

# PATROL SOUNDERS 100/105 dB(A)

## PA 1 / PA 5



PATROL - the new generation of sounders.

Three dimensional innovation;

- safe; an incorrect installation is virtually impossible
- easy; significantly shorter assembly and installation times
- economical; extremely high efficiency and good penetration of acoustical obstacles significantly reduce the required number of sounders



reddot design award  
winner 2013

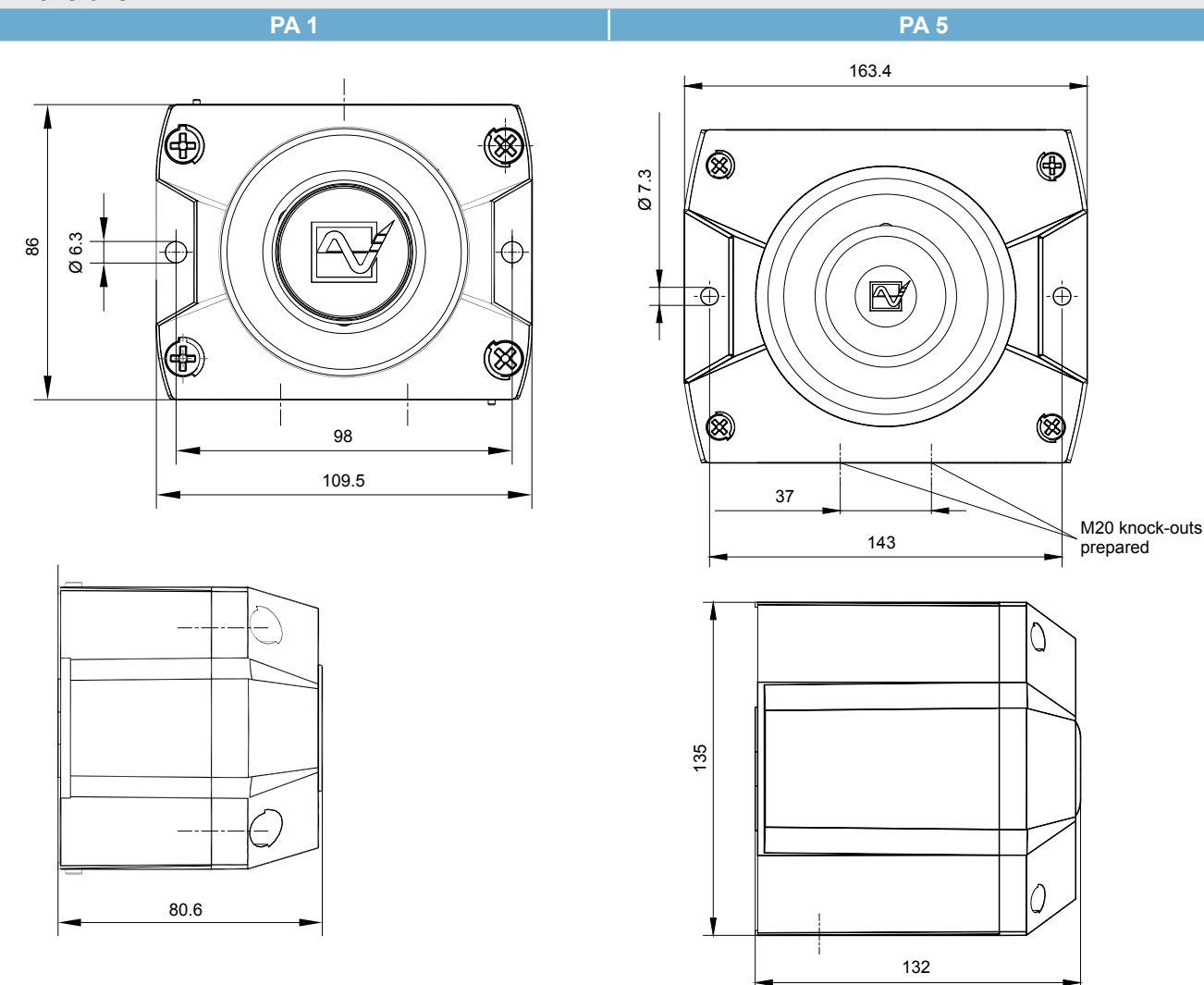
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|------------------------|------|-------------------|----------------------|-----------------------|----------------------|------------|------------|----|----------|----------|
| PA 1                   | PA 5 |                   |                      |                       |                      |            |            |    |          |          |
|                        |      |                   |                      |                       |                      |            |            |    |          |          |
| max. covering distance |      | Protection system | Impact-proof housing | Operating temperature | Acoustic penetration | EN 54-3    | VdS        | UL | 10 Years | Warranty |
|                        |      |                   |                      |                       |                      | 24-48 V DC | 24-48 V DC |    |          |          |

