

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>			1. CONTRACT ID CODE J	PAGE OF PAGES 1   5
2. AMENDMENT/MODIFICATION NO. 0002	3. EFFECTIVE DATE 16-Nov-2012	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable)
6. ISSUED BY NAVAL UNDERSEA WARFARE CENTER ATTN: JUAN WALKER JUAN.WALKER@NAVY.MIL 610 DOWELL ST C/182 KEYPORT WA 98345-7610	CODE N00253	7. ADMINISTERED BY (If other than item 6) <b>See Item 6</b>		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. N00253-13-T-0036	
		X	9B. DATED (SEE ITEM 11) 15-Nov-2012	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)  The purpose of this amendment is to correct part number.				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
		TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR  _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED  16-Nov-2012	

## SECTION SF 30 BLOCK 14 CONTINUATION PAGE

## SUMMARY OF CHANGES

## SECTION SF 1449 - CONTINUATION SHEET

## SUPPLIES OR SERVICES AND PRICES

## CLIN 0001

The CLIN extended description has changed from Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 7.5 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 100 Coil Current (mA dc @25°C) -- Minimum: 43.5 Maximum: 59.3 Pick-up Voltage (Vdc, Max.): 3.6 Base Current to Turn On (mA dc, Max.): 1.5 Drop-out Voltage (Vdc) -- Minimum: 0.14 Maximum: 2.5 Contact Arrangement: 2 Form C (DPDT) Rated Duty: Continuous Contact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header) Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu$ A/10 to 50mV Contact Load Ratings (AC) Resistive -- 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded) Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above Contact Overload Rating: 2A/28Vdc Resistive (100 cycles min.) Coil Operating Power: 200 milliwatts typical at nominal rated voltage @ 25°C Operate Time: 4.0 msec max. at nominal rated coil voltage Release Time: 7.5 msec max. Contact Bounce: 1.5 msec max. Intercontact Capacitance: 0.4 pf typical Insulation Resistance: 10,000 megohms min. between mutually isolated terminals Dielectric Strength -- Atmospheric pressure: 500 Vrms/60Hz 70,000 ft.: 125 Vrms/60Hz Negative Coil Transient (Vdc): 1.0 max Diode P.I.V. (Vdc): 100 min. Transistor Characteristics -- Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C &  $I_c = 100 \mu$ A) (Vdc): 75 min. Case Diameter: 0.335 in max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead Length: 0.75 min Suggested part: ER432T-5A, mfg Teledyne Relays. Brand name or equal. to Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 7.5 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 100 Coil Current (mA dc @25°C) -- Minimum: 43.5 Maximum: 59.3 Pick-up Voltage (Vdc, Max.): 3.6 Base Current to Turn On (mA dc, Max.): 1.5 Drop-out Voltage (Vdc) -- Minimum: 0.14 Maximum: 2.5 Contact Arrangement: 2 Form C (DPDT) Rated Duty: Continuous Contact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header) Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu$ A/10 to 50mV Contact Load Ratings (AC) Resistive -- 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded) Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above Contact Overload Rating: 2A/28Vdc Resistive (100 cycles min.) Coil Operating Power: 200 milliwatts typical at nominal rated voltage @ 25°C Operate Time: 4.0 msec max. at nominal rated coil voltage Release Time: 7.5 msec max. Contact Bounce: 1.5 msec max. Intercontact Capacitance: 0.4 pf typical Insulation Resistance: 10,000 megohms min. between mutually isolated terminals Dielectric Strength -- Atmospheric pressure: 500 Vrms/60Hz 70,000 ft.: 125 Vrms/60Hz Negative Coil Transient (Vdc): 1.0 max Diode P.I.V. (Vdc): 100 min. Transistor Characteristics -- Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C &  $I_c = 100 \mu$ A) (Vdc): 75 min. Case Diameter: 0.335 in max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead Length: 0.75 min Suggested part: mfg Teledyne Relays. Brand name or equal. .

## CLIN 0002

The CLIN description has changed from RELAY P/N ER431T-51A to RELAY P/N ER431T-5A.

The CLIN extended description has changed from Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 8.0 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 125 Coil Current (mA dc @25°C) -- Minimum: 34.7 Maximum:

