



NRO xx2 Series

# IP OUTDOOR INTERCOM STATIONS

## WEATHER-PROOF IP OUTDOOR INTERCOM STATIONS

They are used in extreme environments. The rugged design allows for clear and reliable communication at any time.

The robust two-part housing is made of glass-fiber reinforced polyester. The compact interior is equipped with a horn speaker that ensures highest intelligibility even in high ambient noise areas and a noise-compensating microphone with dynamic compression. Furthermore the IP outdoor intercom station can be equipped with a LCD display which provides different types of information, e.g. the called number or the number of the calling subscriber.

Its connectivity and health status is constantly monitored, logged and flexibly notified system-internally and to third-party systems.



- For use in harsh industrial environments
- Degree of protection IP66
- Ethernet interface with PoE power supply
- Intercom station versions available with two Ethernet interfaces for redundant network connection
- LCD display for indicating status information and user navigation
- Configurable and programmable user controls: dial keypad and momentary rocker switch
- Visual indication of call or busy status via LEDs
- Adjustable speaker volume and microphone sensitivity
- Self-diagnostics by monitoring of internal electronics, microphone and network connectivity
- Potential-free relay contact



## USER CONTROLS

The different modular user controls allow for customization according to customer and project-specific needs at any time. The housing can be configured with one dial keypad, up to three momentary rocker switches or a combination of both. There are also intercom station types without display available.



### Horn Speaker

Clear sound quality in low and high ambient noise environments

### Equipment Identification

Free space to apply device tag

### Display / Protected Label

Indication of status information and user navigation / indication of call number or location of intercom station in the plant

### Microphone

Noise-compensating microphone with dynamic compression



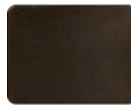
### Industrial Dial Keypad

To enter call numbers; use the \* key to speak and the # key to delete the call number entered



### Industrial Momentary Rocker Switch

Freely programmable, integrated red LEDs for call and busy signaling, protective labels, designed for use with industrial gloves



### Cover Plate

To protect module openings

## Degree of Protection IP 6 6

IP (International Protection)

| 1st Digit  | 2nd Digit   |
|--|---|
| 6 Dust tight and complete protection against contact with live parts | 6 Protected against high pressure water jets from any direction |

2nd digit - Protection against the ingress of water

1st digit - Protection against solid foreign objects and contact with live components

## FLEXIBLE AND EASILY EXPANDABLE

For complex communication needs, the intercom stations of the NRO 002 series can each be expanded with up to 3 modular expansion units of the NOAK 001 type allowing for the implementation of up to 21 programmable momentary rocker switches, giving the customer the utmost in customization.

The intercom stations of the NRO xx2 series can be expanded with various external components. An optional 30-W booster amplifier installed in the intercom housing enables the use of an external speaker. Based on project or specification needs, you can connect a flashing warning beacon and/or a foot switch. Furthermore, you can either connect a headset or a hand-held microphone.



