

1

UNITED KINGDOM CONFORMITY ASSESSMENT

UK-TYPE EXAMINATION CERTIFICATE



2 Equipment or Protective systems intended for use in Potentially Explosive Atmospheres –
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Type Examination Certificate No: FM21UKEX0001X

4 Equipment or protective system: Tank Gauge Radar Micropilot NMR81 and NMR84
(Type Reference and Name)

5 Name of Applicant: Endress+Hauser SE+Co. KG

6 Address of Applicant: Hauptstrasse 1
79689 Maulburg
Germany

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, Approved Body number 1725, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in confidential report number:

3057382 – RR227003 dated 2nd April 2021

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

BS EN IEC 60079-0:2018, BS EN 60079-1:2014, BS EN 60079-11:2012, BS EN 60079-26:2015,
BS PD IEC/TS 60079-40:2015 and BS EN 60529:1992+A1:2000+A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This UK-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Regulations. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

Victor Aluko-Oginni
Certification Manager, FM Approvals Ltd.

Issue date: 06th April 2021

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd, Voyager Place, Maidenhead, Berkshire, SL6 2PJ, United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmaprovals.com www.fmaprovals.com

F UKEX 020 (Jan/21)



0259
Page 1 of 9

SCHEDULE

to UK-Type Examination Certificate No. FM21UKEX0001X

12 The marking of the equipment or protective system shall include:

NMR81



II 1/2 G Ex ia/db IIC T4...T1 Ga/Gb

II 2 (1) G Ex db [ia Ga] IIC T4...T1 Gb

II 1/2 G Ex ia/db IIC T6...T1 Ga/Gb

II 2 (1) G Ex db [ia Ga] IIC T6...T1 Gb

See Description Section below for Ambient Temperature Ranges.

NMR84

II 1/2 G Ex ia/db IIC T6...T1 Ga/Gb

II 2 (1) G Ex db [ia Ga] IIC T6...T1 Gb

See Description Section below for Ambient Temperature Ranges.

13 **Description of Equipment or Protective System:**

General - The Tank Gauge Radar Micropilot NMR8x is used for the contactless, continuous measurement of liquids in hazardous areas with gas atmosphere. Two different types of transmitters are available, the NMR81 and NMR84, each with a different transmitter, antenna and working frequencies for different applications. Short microwave impulses are radiated from the antenna, reflected by the medium surface and picked up again by the antenna. The delay time between radiation and receiving is measured and converted into a signal to calculate the level.

Construction - The Tank Gauge Radar Micropilot NMR81 and NMR84 Series comprises a single compartment flameproof enclosure with a thread-on window cover — housing the display module, electronics assembly, radar module — along with a feedthrough and a process connector with antenna. NMR81 and NMR84 have a unique radar box, feedthrough, connection cable and antenna while they share the same enclosure, display and electronics assembly. The enclosure for NMR81 and NMR84 can be Aluminum or Stainless Steel, with 7 integral M20 sized field wiring entries. Integral threaded inserts allow for optional field wiring entry options including M25, ½ NPT or ¾ NPT.

The following enclosures and electronic modules may be used:

Enclosure TRC[01-10-11] ALU C-Band
Enclosure TRC[01-20-11] ALU E- Band
Enclosure TRC[02-10-12] SS C-Band
Enclosure TRC[02-20-12] SS E- Band

- Module TRC[00] FP Front Plane Board
- Module TRC[01] PS_HV Power Supply, High Voltage
- Module TRC[02] PS_LV_AC Power Supply, Low Voltage, AC
- Module TRC[03] PS_LV_DC Power Supply, Low Voltage, DC
- Module TRC[10] MB Main Board,
- Module TRC[20] IOM_A IO Module Analog
- Module TRC[21] IOM_A IO Module Analog
- Module TRC[31] IOM_D IO Module Digital
- Module TRC[32] IOM_Mod_FF IO Module Modbus/FF
- Module TRC[33] IOM_V1_WM550 IO Module V1/WM550

Ratings - The Tank Gauge Radar NMR8x operates at 85-264 Vac (28.8 Volt-Amperes), 52-75Vac (21.6 Volt-Amperes) and 19-64Vdc (13.4 Watts). The transmitters are rated for use in an ambient temperature

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

range of -40°C to +60°C. The transmitter probes are rated for use in a process temperature range of -40°C to +200°C (NMR81) or -40°C to +150°C (NMR84). For further information regarding the Temperature Class and Ambient Temperature Ranges, refer to the temperature and configuration tables.