47.8Pick-up Voltage (Vdc, Max.): 3.6Base Current to Turn On (mAdc, Max.): 1.2Drop-out Voltage (Vdc) – Minimum: 0.15 Maximum: 2.0Contact Arrangement: 1 Form C (SPDT)Rated Duty: ContinuousContact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header)Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu$ A/10 to 50mVContact Load Ratings (AC) Resistive – 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded)Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified aboveContact Overload Rating: 2A/28Vdc Resistive (100 cycles min.)Coil Operating Power: 150 milliwatts typical at nominal rated voltage @ 25°COperate Time: 3.5 msec max. at nominal rated coil voltageRelease Time: 7.5 msec max.Contact Bounce: 1.5 msec max.Intercontact Capacitance: 0.4 pf typicalInsulation Resistance: 10,000 megohms min. between mutually isolated terminalsDielectric Strength – Atmospheric pressure:500 Vrms/60Hz 70,000 ft.: 300 Vrms/60HzNegative Coil Transient (Vdc): 1.0 maxDiode P.I.V. (Vdc): 100 min.Transistor Characteristics – Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C & Ic = 100  $\mu$ A) (Vdc): 75 min.Case Diameter: 0.335 in maxOverall Diameter: 0.370 in maxCase Height: 0.375 in maxLead Diameter: 0.017 in, + 0.002, - 0.001Lead Length: 0.75 minSuggested part: ER431T-5A, mfg Teledyne Relays. Brand name or equal. to This document describes the characteristics of the required Relay. It is a SPDT Relay with internal transistor driver and coil transient suppression diode with the following properties:Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 8.0Coil Resistance (Ohms  $\pm$ 10% @25°C): 125Coil Current (mAdc @25°C) -- Minimum: 34.7 Maximum: 47.8Pick-up Voltage (Vdc, Max.): 3.6Base Current to Turn On (mAdc, Max.): 1.2Drop-out Voltage (Vdc) – Minimum: 0.15 Maximum: 2.0Contact Arrangement: 1 Form C (SPDT)Rated Duty: ContinuousContact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header)Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu$ A/10 to 50mVContact Load Ratings (AC) Resistive – 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded)Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified aboveContact Overload Rating: 2A/28Vdc Resistive (100 cycles min.)Coil Operating Power: 150 milliwatts typical at nominal rated voltage @ 25°COperate Time: 3.5 msec max. at nominal rated coil voltageRelease Time: 7.5 msec max.Contact Bounce: 1.5 msec max.Intercontact Capacitance: 0.4 pf typicalInsulation Resistance: 10,000 megohms min. between mutually isolated terminalsDielectric Strength – Atmospheric pressure:500 Vrms/60Hz 70,000 ft.: 300 Vrms/60HzNegative Coil Transient (Vdc): 1.0 maxDiode P.I.V. (Vdc): 100 min.Transistor Characteristics – Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C & Ic = 100  $\mu$ A) (Vdc): 75 min.Case Diameter: 0.335 in maxOverall Diameter: 0.370 in maxCase Height: 0.375 in maxLead Diameter: 0.017 in, + 0.002, - 0.001Lead Length: 0.75 minSuggested mfg Teledyne Relays. Brand name or equal..

#### CLIN 0003

The CLIN extended description has changed from Coil Voltage (Vdc) -- Nominal: 26.5 Maximum: 45.0Coil Resistance (Ohms  $\pm$ 10% @25°C): 4000Coil Current (mAdc @25°C) -- Minimum: 5.7 Maximum: 7.7Pick-up Voltage (Vdc, Max.): 19.0Base Current to Turn On (mAdc, Max.): 0.20Drop-out Voltage (Vdc) – Minimum: 0.89 Maximum: 10.4Contact Arrangement: 1 Form C (SPDT)Rated Duty: ContinuousContact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header)Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu$ A/10 to 50mVContact Load Ratings (AC) Resistive – 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded)Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified aboveContact Overload Rating: 2A/28Vdc Resistive (100 cycles min.)Coil Operating Power: 150 milliwatts typical at nominal rated voltage @ 25°COperate Time: 3.5 msec max. at nominal rated coil voltageRelease Time: 7.5 msec max.Contact Bounce: 1.5 msec max.Intercontact Capacitance: 0.4 pf typicalInsulation Resistance: 10,000 megohms min. between mutually isolated terminalsDielectric Strength – Atmospheric pressure:500 Vrms/60Hz 70,000 ft.: 300 Vrms/60HzNegative Coil Transient (Vdc): 1.0 maxDiode P.I.V. (Vdc): 100 min.Transistor Characteristics – Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base

breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C &  $I_c = 100 \mu A$ ) (Vdc): 75 min. Case Diameter: 0.335 in max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead Length: 0.75 min Suggested part: ER431D-26A, mfg Teledyne Relays. to Coil Voltage (Vdc) -- Nominal: 26.5 Maximum: 45.0 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 4000 Coil Current (mA dc @25°C) -- Minimum: 5.7 Maximum: 7.7 Pick-up Voltage (Vdc, Max.): 19.0 Base Current to Turn On (mA dc, Max.): 0.20 Drop-out Voltage (Vdc) -- Minimum: 0.89 Maximum: 10.4 Contact Arrangement: 1 Form C (SPDT) Rated Duty: Continuous Contact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header) Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu A$ /10 to 50mV Contact Load Ratings (AC) Resistive -- 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded) Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above Contact Overload Rating: 2A/28Vdc Resistive (100 cycles min.) Coil Operating Power: 150 milliwatts typical at nominal rated voltage @ 25°C Operate Time: 3.5 msec max. at nominal rated coil voltage Release Time: 7.5 msec max. Contact Bounce: 1.5 msec max. Intercontact Capacitance: 0.4 pf typical Insulation Resistance: 10,000 megohms min. between mutually isolated terminals Dielectric Strength -- Atmospheric pressure: 500 Vrms/60Hz 70,000 ft.: 300 Vrms/60Hz Negative Coil Transient (Vdc): 1.0 max Diode P.I.V. (Vdc): 100 min. Transistor Characteristics -- Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C &  $I_c = 100 \mu A$ ) (Vdc): 75 min. Case Diameter: 0.335 in max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead Length: 0.75 min Suggested mfg: Teledyne Relays..

#### CLIN 0004

The CLIN extended description has changed from Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 7.5 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 100 Coil Current (mA dc @25°C) -- Minimum: 43.5 Maximum: 59.3 Pick-up Voltage (Vdc, Max.): 3.6 Base Current to Turn On (mA dc, Max.): 1.5 Drop-out Voltage (Vdc) -- Minimum: 0.14 Maximum: 2.5 Contact Arrangement: 2 Form C (DPDT) Rated Duty: Continuous Contact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header) Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu A$ /10 to 50mV Contact Load Ratings (AC) Resistive -- 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded) Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above Contact Overload Rating: 2A/28Vdc Resistive (100 cycles min.) Coil Operating Power: 200 milliwatts typical at nominal rated voltage @ 25°C Operate Time: 4.0 msec max. at nominal rated coil voltage Release Time: 7.5 msec max. Contact Bounce: 1.5 msec max. Intercontact Capacitance: 0.4 pf typical Insulation Resistance: 10,000 megohms min. between mutually isolated terminals Dielectric Strength -- Atmospheric pressure: 500 Vrms/60Hz 70,000 ft.: 125 Vrms/60Hz Negative Coil Transient (Vdc): 1.0 max Diode P.I.V. (Vdc): 100 min. Transistor Characteristics -- Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min. Collector-base breakdown Voltage (BVEBO) (@25°C &  $I_c = 100 \mu A$ ) (Vdc): 75 min. Case Diameter: 0.335 in max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead Length: 0.75 min Suggested part: ER432T-5A, mfg Teledyne Relays. Brand name or equal. to Coil Voltage (Vdc) -- Normal: 5.0 Maximum: 7.5 Coil Resistance (Ohms  $\pm 10\%$  @25°C): 100 Coil Current (mA dc @25°C) -- Minimum: 43.5 Maximum: 59.3 Pick-up Voltage (Vdc, Max.): 3.6 Base Current to Turn On (mA dc, Max.): 1.5 Drop-out Voltage (Vdc) -- Minimum: 0.14 Maximum: 2.5 Contact Arrangement: 2 Form C (DPDT) Rated Duty: Continuous Contact Resistance: 0.1 ohm max. before life; 0.2 ohm max. after life at 1A/28Vdc (measured 1/8" from header) Resistive voltage/current ratings -- Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50  $\mu A$ /10 to 50mV Contact Load Ratings (AC) Resistive -- 250 mA/115Vac, 60 and 400 Hz (Case not grounded) 100 mA/115Vac, 60 and 400 Hz (Case grounded) Contact Life Ratings -- 10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above Contact Overload Rating: 2A/28Vdc Resistive (100 cycles min.) Coil Operating Power: 200 milliwatts typical at nominal rated voltage @ 25°C Operate Time: 4.0 msec max. at nominal rated coil voltage Release Time: 7.5 msec max. Contact Bounce: 1.5 msec max. Intercontact Capacitance: 0.4 pf typical Insulation Resistance: 10,000 megohms

min. between mutually isolated terminals Dielectric Strength – Atmospheric pressure: 500 Vrms/60Hz 70,000 ft.:  
125 Vrms/60Hz Negative Coil Transient (Vdc): 1.0 max Diode P.I.V. (Vdc): 100 min. Transistor Characteristics –  
Base Turn Off Voltage (Vdc): 0.3 min. Emitter-base breakdown Voltage (BVEBO) (@25°C) (Vdc): 6.0 min.  
Collector-base breakdown Voltage (BVEBO) (@25°C & Ic = 100 µA) (Vdc): 75 min. Case Diameter: 0.335 in  
max Overall Diameter: 0.370 in max Case Height: 0.375 in max Lead Diameter: 0.017 in, + 0.002, - 0.001 Lead  
Length: 0.75 min Suggested part: mfg Teledyne Relays. Brand name or equal. .

(End of Summary of Changes)