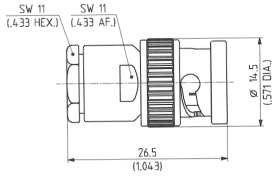
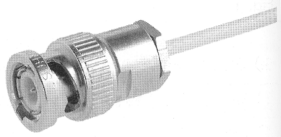
8.7 BNC connector 95299, Suhner 24BNC-50-2-13/133NE

> for flexible cables
> cable entry clamp
> centre contact soldered

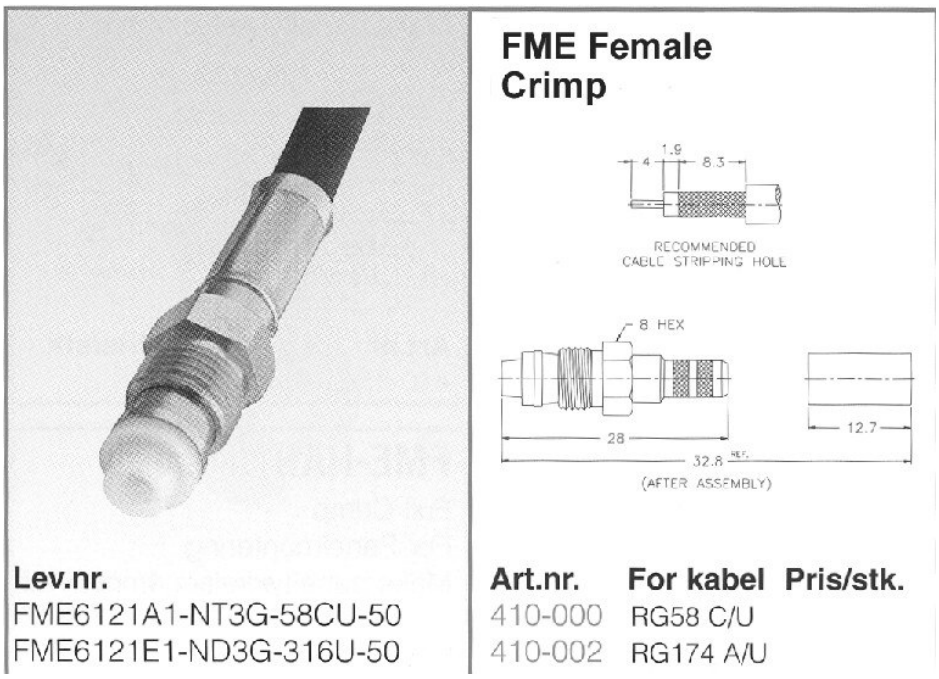




SUHNER TYPE	Article No.	Cable Group (example)	Packaging	Assembly Instruction	Notes
11 BNC-50-1-1 / 133 NE	22540021	U1 (RG 178 B/U)	single	3005	
11 BNC-50-2-1 / 133 NE	22540029	U2 (RG 316/U)	single	3005	
11 BNC-50-3-1 / 133 NE ⊞	22540045	U7,10 (RG 58C/U)	single	3004	
11 BNC-50-3-5 / 133 NE	22540054	U7,10 (RG 58C/U)	single	3005	

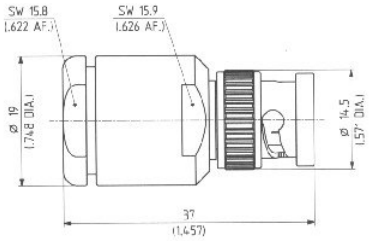
⊞ centre contact NOT captivated

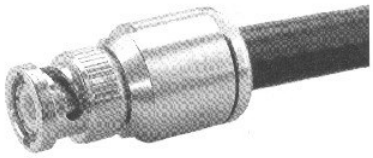
8.8 FME Connector Female 80588, Holund 40100



8.9 BNC Connector Male 80577, Suhner 11BNC-50-2 / 133NE

> for flexible cables
> cable entry clamp
> centre contact soldered

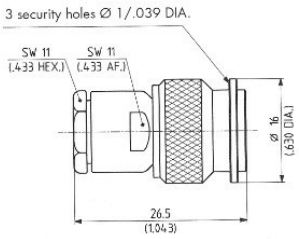




SUHNER TYPE	Article No.	Cable Group (example)		Packaging	Assembly Instruction	Notes
11 BNC-50-7-1 / 133 NE	22540145	U28	(RG 213/U)	single	3008	
11 BNC-50-7-2 / 133 NE	22540149	U33	(RG 214/U)	single	3008	