The enclosure of the Tank Gauge Radar NMR8x has an ingress protection rating of IP66 and IP68.

The Tank Gauge Radar NMR8x is evaluated as "Process Sealed" in accordance with BS PD IEC/TS 60079-40.

NMR81 (E-Band Radar with Aluminum enclosure):

| Temperature Class | Maximum ambient temperature / °C | Maximum allowed ambient temperature at maximum process temperature / °C | Maximum process temperature / °C |
|------------------------|----------------------------------|---|----------------------------------|
| Configuration 1 | | | |
| T6 | 55 | 51 | 85 |
| T5 | 55 | 46 | 100 |
| T4 | 55 | 50 | 135 |
| T3, T2, T1 | 55 | 47 | 200 |
| Configuration 2 | | | |
| T6 | 60 | 51 | 85 |
| T5 | 60 | 46 | 100 |
| T4 | 60 | 58 | 135 |
| T3, T2, T1 | 60 | 54 | 200 |
| Configuration 3 | | | |
| T6 | 58 | 51 | 85 |
| T5 | 58 | 46 | 100 |
| T4 | 58 | 54 | 135 |
| T3, T2, T1 | 58 | 51 | 200 |
| Configuration 4 | | | |
| T6 | 60 | 51 | 85 |
| T5 | 60 | 46 | 100 |
| T4 | 60 | 56 | 135 |
| T3, T2, T1 | 60 | 53 | 200 |
| Configuration 5 | | | |
| T6 | 55 | 51 | 85 |
| T5 | 55 | 46 | 100 |
| T4 | 55 | 52 | 135 |
| T3, T2, T1 | 55 | 49 | 200 |

NMR81 (E-Band Radar with Stainless Steel enclosure):

| Temperature Class | Maximum ambient temperature / °C | Maximum allowed ambient temperature at maximum process temperature / °C | Maximum process temperature / °C |
|------------------------|----------------------------------|---|----------------------------------|
| Configuration 1 | | | |
| T6 | 43 | 40 | 85 |
| T5 | 43 | 37 | 100 |
| T4 | 43 | 37 | 135 |
| T3, T2, T1 | 43 | 32 | 200 |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
 T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

| Configuration 2 | | | |
|-----------------|----|----|-----|
| T6 | 55 | 46 | 85 |
| T5 | 55 | 38 | 100 |
| T4 | 55 | 52 | 135 |
| T3, T2, T1 | 55 | 46 | 200 |
| Configuration 3 | | | |
| T6 | 50 | 45 | 85 |
| T5 | 50 | 38 | 100 |
| T4 | 50 | 45 | 135 |
| T3, T2, T1 | 50 | 40 | 200 |
| Configuration 4 | | | |
| T6 | 53 | 46 | 85 |
| T5 | 53 | 38 | 100 |
| T4 | 53 | 46 | 135 |
| T3, T2, T1 | 53 | 43 | 200 |
| Configuration 5 | | | |
| T6 | 45 | 44 | 85 |
| T5 | 45 | 38 | 100 |
| T4 | 45 | 40 | 135 |
| T3, T2, T1 | 45 | 36 | 200 |

NMR84 (C-Band Radar with Aluminum enclosure):

| Temperature Class | Maximum ambient temperature / °C | Maximum allowed ambient temperature at maximum process temperature / °C | Maximum process temperature / °C |
|-------------------|----------------------------------|---|----------------------------------|
| Configuration 1 | | | |
| T6 | 55 | 52 | 85 |
| T5 | 55 | 52 | 100 |
| T4 | 55 | 49 | 135 |
| T3, T2, T1 | 55 | 49 | 150 |
| Configuration 2 | | | |
| T6 | 60 | 60 | 85 |
| T5 | 60 | 59 | 100 |
| T4 | 60 | 56 | 135 |
| T3, T2, T1 | 60 | 56 | 150 |
| Configuration 3 | | | |
| T6 | 58 | 55 | 85 |
| T5 | 58 | 55 | 100 |
| T4 | 58 | 53 | 135 |
| T3, T2, T1 | 58 | 53 | 150 |
| Configuration 4 | | | |
| T6 | 60 | 57 | 85 |
| T5 | 60 | 57 | 100 |
| T4 | 60 | 54 | 135 |
| T3, T2, T1 | 60 | 54 | 150 |
| Configuration 5 | | | |
| T6 | 55 | 55 | 85 |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
 T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

