

م / طلبية شراء عدادات جريان النفط والغاز

أولاً: نطاق العمل

أدناه نطاق الاعمال المطلوبة لتنفيذ الطلبية آنفة الذكر وفق جدول الكميات والمواصفات الفنية المطلوبة وبمرحلة واحدة.

ثانياً: الوصف العام

طلبية شراء عدادات جريان النفط والغاز ، وحسب المواصفتين القياسيتين (API MPMS, AGA)

ثالثاً: الأجهزة والمعدات

كما مبين في الجدول أدناه:

SECTION 1: DRY GAS FLOWMETER

i. General

Service	Dry gas flow measurement
Quantity	1
Meter Type, Orientation	Inline Ultrasonic , Horizontal
Measuring Method	Ultrasonic, transit time difference
Error	1 % of flow rate or better (See note:3)
No. of Paths	2 (at least)
Meter Size [inch]	6
Tube Material	Stainless Steel or Carbon Steel
Compliance	AGA-9

ii. Process Data

Process Fluid	Dry gas (See note:5)			
Operating Flow Rate [MMSCF/D]:	Min	3	Max	75
Operating Temperature [°C]	Min	-5	Max	65
Operating Pressure [Kg/cm ² (g)]	Min	10.3	Max	103

iii. Flow Transmitter

Display	LCD
Measured and displayed values	Line#1: Volume Flow Rate Line#2: Totalising Volume
Language of Display	English
Mounting Version	Compact
Output Signal	4-20mA HART + Impuls
Supply Voltage	24 DC V
Registration Unit	MMSCF
Material Body/Housing	Stainless Steel or Aluminum
Ingress Protection, Ex. Proof	IP 65, Ex"d"

iv. Other

Integrated pressure transmitter	Required
Integrated temperature transmitter	Required

v. Notes:

- 1) Price Includes;
- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
 - Country of origin certificate ratified by Trade Bureau and Iraqi embassy therein, and accredited calibration certificate, are required for the flowmeter above.
 - (20) m armored power cable.

2) Environmental Data

- Ambient Temperature [$^{\circ}\text{C}$]: ≤ 55 (Under Sunshade) ≤ 80 (Direct Sun Light)
- Barometric Pressure [$\text{Kg/cm}^2(\text{g})$]: 1.01325
- Relative Humidity (%): 5 ... 95

- 3) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.

4) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

5) Gas Compositions

Test	%	الفحص
Methane (C_1) Vol % (min)	75	ميثان % حجم (الادنى)
Ethane (C_2) Vol %	20	ايثان % حجم (الادنى)
Propane (C_3) Vol % (max)	0.5	بروبان % حجم (الادنى)
Butanes Vol % (max)	0.25	بيوتان % حجم (الادنى)
Pentanes and Heavier Vol % (max)	0.25	بنان واثقل % حجم (الادنى)
Nitrogen (N_2) Vol% (max)	1.2	نيتروجين % حجم (الادنى)
Carbon Dioxide (CO_2) Vol % (max)	2.5	ثاني اوكسيد الكربون % حجم (الادنى)
$\text{H}_2\text{S} + \text{COS}$ mg/m^3 (max)	---	كبريتيد الهيدروجين + كبريتيد الكاربونيل (ملغرام/متر مكعب) (الادنى)
H_2S ppmv (max)	4.0	كبريتيد الهيدروجين (جزء بالمليون حجماً) (الادنى)
Mercaptan (RSH) mg/m^3 (max)	15	مركبتان (ملغرام/متر مكعب) (الادنى)
Total Sulfur mg/m^3 (max)	40	محتوى الكبريت (ملغرام/متر مكعب) (الادنى)
H_2O Dew point $^{\circ}\text{C}$ @ 70 bar, (max)	---	H_2O درجة الندى للماء (عند 70 بار) $^{\circ}\text{C}$ (الادنى)
Water Dew point $^{\circ}\text{C}$ @ 40 bar, (max)	-40	درجة الندى للماء (عند 40 بار) $^{\circ}\text{C}$ (الادنى)
Hydrocarbon Dew point (HC) $^{\circ}\text{C}$ @ 70 bar, (max)	---	درجة الندى للهيدروكربونات (عند 70 بار) $^{\circ}\text{C}$ (الادنى)
Hydrocarbon Dew point (HC) $^{\circ}\text{C}$ @ 40 bar, (max)	-36	درجة الندى للهيدروكربونات (عند 40 بار) $^{\circ}\text{C}$ (الادنى)
Mercury (Hg) ng/m^3	10	نسبة الزئبق نانو غرام / متر مكعب
Oxygen (O_2) Vol% (max)	0.1	الاكسجين (حجماً) (الادنى)

