

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex CM 20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com



JUMO MIDAS H20 HP

OEM Pressure Transmitter - High Pressure

Applications

- Mobile hydraulics, such as forklifts, harvesters, and construction machinery
- Injection molding machines
- Laundry/cleaning systems
- Welding machines
- Industrial hydraulics

Brief description

The pressure transmitter is used for measuring the pressure of liquid and gaseous media. The product is based on the thin-film measuring principle. The measured pressure is converted into an electrical standard signal of voltage or current and is output via various electrical connections. These include connector variants such as M12, Deutsch DT, Metri-Pack, or AMP. An attached cable and the cable socket are also available.

ECE type approval is available for applications such as those required in mobile hydraulics.

The high degree of resistance to vibration and shock, combined with the high insulation voltage guarantees reliable operation even in difficult conditions. The compact design type of the pressure transmitter provides greater spatial freedom in its use.

Customer benefits

- Impervious to pressure peaks
- Highly resistant to shock and vibration
- Robust product design
- Standard connector variants available
- Can be used in harsh conditions thanks to mechanical and electrical stability
- Welded sensor technology ensures long-term tightness against leaks
- Standardization
- Protection against leaks of oil or other measuring media thanks to high bursting strength
- High accuracy even when used in fluctuating temperature conditions
- Compact design type saves space

Approvals/approval marks



Type 401020 with Metri-Pack connector variant



Type 401020 with AMP connector variant

Special features

- Measuring ranges from 100 to 1000 bar
- Temperature ranges from -40 to +125 °C
- Compact design type from 35 mm in length
- Electric strength of AC 500 V
- Protection types up to IP69K
- ECE type approval

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Technical data

General

Reference conditions	DIN 16086 and DIN EN 60770
Sensor	
Measuring principle	Thin-film technology
Admissible load changes	> 10 million
Position	
Mounting position	Any
Calibration position	Device upright, process connection at the bottom

Measuring range and accuracy

Measuring range bar	Linearity ^a % MSP ^f	Accuracy at			Long-term stability ^b % MSP per year	Overload capacity ^c bar	Burst pressure bar
		20 °C ^d % MSP	-10 to +85 °C % MSP	-20 to +100 °C ^e % MSP			
0 to 100 bar relative pressure	0.5	0.7	1	1.5	≤ 0.2	200	500
0 to 160 bar relative pressure	0.5	0.7	1	1.5		320	800
0 to 200 bar relative pressure	0.5	0.7	1	1.5		400	1000
0 to 250 bar relative pressure	0.5	0.7	1	1.5		500	1250
0 to 350 bar relative pressure	0.5	0.7	1	1.5		700	1750
0 to 400 bar relative pressure	0.5	0.7	1	1.5		800	2000
0 to 600 bar relative pressure	0.5	0.7	1	1.5		1200	3000
0 to 1000 bar relative pressure	1	1.2	1.5	2		1500	3000

^a Linearity according to limit point setting

^b Reference conditions EN 61298-1

^c All pressure transmitters are vacuum proof.

^d Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring range end value

^e Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring range end value, thermal effect on measuring range start and measuring span

^f MSP = measuring span

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Output

Analog output	
Current	
Output 405	4 to 20 mA, two-wire
Voltage	
Output 412	0.5 to 4.5 V, three-wire, ratiometric output 10 to 90 % of the voltage supply
Output 415	0 to 10 V, three-wire
Output 418	1 to 5 V, three-wire
Output 420	1 to 6 V, three-wire
Step response	
T ₉₀	≤ 3 ms
Burden	
Current	
4 to 20 mA, two-wire	$R_L \leq (U_B - 10 \text{ V}) \div 0.02 \text{ A} (\Omega)$
Voltage	
0.5 to 4.5 V, three-wire	$R_L \geq 20 \text{ k}\Omega$
0 to 10 V, three-wire	$R_L \geq 10 \text{ k}\Omega$
1 to 5 V, three-wire	$R_L \geq 10 \text{ k}\Omega$
1 to 6 V, three-wire	$R_L \geq 10 \text{ k}\Omega$

