Values:

0: SSR GO
1: SSR NOGO

I063/060/MDS

Element
bit size: 1
Values:

0: MDS GO
1: MDS NOGO

I063/060/ADS

Element
bit size: 1
Values:

0: ADS GO
1: ADS NOGO

I063/060/MLT

Element
bit size: 1
Values:

0: MLT GO
1: MLT NOGO

(FX) - extension bit

I063/060/OPS - Operational Release Status of the System

Element
bit size: 1
Values:

0: System is released for operational use
1: Operational use of System is inhibited

I063/060/ODP - Data Processor Overload Indicator

Element
bit size: 1
Values:

0: Default, no overload
1: Overload in DP

I063/060/OXT - Transmission Subsystem Overload Status

Element
bit size: 1
Values:

0: Default, no overload
1: Overload in transmission subsystem

I063/060/MSC - Monitoring System Connected Status

Element
bit size: 1
Values:

0: Monitoring system connected
1: Monitoring system disconnected

I063/060/TSV - Time Source Validity

Element
bit size: 1
Values:

0: Valid
1: Invalid

I063/060/NPW - No Plot Warning

Element
bit size: 1
Values:

0: Default (no meaning)
1: No plots being received

Spare bits: 1

(FX) - extension bit

I063/060/TTF - Test Target Failure Status from Sensor

Group

I063/060/TTF/EP - Element Populated Bit

Element
bit size: 1
Values:

0: Element not populated
1: Element populated

I063/060/TTF/VAL - Test Target Failure Status Values

Element
bit size: 1
Values:

0: Test Target Operative
1: Test Target Failure

I063/060/SPO - Indication of Spoofing Attack from Sensor

Group

I063/060/SPO/EP - Element Populated Bit

Element
bit size: 1
Values:

0: Element not populated
1: Element populated

I063/060/SPO/VAL - Indication of Spoofing Attack Values

Element
bit size: 1
Values:

0: No spoofing detected
1: Potential spoofing attack

Spare bits: 3
(FX) - extension bit

Notes:

1. The information (CON) is derived by the SDPS, is implementation dependent and shall be described in the ICD.
2. The information (PSR), (SSR), (MDS), (ADS) and (MLT) and well as (OPS), (ODP), (OXT), (MSC), (TSV), (SPO) and (TTF) are derived from the monosensor service message categories and are only relevant for operational sensors (i.e. CON = 0).
3. The sensor status derived from the SDPS indicating the use of a specific technology is provided in I063/REF/SSFS/PSR, I063/REF/SSFS/SSR, I063/REF/SSFS/MDS, I063/REF/SSFS/ADS and I063/REF/SSFS/MLT.
4. This legacy I063/060/NPW “No Plot Warning” might be either sensor or SDPS derived. A SDPS derived “No Plot Warning” is available in I063/REF/SSS/NPWS.

I063/070 - Time Stamping Bias

definition: Plot Time stamping bias, in two’s complement form

Element
bit size: 16
Signed quantity
LSB = 1 ms ≈ 1.0 ms
unit: ”ms”

I063/080 - SSR / Mode S Range Gain and Bias

definition: SSR / Mode S Range Gain and Range Bias, in two’s complement form.

Group

I063/080/SRG - Mode S Range Gain

Element
bit size: 16
Signed quantity
LSB = $1/100000 \approx 1.0e-5$
unit: ””

I063/080/SRB - Mode S Range Bias

Element
bit size: 16
Signed quantity
LSB = $1/2^7$ NM ≈ $7.8125e-3$ NM
unit: ”NM”

Note:

The following formula is used to correct range:

$$\rho_{\text{corrected}} = \frac{\rho_{\text{measured}} - range\_bias}{1 + range\_gain}$$

I063/081 - SSR Mode S Azimuth Bias

definition: SSR / Mode S Azimuth Bias, in two’s complement form.

Element
bit size: 16
Signed quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”

Note:

The following formula is used to correct azimuth:

$$\theta_{\text{corrected}} = \theta_{\text{measured}} - azimuth\_bias$$

I063/090 - PSR Range Gain and Bias

definition: PSR Range Gain and PSR Range Bias, in two’s complement form.

Group

I063/090/PRG - PSR Range Gain

Element
bit size: 16
Signed quantity
LSB = $1/100000 \approx 1.0e-5$
unit: ””

I063/090/PRB - PSR Range Bias

Element
bit size: 16
Signed quantity
LSB = $1/2^7$ NM ≈ $7.8125e-3$ NM
unit: ”NM”

Note:

The following formula is used to correct range:

rho_mathrm{corrected} = frac{rho_mathrm{measured} - range_bias}{1 + range_gain}

I063/091 - PSR Azimuth Bias

definition: PSR Azimuth Bias, in two’s complement form.

Element
bit size: 16
Signed quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”

Note:

The following formula is used to correct azimuth:

$$\theta_{\text{corrected}} = \theta_{\text{measured}} - azimuth\_bias$$

I063/092 - PSR Elevation Bias

definition: PSR Elevation Bias, in two’s complement form.

Element
bit size: 16
Signed quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”

I063/RE - Reserved Expansion Field

definition: Expansion
Explicit (ReservedExpansion)

I063/SP - Special Purpose Field

definition: Special Purpose Field
Explicit (SpecialPurpose)

User Application Profile

- 1: `I063/010` - Data Source Identifier
- 2: `I063/015` - Service Identification
- 3: `I063/030` - Time of Message
- 4: `I063/050` - Sensor Identifier
- 5: `I063/060` - Sensor Configuration and Status
- 6: `I063/070` - Time Stamping Bias
- 7: `I063/080` - SSR / Mode S Range Gain and Bias
- (FX) - Field extension indicator
- 8: `I063/081` - SSR Mode S Azimuth Bias
- 9: `I063/090` - PSR Range Gain and Bias
- 10: `I063/091` - PSR Azimuth Bias
- 11: `I063/092` - PSR Elevation Bias
- *Spare*
- 13: `I063/RE` - Reserved Expansion Field
- 14: `I063/SP` - Special Purpose Field
- (FX) - Field extension indicator