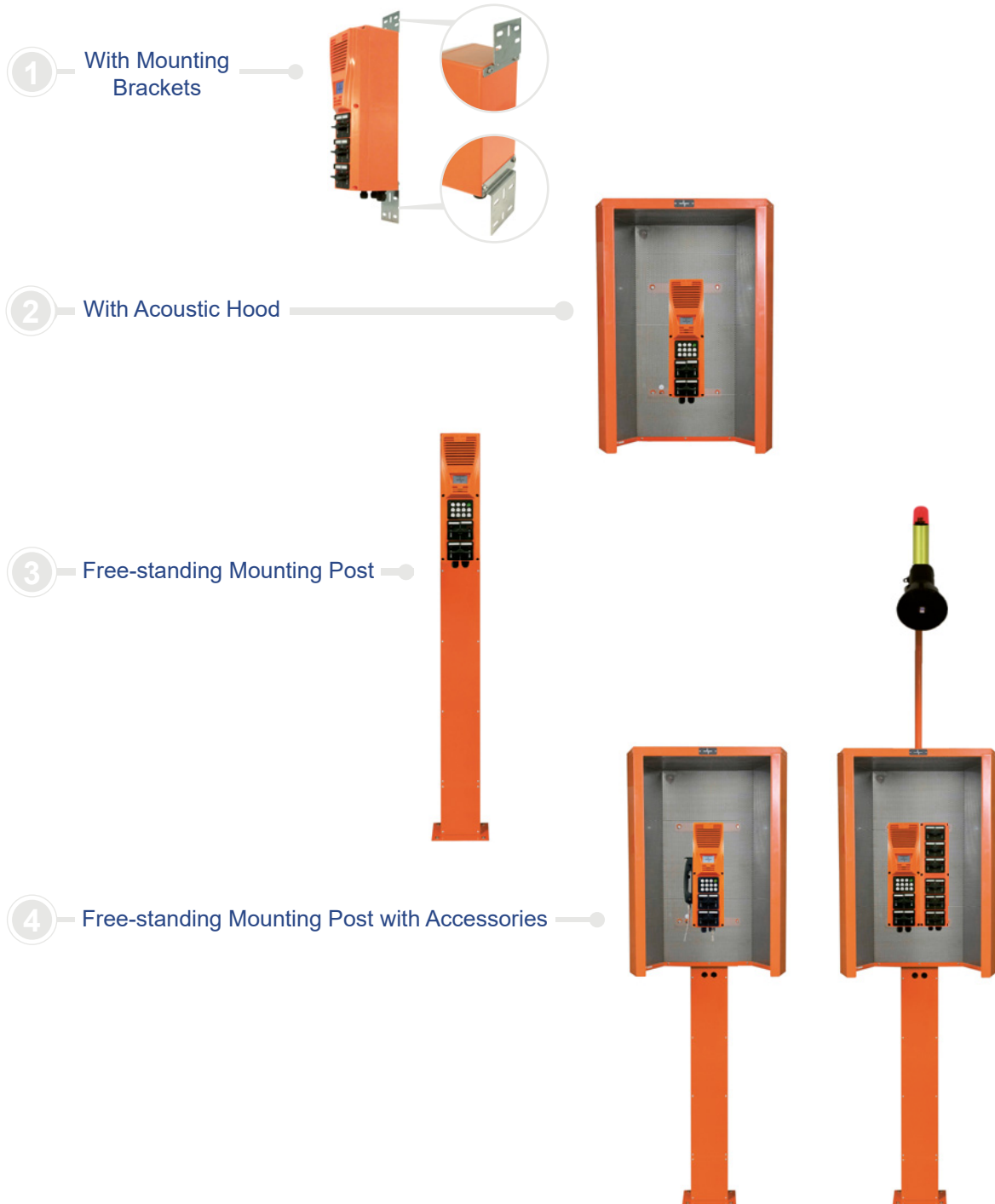
\* For NRO xx2/DE type only

## MULTI-FACETED MOUNTING OPTIONS AND ROBUST MECHANICAL ACCESSORIES

To make best use of your intercom station, you can mount it to steel I-beams or to internal and external walls. Using the mounting brackets available in the 1 AMW 05 mounting kit, you can easily mount and ideally align it.

In areas, where you cannot directly mount the intercom station to a wall (e.g. for gates or entrance areas), a free-standing mounting post that is bolted to the ground can be supplied. If required, you can also mount additional acoustic or visual signaling devices to it.

In high ambient noise areas, acoustic hoods provide adequate noise insulation to ensure clear communication at any time.



Illustrations similar

# SERIES OVERVIEW

## NRO XX2 SERIES



6 NRO 002/D

**NRO 002/D**  
**NRO 002**

With or without LCD display, up to three momentary rocker switches, one Ethernet interface, degree of protection IP66, PoE, -40 °C to +70 °C (-40 °F to +158 °F)

**W x H x D**

141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")

**Weight**

Approx. 5 kg (approx. 11.02 lbs)

**Accessories**

See "Intercom Expansion Units and Accessories NRO Series", on page 9



4 NRO 012/D

**NRO 012/D**  
**NRO 012**

With or without LCD display, one dial keypad, up to two momentary rocker switches, one Ethernet interface, degree of protection IP66, PoE, -40 °C to +70 °C (-40 °F to +158 °F)

**W x H x D**

141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")

