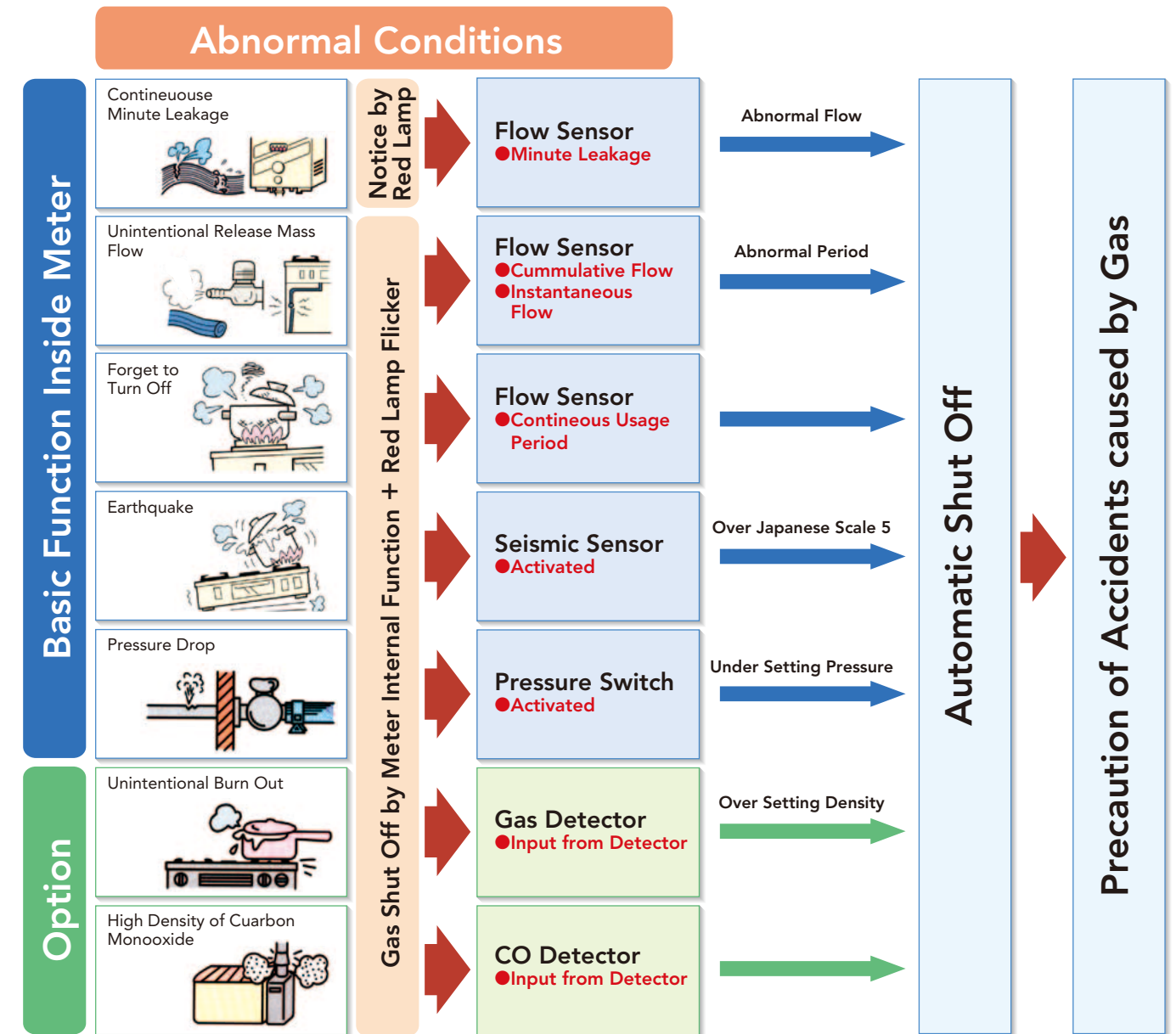


# Gas Meters Regulators

Azbil Kimmon Co., Ltd.