| Electrical data                          | PA 1        |            |             |              |
|------------------------------------------|-------------|------------|-------------|--------------|
| Rated voltage                            | 230 V AC    | 115 V AC   | 24 V AC     | 10 – 57 V DC |
| Rated frequency                          | 50 / 60 Hz  | 50 / 60 Hz | 50 / 60 Hz  |              |
| Operating range                          | 195 – 253 V | 95 – 127 V | 18 – 30 V   | 10 – 57 V    |
| Nominal current consumption              | 9 – 15 mA   | 8 – 30 mA  | 59 – 120 mA | 6 – 80 mA    |
| Electrical data                          | PA 5        |            |             |              |
| Rated voltage                            | 230 V AC    | 115 V AC   | 24 V AC     | 10 – 57 V DC |
| Rated frequency                          | 50 / 60 Hz  | 50 / 60 Hz | 50 / 60 Hz  |              |
| Operating range                          | ± 10%       | ± 10%      | ± 10%       | 10 – 57 V    |
| Nominal current consumption <sup>1</sup> | 9 – 15 mA   | 8 – 30 mA  | 59 – 120 mA | 6 – 80 mA    |

<sup>1</sup> power consumption dependent on operating voltage

| Mechanical data                         | PA 1                                                                              | PA 5                                            |
|-----------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------|
| Sound pressure level                    | 100 dB (A)                                                                        | 105 dB (A)                                      |
| Sound level reduction                   | max. - 16 dB via potentiometer                                                    |                                                 |
| Alarm tones                             | 80 (see tone table page 140/141)                                                  |                                                 |
| Operating temperature                   | - 40 °C ... + 55 °C                                                               |                                                 |
| Storage temperature                     | - 40 °C ... + 70 °C                                                               |                                                 |
| Relative humidity                       | 90%                                                                               |                                                 |
| Protection system according to EN 60529 | IP 66                                                                             |                                                 |
| Protection class                        | II                                                                                |                                                 |
| Duty cycle                              | 100%                                                                              |                                                 |
| Material                                | PC / ABS blend                                                                    |                                                 |
| Colour                                  | similar to RAL 3000 (flame red) / RAL 7035 (light grey) / RAL 9003 (signal white) |                                                 |
| Cable entry                             | 3 x M20 knock-outs on side, 1 knock-out on back                                   | 5 x M20 knock-outs on side, 1 knock-out on back |
| Integrated seal with cable entry        | 6 – 13 mm (feed-through grommet)                                                  |                                                 |
| Connecting terminals                    | 2.5 mm² fine wire with cable end sleeve, AWG 16                                   |                                                 |
| Weight                                  | AC                                                                                | 405 g                                           |
|                                         | DC                                                                                | 270 g                                           |