**Weight**

Approx. 5 kg (approx. 11.02 lbs)

**Accessories**

See "Intercom Expansion Units and Accessories NRO Series", on page 9



4 NRO 012/DH

**NRO 012/DH**

One dial keypad, up to two momentary rocker switches, one Ethernet interface, permanently installed handset, degree of protection IP66, PoE, -25 °C to +70 °C (-13 °F to +158 °F)

**W x H x D**

190 mm x 484 mm x 171 mm (7.48" x 19.06" x 6.73")

**Weight**

Approx. 6 kg (approx. 13.23 lbs)

**Accessories**

See "Intercom Expansion Units and Accessories NRO Series", on page 9

## NRO XX2/DE SERIES WITH CONNECTOR FOR EXTERNAL ACCESSORIES



6 NRO 002/DE

### NRO 002/DE

Up to three momentary rocker switches, one Ethernet interface, connector for one hand-held microphone or headset, degree of protection IP66, PoE, -40 °C to +70 °C\* (-40 °F to +158 °F)

### W x H x D

141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")

### Weight

Approx. 5 kg (approx. 11.02 lbs)

### Accessories

See "Intercom Expansion Units and Accessories NRO Series", on page 9 and "Further Accessories for NRO xx2/DE Series", on page 11

\* Operating temperature range can differ depending on the accessories connected.



4 NRO 012/DE

### NRO 012/DE

One dial keypad, up to two momentary rocker switches, one Ethernet interface, connector for one hand-held microphone or headset, degree of protection IP66, PoE, -40 °C to +70 °C\* (-40 °F to +158 °F)

### W x H x D

141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")

### Weight

Approx. 5 kg (approx. 11.02 lbs)

### Accessories

See "Intercom Expansion Units and Accessories NRO Series", on page 9 and "Further Accessories for NRO xx2/DE Series", on page 11

\* Operating temperature range can differ depending on the accessories connected.

## NRO 1X2 SERIES WITH TWO ETHERNET INTERFACES



4 NRO 112/DB

### NRO 112/D NRO 112

With or without LCD display, one dial keypad, up to two momentary rocker switches, two Ethernet interfaces, optionally with permanently installed handset, degree of protection IP66, PoE, -40 °C to +70 °C (-40 °F to +158 °F)

### W x H x D

141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")

With handset: 190 mm x 484 mm x 171 mm (7.48" x 19.06" x 6.73")

### Weight

Approx. 5 kg (approx. 11.02 lbs)

### Accessories

See "Intercom Expansion Units and Accessories NRO Series", on page 9



6 NRO 102/DB

|                    |  |
|--------------------|--|
| <b>NRO 102/D</b>   | Up to three momentary rocker switches, two Ethernet interfaces, degree of protection IP66, PoE, -40 °C to +70 °C (-40 °F to +158 °F) |
| <b>W x H x D</b>   | 141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")  |
| <b>Weight</b>      | Approx. 5 kg (approx. 11.02 lbs)   |
| <b>Accessories</b> | See "Intercom Expansion Units and Accessories NRO Series", on page 9   |

## TECHNICAL DATA

### MECHANICAL DATA

|                               |   |
|-------------------------------|---|
| <b>Width x height x depth</b> | 141 mm x 484 mm x 171 mm (5.55" x 19.06" x 6.73")<br>With handset: 190 mm x 484 mm x 171 mm (7.48" x 19.06" x 6.73")  |
| <b>Cable glands</b>           | 3 x M20 or 2 x M20 for intercom stations of type NRO xx2/DE and /DH (cable diameter: 5 mm to 13 mm (0.2" to 0.51"))<br>1 x M25 (cable diameter: 8 mm to 17 mm (0.31" to 0.67")) |
| <b>Weight</b>                 | Approx. 5 kg (approx. 11.02 lbs)<br>With handset: approx. 6 kg (13.23 lbs)  |
| <b>Color</b>                  | RAL 2004 (Pure Orange)  |