Mechanical features

Process connection material	Stainless steel 304 ^a
Membrane material	Stainless steel 630
Housing material	Stainless steel 304
Electrical connection material	PBT-GF30, PVC, PE
Attached cable (electrical connection 11)	PBT-GF30, PVC, PE
Round plug M12 × 1 (electrical connection 36)	PBT-GF30
Metri-Pack (electrical connection 52)	PBT-GF30
Cable socket (electrical connection 61)	PBT-GF30, PA, silicone
Deutsch DT04 (electrical connection 89)	PBT-GF30
AMP Superseal (electrical connection 77)	PBT-GF30
Weight	55 g (with process connection 521 [G 1/4] and electrical connection 36 [round plug M12 × 1])

^a Pressure transmitters with process connections 521 and 544 are supplied with an FPM seal. Ensure the medium durability of the seal material!

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Environmental conditions

Admissible temperatures	
Electrical connection 11	
Medium	-40 to +125 °C
Environment	-30 to +100 °C
Storage	-30 to +100 °C
Electrical connection 36, 52, 61, 77, 89	
Medium	-40 to +125 °C
Environment	-40 to +100 °C
Storage	-40 to +100 °C
Admissible humidity	
Operation	100 % rel. humidity including condensation on the device outer case
Storage	90 % rel. humidity without condensation
Admissible mechanical load	
Vibration resistance ^a	20 g at 10 to 2000 Hz
Shock resistance ^b	50 g for 11 ms 500 g according to IEC 60068-2-27
Electromagnetic compatibility ^c	
Interference emission	Acc. to DIN EN 61326-1
Interference immunity	Industrial requirement and ECE-R10
Insulation voltage	AC 500 V
Protection type ^d	
Attached cable (electrical connection 11)	IP67/69K
Round plug M12 × 1 (electrical connection 36)	IP67
Metri-Pack (electrical connection 52)	IP67
Cable socket (electrical connection 61)	IP65
AMP Superseal (electrical connection 77)	IP67
Deutsch DT04 (electrical connection 89)	IP67

^a IEC 60068-2-6

^b IEC 60068-2-27

^c EN 61326-2-3

^d EN 60529

Auxiliary energy

Voltage supply U _B ^a	
4 to 20 mA, two-wire (output 405)	DC 10 to 30 V, rated voltage supply DC 24 V
0.5 to 4.5 V, three-wire (output 412)	DC 4.5 to 5.5 V, rated voltage supply DC 5 V, ratiometric output 10 to 90 % of the voltage supply
0 to 10 V, three-wire (output 415)	DC 12 to 30 V, rated voltage supply DC 24 V
1 to 5 V, three-wire (output 418)	DC 9 to 30 V, rated voltage supply DC 24 V
1 to 6 V, three-wire (output 420)	DC 9 to 30 V, rated voltage supply DC 24 V
Current consumption	≤ 30 mA
Reverse voltage protection	Yes, except ratiometric output
Electrical circuit	SELV
Requirements	The device must be equipped with an electrical circuit that meets the requirements of EN 61010-1 with regard to "Limited-energy circuits".

^a Residual ripple: the voltage peaks must not exceed or fall below the specified voltage supply values!

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex CM 20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com



Approvals / approval marks

Approval mark	Test facility	Certificate/certification number	Inspection basis	Valid for
E24	NSAI (National Standards Authority of Ireland)	E24 10R-051971	UN ECE R10	Type 401020