| | | | |
|------------|----|----|-----|
| T5 | 55 | 54 | 100 |
| T4 | 55 | 51 | 135 |
| T3, T2, T1 | 55 | 51 | 150 |

NMR84 (C-Band Radar with Stainless Steel enclosure):

| Temperature Class | Maximum ambient temperature / °C | Maximum allowed ambient temperature at maximum process temperature / °C | Maximum process temperature / °C |
|------------------------|----------------------------------|---|----------------------------------|
| Configuration 1 | | | |
| T6 | 43 | 39 | 85 |
| T5 | 43 | 39 | 100 |
| T4 | 43 | 36 | 135 |
| T3, T2, T1 | 43 | 36 | 150 |
| Configuration 2 | | | |
| T6 | 55 | 55 | 85 |
| T5 | 55 | 54 | 100 |
| T4 | 55 | 51 | 135 |
| T3, T2, T1 | 55 | 51 | 150 |
| Configuration 3 | | | |
| T6 | 50 | 47 | 85 |
| T5 | 50 | 47 | 100 |
| T4 | 50 | 44 | 135 |
| T3, T2, T1 | 50 | 44 | 150 |
| Configuration 4 | | | |
| T6 | 53 | 50 | 85 |
| T5 | 53 | 50 | 100 |
| T4 | 53 | 46 | 135 |
| T3, T2, T1 | 53 | 46 | 150 |
| Configuration 5 | | | |
| T6 | 45 | 43 | 85 |
| T5 | 45 | 43 | 100 |
| T4 | 45 | 39 | 135 |
| T3, T2, T1 | 45 | 39 | 150 |

| Configuration of Electronics | | | | | |
|------------------------------|--------------|-------------|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| | (worst case) | (best case) | | | |
| Enclosure (Alu) | X | X | X | X | X |
| Slot A - IOM_D | X | | X | X | X |
| Slot B - IOM_D | X | | | | |
| Slot B - IOM_A(Ex ia) | | | X | | X |
| Slot C - IOM_A(Ex ia) | X | | | | |
| Slot D - IOM_D | X | | | | X |
| PS_LV_DC | X | X | X | X | X |
| MB | X | X | X | X | X |
| ExLi | X | X | X | X | X |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
 T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

Tank Gauge Radar Micropilot NMR81-aabcddeeffgghijjkklll + (options)

| | |
|-----------|---|
| aa | Approval: UE - UKEX T4 UC - UKEX T6 |
| b | Terminal Type: 1 - Spring Terminals 2 - Screw Terminals 9 - Special version, TSP (not relevant for safety) |
| c | Power Supply: B - 85-264VAC, LCD + operation D - 52-75VAC, LCD + operation E - 19-64VDC, LCD + operation Y - Special Version (not relevant for safety) |
| dd | Primary Output: A1 - Modbus – RS485 B1 - V1 C1 - WM550 E1 - 4-20mA HART Exd H1 - 4-20mA HART Ex i Y9 - Special Version (not relevant for safety) |
| ee | Secondary I/O Analog: A1 - Ex d – 1 x 4-20mA HART; 1 x RTD Input A2 - Ex d – 2 x 4-20mA HART; 2 x RTD Input B1 - Ex i – 1 x 4-20mA HART; 1 x RTD Input B2 - Ex i – 2 x 4-20mA HART; 2 x RTD Input C2 - Ex i – 1 x 4-20mA HART; 2 x RTD Input + 1 x Ex d 4-20mA HART X0 - Prepared for I/O Analog RTD input Y9 - Special Version (not relevant for safety) |
| ff | Secondary I/O Digital Ex d: A1 - 2 x relay + 2 x module discrete A2 - 4 x relay + 4 x module discrete A3 - 6 x relay + 6 x module discrete B1 - Modbus RS485 B2 - Modbus RS485 + 2 x relay + 2 x module discrete B3 - Modbus RS485 + 4 x relay + 4 x module discrete C1 - V1 C2 - V1 + 2x relay + 2x discrete module C3 - V1 + 4x relay + 4x discrete module E1 - W550 E2 - W550 + 2 x relay + 2 x module discrete E3 - W550 + 4 x relay + 4 x module discrete X0 - Prepared for I/O digital Ex d Y9 - Special Version (not relevant for safety) |
| gg | Housing: AC - Transmitter Housing Aluminum coated process 316/316L BC - Transmitter + Process 316/316L Y9 - Transmitter Housing 316/316L special coating for e.g. marine applications |
| h | Electrical Connection: A - Thread M20 B - Thread M25 E - Thread NPT1/2" F - Thread NPT3/4" Y - Special Version (not relevant for safety) |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