### ELECTRICAL DATA

|   |   |
|---|---|
| <b>Power supply Powered Device (PD)</b>                     | PoE according to IEEE 802.3bt, Type 4, Class 7  |
| <b>Typical power consumption</b>                            | 5 W   |
| <b>Max. power consumption (without feed line losses)</b>    | NRO xx2 8 W<br>Warning beacon 24 WBL 01/RD + 10 W<br>Booster amplifier 30 NABA 001 + 40 W<br>3 x expansion unit 6/12 NOAK 001 + 2 W |
| <b>Max. sound pressure level (distance 30 cm (0.98 ft))</b> | 115 dB  |
| <b>Frequency range</b>                                      | 200 Hz to 16,000 Hz (+/-3 dB)   |
| <b>Speaker</b>  | 15 W / 8 Ohms   |
| <b>Output power booster amplifier</b>                       | 30 W / 330 Ohms   |
| <b>Relay contact (change-over contact)</b>                  | 1 A, 60 V DC, 60 W (resistive load)   |

## NETWORK REQUIREMENTS

Power over Ethernet (PoE) according to IEEE 802.3af/at/bt

Requirements Power Source Equipment (PSE)

| PSE            | Intercom station | With warning beacon | With booster amplifier   |
|----------------|------------------|---------------------|--------------------------|
| Class 3 (15 W) | x                |                     |                          |
| Class 4 (30 W) | x                | x                   |                          |
| Class 6 (60 W) | x                |                     | x                        |
| Class 6 (60 W) | x                | x                   | x<br>(speaker max. 15 W) |
| Class 7 (75 W) | x                | x                   | x                        |

IPv4 network

Support of UDP, SCTP, RTP and RTCP protocols

Quality of Service (QoS)

Ideal latency value < 20 ms (max. 50 ms)

Jitter: max. 10 ms

10Base-T/100Base-TX Ethernet (IEEE 802.3), 100 MBit/s recommended

200 kBit/s basic bandwidth and 200 kBit/s per active audio channel

## INTERFACES

1 x RJ45 port 10/100 MBit/s (LAN + PoE) or IDC terminal

for intercom stations of type NRO 1x2:

2 x RJ45 port 10/100 MBit/s (LAN + PoE) or IDC terminal

1 x 2-pole, pluggable screw terminal for 100-V additional speaker, 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

1 x 3-pole, pluggable screw terminal for input/foot switch, 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

1 x 4-pole, pluggable screw terminal for expansion unit of type NOAK 001, 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

1 x 5-pole, pluggable screw terminal for relay/warning beacon, 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

1 x 12-pin circular connector for headset or hand-held microphone for intercom stations of type NRO xx2/DE

1 x Mini USB service port

## ENVIRONMENTAL REQUIREMENTS AND STANDARDS

|   |                                      |
|---|--------------------------------------|
| <b>Relative humidity (non-condensing)</b> | Max. 95 %                            |
| <b>Degree of protection</b>               | IP66                                 |
| <b>Max. ambient noise level</b>           | 110 dB                               |
| <b>EMC</b>                                | IEC/EN 61000-6-2<br>IEC/EN 61000-6-4 |



# INTERCOM EXPANSION UNITS AND ACCESSORIES NRO SERIES

## EXPANSIONS



|                    |   |
|--------------------|---|
| <b>Type</b>        | 6 NOAK 001  |
| <b>Description</b> | Expansion unit with three momentary rocker switches, degree of protection IP66, -40 °C to +70 °C (-40 °F to +158 °F), connect up to 3 expansion units to an IP outdoor intercom station |
| <b>Type number</b> | 302-130-600   |



|                    |   |
|--------------------|---|
| <b>Type</b>        | 12 NOAK 001   |
| <b>Description</b> | Expansion unit with six momentary rocker switches, degree of protection IP66, -40 °C to +70 °C (-40 °F to +158 °F), connect up to three expansion units to an IP outdoor intercom station |
| <b>Type number</b> | 302-130-700   |

