

Paper for Consideration by CSMWG15
AIS - Symbol modifications and CSP changes

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Executive Summary:	Based on the IMO adopted “Guidelines for presentation of navigation-related symbols, terms and abbreviations“ S/N Circular 243, 15 December 2004, changes in AIS symbology and applied CSP are necessary.
Related Documents:	S52 Appendix 2 Ed. 4.2 PresLib Ed. 3.3
Related Projects:	-

1 Proposed adaptations of the symbol library

- Change of AIS symbol colour to RESBL
- Change symbol ”AIS lost target”
- Add symbol for “AIS based aid to navigation” SY(AISATN01)
- Add symbol for “AIS target – true scale outline” SY(AISTSO01)
- Change scaled own ship symbol
- Change own ship symbol reference

2 :Required action items for appropriate S52 changes:

2.1 S52

- Changes in Preslib_3.3_I.doc - CSP Vessel (12.2.25)
- Changes in Preslib_3.3_II.doc
- Pslb03_3.dai
- Look-up Tables (SY(AISATN01))
- Tiff-files (Mariner.tif; etc.)
- Symbol-plotts (symbol1.gif)
- C&SMD(4)

2.2 Other regulations and guidelines affected

- S57 – additional reference for the attributes of category of “navigational aids” (CATBOY, CATBCN, etc.) for AIS based aid to navigation and additional object as virtual aid to navigation
- IEC 61174 - to be adapted

Symbol Name:

SY(AISATN01)
RN: 584

Symbol Explanation: AIS based aid to navigation

Look up table affected: N/A

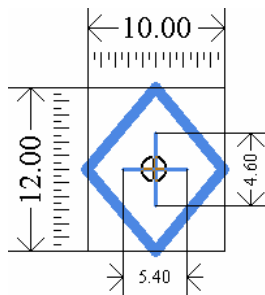
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 5.00

Pivot Point Row: 6.00

Width of Bounding Box: 10.00

Height of Bounding Box: 12.00



Symbol Colours:



Comments: Diamond line weight 0.9 mm;
Cross line weight 0.3 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols,
terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(AISLST01)
RN: 580

Symbol Explanation: Lost AIS target

Look up table affected: N/A

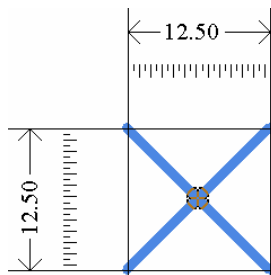
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 6.25

Pivot Point Row: 6.25

Width of Bounding Box: 12.50

Height of Bounding Box: 12.50



Symbol Colours:



Comments: Line weight 0.9 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(AISSEL01)
RN: 581

Symbol Explanation: selected AIS target

Look up table affected: N/A

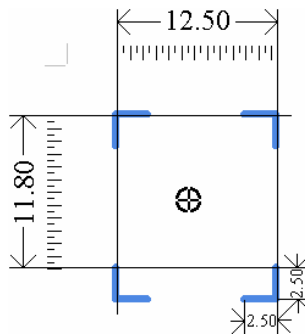
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 5.75

Pivot Point Row: 6.75

Width of Bounding Box: 12.50

Height of Bounding Box: 11.80



Symbol Colours:

■ RESBL

Comments: Line weight 0.6 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:	SY(AISSLP01)
	RN: 11

Symbol Explanation: sleeping AIS target

Look up table affected: N/A

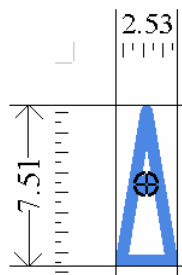
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 1.27

Pivot Point Row: 3.64

Width of Bounding Box: 2.53

Height of Bounding Box: 7.51



Symbol Colours: ■ RESBL

Comments: Point diameter 0.92 mm
Line weight 0.6 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1
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Symbol Name:

SY(AISTRN01)
RN: 582

Symbol Explanation: AIS target turning to starboard

Look up table affected: N/A

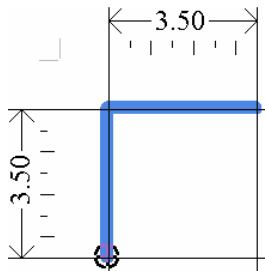
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 0.00

Pivot Point Row: 3.50

Width of Bounding Box: 3.50

Height of Bounding Box: 3.50



Symbol Colours:

■ RESBL

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(AISTRN02)
RN: 583

Symbol Explanation: AIS target turning to port

Look up table affected: N/A

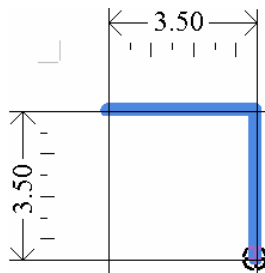
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 3.50

