

NSE10 Series Navigation Switch Encoders

Features/Benefits

- Reduced size 10 mm
- Hollow shaft
- Self clinching terminals
- Positive detent feeling

Typical Applications

- Audio / Video equipment
- Navigation systems
- Computer peripherals



Construction

FUNCTION: Incremental signal.
CONTACT ARRANGEMENT: Phase difference output of two signal A and B.
TERMINAL: PC pin.

Mechanical

NUMBER OF DETENT: 24
DETENT TORQUE: 5 ± 3 mN.m
ROTATIONAL ANGLE: 360° endless.
ROTATIONAL LIFE: 100,000 cycles (1 cycle: 360° CW + 360° CCW).

| Number of Pulse | Number of Detent | Detent Torque | Mounting Height | Designation |
|-----------------|------------------|---------------|-----------------|-------------|
| 12 | 24 | 5mN.m | 7 | NSE10DH127 |
| 12 | 24 | 5mN.m | 9 | NSE10DH129 |
| 12 | 24 | 5mN.m | 11 | NSE10DH1211 |

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Electrical

MAXIMUM VOLTAGE: 5 VDC.
CURRENT DC: 1 mA
DIELECTRIC STRENGTH: 50 VAC.
INSULATION RESISTANCE: 50 MΩ min / 50 VDC.
BOUNCE TIME: ≤ 5 ms

Environmental

OPERATING TEMPERATURE: -5°C to +45°C.
STORAGE TEMPERATURE: -15°C to +65°C.

Process

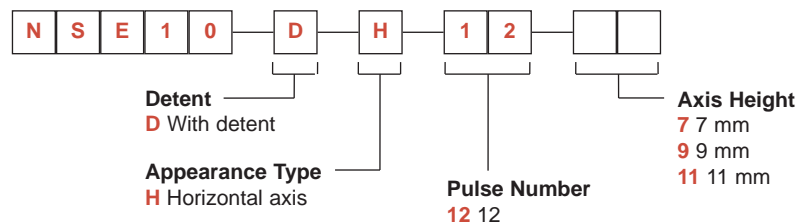
SOLDERING PROCESS:
Manual soldering 300°C max., 3s max.
Wave soldering 260°C max., 3s max.
No cleaning.



Navigation

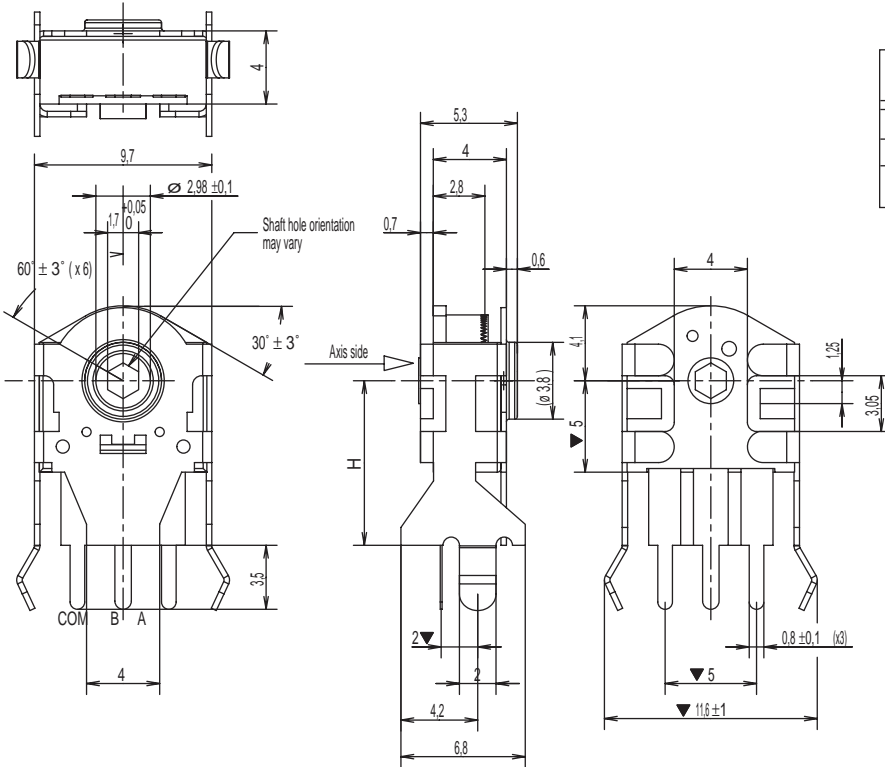
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