| | |
|------------------|---|
| ii | Antenna: AB - 50mm/2" AC - 80mm/3" AD - 100mm/4 YY - Special Version (not relevant for safety) |
| jj | Process Sealing: A1 - HNBR – -30...150°C / -22...302°F B1 - FKM GLT – -40...200°C / -40...392°F B2 - FFKM – -20...200°C / -4...392°F B3 - FKM, -10...160°C/-14...340°F YY - Special Version (not relevant for safety) |
| kkk | Process Connection: Any 3 characters combinations (not relevant for safety) |
| lll | Accuracy, Weight + Measure Approval: Any 3 characters combinations (not relevant for safety) |
| (options) | Options: not relevant for safety |

Tank Gauge Radar Micropilot NMR84-aabcddeeffgghijjkklll + (options)

| | |
|-----------|---|
| aa | Approval: UC - UKEX T6 |
| b | Terminal Type: 1 - Spring Terminals 2 - Screw Terminals 9 - Special version, TSP (not relevant for safety) |
| c | Power Supply: B - 85-264VAC, LCD + operation D - 52-75VAC, LCD + operation E - 19-64VDC, LCD + operation Y - Special Version (not relevant for safety) |
| dd | Primary Output: A1 - Modbus – RS485 B1 - V1 C1 - WM550 E1 - 4-20mA HART Exd H1 - 4-20mA HART Ex i Y9 - Special Version (not relevant for safety) |
| ee | Secondary I/O Analog: A1 - Ex d – 1 x 4-20mA HART; 1 x RTD Input A2 - Ex d – 2 x 4-20mA HART; 2 x RTD Input B1 - Ex i – 1 x 4-20mA HART; 1 x RTD Input B2 - Ex i – 2 x 4-20mA HART; 2 x RTD Input C2 - Ex i – 1 x 4-20mA HART; 2 x RTD Input + 1 x Ex d 4-20mA HART X0 - Prepared for I/O Analog RTD input Y9 - Special Version (not relevant for safety) |
| ff | Secondary I/O Digital Ex d: A1 - 2 x relay + 2 x module discrete A2 - 4 x relay + 4 x module discrete A3 - 6 x relay + 6 x module discrete B1 - Modbus RS485 B2 - Modbus RS485 + 2 x relay + 2 x module discrete B3 - Modbus RS485 + 4 x relay + 4 x module discrete C1 - V1 C2 - V1 + 2x relay + 2x discrete module |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

| | |
|------------------|--|
| | C3 - V1 + 4x relay + 4x discrete module E1 - W550 E2 - W550 + 2 x relay + 2 x module discrete E3 - W550 + 4 x relay + 4 x module discrete X0 - Prepared for I/O digital Ex d Y9 - Special Version (not relevant for safety) |
| gg | Housing: AC - Transmitter Housing Aluminum coated process 316/316L BC - Transmitter + Process 316/316L Y9 - Transmitter Housing 316/316L special coating for e.g. marine applications |
| h | Electrical Connection: A - Thread M20 B - Thread M25 E - Thread NPT1/2" F - Thread NPT3/4" Y - Special Version (not relevant for safety) |
| ii | Antenna: BD - Planar 100mm/4" BF - Planar 150mm/6" BG - Planar 200mm/8" BH - Planar 250mm/10" BJ - Planar 300mm/12" YY - Special Version (not relevant for safety) |
| jj | Process Sealing: A1 - HNBR – -30...150°C / -22...302°F B1 - FKM GLT – -40...150°C / -40...392°F B2 - FFKM, -20...150°C/-4...392°F YY - Special Version (not relevant for safety) |
| kkk | Process Connection: Any 3 characters combinations (not relevant for safety) |
| lll | Accuracy, Weight + Measure Approval: Any 3 characters combinations (not relevant for safety) |
| (options) | Options: not relevant for safety |