### Dimensions



### Ordering details

| Article numbers |               | PA 1            |                 |                 | PA 5            |                 |                 |
|-----------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Version         | Rated voltage | 230 V AC        | 115 V AC        | 10-57 V DC      | 230 V AC        | 115 V AC        | 10-57 V DC      |
| Standard        | housing red   | 233 10 10 0 000 | 233 10 15 0 000 | 233 10 63 0 000 | 233 50 10 0 000 | 233 50 15 0 000 | 233 50 63 0 000 |
| GL/MED          | housing red   | 233 10 10 0 001 | 233 10 15 0 001 | 233 10 63 0 001 | 233 50 10 0 001 | 233 50 15 0 001 | 233 50 63 0 001 |
| Standard        | housing grey  | 233 10 10 0 055 | 233 10 15 0 055 | 233 10 63 0 055 | 233 50 10 0 055 | 233 50 15 0 055 | 233 50 63 0 055 |
| GL/MED          | housing grey  | 233 10 10 0 056 | 233 10 15 0 056 | 233 10 63 0 056 | 233 50 10 0 056 | 233 50 15 0 056 | 233 50 63 0 056 |

Article numbers for other voltages and versions on request

### Options / Accessories



GL



MED



CNBOP



Enclosure fitting



Surface gasket



Tamper-proof sealing



Panel mounting kit



SSM  
(only for 24 V DC)

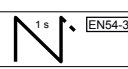
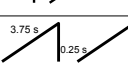
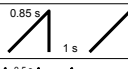
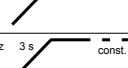
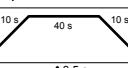
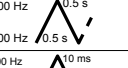
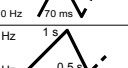
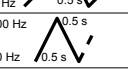
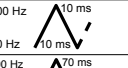
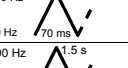
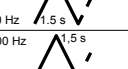
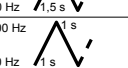
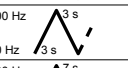
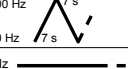
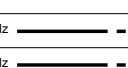
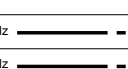
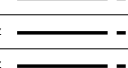
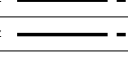
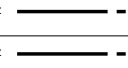
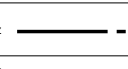
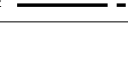
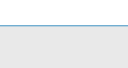
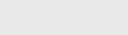
See page 141 for further information

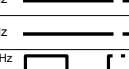
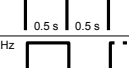
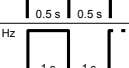
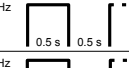
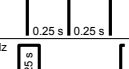
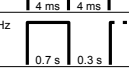
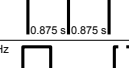
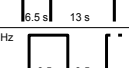
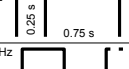
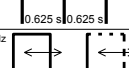
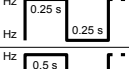
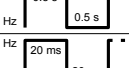
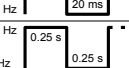
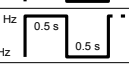
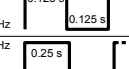
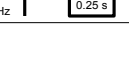
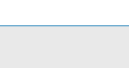
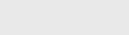
### Conformity to standards

The acoustic parameters conform to the European standard DIN EN ISO 7731;  
 “Ergonomic – alarm signals for public areas and workplaces – acoustic alarm signals”.

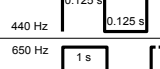
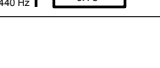
The requirement for an acoustic alarm signal can be found in the harmonised standards:  
 EN 60204-1 Electrical equipment of machines  
 EN 60825-1 Radiation safety of laser devices, identical to IEC 825 and DIN-VDE 0837