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

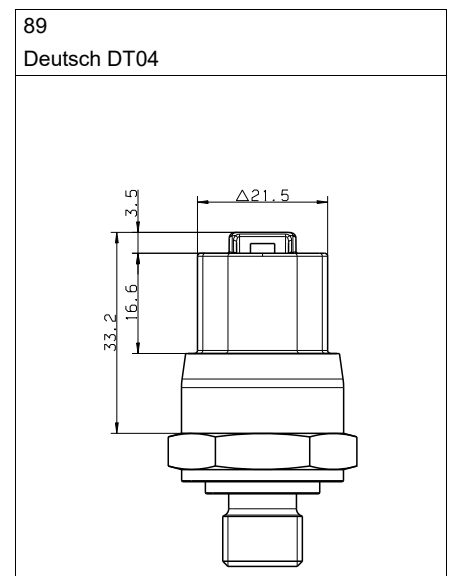
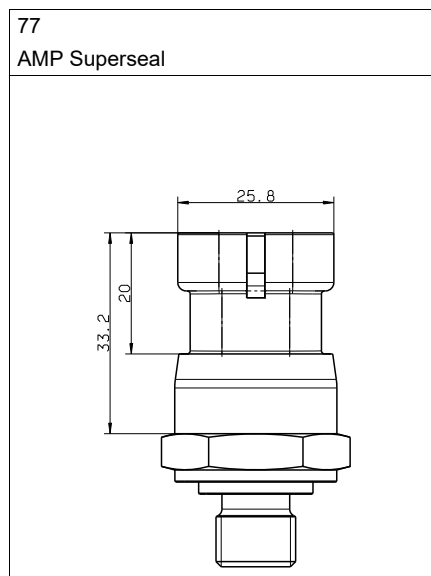
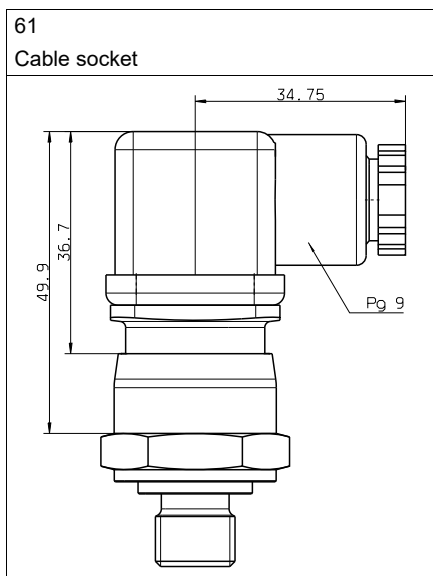
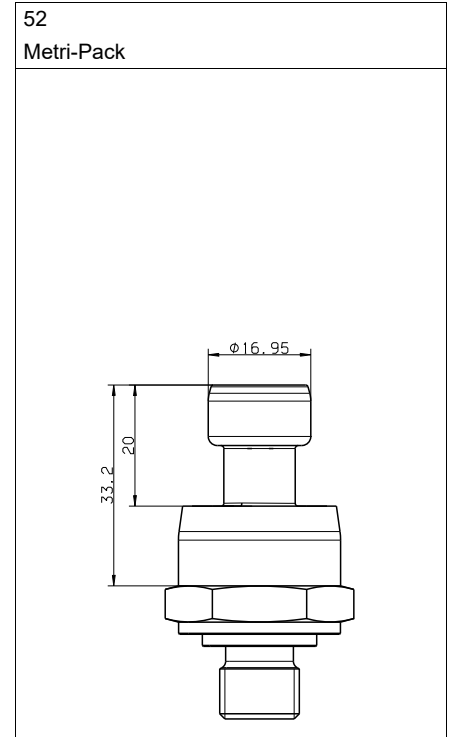
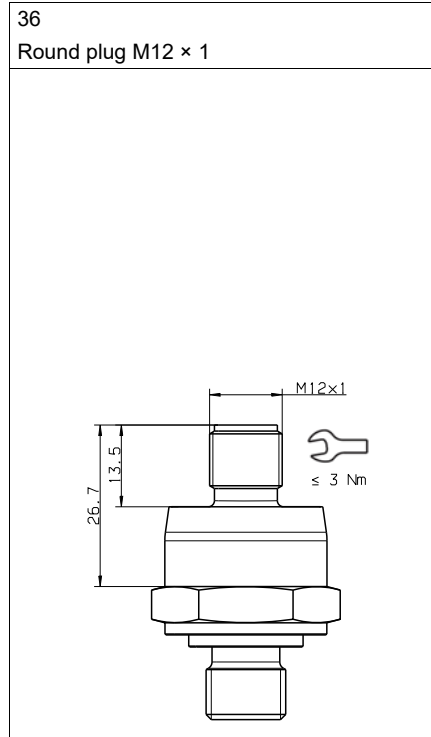
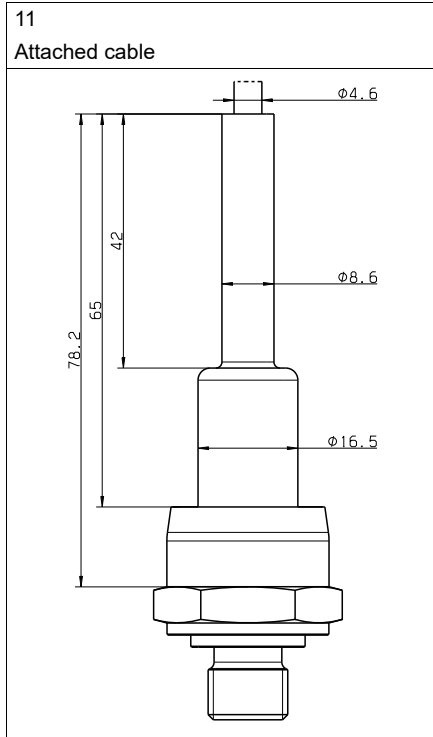
JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Dimensions