Pivot Point Row: 3.50

Width of Bounding Box: 3.50

Height of Bounding Box: 3.50



Symbol Colours:

■ RESBL

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(AISTSO01)
RN: 585

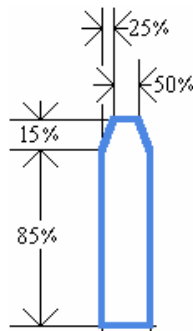
Symbol Explanation: AIS target – true scale outline

Look up table affected: N/A

Called by CSP etc.: CSP VESSEL02

Pivot Point Column: relative to reported position
Pivot Point Row: and according to reported position offsets

Width of Bounding Box: scaled according to reported
Height of Bounding Box: beam and length



Symbol Colours: ■ RESBL

Comments: Line weight 0.6 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(AISVES01)
RN: 12

Symbol Explanation: active AIS target showing vector and/or heading

Look up table affected: N/A

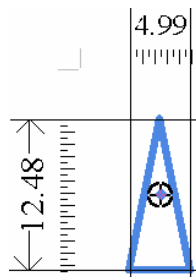
Called by CSP etc.: CSP VESSEL02

Pivot Point Column: 2.50

Pivot Point Row: 6.24

Width of Bounding Box: 4.99

Height of Bounding Box: 12.48



Symbol Colours:

 RESBL

Comments:

Line weight 0.6 mm
Point diameter 0.92 mm

Examples on ENC:

N/A

References:

IMO Guidelines for the presentation of navigation-related symbols,
terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(**OWNSHP01**)
RN: 183

Symbol Explanation: own ship symbol, constant size

Look up table affected: N/A

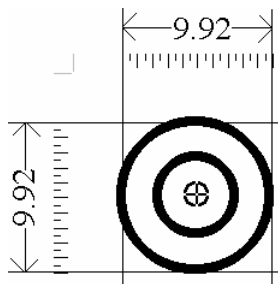
Called by CSP etc.: CSP OWNSHP02

Pivot Point Column: 5.05

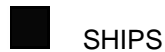
Pivot Point Row: 4.88

Width of Bounding Box: 9.92

Height of Bounding Box: 9.92



Symbol Colours:



SHIPS

Comments:

Line weight 0.6 mm; inner circle diameter 5.22 mm
Outer circle diameter 9.92 mm

Examples on ENC:

N/A

References:

IMO Guidelines for the presentation of navigation-related symbols,
terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

Symbol Name:

SY(**OWNSHP05**)
RN: 184

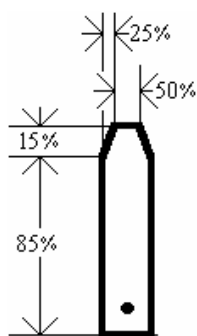
Symbol Explanation: own ship drawn to scale with conning position marked

Look up table affected: N/A

Called by CSP etc.: CSP OWNSHP02

Pivot Point Column: conning position relative to own ship shape
Pivot Point Row: according to position offsets

Width of Bounding Box: scaled according to own ship
Height of Bounding Box: beam and length



Symbol Colours: SHIPS

Comments: Line weight 0.6 mm
Point diameter 0.92 mm

Examples on ENC: N/A

References: IMO Guidelines for the presentation of navigation-related symbols,
terms and abbreviations SN/Circ.243 15.December 2004

S57

INT 1

12.2.25 Conditional Symbology Procedure 'VESSELnn'

Applies to:	Mariners' Navigational Object Class "vessel other than own-ship" (vessel)
Spatial Object(s):	Point
Attribute(s) used:	course over ground (cogcrs) course through water (ctwcrs) speed over ground (sogspd) speed through water (stwspd) heading (headng) vessel report source (vesrce) vessel status (vestat) vector length time-period (vecper) vector stabilization (vecstb) vector time-mark interval (vecmrk)
Parameter(s):	Object to be symbolized from SENC Object's position, course and speed, heading Options selected by mariner
Defaults:	Display Priority given by look-up table OVERRADAR priority given by look-up table Display Category given by look-up table Viewing Group given by look-up table
Remarks:	The mariner should be prompted to select from the following options: <ul style="list-style-type: none">- ARPA target or AIS report (overall decision or vessel by vessel) (vesrce)- *time-period determining vector-length for all vectors (vecper)- whether to show a vector (overall or vessel by vessel) (vestat)- *whether to symbolize vector stabilization (vecstb)- *whether to show one-minute or six-minute vector time marks (vecmrk)

* Note that the same vector parameters should be used for own-ship and all vessel vectors.

Note also that the IMO guidelines require that the heading always be shown for activated, selected or dangerous AIS targets.