NSE10 Series Navigation Switch Encoders

NSE10



| OPTION CODE | AXIS HEIGHT |
|-------------|-------------|
| 7 | 7 mm |
| 9 | 9 mm |
| 11 | 11 mm |

| ELECTRICAL GRAPH | | | |
|----------------------------|------------------|--------|---------|
| Shaft rotational direction | Signal | Output | |
| C.W. | A (Terminal A-C) | ON | [Pulse] |
| | | OFF | [Pulse] |
| | B (Terminal B-C) | ON | [Pulse] |
| | | OFF | [Pulse] |



P.C.B. THICKNESS T = 1.6
View from mounting side

Navigation

NSE11 Series Navigation Switch Encoders

Features/Benefits

- Select switch
- Metallic shaft
- Self clinching terminals
- Positive detent feeling
- Large variety of shaft

Typical Applications

- Audio / Video equipment
- Navigation systems
- Computer peripherals
- Car radio



Construction

FUNCTION: Incremental signal + select switch.

CONTACT ARRANGEMENT: Phase difference output of two signal A and B.

TERMINAL: PC pin.

Mechanical

NUMBER OF DETENT: 20 or 30

DETENT TORQUE: 3 - 20 mN.m

ROTATIONAL ANGLE: 360° endless.

ROTATIONAL LIFE: 15,000 cycles (1 cycle: 360° CW + 360° CCW).

| Number of Pulse | Number of Detent | Bracket Spacing | Select Function | Designation |
|-----------------|------------------|-----------------|-----------------|-------------------|
| 15 | 30 | 11 mm | No | NSE11DV57NCF215A |
| 20 | 20 | 11 mm | No | NSE11DV57NCF220A |
| 15 | 30 | 11 mm | Yes | NSE11DSV57NAF215A |
| 20 | 20 | 11 mm | Yes | NSE11DSV57NAF220A |
| 15 | 30 | 13,8 mm | Yes | NSE11DSV57NAF215F |
| 20 | 20 | 13,8 mm | Yes | NSE11DSV57NAF220F |

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Electrical

MAXIMUM VOLTAGE: 5 VDC.

MAXIMUM CURRENT DC: 10 mA

MINIMUM CURRENT DC: 1 mA

DIELECTRIC STRENGTH: 300 VAC / 1 mA.

INSULATION RESISTANCE: 100 MΩ min.

BOUNCE TIME: ≤ 2 ms

Switch Function

CONTACT: SPST

MAXIMUM POWER: 5 VDC 10 mA (min. 1 mA)

CONTACT RESISTANCE: Initial 100mΩ

TRAVEL: 0,5 mm +/- 0,4 mm

OPERATING FORCE: 4,5 +/- 1,5 N

LIFE TIME: 20,000 operations

Environmental

OPERATING TEMPERATURE: -30°C to +70°C.

STORAGE TEMPERATURE: -40°C to +85°C.

Process

SOLDERING PROCESS:

Manual soldering 300°C max., 3s max.

Wave soldering 260°C max., 3s max.

No cleaning.



Navigation

How To Order

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NSE11 Series Navigation Switch Encoders

NSE11

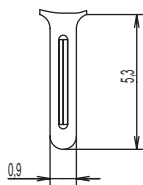


| OPTION CODE | LS Length of Shaft | A Push Switch Slot |
|---------------------------|--------------------|---------------------|
| A - with select | 12,5 mm | 0,5 |
| C - without select | 13 mm | no push switch slot |



P.C.B. THICKNESS T = 1,6
View from mounting side

TERMINAL DETAIL



| OPTION CODE | F Bracket Spacing |
|-------------|-------------------|
| A | 11 mm |
| F | 13,8 mm |

15 Pulse

| ELECTRICAL GRAPH | | |
|----------------------------|------------------|-----------|
| Shaft rotational direction | Signal | Output |
| C.W. | A (Terminal A-C) | ON OFF |
| | B (Terminal B-C) | ON OFF |

SWITCH GRAPH



20 Pulse

| ELECTRICAL GRAPH | | |
|----------------------------|------------------|-----------|
| Shaft rotational direction | Signal | Output |
| C.W. | A (Terminal A-C) | ON OFF |
| | B (Terminal B-C) | ON OFF |

SWITCH GRAPH



NSE12 Series Navigation Switch Encoders

Features/Benefits

- Select switch
- Low profile
- Self clinching terminals
- Positive detent feeling

Typical Applications

- Audio / Video equipment
- Navigation systems
- White goods equipment
- Car radio



Construction

FUNCTION: Incremental signal + select switch.