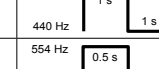
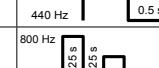
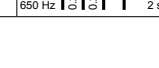
**Tone table PA 1 / PA 5 / PA 10 / PA 20**

| Tone | Description                                                       |                                                                                                   |
|------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1    | no tone                                                           |                                                                                                   |
| 2    | Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP | 1200 Hz 1 s      |
| 9    | Slow whoop, fire alarm, UK BS5839-1                               | 970 Hz 1 s       |
| 11   | Interrupted tone (fast)                                           | 970 Hz 20 ms     |
| 13   | Interrupted tone                                                  | 900 Hz 0.3 s     |
| 15   | Slow whoop, evacuation alarm Netherlands NEN 2575                 | 1200 Hz 3.5 s    |
| 16   | Slow whoop, Australian evacuation alarm AS2220                    | 1200 Hz 3.75 s   |
| 18   | Slow whoop, NFPA                                                  | 775 Hz 0.85 s    |
| 22   | Pulsating tone, Australien alert AS1670, ISO8201                  | 1200 Hz 0.5 s    |
| 23   | Siren                                                             | 2400 Hz 3 s      |
| 24   | Siren                                                             | 1200 Hz 3 s      |
| 25   | Siren                                                             | 800 Hz 3 s       |
| 26   | Pulsating tone, industrial alarm Germany                          | 1000 Hz 10 s     |
| 27   | Sweeping                                                          | 2900 Hz 0.5 s   |
| 29   | Sweeping (fast)                                                   | 2900 Hz 10 ms  |
| 30   | Sweeping                                                          | 2400 Hz 70 ms  |
| 31   | Sweeping, France NFC48-265                                        | 1600 Hz 1 s    |
| 33   | Sweeping (medium), UK BS5839-1                                    | 1000 Hz 0.5 s  |
| 34   | Sweeping (fast)                                                   | 1000 Hz 10 ms  |
| 35   | Sweeping (fast), UK BS5839-1                                      | 800 Hz 70 ms   |
| 36   | Sweeping                                                          | 1500 Hz 1.5 s  |
| 43   | Sweeping                                                          | 1200 Hz 1.5 s  |
| 44   | Sweeping, IMO 3d, Germany KTA3901 evacuation alarm                | 500 Hz 1 s     |
| 45   | Sweeping                                                          | 1200 Hz 3 s    |
| 46   | Sweeping, general alarm Finland                                   | 1500 Hz 7 s    |
| 52   | Continuous tone                                                   | 2400 Hz        |
| 53   | Continuous tone                                                   | 2000 Hz        |
| 54   | Continuous tone, Finland (all-clear signal)                       | 1500 Hz        |
| 55   | Continuous tone, PFEER gasalarm                                   | 1200 Hz        |
| 56   | Continuous tone                                                   | 1000 Hz        |
| 57   | Continuous tone, UK BS5839-1                                      | 950 Hz         |
| 59   | Continuous tone                                                   | 880 Hz         |
| 60   | Continuous tone                                                   | 825 Hz         |
| 61   | Continuous tone                                                   | 800 Hz         |
| 63   | Continuous tone                                                   | 725 Hz         |
| 65   | Continuous tone, Sweden SS031711 (all-clear signal)               | 660 Hz         |
| 66   | Continuous tone                                                   | 554 Hz         |
| 67   | Continuous tone, Germany KTA3901 (all-clear signal)               | 500 Hz         |
| 68   | Continuous tone                                                   | 470 Hz         |