8.10 TNC Connector Male 80578 Suhner 11TNC-3-6 / 133NE

> for flexible cables
> cable entry clamp
> centre contact soldered

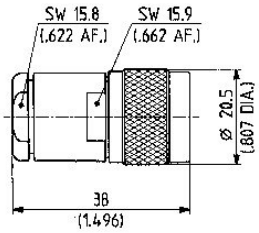


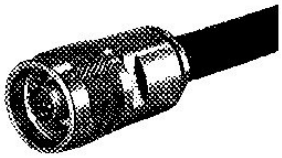
SUHNER TYPE	Article No.	Cable Group (example)		Packaging	Assembly Instruction	Notes
11 TNC-50-2-1 / 133 NE	22640783	U2	(RG 316/U)	single	3005	
11 TNC-50-3-5 / 133 NE	22640798	U7,10	(RG 58C/U)	single	3005	
11 TNC-50-3-6 / 133 NE ⊞	22543475	U7,10	(RG 58C/U)	single	3004	

⊞ centre contact NOT captivated

8.11 N Connector Male 80581, Suhner 11N-50-7-5 / 133NE

> for flexible cables
> cable entry clamp
> centre contact soldered

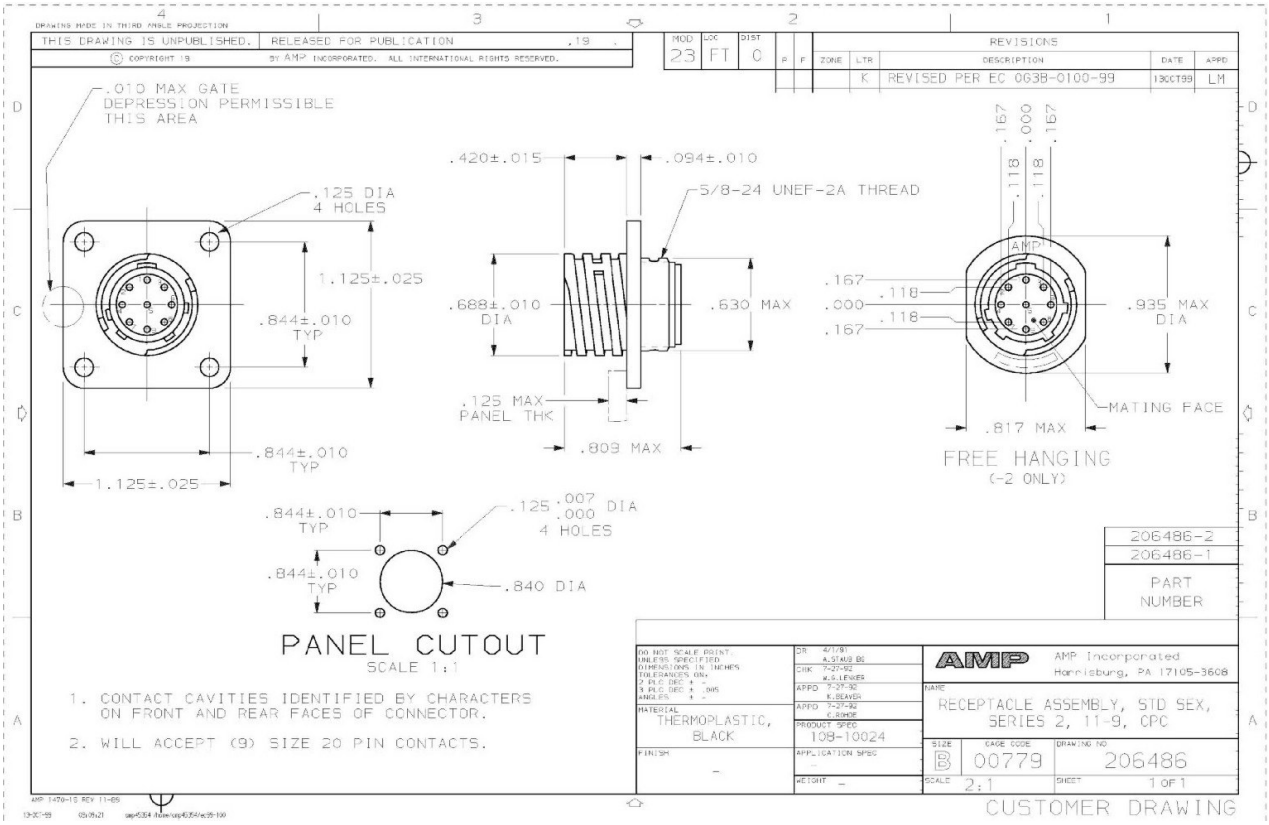




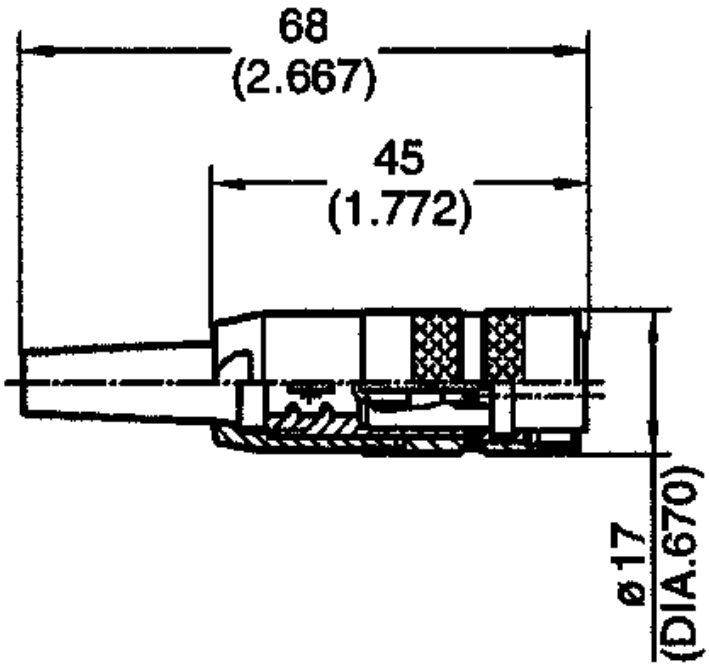
SUHNER TYPE	Article No.	Cable Group (example)	Packaging	Assembly Instruction	Weight
11 N-50-7-5 / 133 NE ⊞	22542117	U33,28 (RG 214/U)	single	3007	51.0 g/ *1.79 oz.*
11 N-50-7-6 / 133 NE	22542120	U33,28 (RG 214/U)	single	3008	51.0 g/ *1.79 oz.*

⊞ centre contact NOT captivated

8.12 Pilot plug Connector 80511, AMP 206486-1 and -2



8.13 24VDC Power Connector 81509, AMP C091AT3261001



9 GLOSSARY

AIS -Automatic Identification System.
A shipboard broadcast transponder system in which ships continually transmit their ill, position, course, speed and other data to other nearby ships and shoreline authorities on a common VHF radio channel.

ALARM
Message by which the navigator signals the occurrence of an event. The alarm is indicated by an audible tone and/or a message (or icon) on the display.

ALTITUDE
The height of the antenna over mean sea level.

AMBIENT
Surrounding or encompassing environment.

ANTENNA HEIGHT
The height (over the waterline) in which the antenna is installed.

AUX
Auxiliary Port -A communication port on the AIS transponder, which can be used for NMEA or RTCM, input.

BAUD
Transmission rate unit of measurement for binary coded data (bit per second).

BIT