CONTACT ARRANGEMENT: Phase difference output of two signal A and B.

TERMINAL: PC pin.

Mechanical

NUMBER OF DETENT: 12 or 24

DETENT TORQUE: 3 - 20 mN.m

ROTATIONAL ANGLE: 360° endless.

ROTATIONAL LIFE: 30,000 cycles (1 cycle: 360° CW + 360° CCW).

| Number of Pulse | Number of Detent | Height | Select Function | Designation |
|-----------------|------------------|--------|-----------------|--------------|
| 12 | 12 | 20 mm | No | NSE12DV1220 |
| 24 | 24 | 20 mm | No | NSE12DV2420 |
| 12 | 12 | 25 mm | No | NSE12DV1225 |
| 24 | 24 | 25 mm | No | NSE12DV2425 |
| 12 | 12 | 20 mm | Yes | NSE12DSV1220 |
| 24 | 24 | 20 mm | Yes | NSE12DSV2420 |
| 12 | 12 | 25 mm | Yes | NSE12DSV1225 |
| 24 | 24 | 25 mm | Yes | NSE12DSV2425 |

Electrical

MAXIMUM VOLTAGE: 5 VDC.

MAXIMUM CURRENT DC: 10 mA

MINIMUM CURRENT DC: 1 mA

DIELECTRIC STRENGTH: 50 VAC / 1 mA.

INSULATION RESISTANCE: 10 MΩ.

BOUNCE TIME: ≤ 2 ms

Switch Function

CONTACT: SPST

MAXIMUM POWER: 5 VDC - 10 mA (min. 1 mA).

CONTACT RESISTANCE INITIAL: 100 mΩ.

TRAVEL: 0,5 mm +0,2/-0,1 mm

OPERATING FORCE: 4,5 ± 1,5 N.

LIFE TIME: 20,000 operations.

Environmental

OPERATING TEMPERATURE: -10°C to +70°C.

STORAGE TEMPERATURE: -40°C to +85°C.

Process

SOLDERING PROCESS:

Manual soldering 300°C max., 3s max.

Wave soldering 260°C max., 3s max.

No cleaning.

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

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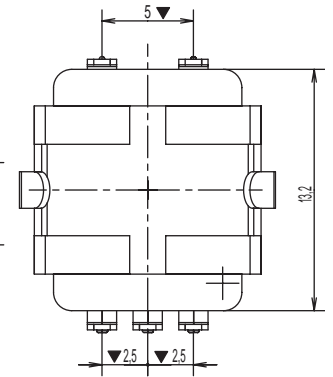
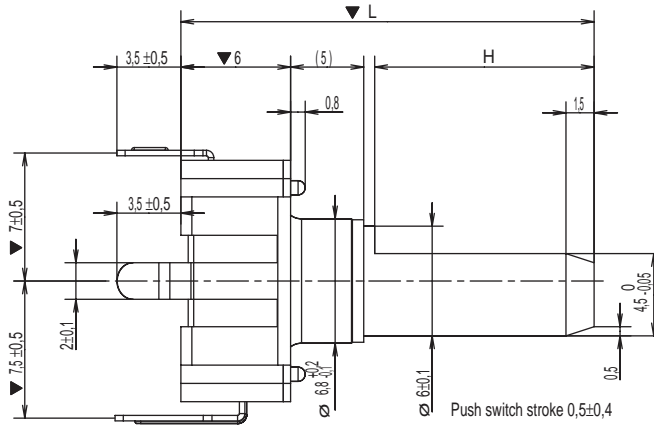


NSE12 Series Navigation Switch Encoders

NSE12



| OPTION CODE | L TOTAL HEIGHT | H |
|-------------|-------------------|----|
| 20 | 20 mm | 7 |
| 25 | 25 mm | 12 |



P.C.B. THICKNESS T = 1.6
View from mounting side

| ELECTRICAL GRAPH | | |
|----------------------------|------------------|-----------|
| Shaft rotational direction | Signal | Output |
| C.W. | A (Terminal A-C) | ON OFF |
| | B (Terminal B-C) | ON OFF |

SWITCH GRAPH



NSE16 Series Navigation Switch Encoders

Features/Benefits

- Select switch
- Long life
- Self clinching terminals
- Positive detent feeling

Typical Applications

- Audio / Video equipment
- White goods equipment



Construction

FUNCTION: Incremental signal.
CONTACT ARRANGEMENT: Phase difference output of two signal A and B.
TERMINAL: PC pin.