14 Specific Conditions of Use:

1. For Ambient Temperature Range refer to Safety Instructions document XA02422G.
2. An antenna coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).
3. Flamepath joints are not for repair. Contact the manufacturer.
4. Use heat resisting cables rated $\geq 85^{\circ}\text{C}$ for $T_a > 50^{\circ}\text{C}$.
5. Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic labels, varnishes/coatings on the stainless steel 316L, and isolated metal tags applied to the enclosure.
6. To maintain the ingress protection ratings (IP66/68), Teflon tape or pipe dope is required for blanking plugs.
7. Ex d certified seals are required within 50 mm (2") on all used housing entries.

15 Essential Health and Safety Requirements:

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the confidential report identified in item 8.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
 T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE



Member of the FM Global Group

to UK-Type Examination Certificate No. FM21UKEX0001X

16 Test and Assessment Procedure and Conditions:

This UK-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for UKCA Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Regulations in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's UKCA Certification Scheme.

17 Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Approved Body.

18 Certificate History

Details of the supplements to this certificate are described below:

| Date | Description |
|----------------------------|-----------------|
| 6 th April 2021 | Original Issue. |

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

Endress+Hauser SE+Co KG (1000001123)

Class No 3615

Original Project I.D. 3057382

Certificate I.D. FM21UKEX0001X

| <u>Drawing No.</u> | <u>Revision Level</u> | <u>Drawing Title</u> | <u>Last Report</u> | <u>Electronic Drawing</u> |
|---------------------------|------------------------------|---------------------------------|---------------------------|----------------------------------|
| 960014603 | - | Zone separation device (C-Band) | 3057382 | Yes (pdf) |
| 960015969 | - | Bloc diagram DSP-E | 3057382 | Yes (pdf) |
| 960016686 | - | Bloc diagram DSP-C | 3057382 | Yes (pdf) |
| 960017256 | - | Circuit diagram HF-E | 3057382 | Yes (pdf) |
| 960017257 | - | Assembly plan Side A HF-E | 3057382 | Yes (pdf) |
| 960017258 | - | Assembly plan Side B HF-E | 3057382 | Yes (pdf) |
| 960017259 | - | Printed circuit board HF-E | 3057382 | Yes (pdf) |
| 960017260 | - | Conductive pattern layer A1 | 3057382 | Yes (pdf) |
| 960017261 | - | Conductive pattern layer A2 | 3057382 | Yes (pdf) |
| 960017262 | - | Conductive pattern layer B2 | 3057382 | Yes (pdf) |
| 960017263 | - | Conductive pattern layer B1 | 3057382 | Yes (pdf) |
| 960017264 | - | Circuit diagram | 3057382 | Yes (pdf) |
| 960017265 | - | Assembly plan Side A | 3057382 | Yes (pdf) |
| 960017266 | - | Assembly plan Side B | 3057382 | Yes (pdf) |
| 960017267 | - | Printed circuit board | 3057382 | Yes (pdf) |
| 960017268 | - | Conductive pattern layer A1 | 3057382 | Yes (pdf) |
| 960017269 | - | Conductive pattern layer A2 | 3057382 | Yes (pdf) |
| 960017270 | - | Conductive pattern layer B2 | 3057382 | Yes (pdf) |
| 960017271 | - | Conductive pattern layer B1 | 3057382 | Yes (pdf) |
| 960017366 | A | TG-R NMR8x Housing assy. | PR450370 | Yes (pdf) |
| 960017373 | - | Bloc diagram HF-C | 3057382 | Yes (pdf) |
| 960017374 | - | Bloc diagram HF-E | 3057382 | Yes (pdf) |
| 960017546 | A | Circuit diagram DSP-E, | 3057382 | Yes (pdf) |
| 960017547 | - | Assembly plan Side A DSP-E | 3057382 | Yes (pdf) |
| 960017548 | - | Assembly plan Side B DSP-E | 3057382 | Yes (pdf) |
| 960017549 | - | Printed circuit board DSP-E | 3057382 | Yes (pdf) |
| 960017550 | - | Conductive pattern layer A1 | 3057382 | Yes (pdf) |
| 960017551 | - | Conductive pattern layer A2 | 3057382 | Yes (pdf) |
| 960017553 | - | Conductive pattern layer A4 | 3057382 | Yes (pdf) |
| 960017554 | - | Conductive pattern layer A5 | 3057382 | Yes (pdf) |
| 960017555 | - | Conductive pattern layer B5 | 3057382 | Yes (pdf) |
| 960017556 | - | Conductive pattern layer B4 | 3057382 | Yes (pdf) |
| 960017557 | - | Conductive pattern layer B3 | 3057382 | Yes (pdf) |
| 960017558 | - | Conductive pattern layer B2 | 3057382 | Yes (pdf) |
| 960017559 | - | Conductive pattern layer B1 | 3057382 | Yes (pdf) |
| 960017560 | - | Circuit diagram DSP-C | 3057382 | Yes (pdf) |
| 960017561 | - | Assembly plan Side A DSP-C | 3057382 | Yes (pdf) |
| 960017562 | - | Assembly plan Side B DSP-C | 3057382 | Yes (pdf) |
| 960017563 | - | Printed circuit board DSP-C | 3057382 | Yes (pdf) |
| 960017564 | - | Conductive pattern layer A1 | 3057382 | Yes (pdf) |
| 960017565 | - | Conductive pattern layer A2 | 3057382 | Yes (pdf) |