Short form of Binary Digit. The smallest element of data in a binary-coded value.

bps
Bits Per Second.

CHARACTER STRING
Continuous characters (other than spaces) in a message.

CHECKSUM
The value sent with a binary-coded message to be checked at the receiving end to verify the integrity of the message.

CLICK (KEYBOARD)

The audible tone generated when a key is activated

CLOCK
A precisely-spaced, stable train of pulses generated within an electronic system to synchronize the timing of digital operations within the system.

CLOCK OFFSET
The differences between the times at the CDU/processor tracking a satellite, the satellite itself, and GPS system time.

COG
See COURSE OVER GROUND

COURSE OVER GROUND
Course made good relative to the sea bed.

CURSOR
A flashing rectangle superimposed on a character position in the display window, indicating that a character may be entered in that position, or that the existing character may be changed via the keyboard.

DEFAULT
A condition that the navigator assumes automatically if no other condition is initiated by the operator.

DGPS
See DIFFERENTIAL GPS.

DIFFERENTIAL GPS (OOPS)
A method of refining GPS position solution accuracy by modifying
the locally computed position solution with correction signals from an external reference GPS CDU (monitor).

ECDIS
Electronic Chart Display and Information System

ETA
Estimated Time of Arrival. Calculated on basis of the distance to the destination and the current (or estimated) speed.

FATDMA
Fixed Access Time Division Multiple Access -Data link access protocol used by base station transponders to allocate transmission slots on the data link. These slots are fixed and will thus not change until the base station transponder is re-configured.

FM
Frequency Modulation -The method by which a signal offsets the frequency in order to modulate it on a data link. position (latitude, longitude, altitude, and time). See DILUTION OF PRECISION.