| Tone | Description                                                                      |                                                                                                       |
|------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 69   | Continuous tone                                                                  | 440 Hz             |
| 71   | Continuous tone                                                                  | 340 Hz             |
| 77   | Interrupted tone                                                                 | 2400 Hz 0.5 s      |
| 82   | Interrupted tone, PFEER (general alarm), UK BS5839-1 (back-up alarm)             | 1000 Hz 0.5 s      |
| 83   | Interrupted tone, PFEER (general alarm)                                          | 1000 Hz 1 s        |
| 88   | Interrupted tone                                                                 | 950 Hz 1 s         |
| 90   | Interrupted tone                                                                 | 825 Hz 0.5 s       |
| 91   | Interrupted tone                                                                 | 800 Hz 0.25 s      |
| 92   | Interrupted tone                                                                 | 800 Hz 1 s         |
| 93   | Interrupted tone (fast), horn                                                    | 800 Hz 4 ms        |
| 97   | Interrupted tone                                                                 | 725 Hz 0.7 s       |
| 98   | Interrupted tone, Sweden SS031711 (emergency signal)                             | 700 Hz 0.125 s     |
| 100  | Interrupted tone, industrial alarm Germany                                       | 680 Hz 0.875 s    |
| 101  | Interrupted tone, Sweden SS031711 (important message (pre-mess))                 | 660 Hz 6.5 s     |
| 102  | Interrupted tone, Sweden SS031711 (local warning)                                | 660 Hz 0.5 s     |
| 103  | Interrupted tone, Sweden SS031711 (air raid warning)                             | 660 Hz 1.8 s     |
| 104  | Interrupted tone, Sweden SS031711 (emergency signal)                             | 660 Hz 150 ms    |
| 107  | Interrupted tone, Germany KTA3901 (evacuation alarm)                             | 500 Hz 0.25 s    |
| 109  | Interrupted tone, Australia AS2220, AS1610, AS1670                               | 420 Hz 0.625 s   |
| 110  | Interrupted tone, (fast variable), bell                                          | 1450 Hz 0.69 ms  |
| 111  | Interrupted tone, ISO8201 (emergency evacuation signal), USA (evacuation alarm)  | 470 Hz 0.5 s     |
| 112  | Interrupted tone, ISO8201 (emergency evacuation signal)                          | 950 Hz 0.5 s     |
| 113  | Interrupted tone, ISO8201 (emergency evacuation signal), Sweeping                | 2850 Hz 0.5 s    |
| 115  | Interrupted tone, IMO (telephone call)                                           | 950 Hz 2 s       |
| 116  | Interrupted tone, IMO (leave ship)                                               | 950 Hz 1 s       |
| 117  | Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)               | 825 Hz 2.5 s     |
| 122  | Alternating tone                                                                 | 2900 Hz 0.5 s    |
| 123  | Alternating tone                                                                 | 2900 Hz 0.25 s   |
| 124  | Alternating tone, Singapore                                                      | 2000 Hz 0.5 s    |
| 125  | Alternating tone                                                                 | 1400 Hz 20 ms    |
| 128  | Alternating tone                                                                 | 1025 Hz 0.25 s   |
| 130  | Alternating tone, UK BS5839-1 (fire alarm)                                       | 1000 Hz 0.5 s    |
| 131  | Alternating tone, UK BS5839-1 (fire alarm, railway crossing)                     | 1000 Hz 0.25 s   |
| 135  | Alternating tone, UK BS5839-1 (fire alarm, increased urgency - railway crossing) | 800 Hz 0.125 s   |
| 142  | Alternating tone                                                                 | 900 Hz 0.25 s    |

**Tone table PA 1 / PA 5 / PA 10 / PA 20**

| Tone | Description                                      |                                                                                                    |
|------|--------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 143  | Alternating tone, industrial alarm Germany       | 660 Hz 0.125 s  |
| 144  | Alternating tone                                 | 650 Hz 1 s      |
| 146  | Alternating tone, France NFS 32-001 (fire alarm) | 554 Hz 0.4 s    |

| Tone | Description                       |                                                                                                   |
|------|-----------------------------------|---------------------------------------------------------------------------------------------------|
| 147  | Alternating tone, Sweden SS031711 | 554 Hz 1 s     |
| 148  | Alternating tone, Sweden SS031711 | 554 Hz 0.5 s   |
| 152  | Alternating tone (two tone chime) | 800 Hz 0.25 s  |