| | | | | |
|-----------|---|---|----------|-----------|
| 960017566 | - | Conductive pattern layer A3 | 3057382 | Yes (pdf) |
| 960017567 | - | Conductive pattern layer A4 | 3057382 | Yes (pdf) |
| 960017568 | - | Conductive pattern layer A5 | 3057382 | Yes (pdf) |
| 960017569 | - | Conductive pattern layer B5 | 3057382 | Yes (pdf) |
| 960017570 | - | Conductive pattern layer B4 | 3057382 | Yes (pdf) |
| 960017571 | - | Conductive pattern layer B3 | 3057382 | Yes (pdf) |
| 960017572 | - | Conductive pattern layer B2 | 3057382 | Yes (pdf) |
| 960017573 | - | Conductive pattern layer B1 | 3057382 | Yes (pdf) |
| 960017604 | - | Bloc diagram electr. C- /E-Band | 3057382 | Yes (pdf) |
| 960017605 | - | Wave guide with Zone separation device (E-Band) | 3057382 | Yes (pdf) |
| 960017610 | - | BV Radarbox / C-/ E-Band NMR8x | 3057382 | Yes (pdf) |
| 960017656 | A | HF-E coupler | PR450190 | Yes (pdf) |
| 960017669 | - | BV NMR84 Planar (Drip off) DN100 / DN150 | 3057382 | Yes (pdf) |
| 960017670 | A | NMR81-Antenna DN50 / DN80 / DN100 / alignment unit | PR458124 | Yes (pdf) |
| 960017674 | - | NMR8x overview electrostatics | 3057382 | Yes (pdf) |
| 960017741 | - | BV Micropilot NMR8x | 3057382 | Yes (pdf) |
| 960017744 | - | NMR81 lead-sealing flange | 3057382 | Yes (pdf) |
| 960017745 | - | Adjustable flange seal | 3057382 | Yes (pdf) |
| 960017751 | - | Conductive pattern layer A3 | 3057382 | Yes (pdf) |
| 960017752 | - | Conductive pattern layer B3 | 3057382 | Yes (pdf) |
| 960017754 | - | Micropilot NMR8x scheme | 3057382 | Yes (pdf) |
| 960017799 | - | Radarbox C / E-Band, Bloc diagram (TB) | 3057382 | Yes (pdf) |
| 960017810 | - | Coax cable, (HF-C-board) | 3057382 | Yes (pdf) |
| 960017811 | - | Coax cable (zone separation) | 3057382 | Yes (pdf) |
| 960017921 | - | Protection foil | 3057382 | Yes (pdf) |
| 960017930 | - | inter-connection cable | 3057382 | Yes (pdf) |
| 960017942 | - | Coax cable C-Band antenna side | 3057382 | Yes (pdf) |
| 960017952 | - | TG-R C-Band Ex d / XP FT cpl. | 3057382 | Yes (pdf) |
| 960017954 | - | TG-R E-Band Ex d / XP FT cpl. | 3057382 | Yes (pdf) |
| 960017980 | - | Circuit diagram HF-C | 3057382 | Yes (pdf) |
| 960017981 | - | Assembly plan Side A HF-C | 3057382 | Yes (pdf) |
| 960017982 | - | Assembly plan Side B HF-C | 3057382 | Yes (pdf) |
| 960017983 | - | Printed circuit board HF-C | 3057382 | Yes (pdf) |
| 960017984 | - | Conductive pattern layer A1 | 3057382 | Yes (pdf) |
| 960017985 | - | Conductive pattern layer A2 | 3057382 | Yes (pdf) |
| 960017986 | - | Conductive pattern layer B2 | 3057382 | Yes (pdf) |
| 960017987 | - | Conductive pattern layer B1 | 3057382 | Yes (pdf) |
| 960018037 | D | Overview approved laser printed adhesive nameplate materials and coatings for aluminum enclosures | RR220881 | Yes (pdf) |
| 960018096 | C | TG-Radar Micropilot NMR8x / IECex / ATEX nameplate | PR458124 | Yes (pdf) |
| 960018109 | - | TG-R MPLT NMR8x device configuration | 3057382 | Yes (pdf) |
| 960018110 | - | Display with device configuration label | 3057382 | Yes (pdf) |
| 960018122 | - | Device configuration label "spare part" list" | 3057382 | Yes (pdf) |
| 960018123 | - | Terminal compartment label | 3057382 | Yes (pdf) |
| 960018127 | A | Tank Gauging Radar NMR8x uses Tank Gauging Platform (TGP) modules | PR450370 | Yes (pdf) |
| 960018516 | - | Glass window E-Band | 3057382 | Yes (pdf) |

