



OM-IMP-3595

Rugged Isolated Measurement Pod



\$3245

Complete System
Including Software

- ✓ Rugged Industrial Unit with NEMA-4 Enclosure
- ✓ Isolated Unit Up To 200 Volts
- ✓ 18 Analog Input/ 2 Digital Channels
- ✓ 16-Bit Resolution
- ✓ Measures Voltage, Current, Temperature and Resistance
- ✓ PC Powered – No External Power Supply Needed
- ✓ Menu-Driven Software Included
- ✓ LabView Drivers Included

The OM-IMP-3595 is a multi-channel data acquisition station designed to be remotely operated by a host computer. The host is linked to the OM-IMP by an S-Net cable, which is simply a 2-wire cable up to 4950 feet in length. The S-Net cable is used to convey data to and from the host, and may also be used to run power to the OM-IMP. This reduces cabling hassles and allows flexibility in placement of equipment around manufacturing facilities. This convenient set-up also allows multiple OM-IMP's to be installed in various locations and monitored by a single host computer.



The OM-IMP-3595 is an ideal unit for designers looking for a data acquisition system with the benefits of isolation as well as durability for installation in aggressive industrial environments. Highly accurate 16-bit analog measurement with digital input detection – status, time, frequency, counts – and the facility for external digital output make the OM-IMP-3595 a cost-effective and flexible solution to many data acquisition applications.

The OM-IMP utilizes a S-NET interface board that plugs into an ISA based IBM PC or compatible computer and a rugged external unit. The unit accepts 18 analog and 2 digital inputs with isolation of 500 V between inputs. Should you use multiple OM-IMP's in succession, the isolation is 500 V between units. The OM-IMP-3595 is housed in a NEMA-4 rated aluminum case with a conductive elastomer gasket seal, and it can operate at temperatures of -20 to 70°C (-13 to 167°F), ideal for rugged industrial applications. The entire system can be installed and up and running in half an hour by following a few easy instructions.

The OM-IMP has a large internal memory that ensures that, should the unit lose communications with the host computer or lose power temporarily, no data is lost. An additional safety feature is autonomous alarm checking. Alarm levels on the analog inputs can trigger the digital outputs even if the host PC fails. This is an attractive safety feature for industries with critical applications.

The software package used with the OM-IMP-3595 is called IMPVIEW. IMPVIEW is a fully independent application for OM-IMP's connected to an S-net Interface in your PC. IMPVIEW can be used to configure OM-IMP's, view and log data, create real-time trend or bar graphs, and convert historical data for display on an EXCEL worksheet. IMPVIEW can be used as a diagnostic aid, a tutorial, and as a modest data acquisition system in its own right. IMPVIEW is compatible with the following operating systems: Windows 3.1, Windows for Workgroups (3.11), and Windows '95.

SPECIFICATIONS

General:

Number of Channels

Analog/Status: 18

Smart Digital I/O: 2

Isolation:

OM-IMP to OM-IMP, OM-IMP to S-net, OM-IMP to Ground: 500 V

Channel to Channel:

OM-IMP-3595: 500 V

Power Supply: 10 V to 50 Vdc

Power Feed: via S-net cable or OM-IMP terminals

Power Consumption per

OM-IMP: <1.7 W

Results Returned From All

OM-IMPs On S-Net: <1s

Weight: 5.5 lb (2.5 kg)

Analog/Status (Channels 1-18)

Reed Relay Life: >10⁸ operations

Maximum Signal Measured:

±12 V

Overload Protection,

Continuous: 50 V

Maximum Voltage between

Inputs: 500 V

Channel Crosstalk: < 120 dB

Analog to Digital Converter

(ADC): 16-bits, integrating

Analog Scanner Leakage

Current: <15 nA @ 25 ± 3°C
(77 ± 5°F)

ADC Input Impedance: 10G Ω

Noise Rejection

20 ms/16.7 ms integration:

Normal Mode Rejection,

50 or 60 Hz ± 0.1%: >60 dB

Common Mode Rejection:

dc >140 dB

50 or 60 Hz ± 0.1%

>140 dB

50 or 60 Hz ± 1%

>120 dB

5 ms/4.17 ms/1.25 ms/1.04 ms

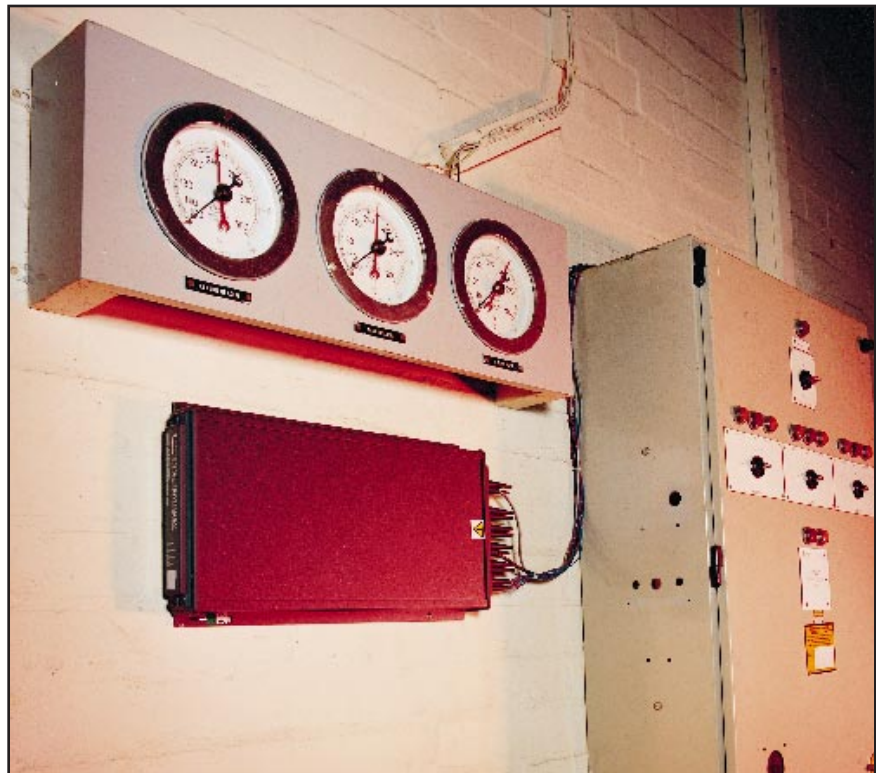
integration:

Normal Mode Rejection,

50 or 60 Hz ± 0.1%: >0 dB

Common Mode Rejection,

50 or 60 Hz ± 0.1%: >80 dB



Universal IMP Channel Functionality

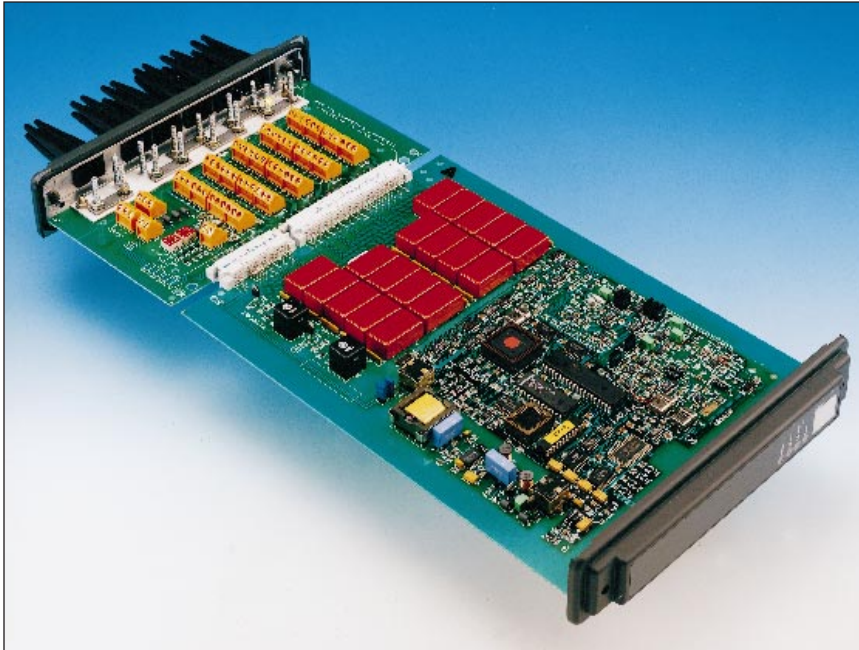
Measurement	Channels	
	1-18	19, 20
Volts dc: 0 ≠ 12 V	✓	
Current dc: 0–20 ma (assumes 100Ω shunt)	✓	
Thermocouple (J,K,T,E,N,R,S,B)	✓	
Thermocouple (user 5th order polynomial)	✓	
Resistance (2/3/4 wire)* 0.5–25kΩ	✓	
RTD/PT100 (3/4 wire)*	✓	
RTD/CU10 (4 wire)*	✓	
Status (TTL, 3/9V, volt free contact)	✓	
Status (TTL, 3/9V)		✓
Frequency		✓
Period		✓
Counting		✓
Digital Output		✓