## Precaution and Security Functions of Intelligent Meter



## Calibration Service



### Japan Calibration Service System(JCSS)



Institution of tracability by measurement law is the official system that the concerned government organization certifies the business facility for calibration complies with the national measurement law and the requirements of ISO/IEC17025.

In addition, those certified facilities may be as international facilities where the national organization has mutual recognition agreement with ILAC and/or APLAC .

Kimmon Calibration Center was certified as iLac-MRA-JCSS on 29th July, 2003.






Kimmon Calibration Center certified in accordance with the tracability system by measurement law is not only the unique facility of which calibrates the products by close loop system operating under 90 - 400kPa of absolute pressure in Japan, but also biggest facility in entire Asian Pacific area . Kimmon may issue the official certification with JCSS 0134\*1 logo.




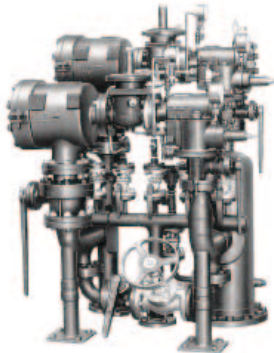

\*1 0134 is Certification Number of this center.




Intended Application	Range of Calibration	Best Measurement Capacity(k=2)
ISO Toroidal-Throat Critical-Flow Venturi Nozzles	Flow : 6 - 750m <sup>3</sup> /h Press : 90 - 400kPa	0.27%
General Flow Meters	Flow : 6 - 1000m <sup>3</sup> /h Press : 90 - 400kPa	0.26%

# Gas Meter Lineup

Category		Low Pressure										
Domain	Household / General Purpose										Commercial	
Model No. Suffix(*1)	1	1.6	2.5	4	6	10	16	25	40	65	100	2.5
Initial Model No.	N											K-CUBE
	NS							NS				
	NB											
Order Model No.	N(*1)		NB(*1)			NS(*1)			NS(*1)			
Type	Basic		Intelligent			Intelligent			Intelligent			Intelligent
Feature	Conventional diaphragm gas meter only for measurement		N-type meter with safety functions(*2) by means of internal micro processor combined with several sensors(seismic sensor, flow sensor and pressure sensor).  Optional gas detector or other safety devises can be added for upgrading human safety.  *2 Emergency shut-off by earthquake, overflow, abnormal continuous flow, low supply pressure, continuous minute flow regarded as internal leakage  Cause of shutdown alarms by flicker and track record can be output to optional setter			NB-type meter with integrated 8 bit letter communication out put for automatic reading via telecommunication network and / or remote reading by optional data collection handy terminal			In addition to function of ordinal NB-type, specialized for commercial building to set parameters for adjusting several characteristics.  LCD indicator available for reading and alarming by letter. Registration of pilot flame not to be regarded as minute flow available up to five points.  Manual shutdown valve mounted			Exclusive for LPG.  Achieved best usability for installation and periodical on site maintenance.  * Compact size and light weight reducing 20% of that of the conventional company products. * Cover plate for terminal block can be opened and closed by one screw. * Magnet touching an prescribed re-entrant point on cover surface enables test / forced shutdown and cylinder reset when remote observation system connected. * LCD indication enables to know current conditions for easy maintenance.
Allowable Fluid	LNG(handling all calories), LPG		LNG(handling all calories), LPG			LNG(handling all calories), LPG			LNG(handling all calories)			LPG
Accuracy	±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)		±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)			±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)			±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)			±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)
Maximum Working Flow(m³/h)	1, 1.6, 2.5, 4, 6, 10, 16, 25, 40, 65, 100		1, 1.6, 2.5, 4, 6, 10, 16			1, 1.6, 2.5, 4, 6, 10, 16			25, 40, 65, 100			2.5
Maximum Working Pressure(kPa)	3.5kPa		3.5kPa			3.5kPa			3.5kPa			2.8kPa ± 0.5kPa
Allowable Working Temperature(°C)	-5°C ~ 60°C		-5°C ~ 60°C			-5°C ~ 60°C -20°C ~ 60°C(option for cold area)			-5°C ~ 60°C			-5°C ~ 60°C
Connection	15mm ~ 80mm		15mm ~ 40mm			15mm ~ 40mm			40mm ~ 80mm			M36
Weight	2.2kg ~ 66kg		2.9kg ~ 11kg			2.9kg ~ 11kg			24kg ~ 74kg			2.3kg
Body	Alminum Die-Cast with powder coating		Alminum Die-Cast with powder coating			Alminum Die-Cast with powder coating			NS-type placed in galvanized steel casing			Alminum Die-Cast with powder coating Plastic Cover for Terminal Block
Indicator	Mechanical Counter Disit:9999.999		Mechanical Counter Disit:9999.999			Mechanical Counter Disit:9999.999			Mechanical Counter Digit:25 = 99999.99 40,65,100 = 999999.9 w / Lithium Battery Operated LCD			Mechanical Counter Digit:9999.999 w / Lithium Battery Operated LCD
Transmitter	Pulse(Optional)		Pulse(Optional)			Pulse(Optional)			8 bit Telegraphic, Pulse(Optional)			5 bit Telegraphic
Rangeability	Not Applicable		Not Applicable			Not Applicable			Not Applicable			Not Applicable
Visual Appearance												