No	Item
4	Flow Computer Quantity 1 Type Local Display LCD Displayed values Standard Flow Rate, Standard Totalising Volume Supply Voltage 24 DC V Ingress Protection & Ex Proof IP65,Ex "d" Input/Output Signal Pulse/Freq. x 2 Inputs, Analogue (4-20mA) x 4 Input Pulse x 2 Outputs, Analogue (4-20mA) x 2 Outputs Communication RS485, Modbus RTU Protocol Configuration Software Required
5	Personal Computer Quantity 1 Type Workstation laptop Processor 12 th Gen Intel® Core™ i9 OS Windows 11 Home (genuine) Memory 32 GB Storage 1 TB SSD Display 15.6 inch. display full HD
6	Tools Kit (200 piece) Includes, for example but not limited to: screwdriver set, wrench set, Allen key set, pliers set ... etc.

Notes:

1) Price includes:

- Country of origin certificate ratified by Trade Bureau & Iraqi embassy therein, for items (1,2,3&4).
- Accredited calibration certificates, are required for items (1,2&3) above.
- 365 days of warranty, starting from the date of delivery to the end user & technical compliance.
- (20) m armored power cable.

2) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.

3) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

SECTION 4: AKKAS CONDENSATE FLOWMETER

No.	Technical Specifications
1	<p>i. General</p> <p>Quantity 1</p> <p>Principle Coriolis Mass Flow Meter</p> <p>Line Size [inch] 3</p> <p>Meter Size [inch] 3</p> <p>Mounting Inline</p> <p>Flow Direction Uni-Directional</p> <p>Orientation Horizontal</p> <p>Mass Flow Meter Accuracy $\pm 0.1\%$ of Operating Flow Rate</p> <p>Compliance API MPMS CH5, SEC6</p> <p>Pressure Drop [Kg/cm²(g)] ≤ 0.5</p> <p>ii. Process Design</p> <p>Process Fluid Liquid (see note:3)</p> <p>Flow Rate Range [bbl/day] Min 1000 Max 17000</p> <p>Temperature Range [°C] Min -5 Max 121</p> <p>Pressure Range [Kg/cm²(g)] Min 34 Max 137</p> <p>iii. Flow Transmitter</p> <p>Material Body/Housing Aluminum or SS304</p> <p>Display LCD</p> <p>Language of Display English</p> <p>Measured and displayed values Flow Rate (bbl/h) , Totalising Volume (bbl)</p> <p>Mass to Volume Conversion Direct</p> <p>Output Signals Hart 4-20mA, Pulses/Freq</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p>
2	<p>Pressure Transmitter</p> <p>Quantity 1</p> <p>Accuracy $\pm 0.5\%$ of span</p> <p>Pressure Range [Kg/cm²(g)] Min 34 Max 137</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p> <p>Three Way Valve Required</p>
3	<p>Temperature Transmitter</p> <p>Quantity 1</p> <p>Accuracy $\pm 0.5\%$ of span</p> <p>Temperature Range [°C] Min -5 Max 121</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p>
4	<p>Flow Computer</p> <p>Quantity 1</p> <p>Type Local</p> <p>Display LCD</p> <p>Displayed values Standard Flow Rate, Standard Totalising Volume</p> <p>Supply Voltage 24 DC V</p> <p>Ingress Protection, Ex. Proof IP65, Ex "d"</p> <p>Input/Output Signal Pulse/Freq. x 2 Inputs, Analogue (4-20mA) x 4 Input Pulse x 2 Outputs, Analogue (4-20mA) x 2 Outputs</p> <p>Communication RS485, Modbus RTU Protocol</p> <p>Configuration Software Required</p>

Notes:

(1) Price includes:

- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
- Country of Origin Certificate ratified by Trade Bureau and Iraqi embassy therein, for items (1,2,3&4).
- Accredited calibration certificate, for items (1,2&3) above.
- (20) m armored power cable.