*Note: 3 and 4-wire measurements use two channels

Thermocouple Input Ranges and Accuracy

Type	Mid Range	Accuracy*	Full Range	Accuracy*
J (Fe/Cu-Ni)	-100 to 350	<0.3	-210 to 1200	<0.7
K (Ni-Cr/Ni-Al)	-100 to 450	<0.3	-200 to 1370	<1.0
E (Ni-Cr/Cu-Ni)	-100 to 250	<0.3	-210 to 1000	<0.5
T (Cu/Cu-Ni)	-100 to 400	<0.3	-200 to 400	<0.5
R (Pt-13%Rh/Pt)	0 to 1600	<1.0	-50 to 1760	<2.0
S (Pt-10% Rh/Pt)	0 to 1760	<1.0	-50 to 1760	<1.5
N (Nicrosil/Nisil)	-180 to 1280	<0.3	-250 to 1300	<0.8
B (Pt-30% Rh/Pt-6%Rh)	400 to 1820	<0.3	80 to 1820	<0.20

*Based on 20 ms/16.67ms integration time



DIGITAL CHANNELS 19 & 20

Isolation Between Channels:

500 V

INPUTS

Voltage Thresholds (0 and 1):

0.8 V and 2.0 V, or 3.0 V and 9.0 V

Maximum Input: 25 V or 100 V

Maximum Input Current:

600 μ A

Input Sample Rates:

20 Hz, 1 kHz, 10 kHz, 100 kHz

(4-sample debounce used on 20 Hz & 1 kHz)

Input Functions:

Status

Frequency: 49 kHz max.

Frequency Gate Times:

0.01 s, 0.1 s, 1 s, 10 s

Period, Resolution: 10 μ s

Periods Averaged:

1, 10, 100, 1000

Single Shot Minimum Width:

10 μ s

Count: (totalize or increment):

24 bits (>16 million)

Outputs:

FET switch (closed on logic 1)

Maximum Withstand: 60 V

Maximum Sink per Channel:

100 mA

DC Voltage

Temperature coefficient: $<(0.0015\% \text{rdg} + 0.2 \mu\text{V}) \text{ per } ^\circ\text{C}$

Range	Full Scale	Resolution	Accuracy*
20 mV	22.000	1 μ V	$\pm(0.02\% \text{rdg} + 5 \mu\text{V})$
200 mV	220.000	10 μ V	$\pm(0.02\% \text{rdg} + 0.01\% \text{fs})$
2 V	2.2000	100 μ V	$\pm(0.01\% \text{rdg} + 0.01\% \text{fs})$
12 V	12.000	1 mV	$\pm(0.05\% \text{rdg} + 0.01\% \text{fs})$

Resistance, 2-wire

Temperature coefficient: $<(0.003\% \text{rdg} + 0.5\Omega) \text{ per } ^\circ\text{C}$

Range	Resolution	Accuracy*
500 Ω	0.125 Ω	$\pm(0.02\% \text{rdg} + 50\Omega + 0.5\% \text{fs})$
25 k Ω	1.25 Ω	$\pm(0.02\% \text{rdg} + 50\Omega + 0.01\% \text{fs})$

RTD (10 Ω copper), 4-wire only

Temperature coefficient: $<0.02^\circ\text{C per } ^\circ\text{C}$

Range	Resolution	Accuracy*
-100 to 150 $^\circ\text{C}$	0.1 $^\circ\text{C}$	$\pm 0.3^\circ\text{C}$

Resistance, 3-wire

Temperature coefficient: $<(0.003\% \text{rdg} + 0.3 \Omega) \text{ per } ^\circ\text{C}$

Range	Resolution	Accuracy*
1.5 k Ω	0.125 Ω	$\pm(0.02\% \text{rdg} + 0.2 \Omega + 0.017\% \text{fs})$
25 k Ω	1.25 Ω	$\pm(0.02\% \text{rdg} + 0.2 \Omega + 0.01\% \text{fs})$

Resistance Thermometer Device (100 Ω platinum)

4-wire Temperature coefficient: $<0.03^\circ\text{C per } ^\circ\text{C}$

Range	Resolution	Accuracy*
-200 to 490 $^\circ\text{C}$	0.1 $^\circ\text{C}$	$\pm 0.4^\circ\text{C}$
490 to 600 $^\circ\text{C}$	0.2 $^\circ\text{C}$	$\pm 1.2^\circ\text{C}$

Resistance, 4-wire

Temperature coefficient: $<0.003\% \text{rdg per } ^\circ\text{C}$

Range	Resolution	Accuracy*
25 Ω	1.25 m Ω	$\pm(0.03\% \text{rdg} + 6 \text{ m}\Omega)$
250 Ω	12.5 m Ω	$\pm(0.02\% \text{rdg} + 0.01\% \text{fs})$
2.5 Ω	0.125 Ω	$\pm(0.02\% \text{rdg} + 0.01\% \text{fs})$
25 k Ω	1.25 Ω	$\pm(0.02\% \text{rdg} + 0.04\% \text{fs})$