**Control of the tones**

| Tone selection switch/DIP-Switch (setting of basic tone) |    |    |    |    |   |      | External tone selection |     |       |
|----------------------------------------------------------|----|----|----|----|---|------|-------------------------|-----|-------|
| 1                                                        | 2  | 3  | 4  | 5  | 6 | Tone | C1                      | C2  | C1+C2 |
|                                                          |    |    |    |    |   | 1    | 2                       | 88  | 57    |
| ON                                                       |    |    |    |    |   | 2 *  | 128                     | 112 | 57    |
|                                                          | ON |    |    |    |   | 2    | 26                      | 100 | 93    |
| ON                                                       | ON |    |    |    |   | 2    | 61                      | 131 | 112   |
|                                                          |    | ON |    |    |   | 9    | 57                      | 11  | 82    |
| ON                                                       |    | ON |    |    |   | 15   | 131                     | 52  | 112   |
|                                                          | ON | ON |    |    |   | 16   | 109                     | 52  | 56    |
| ON                                                       | ON | ON |    |    |   | 18   | 111                     | 57  | 68    |
|                                                          |    | ON |    |    |   | 22   | 16                      | 109 | 68    |
| ON                                                       |    | ON |    |    |   | 23   | 131                     | 52  | 112   |
|                                                          | ON |    | ON |    |   | 24   | 131                     | 52  | 131   |
| ON                                                       | ON |    | ON |    |   | 25   | 131                     | 52  | 92    |
|                                                          |    | ON | ON |    |   | 26   | 2                       | 100 | 93    |
| ON                                                       |    | ON | ON |    |   | 27   | 123                     | 52  | 92    |
|                                                          | ON | ON |    |    |   | 29   | 35                      | 52  | 61    |
| ON                                                       | ON | ON |    |    |   | 30   | 27                      | 52  | 77    |
|                                                          |    |    |    | ON |   | 31   | 131                     | 52  | 57    |
| ON                                                       |    |    |    | ON |   | 33   | 30                      | 52  | 35    |
|                                                          | ON |    |    | ON |   | 34   | 35                      | 52  | 93    |
| ON                                                       | ON |    |    | ON |   | 35   | 27                      | 52  | 110   |
|                                                          |    | ON |    | ON |   | 36   | 146                     | 67  | 57    |
| ON                                                       |    | ON |    | ON |   | 43   | 131                     | 52  | 91    |
|                                                          | ON | ON |    | ON |   | 45   | 2                       | 57  | 93    |
| ON                                                       | ON | ON |    | ON |   | 52   | 15                      | 65  | 82    |
|                                                          |    |    | ON | ON |   | 54   | 46                      | 54  | 131   |
| ON                                                       |    |    | ON | ON |   | 55   | 131                     | 52  | 128   |
|                                                          | ON |    | ON | ON |   | 56   | 82                      | 35  | 33    |
| ON                                                       | ON |    | ON | ON |   | 59   | 143                     | 59  | 101   |
|                                                          |    | ON | ON | ON |   | 60   | 131                     | 52  | 125   |
| ON                                                       |    | ON | ON | ON |   | 65   | 131                     | 52  | 93    |
|                                                          | ON | ON | ON | ON |   | 66   | 110                     | 52  | 107   |
| ON                                                       | ON | ON | ON | ON |   | 69   | 131                     | 52  | 110   |