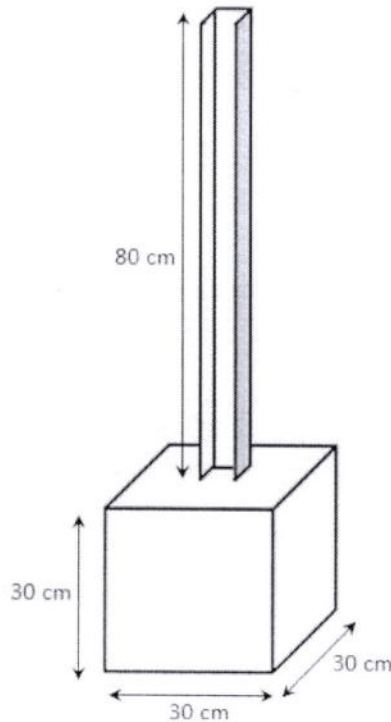
(2) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

(3) Compositions of liquid:

NO.	TEST PRAMETERS	RESULT
1	N2	0.00
2	CO2	0.14
3	H2S	0.00
4	C1	1.24
5	C2	2.87
6	C3	7.03
7	i-C4	2.13
8	n-C4	7.65
9	i-C5	4.43
10	n-C5	6.46
11	C6	13.19
12	C7	16.54
13	C8	11.25
14	C9	10.64
15	C10	8.08
16	C11	8.35
17	C12	0.00
18	C13	0.00

SECTION 5: OTHER REQUIREMENTS

No.	Item	Unit	QTY
1	Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for custody transfer department employees. <u>Notes:</u> a - Training Location: Iraq b - Duration: 5 days c - Price includes, but not limited to: - Accommodation and meals - Domestic travel and transport	Person	4
2	Supply Galvanized Close Type Cable Tray, 50mm x 50 mm, Sheet Thickness: 1.5 mm	m	60
3	Supply concrete cube (30 cm), with (50x50 mm) galvanized U-Channel in the center, as shown in below:	piece	30



رابعاً: المتطلبات

1. شراء وتجهيز عدادات الجريان والمعدات والمواد المذكورة بالفقرة/ثالثاً أعلاه.
2. مدة التسليم (365) يوم.
3. ضمان لمدة (365) يوم لكافة الاجهزة والمعدات، بدءاً من تاريخ تسليم المعدات والمواد للطرف الثاني والمطابقة الفنية.
4. تقديم كتيبات النصب والتشغيل والصيانة لعدادات الجريان أعلاه، وباللغة الانكليزية.
5. شهادة منشأ مصدقة من غرفة التجارة والسفارة العراقية في بلد المنشأ، لكافة العدادات وحواسيب الجريان ومرسلات الضغط والحرارة.
6. شهاد معيرة نافذة ومعتمدة لكافة العدادات ومرسلات الضغط والحرارة.

خامساً: التدريب

برنامج تدريبي على معايرة وصيانة عدادات الجريان (Coriolis, Ultrasonic)، يقدم الى منتسبي قسم قياسات نقل الملكية، وبواقع (4) أشخاص.

ملاحظات:

- موقع التدريب: داخل العراق
- المدة: (5) أيام
- السعر يشمل على سبيل المثال لا الحصر اجور السكن ووجبات الطعام والسفر والتنقل الداخلي.