*All accuracies based on 20 ms/16.67ms integration time

ENVIRONMENT

Storage Temperature:
-25 to 75°C (-13 to 167°F)
Operating Temperature:
-20 to 70°C (-4 to 158°F)
Humidity, at 40°C non-condensing: 95%
Vibration, operating for 2 hours:
5g, 11Hz to 500Hz

DIMENSIONS

Length: 18.5" (470 mm)
Plus 1.9" (48 mm) for rubber boots
Width: 9.8" (250 mm)
Height: 1.9" (48 mm)
Weight: 5.5 lb (2.5 kg)

UNIVERSAL OM-IMP PACKAGING

Sealed aluminum casing to NEMA- 4 rating

Digital Input Counting (per channel)

Sample Rates Count Parameters:	20 Hz	1 kHz	10 kHz	100 kHz
Maximum Frequency	2.4 Hz	124 Hz	4.9 Hz	49 kHz
Maximum Period	400 ms	8 ms	200 µs	20 µs
Resolution of Period	50 ms	1 ms	100 µs	10 µs
Counts Max. Rate	2.4/s	124/s	4900/s	15,000/s

Values assume square wave with a 50% duty cycle

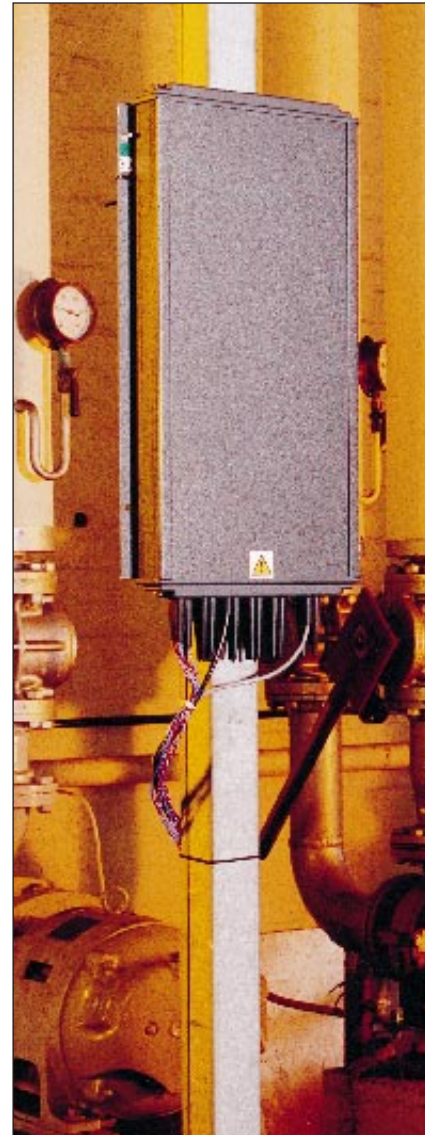
Frequency (assumes sample rate of 100 kHz)

Gate Time:	10 ms	100 ms	1 s	10 s
Min. Frequency	100 Hz	10 Hz	1 Hz	0.1 Hz
Resolution	100 Hz	10 Hz	1 Hz	0.1 Hz
Accuracy	±(0.005%rdg + resolution)			

Period (assumes sample rate of 100 kHz)

Periods Averaged	1	10	100	1000
Resolution	10 µs	1 µs	0.1 µs	0.01 µs
Accuracy	±(0.005%rdg + Resolution)			

Period measurements have a programmable time-out applied. The time-out must be at least double the expected period. Time-outs of 200 ms, 2 s, 20 s and 50 s are available. The maximum period is therefore 25 s. Period measurements greater than 25 s should use the Event Capture mode. All Limits of Error assume an equal mark/space ratio.



To Order (Specify Model No.)

Model No.	Price	Description
OM-IMP-Kit	\$3245	OM-IMP Starter Kit
OM-IMP-3595	2240	Multi-Channel Data Acquisition System (Included with Starter Kit)
OM-IMP-3595-3J	350	Connector Block (Included with Starter Kit)
OM-IMP-3595-4B	795	S-Net Interface Card, (Included with Starter Kit)
OM-IMP-35957-4A	195	ImpView Windows Software (Included with Starter Kit)
OM-IMP-35957-5A	195	LabView Driver Package (Included with Starter Kit)

OM-IMP-KIT Starter Package includes: OM-IMP-3595 data acquisition system, OM-IMP-3595-3J Connector Block, OM-IMP-3595-4B SNET Interface Card, OM-IMP-35957-4A Impview Windows Starter Software, OM-IMP-35957-5A LabView Driver Package and complete operator's manual.
Ordering Example: OM-IMP-KIT, \$3245