| | | | | |
|-----------|---|--|----------|-----------|
| 960018524 | - | Glass feedthrough 6 Ghz | 3057382 | Yes (pdf) |
| 961000238 | A | Circuit diagram HF-E-2 | PR450370 | Yes (pdf) |
| 961000239 | A | Assembly plan Side A HF-E-2 | PR450370 | Yes (pdf) |
| 961000240 | A | Assembly plan Side B HF-E-2 | PR450370 | Yes (pdf) |
| 961000241 | A | Printed circuit board HF-E-2 | PR450370 | Yes (pdf) |
| 961000242 | A | Conductive pattern layer A1 HF-E-2 | PR450370 | Yes (pdf) |
| 961000243 | A | Conductive pattern layer A2 HF-E-2 | PR450370 | Yes (pdf) |
| 961000244 | A | Conductive pattern layer B2 HF-E-2 | PR450370 | Yes (pdf) |
| 961000245 | A | Conductive pattern layer B1 HF-E-2 | PR450370 | Yes (pdf) |
| 961002343 | A | HF-E-2 coupler | PR450370 | Yes (pdf) |
| 961002811 | B | NMR81-Antenna DN50 / DN80 / DN100 / alignment unit | PR458124 | Yes (pdf) |
| 961002812 | A | Assembly waveguide/glass window with adaptor | PR450190 | Yes (pdf) |
| 961002956 | A | Bloc diagram HF-E-2 | PR450370 | Yes (pdf) |
| 961005000 | A | Nameplate lettering, TG-Radar Micripilot NMR8x UK Ex | RR227003 | Yes (pdf) |
| XA02422G | A | Safety Instructions Micripilot NMR81, NMR84 | RR227003 | Yes (pdf) |