## ELECTRICAL ACCESSORIES



|                    |   |
|--------------------|---|
| <b>Type</b>        | 30 NABA 001   |
| <b>Description</b> | 100-V booster amplifier for installation into IP outdoor intercom stations, quiescent current consumption 25 mA, max. current consumption 1.6 A, output power 30 W / 400 Ohms |
| <b>Type number</b> | 302-150-200   |



|                    |  |
|--------------------|--|
| <b>Type</b>        | 24 WBL 01/RD   |
| <b>Description</b> | Warning beacon for industrial applications, red lens, degree of protection IP54 (vertical mounting), 24 V DC |
| <b>Type number</b> | 070-000-061/RD   |



|                    |  |
|--------------------|--|
| <b>Type</b>        | 1 FS 21  |
| <b>Description</b> | One-pedal foot switch, degree of protection IP65 |
| <b>Type number</b> | 013-010-002                                      |



|                    |   |
|--------------------|---|
| <b>Type</b>        | Terminal set  |
| <b>Description</b> | 1 x 3-pole screw terminal to connect a foot switch and 1 x 5-pole screw terminal for a relay contact (e.g. to connect a warning beacon) |
| <b>Type number</b> | 202-652-212   |



|                    |  |
|--------------------|--|
| <b>Type</b>        | PoE injector 90 W Single Port  |
| <b>Description</b> | PoE injector for indoor use according to IEEE 802.3bt, 90 W, Single Port, wide-range input 90 V AC to 264 V AC |
| <b>Type number</b> | 309-040-200  |

## MECHANICAL ACCESSORIES



|                    |  |
|--------------------|--|
| <b>Type</b>        | 1 SH 05/OG   |
| <b>Description</b> | Weather-proof protective hood made of polyethylene   |
| <b>Type number</b> | 070-100-100/OG<br><small>Other types of protective hoods are available upon request.</small> |



|                    |   |
|--------------------|---|
| <b>Type</b>        | 2 SSH 16/OG   |
| <b>Description</b> | Acoustic hood made of powder-coated stainless steel sheet (V2A), ambient noise reduction of up to 30 dB |
| <b>Type number</b> | 070-200-100/OG<br><small>Other types of acoustic hoods are available upon request.</small>              |



|                    |   |
|--------------------|---|
| <b>Type</b>        | 18 DSO 05/OG  |
| <b>Description</b> | Free-standing post for mounting of digital outdoor (harsh environment) intercom stations, cable entry at the bottom |
| <b>Type number</b> | 212-342-100   |



|                    |   |
|--------------------|---|
| <b>Description</b> | Mounting pole for installation of additional speaker and warning beacon, Pure Orange (RAL 2004) |
| <b>Type number</b> | 212-341-300/OG  |



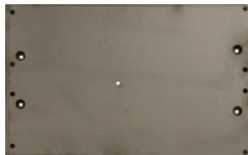
|                    |  |
|--------------------|--|
| <b>Type</b>        | 1 AMW 05   |
| <b>Description</b> | Mounting brackets for wall mounting of outdoor intercom stations or used as mounting adaptor to replace the intercom stations of type 3 AV 17, 3 A 32 or third-party devices, incl. fastening material |
| <b>Type number</b> | 212-237-000  |



|                    |   |
|--------------------|---|
| <b>Type</b>        | 1 AMW 05/AXA  |
| <b>Description</b> | Mounting adaptor to replace the intercom stations of type AXA/..A 501, ..AD 501, incl. fastening material |
| <b>Type number</b> | 212-237-100   |



|                    |  |
|--------------------|--|
| <b>Type</b>        | 1 AMW 05/0X3   |
| <b>Description</b> | Mounting adaptor to replace the intercom stations of type DA / DX including the 0x4 series, incl. fastening material |
| <b>Type number</b> | 212-237-200  |



|                    |   |
|--------------------|---|
| <b>Type</b>        | Mounting plate NRO + NOAK   |
| <b>Description</b> | Mounting plate for wall mounting or for mounting one IP outdoor intercom station and one expansion unit of type NOAK 001 inside an acoustic hood of type 2 SSH 16, incl. fastening material |
| <b>Type number</b> | 212-237-300   |

## FURTHER ACCESSORIES FOR NRO XX2/DE SERIES



|                    |   |
|--------------------|---|
| <b>Type</b>        | 3 HMI 05/L15  |
| <b>Description</b> | Hand-held microphone with integrated pre-amplifier and mounting bracket, 3 push buttons |
| <b>Type number</b> | 301-014-300/L15   |