																	Regulator Lineup										
Middle Pressure																	Middle Pressure			High Pressure							
Industrial Plant / Factory / Gas Grid																	Industrial Plant / Factory / Gas Grid										
2.5	6	10	16	100	160	250	400	40	65	100	160	250	400	650	1000	1600	2B	3B	4B	2B	3B	4B	6B	8B			
NNH				QZ				RA				R					Vertical			(*2)ANSI Class 300							
NNH(*1)				QZ(*1)				RA(*1)				R(*1)					Horizontal			(*2)ANSI Class 600							
Diaphragm				Qanto Meter				Roots Meter										N-AFV			HNV						
Factory Assembled Regulator Unit				Low Noise Cage Type Regulator																							
N-type design configuration inside of pressure tight case.				Compact design Flexible installation:Horizontal or Vertical (Flow direction = Bottom to Up) Indicator casing can be 90 degree rotated at site				Actual measurement by inside twin rotor mechanism. High accuracy with low pressure loss enables to use for large volumetric gas transaction and management under wide range gas pressure.										Complete factory assembled package regulator unit(Governer Station)using compact type regulator enables to minimize site installation work and space. Unit is combined regular line and by-pass line as complete 1 + 1S back-up system. Unit is composed of filter, emergency shut-off valve, regulator, pilot, relief valve and manual valves for change-over and/or blocking. For boss low pressure use and middle pressure use, each parts including pipe fittings are same size to enable to replace defective part without any modification, just in case. Easy and quick maintenance work including replacement is convenience for vital 24-7 operation. Custom made available, on request.			* Two step pilot valve configuration enables precise and quick response alike vernier control under huge pressure difference in between. * Pre-pilot valve controlled by secondary pressure supplies a little higher pressure to secondary pilot valve in order to secure controllability of secondary pilot valve. * Secondary pilot valve secures precise control of required secondary pressure. * Three step fine hole cage configuration enables to reduce not alone overall noise, but also high frequency noise even when proximity of complete close position. * Entire top entry foreasy maintenance. * Less than 100 items of component parts. * Special tool not required.						
LNG(handling all calories), LPG, Other Inert Gases				LNG(handling all calories), LPG, Other Inert Gases				LNG(handling all calories), LPG, Other Inert Gases										LNG(handling all calories)			LNG(handling all calories)						
±1.5%(0.05Qmax ~ 0.1Qmax, ±3%)				±1.5%(0.1Qmax and over)				±1.5%(0.1Qmax under ±2.5%)										Not Applicable			Not Applicable						
2.5, 6, 10, 16				100, 160, 250, 400				40	65	100	160	250	400	650	1000	1600	Sizewise over approx. 200 Nm <sup>3</sup>			TBI							
NNH2.5, 6, = 50kPa, NNH10, 16 = 100 kPa				0.99MPa				0,99MPa				0.3MPa					0.99MPa			8.5MPa							
-5°C ~ 60°C				-10°C ~ 60°C				-10°C ~ 60°C										-10°C ~ 60°C			-10°C ~ 60°C						
15mm ~ 40mm				80/100mm = JIS 10K RF				50mm	80mm	100mm	150mm	150mm	200mm	250mm	V - In(Out)	2B(3-8B), 3B(4-10B)			ANSI Class 300 / 600 RF								
				50mm = NPT				JIS 10K FF										H - In(Out)						2B(3-8B), 3B(4-8B), 4B(6-12B)			
2.8kg ~ 12kg				2.0kg ~ 7.4kg				20kg	22kg	41kg	51kg	63kg	140kg	314kg	475kg	750kg	Not Applicable										
Alminum Die-Cast with powder coating				Alminum Alloy				Body:Ductile Cast Iron Rotor:Alminum Cast					Body:Ductile Cast Iron Rotor:Cast Iron					Not Applicable			JIS SCPL1 (Equivalent to ASTM A352LCB)						
Mechanical Counter Disit:9999.999				Lithium Battery Operated LCD Cumulative / Instantaneous Flow Digit:999999.99				Mechanical Counter Digit:999999.9		Mechanical Counter Digit:99999999										Not Applicable			Not Applicable				
Pulse(Optional)				Pulse				Pulse(Optional)										Not Applicable			Not Applicable						
Not Applicable				10:1				20:1										Not Applicable			Not Applicable						
																											