Note that the colour to be used for AIS targets has not yet (March 2004) been decided by IMO. Meanwhile the ~~same~~ colour ~~RESBL as used for ARPA targets ('arpat')~~ continues to ~~should~~ be used for AIS targets in S52 App.2.

Manufacturers are reminded that, as applies to other parts of the Presentation Library, they are not required to follow this procedure in detail so long as the resulting display looks the same (Presentation Library section 1.1)

References: IMO "Guidelines for presentation of navigation-related symbols, terms and abbreviations" S/N Circular 243, 15 December 2004; [IEC 61174, Annex E, Sections 3, 11 & 12].

A narrative description of **VESSELnn** is given hereafter.

VESSEL02

Conditional symbology procedure for symbolizing «other vessels» than own-ship, and for drawing the associated vectors and heading lines.

The «other vessel» is symbolized in a manner depending on whether the source is ARPA or AIS, and on which other options are selected by the mariner:

1. Show vessel symbol only:

- 1.1 ARPA target selected (vessel, vesrce1): show SY (ARPATG01) at the position indicated.
- 1.2 AIS 'sleeping target' selected - (vessel, vesrce2, vestat2, headng): show SY(AISSLP01) «sleeping target» at the position indicated and rotate the symbol in the direction given by (headng).
- 1.3 AIS 'lost' target (vessel, vesrce2, vestat5, headng): show SY(AISLST01) and SY(AISVES01) at the position indicated and rotate the symbol SY(AISVES01) in the direction given by the last (headng) report.
- 1.4 At an appropriate scale SY(AISTSO01) can be shown additional to the mandatory symbols.

2. Show vessel symbol, heading line and course and speed vector:

(Note that the time period which determines the scaling of vector length must be the same for all vectors.)

2.1 ARPA

- 2.1.1 ARPA target selected (vessel, vesrce1, vecper,...): show SY(ARPATG01) at the position indicated.
- 2.1.2 *(There is no heading line from ARPA).*
- 2.1.3 Vector, starting at the pivot point of the vessel symbol, draw a line scaled by the vector period (vecper) and the speed (sogspd or stwspd), in the direction given by the course (cogcrs or ctwcrs). (The vector period is selected by the mariner). Linestyle is LS(SOLD,2,ARPAT).

2.2 AIS

- 2.2.1 AIS target selected (vessel, vesrce2, vestat1 or 3 or 4, vecper,...) :

Symbolise the vessel as follows:

- vestat1 ('activated') show SY(AISVES01) 'activated AIS target'
- vestat3 ('selected') show SY(AISSEL01) 'selected AIS target' *
- vestat4 ('dangerous') show SY(AISDGR01) 'dangerous AIS target' **
- [At an appropriate scale SY\(AISTSO01\) can be shown additional to the mandatory symbols.](#)

Rotate the symbol in the direction given by (headng)

* (detailed information for a 'selected AIS target' is shown in a separate data display area.)

** (the 'dangerous AIS target' is coloured red. If the signal from a dangerous target is lost show a flashing lost target symbol until this alarm is acknowledged.)

2.2.2 Heading line and turn indications: starting at the bow (apex of the vessel symbol) draw a line 50mm in length in the direction given by (headng). Linestyle is LS(SOLD,1,[ARPATRESBL](#)). If available, show the direction of a turn indication at the end of the heading line: SY(AISTRN01) for a turn to starboard, SY(AISTRN02) for a turn to port.

2.2.3 Vector: starting at the pivot point of the vessel symbol draw a line scaled by the vector period (vecper) selected by the mariner and the speed (sogspd) in the direction given by the course (cogcrs). Linestyle is LS(DASH,2,[ARPATRESBL](#)). Alternatively, a path predictor may be provided using the same linestyle. (Note that the course and speed vector and heading, plus the direction and rate of turn if available, are always drawn for activated AIS targets.)

3. Show vector stabilization for ARPA

3.1 For ground stabilization (vessel, vecstb1,...): place SY(VECGND21) at the end of the vector, replacing the last time mark. Rotate the symbol in the direction given by (cogcrs).

3.2 For water stabilization (vessel, vecstb2,...): place SY(VECWTR21) at the end of the vector, replacing the last time mark. Rotate the symbol in the direction given by (ctwcrs).

4. Show time marks on vector

4.1 ARPA target selected (vessel, vesrcel,...):

4.1.1 One-minute marks selected (vessel, vesrcel ,vecmrk1,...): place SY(ARPSIX01) at every sixth minute mark, and SY(ARPONE01) at every remaining one-minute mark. Rotate all symbols in the direction given by (cogcrs or ctwcrs).

4.1.2 Only six-minute marks selected (vessel, vecmrk2,...): place SY(ARPSIX01) at every six-minute mark. Rotate in the direction given by (cogcrs or ctwcrs).

4.2 (Note that there are no time marks on AIS vectors)