\* factory setting

| Tone selection switch/DIP-Switch (setting of basic tone) |    |    |    |    |   |      | External tone selection |     |       |
|----------------------------------------------------------|----|----|----|----|---|------|-------------------------|-----|-------|
| 1                                                        | 2  | 3  | 4  | 5  | 6 | Tone | C1                      | C2  | C1+C2 |
|                                                          |    |    |    |    |   | 71   | 131                     | 52  | 93    |
| ON                                                       |    |    |    |    |   | 77   | 61                      | 52  | 122   |
|                                                          | ON |    |    |    |   | 82   | 131                     | 52  | 83    |
| ON                                                       | ON |    |    |    |   | 83   | 56                      | 2   | 82    |
|                                                          |    | ON |    |    |   | 88   | 2                       | 57  | 128   |
| ON                                                       |    | ON |    |    |   | 90   | 131                     | 52  | 125   |
|                                                          | ON | ON |    |    |   | 91   | 30                      | 52  | 110   |
| ON                                                       | ON | ON |    |    |   | 92   | 33                      | 52  | 57    |
|                                                          |    |    | ON |    |   | 93   | 2                       | 128 | 57    |
| ON                                                       |    |    | ON |    |   | 97   | 2                       | 63  | 93    |
|                                                          | ON |    | ON |    |   | 100  | 131                     | 52  | 125   |
| ON                                                       | ON |    | ON |    |   | 101  | 98                      | 102 | 65    |
|                                                          |    | ON | ON |    |   | 103  | 131                     | 65  | 147   |
| ON                                                       |    | ON | ON |    |   | 104  | 103                     | 65  | 101   |
|                                                          | ON | ON | ON |    |   | 109  | 16                      | 52  | 22    |
| ON                                                       | ON | ON | ON |    |   | 110  | 131                     | 61  | 91    |
|                                                          |    |    |    | ON |   | 112  | 2                       | 57  | 128   |
| ON                                                       |    |    |    | ON |   | 113  | 52                      | 123 | 104   |
|                                                          | ON |    |    | ON |   | 115  | 117                     | 116 | 44    |
| ON                                                       | ON |    |    | ON |   | 116  | 117                     | 93  | 125   |
|                                                          |    | ON |    | ON |   | 117  | 93                      | 116 | 125   |
| ON                                                       |    | ON |    | ON |   | 123  | 27                      | 52  | 77    |
|                                                          | ON | ON |    | ON |   | 124  | 53                      | 83  | 2     |
| ON                                                       | ON | ON |    | ON |   | 130  | 2                       | 107 | 67    |
|                                                          |    |    | ON | ON |   | 131  | 2                       | 112 | 57    |
| ON                                                       |    |    | ON | ON |   | 135  | 16                      | 56  | 109   |
|                                                          | ON |    | ON | ON |   | 142  | 2                       | 54  | 88    |
| ON                                                       | ON |    | ON | ON |   | 143  | 59                      | 93  | 33    |
|                                                          |    | ON | ON | ON |   | 144  | 110                     | 61  | 2     |
| ON                                                       |    | ON | ON | ON |   | 146  | 31                      | 67  | 57    |
|                                                          | ON | ON | ON | ON |   | 148  | 131                     | 52  | 92    |
| ON                                                       | ON | ON | ON | ON |   | 152  | 110                     | 61  | 13    |

## ACCESSORIES

**Ordering details**

| Article numbers                            | PA 1                                                                                                                                                              | PA 5            | PA 10 / PA 20   |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|
| <b>Enclosure fitting</b>                   | For connection (daisy-chaining) of several sounders of the PATROL series                                                                                          |                 |                 |
| <b>Surface gasket</b>                      | Sealing of the sounder installation surface when, e.g. cable entry is executed from the back.                                                                     |                 |                 |
| <b>Tamper-proof sealing (pack of 4)</b>    | Anti-tamper sealing for fasteners of the PATROL devices after installation in order to prevent manipulation of the devices.                                       |                 |                 |
| <b>Panel mount installation kit PATROL</b> | The PATROL devices are also suitable for panel mounting. This kit consists of a plug connector for the electrical contact, as well as all installation materials. |                 |                 |
|                                            | 283 00 00 0 003                                                                                                                                                   | 283 00 00 0 005 | 283 00 00 0 006 |
|                                            | 283 00 00 0 004                                                                                                                                                   | 283 00 00 0 005 | 283 00 00 0 006 |
|                                            | 283 00 00 0 002                                                                                                                                                   |                 |                 |
|                                            | 283 00 00 0 007                                                                                                                                                   | 283 00 00 0 008 | 283 00 00 0 009 |