# Options

Visual Appearance	Feature	Specification				
	<p>Commercial Use Automatic Shut Off Valve</p> <p>In case of Earthquake, Gas Leakage and Fire, Controller(VAC)immediately shut off Emergency Shut Off Valve(KCV-II)</p> <p>After shut off, Self-air tight test conducted automatically,</p> <p>Remote observation and operation of valve position available.</p>	KCV-II(Valve) VAC(Controller)				
		<Valve>				
		Connection	20 - 80mm(For LPG 20mm only)			
		Operating Press.	0 - 3.43 kPa			
		Max. Flow	60 m³/h(City Gas), 90 kg/h(LPG)			
		Enclosure	IPX3			
		<Controller>				
		Input	Gas Detector = 2 step Voltage(DC0-6-12V) Optional Device, Seismic Sensor, Valve Open Close = N/O Contact each Gas Low Pressure = N/C Contact			
		Output	Valve Open - Close Trouble Alarm = N/O Dry Contact			
		Power	AC 100V 50/60 Hz			
Household Compound Gas Detector(LNG based city gas)		XW-105G	XW-205G			
	<p>One detector observes boss gas(explosion) and CO(asphyxiation)in one component. Cause of warning(Gas or CO)is indicated by LED. Device trouble and validation are announced by boss lamp and audio warning.</p>	Sensing	Hot Wire Semiconductor			
		Intended Application	City Gas(light than air), CO			
		Gas Alarming Density	1st Step:Approx. 1/100 of Explosion Lower Limit 2nd Step:Approx. 1/4 of Explosion lower Limit			
		CO Alarming Density	Low Density:50 - 300ppm High Density:301 - 500ppm			
		Alarming	Red Color LED Flicker, Buzzing, Audio Warning			
		Power	AC 100V 50/60 Hz			
		Working Atmosphere	0°C - 50°C(w/o Dew Condensation)			
		Output	3 Steps Voltage(DC 0 - 6 -12 -18V)			
		Mounting	Wall	Ceiling		
		Household Gas Detector with output signal(LNG based city gas)		XH-173A	XH-173B	XH-273A
	<p>On XH type, in addition to gas detector, Room air contamination indicated by lighting green and yellowLED alternatly. Where gas leakage, red LED light or flick with audio warning.</p>	Sensing	Hot Wire Semiconductor	Catalytic Combusion		
		Intended Application	City Gas (light than air)	City Gas (any weight)	City Gas (light than air)	
		Gas Alarming Density	1st Step:Approx. 1/100 of Explosion Lower Limit 2nd Step:Approx. 1/4 of Explosion lower Limit			
		Alarming	1st:Red Flicker 2nd:Light&Audio	Red LED light, Audio, buzzing (Contamination=GN, Alternate=YL)		
		Power	AC 100V 50/60 Hz			
		Working Atmosphere	0°C - 50°C(w/o Dew Condensation)			
		Output	2 Steps Voltage(DC 0 - 6 -12V)			
		Mounting	Wall		Ceiling	
		Pulse Transmitter		NDS		
			<p>NDS pluse transmitter is optionally provided with N-type conventional meter including other diaphragm meter. In general, dry contact pulse output use for Building Management System to monitor tenants, kitchen etc. in Commercial building.</p>	Applicable Model	N, NNH	
Configuration	3 wire dry contact pulse, Non explosion proof					
Contact Capacity	2.4 V(Resistant Load)					
Contact Max. Voltage	DC 24V					
Contact Max. Ampare	DC 0.1A					
Applicable Min. Load	DC 1.5V 5μA					
Contact Resistance	100 mΩ or less(Initial)					
Dielectric Strength Vol	AC 300V 1 min.					
Pulse Rate	Qmax≤6m³/h ⇒ 0.1m³/P(0.01m³/P)* 10m³/h≤Qmax≤25m³/h ⇒ 1m³/P(0.1m³/P)* *Option 40m³/h≤Qmax ⇒ 1m³/P					
Cable Length	3 wire(Red, Black, White) 1.5 m Where 2 wire used, Red and Black to be used					
Centralized Reading and billing Panel		KEM6100, 6500				
	<p>For residence complex to reduce manhour with accuracy for reading and billing. Showing reading value and alarm tracking data from 8 bit telegraphic communication inside NS type intelligent meter. Pre-installed printer inside is provided. Where NCU(Network Communication Unit) provided inside as option, automatic meter reading is available through network.</p>	Input	8 bit Telegraphic			
		Display	Room No., Current Reading Value, Alarm			
		Printer	Contents of printing same as displayed items(option)			
		Confirmationable Item	Periodic Reading, Pilot Registration, No Trouble Period			
		Power	AC100V 50/60Hz			
		Size	450mmW x 450mmH x 150mmD			
		Length of Transmit	Max. 200m(Meter - Transmitter) Max. 1000m(Transmitter - This Panel)			
		No. of Connection	1280			
		Remarks	KEM6100: Exclusive for gas meter KEM6500: Complex for Gas, Water, H Water, Calori			