**I** Operating temperature range of the intercom station changes to -20 °C to +60 °C (-4 °F to +140 °F) when operated with the above



|                    |  |
|--------------------|--|
| <b>Type</b>        | 1 DHU 003  |
| <b>Description</b> | Headset with flexible microphone, one cord-mounted Push-to-Talk button |
| <b>Type number</b> | 301-434-300  |

**I** Operating temperature range of the intercom station changes to -20 °C to +55 °C (-4 °F to +131 °F) when operated with the above

# SERIES OVERVIEW CHART

| Type          |  |  | Display | Booster Amplifier | Handset* | External Components | 2nd Ethernet Port | Type Number     |
|---------------|---|---|---------|-------------------|----------|---------------------|-------------------|-----------------|
| 0 NRO 012/DBH | x   |   | x       | x                 | x        |                     |                   | 302-071-001/DBH |
| 0 NRO 012/DH  | x   |   | x       |                   | x        |                     |                   | 302-071-001/DH  |
| 2 NRO 002/D   |   | 1   | x       |                   |          |                     |                   | 302-071-200/D   |
| 2 NRO 002     |   | 1   |         |                   |          |                     |                   | 302-071-200     |
| 2 NRO 002/DB  |   | 1   | x       | x                 |          |                     |                   | 302-071-200/DB  |
| 4 NRO 002/B   |   | 2   |         | x                 |          |                     |                   | 302-071-400/B   |
| 4 NRO 012/D   | x   | 2   | x       |                   |          |                     |                   | 302-071-401/D   |
| 4 NRO 012     | x   | 2   |         |                   |          |                     |                   | 302-071-401     |
| 4 NRO 012/DB  | x   | 2   | x       | x                 |          |                     |                   | 302-071-401/DB  |
| 4 NRO 012/B   | x   | 2   |         | x                 |          |                     |                   | 302-071-401/B   |
| 4 NRO 012/DBE | x   | 2   | x       | x                 |          | x                   |                   | 302-071-401/DBE |
| 4 NRO 012/DBH | x   | 2   | x       | x                 | x        |                     |                   | 302-071-401/DBH |
| 4 NRO 012/DE  | x   | 2   | x       |                   |          | x                   |                   | 302-071-401/DE  |
| 4 NRO 012/DH  | x   | 2   | x       |                   | x        |                     |                   | 302-071-401/DH  |
| 4 NRO 112/D   | x   | 2   | x       |                   |          |                     | x                 | 302-071-411/D   |
| 4 NRO 112     | x   | 2   |         |                   |          |                     | x                 | 302-071-411     |
| 4 NRO 112/DB  | x   | 2   | x       | x                 |          |                     | x                 | 302-071-411/DB  |
| 4 NRO 112/DBH | x   | 2   | x       | x                 | x        |                     | x                 | 302-071-411/DBH |
| 4 NRO 112/DH  | x   | 2   | x       |                   | x        |                     | x                 | 302-071-411/DH  |
| 6 NRO 002/D   |   | 3   | x       |                   |          |                     |                   | 302-071-600/D   |
| 6 NRO 002     |   | 3   |         |                   |          |                     |                   | 302-071-600     |
| 6 NRO 002/DB  |   | 3   | x       | x                 |          |                     |                   | 302-071-600/DB  |
| 6 NRO 002/B   |   | 3   |         | x                 |          |                     |                   | 302-071-600/B   |
| 6 NRO 002/DBE |   | 3   | x       | x                 |          | x                   |                   | 302-071-600/DBE |
| 6 NRO 002/DE  |   | 3   | x       |                   |          | x                   |                   | 302-071-600/DE  |
| 6 NRO 102/D   |   | 3   | x       |                   |          |                     | x                 | 302-071-610/D   |
| 6 NRO 102/DB  |   | 3   | x       | x                 |          |                     | x                 | 302-071-610/DB  |

\* Operating temperature range of the NRO intercom stations changes to -25 °C to +70 °C (-13 °F to +158 °F)

D = with LCD display

B = with booster amplifier

H = with handset

E = with expansion option

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