Electrical connection



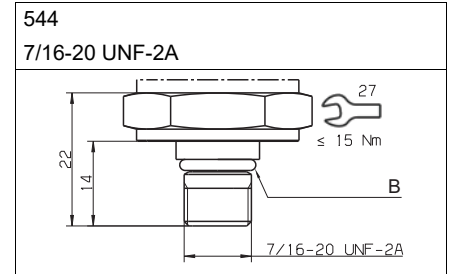
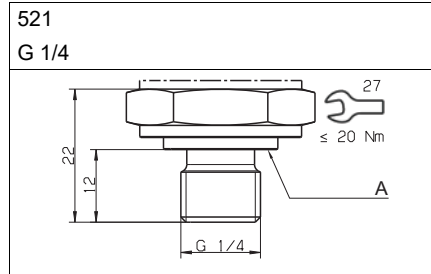
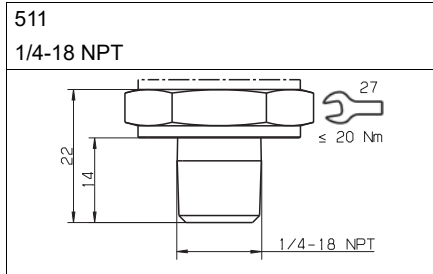
JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Process connection



- A Profile seal G 1/4
- B O-ring

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection only use the installation instructions or the operating manual. The knowledge and the correct technical execution of the safety information/instructions contained in these documents are mandatory for installation, electrical connection, startup, and for safety during operation.

Connection		Terminal assignment ^a					
		11 Attached cable	36 Round plug M12 x 1	52 Metri-Pack	61 Cable socket	77 AMP Superseal	89 Deutsch DT04
4 to 20 mA, two-wire (output 405)							
Voltage supply DC 10 to 30 V	U _B /S+ 0 V/S-	WH BN	1 3	B A	1 2	3 1	A B
0.5 to 4.5 V, ratiometric (output 412)							
Voltage supply DC 4.5 to 5.5 V Ratiometric output 10 to 90 % of the voltage supply	U _B 0 V/S- S+	WH BN GN	1 2 3	B A C	1 2 3	3 1 2	A B C
0 to 10 V, three-wire (output 415)							
Voltage supply DC 12 to 30 V	U _B 0 V/S- S+	WH BN GN	1 2 3	B A C	1 2 3	3 1 2	A B C
1 to 5 V, three-wire (output 418) 1 to 6 V, three-wire (output 420)							
Voltage supply DC 9 to 30 V	U _B 0 V/S- S+	WH BN GN	1 2 3	B A C	1 2 3	3 1 2	A B C
Functional bonding conductor FB ^b		-	4	C ^c		2 ^c	C ^c

^a Figure: Connection to the pressure transmitter

^b The pressure transmitter has to be connected to the potential equalization system of the plant via the electrical connection or process connection.

^c Only for two-wire

Colour coding: connecting cable round plug M12 x 1	1 BN	Brown
	2 WH	White
	3 BU	Blue
	4 BK	Black

The colour coding is **only** valid for A-coded standard cables!



JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 62 50 29
 Email: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 6733 Myers Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
 Internet: www.jumousa.com



Accessories

Item	Description	Part no.
Cable box, straight 	The PVC connecting cable is 2 m in length and has a 4-pin, straight M12 × 1 connector with gold-plated contacts on the device side.	00404585
Cable box, angled 	The PVC connecting cable is 2 m in length and has a 4-pin, angled M12 × 1 connector with gold-plated contacts on the device side.	00409334