# Company Profile

<b>Initiation</b>	Y 1904 as Kimmon Trading Co., Ltd.
<b>Establishment</b>	Y 1948 as Kimmon Manufacturing Co., Ltd.
<b>Headquarter</b>	1-14-3 Kita-Otsuka, Toshima-ku, Tokyo 170-0004, Japan Otsuka Asami Building
<b>Regional Branch</b>	Sapporo, Sendai, Kiryu, Tokyo, Shizuoka, Osaka, Hiroshima, Fukuoka
<b>Sales Branch</b>	Kushiro, Morioka, Aomori, Fukushima, Akita, Niigata, Nagano, Chiba, Atsugi, Nagoya, Kanazawa, Okoayama, Takamatsu, Kagoshima, Okonawa
<b>R &amp; D Center</b>	Kawagoe
<b>Calibration &amp; Certification Agency ( Gas )</b>	Fukuoka, Fukushima, Karatsu
<b>Calibration &amp; Certification Agency ( Water )</b>	Aomori ( in Aomori Factory as subsidiary )
<b>Manufacturing Hub</b>	Aomori, Fukushima, Wakayama, Karatsu
<b>Capital</b>	315,750,000 JPY ( Approx. 4 M-US\$ at 80JPY = 1 US\$ )
<b>Permanent Employee</b>	Approx. 440
<b>Product Lineup</b>	City Gas Meter, LPG Meter, Water Meter, Oil Meter, Cumulative Calorimeter, Flow Meter, Instruments, Gas Regulator, Household Gas Detector, Water Leakage Detector
<b>Average Sales</b>	Approx. 25.3 B-JPY ( Approx. 32 M-US\$ )

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