سادساً: العنوان

شركة نفط الوسط / بغداد / بوب الشام / خلف محطة القدس الحرارية

Sub/Requisition of Oil & Gas Flowmeters Purchase

i. Scope of work:

Below are the required works to execute the aforementioned requisition in accordance with table of quantities and the required technical specification at single-stage bid.

ii. General description:

Requisition of Oil & Gas Flowmeters purchase, according to (API MPMS and AGA).

iii. Equipment and Instruments:

As shown in the table of quantities below:

SECTION 1: DRY GAS FLOWMETER

i. General

Service	Dry gas flow measurement
Quantity	1
Meter Type, Orientation	Inline Ultrasonic , Horizontal
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Error	1 % of flow rate or better (See note:3)
No. of Paths	2 (at least)
Meter Size [inch]	6
Tube Material	Stainless Steel or Carbon Steel
Compliance	AGA-9

ii. Process Data

Process Fluid	Dry gas (See note:5)		
Operating Flow Rate [MMSCF/D]:	Min	3	Max 75
Operating Temperature [°C]	Min	-5	Max 65
Operating Pressure [Kg/cm ² (g)]	Min	10.3	Max 103

iii. Flow Transmitter

Display	LCD	
Measured and displayed values	Line#1: Volume Flow Rate	Line#2: Totalising Volume
Language of Display	English	
Mounting Version	Compact	
Output Signal	4-20mA HART + Impuls	
Supply Voltage	24 DC V	
Registration Unit	MMSCF	
Material Body/Housing	Stainless Steel or Aluminum	
Ingress Protection, Ex. Proof	IP 65, Ex"d"	

iv. Other

Integrated pressure transmitter	Required
Integrated temperature transmitter	Required

v. Notes:

<p>1) Price Includes;</p> <ul style="list-style-type: none"> - 365 days of warranty, starting from the date of delivery to the end user & technical compliance. - Country of origin certificate ratified by Trade Bureau & Iraqi embassy therein, and accredited calibration certificate are required for the flowmeter above. - (20) m armored power cable. 																																																								
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No.	Technical Specifications
1	<p>i. General</p> <p>Quantity 1</p> <p>Principle Coriolis Mass Flow Meter</p> <p>Line Size [inch] 3</p> <p>Meter Size [inch] 3</p> <p>Mounting Inline</p> <p>Flow Direction Uni-Directional</p> <p>Orientation Horizontal</p> <p>Mass Flow Meter Accuracy ±0.1% of Operating Flow Rate</p> <p>Compliance API MPMS CH5, SEC6</p> <p>Pressure Drop [Kg/cm²(g)] ≤0.5</p> <p>ii. Process Design</p> <p>Process Fluid Liquid (see note:3)</p> <p>Flow Rate Range [bbl/day] Min 1000 Max 17000</p> <p>Temperature Range [°C] Min -5 Max 121</p> <p>Pressure Range [Kg/cm²(g)] Min 34 Max 137</p> <p>iii. Flow Transmitter</p> <p>Material Body/Housing Aluminum or SS304</p> <p>Display LCD</p> <p>Language of Display English</p> <p>Measured and displayed values Flow Rate (bbl/h) , Totalising Volume (bbl)</p> <p>Mass to Volume Conversion Direct</p> <p>Output Signals Hart 4-20mA, Pulses/Freq</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p>
2	<p>Pressure Transmitter</p> <p>Quantity 1</p> <p>Accuracy ± 0.5 % of span</p> <p>Pressure Range [Kg/cm²(g)] Min 34 Max 137</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p> <p>Three Way Valve Required</p>
3	<p>Temperature Transmitter</p> <p>Quantity 1</p> <p>Accuracy ± 0.5 % of span</p> <p>Temperature Range [°C] Min -5 Max 121</p> <p>Supply Voltage 24V DC</p> <p>Ingress Protection & Ex. Proof IP65, Ex "d"</p>
4	<p>Flow Computer</p> <p>Quantity 1</p> <p>Type Local</p> <p>Display LCD</p> <p>Displayed values Standard Flow Rate, Standard Totalising Volume</p> <p>Supply Voltage 24 DC V</p> <p>Ingress Protection, Ex. Proof IP65, Ex "d"</p> <p>Input/Output Signal Pulse/Freq. x 2 Inputs, Analogue (4-20mA) x 4 Input Pulse x 2 Outputs, Analogue (4-20mA) x 2 Outputs</p> <p>Communication RS485, Modbus RTU Protocol</p> <p>Configuration Software Required</p>