Mechanical

NUMBER OF DETENT: 24
DETENT TORQUE: 1 - 10 mN.m
ROTATIONAL ANGLE: 360° endless.
ROTATIONAL LIFE: 50,000 cycles (1 cycle: 360° CW + 360° CCW).

| Number of Pulse | Number of Detent | Height | Select Function | Designation |
|-----------------|------------------|---------|-----------------|-------------|
| 24 | 24 | 26,5 mm | No | NSE16DV2426 |
| 24 | 24 | 31,5 mm | No | NSE16DV2431 |

Electrical

MAXIMUM VOLTAGE: 5 VDC.
MAXIMUM CURRENT DC: 0,5 mA
DIELECTRIC STRENGTH: 50 VAC.
INSULATION RESISTANCE: 10 MΩ.
BOUNCE TIME: ≤ 2 ms

Environmental

OPERATING TEMPERATURE: -25°C to +80°C.
STORAGE TEMPERATURE: -40°C to +85°C.

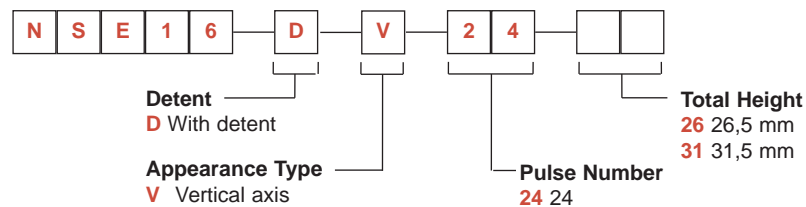
Process

SOLDERING PROCESS:
Manual soldering 300°C max., 3s max.
Wave soldering 260°C max., 3s max.
No cleaning.

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

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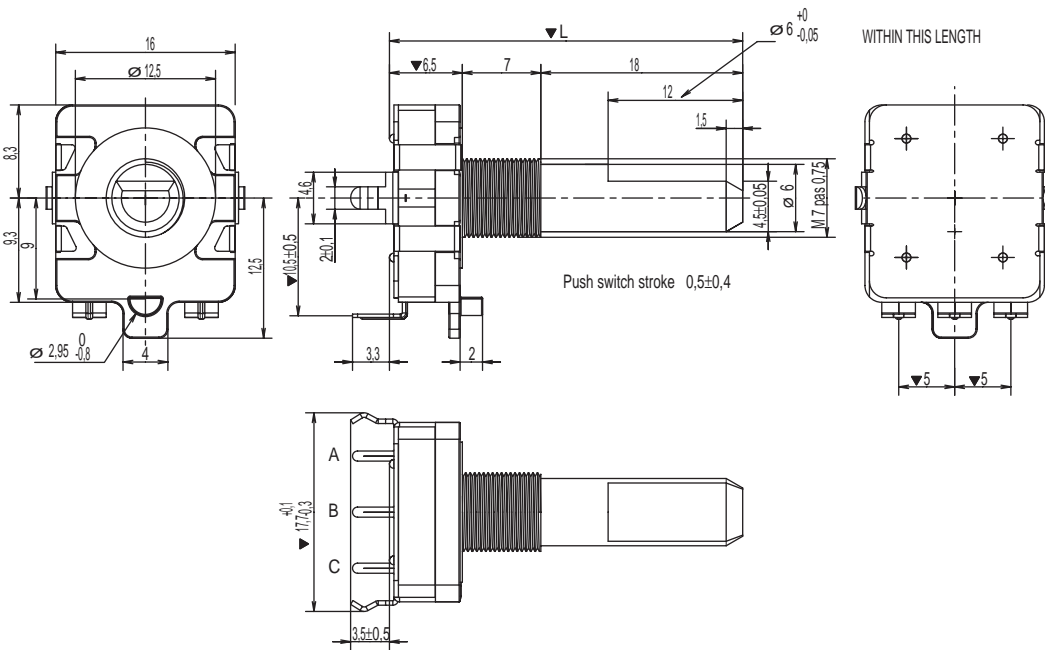
Navigation

NSE16 Series Navigation Switch Encoders

NSE16



| OPTION CODE | L TOTAL HEIGHT |
|-------------|-------------------|
| 26 | 26,5 mm |
| 31 | 31,5 mm |



P.C.B. THICKNESS T = 1,6
View from mounting side

| ELECTRICAL GRAPH | | |
|----------------------------|------------------|-----------|
| Shaft rotational direction | Signal | Output |
| C.W. | A (Terminal A-C) | ON OFF |
| | B (Terminal B-C) | ON OFF |

SWITCH GRAPH



Navigation