GFSK
Gaussian-Filtered-Shift-Keying -A standardised method of modulating digital data prior to transmission on a data link.

GMSK
Gaussian-Minimum-Shift-Keying -GFSK using BT -products and modulation index, which optimises the modulated signal.

GNSS
Global Navigation Satellite System -A common label for satellite navigation systems (such as GPS and GLONASS).

GLOBAL POSITIONING SYSTEM (GPS)

The NAVSTAR Global Positioning System, which consists of or- biting satellites, a network of ground control stations, and user positioning and navigation equipment. The system has 24 satellites plus 3 active spare satellites in six orbital planes about 20,200 kilometres above the earth.

GLONASS
A satellite navigation system developed and operated by Russia.

GMT
Greenwich Mean Time. See also UNIVERSAL TIME COORDINATED.

GPS SYSTEM TIME
Time corrected to Universal Time Coordinated (UTC) and used as the time standard by the user segment of the GPS system.

HEADING
The direction in which the vessel is pointed, expressed as angular distance from north clockwise through 360 degrees. HEADING should not be confused with COURSE. The HEADING is constantly changing as the vessel yaws back and forth across the course due to the effects of sea, wind, and steering error.

IEC
International Electro-technical Commission.

IEC 61162-1 Maritime navigation and radiocommunication equipment and systems – Digital interfaces Single Talker- Multiple listeners: Closely related to NMEA0183 version 2.3, communication at 4800 baud. Definition of both electrical and protocol to be used.

IEC 61162-2 Maritime navigation and radiocommunication equipment and systems – Digital interfaces Single Talker- Multiple listeners, High speed transmission: Closely related to NMEA0183HS version 2.3, communication at 34800 baud. Definition of both electrical and protocol to be used.

IEC 61993-2 Maritime navigation and radiocommunication equipment and systems – Automatic Information Systems (AIS)
Definitions of the sentences used for AIS in addition to those mentioned in IEC 61162-1 and IEC 61162-2.

IMO
International Maritime Organisation

INTERFACE
Electronic circuits that permit the passage of data between different types of devices; For example, the speed and heading interface circuit permits data from a speed log and compass to pass to the navigator processor.

ITDMA
Incremental Time Division Multiple Access -Access protocol for pre-announced transmissions of temporary or non-repeatable character. It is also used during data link network entry.

ITU
International Telecommunication Union.

I.ED
Light Emitting Diode.

NMEA

National Marine Electronics Association. The NMEA electronics interface specifications have been developed under the auspices of the Association. The NMEA 0183 is an internationally recognized specification for interfacing marine electronics. NMEA 0183 version 2.3 is identical to IEC 61162-1.

POLLED MODE
A transponder is in a polled mode during a request-response session only. Distinguish this from a station, which is polled into certain slots. This station is first polled and then enters assigned mode.

POSITION UPDATE
The redefining of position by analysis of satellite orbital data as referenced to time.

PROCESSOR
The processor circuit card in the console that controls system operations and computes the positioning/navigation solutions.

PROMPT
A message on the display instructing the operator to make a keyboard entry.

PULSE SPEED SENSOR
Speed log whose speed output signal is defined by a pulse mte output.

RATDMA
Random Access Time Division Multiple Access -Access protocol for transmissions which have not been pre-announced. This is used for the first transmission during data link network entry or for messages of non-repeatable character.

REFERENCE COMPASS
The compass against which the steering compass (see STEERING COMPASS) may be calibrated.

REFERENCE ELLIPSOID
A mathematical description of the Earth's ellipsoidal shape (see ELLIPSOID), which is the reference frame for positioning computation.

RESET

To return stored values to either the default value or zero in memory.

RMS
See ROOT MEAN SQUARED.

ROOT MEAN SQUARED (RMS)

A statistical measure of probability, stating that an expected event
will happen 68% of the time. In terms of position update accuracy, 68 position updates out of 100 will be accurate to within specified system accuracy.

SENSOR
A device that detects a change in a physical stimulus and turns it into a signal that can be measured.

SET AND DRIFT
The direction and the speed of the water over ground (current).

SIGNAL- TO-NOISE RATIO (SIN)
Quantitative relationship between the useful and non-useful part of the received satellite signal. A high SIN indicates a good receiving condition.

S/N
See SIGNAL- TO-NOISE RATIO

SOFTWARE
Values programmed and preloaded into memory. The values represent a permanent set of instructions for running the automatic functions (computations) of the navigator.

SOG
See SPEED OVER GROUND

SOTMA
Self Organised Time Division Multiple Access -An access protocol, which allows autonomous operation on a data link while automatically resolving transmission conflicts.

