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

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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)

2nd digit - Protection against the ingress of water

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

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

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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.
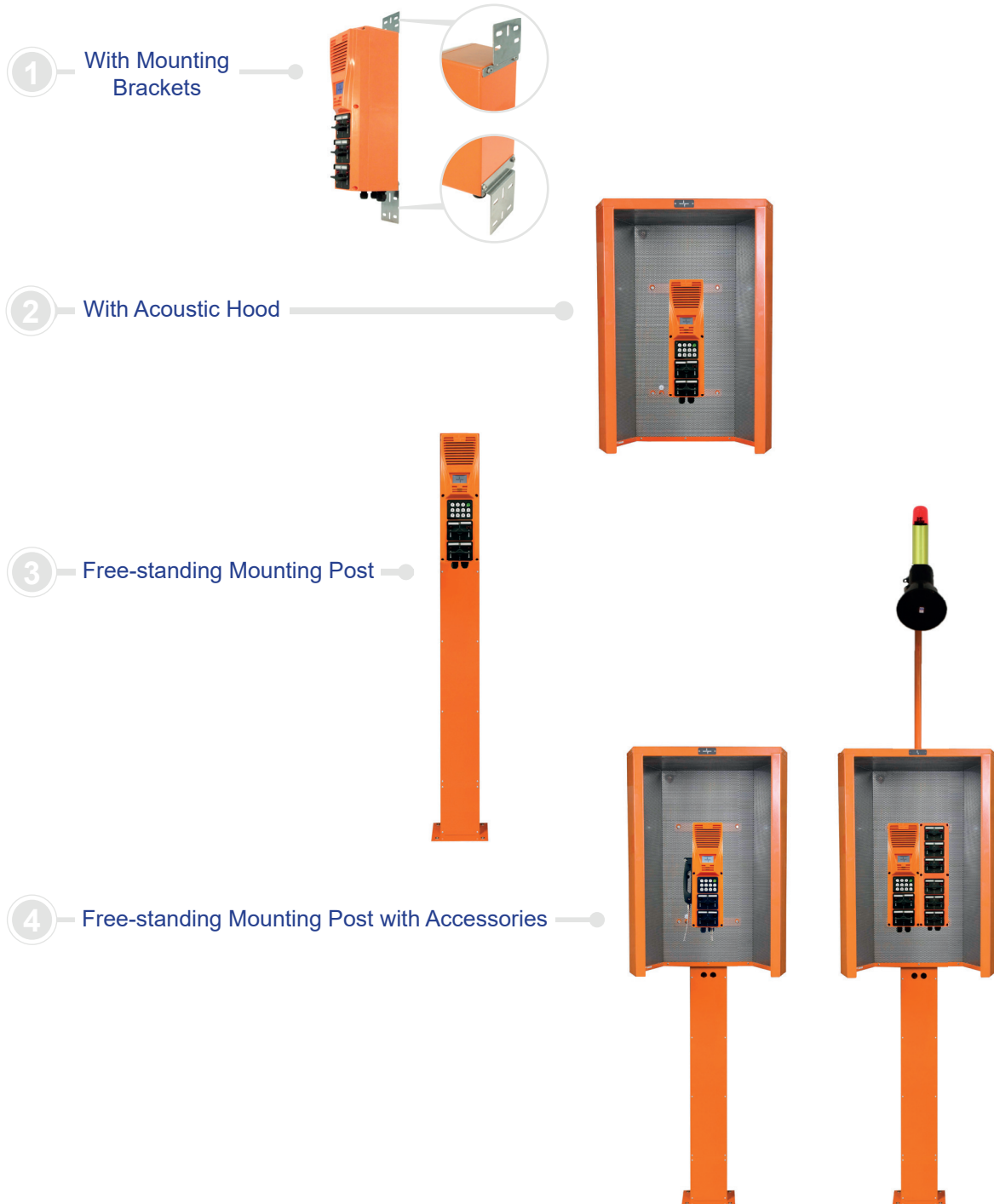
To power an external speaker **Booster Amplifier**

For flexible expansion solutions **Expansion Unit**

To visually signal an alarm or an incoming call **Flashing Warning Beacon**

For hands-free communication **Foot Switch**

For greater flexibility **Hand-held Microphone***

For safe communication in high ambient noise areas **Headset***

For all intercom stations of the NRO series

For NRO xx2/DE type only

* 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.