Notes:

(1) Price includes:

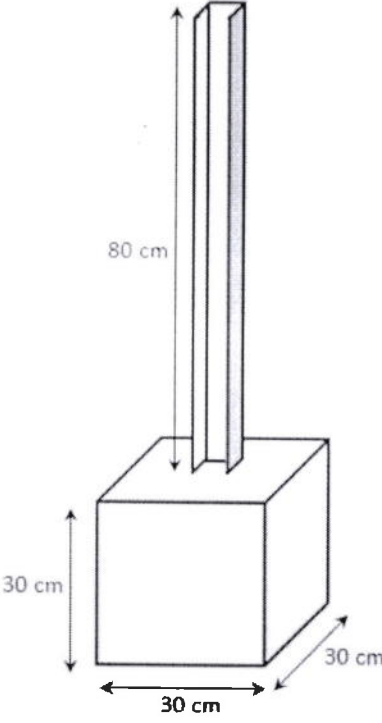
- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
- Country of Origin Certificate ratified by Trade Bureau and Iraqi embassy therein, for items (1,2,3&4).
- Accredited calibration certificate, for items (1,2&3) above.
- (20) m armored power cable.

(2) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

(3) Compositions of liquid:

NO.	TEST PRAMETERS	RESULT
1	N2	0.00
2	CO2	0.14
3	H2S	0.00
4	C1	1.24
5	C2	2.87
6	C3	7.03
7	i-C4	2.13
8	n-C4	7.65
9	i-C5	4.43
10	n-C5	6.46
11	C6	13.19
12	C7	16.54
13	C8	11.25
14	C9	10.64
15	C10	8.08
16	C11	8.35
17	C12	0.00
18	C13	0.00

SECTION 5: OTHER REQUIREMENTS

No.	Item	Unit	QTY
1	Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for custody transfer department employees. <u>Notes:</u> a - Training Location: Iraq b - Duration: 5 days c - Price includes, but not limited to: - Accommodation and meals - Domestic travel and transport	Person	4
2	Supply Galvanized Close Type Cable Tray, 50mm x 50 mm, Sheet Thickness: 1.5 mm	m	60
3	Supply concrete cube (30 cm), with (50x50 mm) galvanized U-Channel in the center, as shown in below: <div style="text-align: center; margin-top: 20px;">  <p>The diagram shows a 3D perspective view of a concrete cube. The cube's height is labeled as 30 cm. The front and right-side edges of the base are also labeled as 30 cm. A galvanized U-channel is mounted on top of the cube. A vertical dimension line indicates that the top edge of the U-channel is 80 cm above the top surface of the cube.</p> </div>	Piece	30

iv- **Requirements:**

- 1- Purchase and Supply the flowmeters, equipment and materials mentioned in Paragraph/3 above.
- 2- Period of delivery: (365) days.
- 3- (365) days of warranty for all instruments and equipment, starting from the date of delivery to the end user and technical compliance for instruments and equipment.
- 4- Supply manuals of (installation, operation and maintenance) for the above-mentioned flowmeters, in English language.
- 5- Country of origin certificate ratified by Trade Bureau and Iraqi embassy therein, is required for (flowmeters, flow computers, PT& TT).
- 6- Accredited and valid calibration certificates are required for (flowmeters, PT and TT)

v- **Training:**

Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for (4) personnel from custody transfer department.

Notes:

- Training Location: Iraq
- Duration: (5) days
- Price includes, but not limited to, accommodation, meals, domestic travel and transport.

vi- **Address:**

Midland Oil Company / Baghdad / Bob Al-Sham / behind Al-Quds Thermal Power Station

5- Test and Engineering Inspection
(Does not include)

5- الاختبار والفحص الهندسي
لا تتضمن

قائمة الاختبارات والفحص الهندسي		
رقم البند	وصف ملخص لكل بند	الاختبار و/أو الفحص الهندسي

List of Tests and Engineering Inspections		
Item No.	Brief Description of each Item	Test and/or Engineering Inspection