SPEED OVER GROUND
Speed in relation to the seabed.

TDMA
Time Division Multiple Access. An access scheme for multiple access to the same data link.

UNIVERSAL TIME COORDINATED (UTC)
Greenwich mean time corrected for polar motion of the Earth and seasonal variation in the Earth's rotation.

UPDATE
See POSITION UPDATE.

UTC
See UNIVERSAL TIME COORDINATED.

VDL
VHF Data Link.

VHF
Very High Frequency -A set of frequencies in the MHz region.

VSWR
Voltage standing wave ratio

VTS
Vessel Traffic Server

10 Tron UAIS Installation form

10.1 Tron UAIS Class 'A' Installation

Tron UAIS Class 'A' Installation *(Tick appropriately)*	
Ship's Power Supply & Location 24VDC Power Cable run to transponder = mtrs Optional AC to DC Converter Required Optional DC to DC Converter Required	**12VDC** **24VDC** **110VAC** **220VAC** **50Hz** **60Hz**
Tron UAIS Transponder Location Cable run to junction box = mtrs	
GNSS Antenna Location Cable run to Transponder = mtrs	*NOTE: See page 3, Table 5 Position Sensor(s), Antenna Location*
VHF Antenna Location Cable run to Transponder = mtrs	
Pilot Plug Location Cable run to junction box = mtrs	*NOTE: Power for Computer should be available nearby*
Ship's Ground Connection Location Cable run to junction box = mtrs	
Ship's Alarm Location Cable run to junction box = mtrs	
Comments:	

10.2 Heading Sensor, source

Heading Sensor, source		
Manufacturer		
Model		
Type	**GyroCompass GNSS Compass** **Fluxgate Compass**	
Output NMEA Message *IEC 61162-1 RS422*	**Required:- HDT ROT *** **Optional:- OSD**	
Other output format, specify		
If no NMEA	**Synchro** **Reference Voltage =** **Phase Voltage = Frequency =**	
	Stepper - **Positive Step Negative Step** **Step Voltage =** **Ratio - 90:1 180:1 360:1**	
Location		
Type and make of gyro converter		
Cable run to junction box	mtrs	
Comments:		

*If req. according to Solas ch. V.

10.3 Speed Sensor, source

Speed Sensor, source		
Manufacturer		
Model		
Type	**Doppler Speed log**	**GNSS**
Output NMEA Message *IEC 61162-1 RS422*	**Required:-** **VBW** **Optional:-** **VTG** **OSD** **RMC**	
Location		
Cable run to junction box	mtrs	
Comments:		

10.4 ARPA / ATA RADAR(s)

ARPA / ATA RADAR(s) *(if interfaced)*		
Manufacturer		
Model		
Type		
In/Output NMEA Message *IEC 61162-1 RS422*		
Location		
Cable run to junction box	mtrs	
Comments:		

10.5 Position Sensor, source

Position Sensor, source	
Manufacturer	
Model	
Type	**GPS GLONASS Differential**
Output NMEA Message *IEC 61162-1 RS422*	**Required:-** **DTM - GNS - GLL - RMC - GBS** **Optional:- GGA**
Other output format, specify	
Display Location	
Cable run to junction box	mtrs

[2]Antenna Location	**External Position Source,** **GNSS Antenna**	**Tron UAIS Internal Position** **Source GNSS Antenna**	**Max. Dimensions**
A=Distance to Bow	mtrs	mtrs	**511 mtrs**
B=Distance to Stern	mtrs	mtrs	**511 mtrs**
C=Distance to Port Side	mtrs	mtrs	**63mtrs**
D=Distance to Starboard	mtrs	mtrs	**63mtrs**

Comments:

10.6 Registration form

This page has been returned to JOTRON

Cut here and return this page to JOTRON

Tron UAIS Installation form

Vessel Data			
Vessel name		**IMO Number**	
Flag State		**MMSI Number**	
Owner / Company		**Radio Call Sign**	
On-Board Contact Name		**Telephone Number(s)**	Office: GSM:
Superintendents Name		**Telephone Number(s)**	Office: GSM:
Type of Vessel		**Gross Registered Tonnage**	Tonnes
L.O.A.	mtrs	**Beam**	mtrs
Comments:			

Tron UAIS, serial number:	
Junction box, serial number:	

All necessary information is logged in section 10.1 to 10.5
Installation completed and successfully commissioned by:

Technician, (type name)		
Service provider / company		
Place	**Date**	**Signature**

Please fill in with capital letters

This form must be returned to Jotron Electronics AS, Fax.: + 47 33 12 67 80
(attention service department) in order to have a valid 18 months product warranty.