1 With Mounting Brackets

2 With Acoustic Hood

3 Free-standing Mounting Post

4 Free-standing Mounting Post with Accessories

Illustrations similar

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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

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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 12

* 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 12

* 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

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6 NRO 102/DB

NRO 102/D	Up to three momentary rocker switches, two Ethernet interfaces, 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

TECHNICAL DATA

MECHANICAL DATA

Width x height x depth	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")
Cable glands	3 x M20 or 2 x M20 for intercom stations of type NRO xx2/DE and /DH (cable diameter: 5 mm to 13 mm (0.20" to 0.51"))
	1 x M25 (cable diameter: 8 mm to 17 mm (0.31" to 0.67"))
Weight	Approx. 5 kg (approx. 11.02 lbs)
	With handset: approx. 6 kg (13.23 lbs)
Color	RAL 2004 (Pure Orange)

ELECTRICAL DATA

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

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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 (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 mm² to 2.5 mm²

1 x 3-pole, pluggable screw terminal for input/foot switch, 0.2 mm² to 2.5 mm²

1 x 4-pole, pluggable screw terminal for expansion unit of type NOAK 001,
0.2 mm² to 2.5 mm²

1 x 5-pole, pluggable screw terminal for relay/warning beacon, 0.2 mm² to 2.5 mm²

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

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

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INTERCOM EXPANSION UNITS AND ACCESSORIES NRO SERIES

EXPANSIONS

Type	6 NOAK 001
Description	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
Type number	302-130-600

Type	12 NOAK 001
Description	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
Type number	302-130-700

ELECTRICAL ACCESSORIES

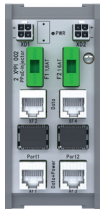| Type	30 NABA 001
Description	100-V booster amplifier for installation into IP outdoor intercom stations, quiescent current consumption 25 mA, max. current consumption 1.6 A, output power 30 W / 400 Ohms
Type number	302-150-200

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

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Type	24 WBL 11
Description	Flashing warning beacon for industrial applications, flash energy: 5 Joule, flash frequency: 1 Hz, weatherproof, degree of protection IP66/67, 24 V DC
Type number	070-000-110/AM (Amber) 070-000-110/RD (Red) 070-000-110/YE (Yellow)

Type	1 FS 21
Description	One-pedal foot switch, degree of protection IP65
Type number	013-010-002

Type	2 XPPI 002
Description	Passive PoE injector 150 W for supplying two INDUSTRONIC PoE compliant devices
Type number	344-800-108 Required to connect the 2 XPPI 002: 244-905-351 (Power supply cable 4 XCBL 531, 3.5 m (11.48 ft))

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

Type	2-Port PoE++ Injector 180 W
Description	2x 10/100/1000Base-T, RJ45 PoE compliant to IEEE 802.3bt
Type number	309-040-205

Type	4-Port PoE++ Injector 240 W
Description	4x 10/100/1000Base-T, RJ45 PoE compliant to IEEE 802.3bt
Type number	309-040-206

MECHANICAL ACCESSORIES

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

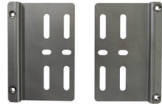| Type	2 SSH 16/OG
Description	Acoustic hood made of powder-coated stainless steel sheet (V2A), ambient noise reduction of up to 30 dB
Type number	070-200-100/OG
	Other types of acoustic hoods are available upon request.

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

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

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Type	1 AMW 05
Description	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
Type number	212-237-000

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

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

Type	Mounting plate NRO + NOAK
Description	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
Type number	212-237-300

FURTHER ACCESSORIES FOR NRO XX2/DE SERIES

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

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

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

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

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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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