

# iSTAT i500 Single Phase



## High Performance Transducer

i500 single phase transducers are high accuracy configurable transducers designed to meet the requirements of the high and medium voltage utility and low voltage industrial markets throughout the world

## High Performance Transducer Family

With a wide range of analog, digital and communications options the i500 single phase transducers can be used in many applications, from a simple analog transducer through to a network connected ethernet transducer connected to a SCADA.

High sampling rates and true rms measurement give accurate readings under all harmonic conditions. Measurement accuracy better than 0.2% and Class 0.5S Energy are suitable for all applications

The DIN rail mounting case is available with utility grade ring or pin terminals and when combined with the I/O options available, most requirements can be met from one transducer family.

- The iSTAT i500 can be used as an analog transducer or as a communicating transducer, or both at the same time.
- The iSTAT i500 has fully programmable input scaling, which can be set to match any site application for single phase installations.
- The iSTAT i500 has fully programmable I/O and can produce any required output function and scaling.
- The iSTAT i500 has multiple communications port options: RS232, RS485, Ethernet and USB - allowing it to be engineered into most applications.
- The iSTAT i500 has multiple protocols allowing configuration to MODBUS RTU and MODBUS TCP based systems to interface with a wide range of RTUs and SCADA systems.
- The iSTAT i500 uses the QDSP setting software that is used across the entire range of programmable measurement products supplied by GE.

## Key Benefits

- High accuracy
- Easily configured
- Multiple I/O options
- Multiple communications options
- Multiple protocols
- Connector options

Features

Benefits

Configurable transducer for use in single phase applications	All single phase applications can be fulfilled using a small number of transducer types.
0.2% measurement accuracy, true RMS	High accuracy measurements of any electrical network regardless of distortion.
Class 0.5S energy measurement combined with energy pulse outputs	Able to perform high accuracy energy measurement.
Up to 2 isolated analog outputs can be fitted	Analog outputs for up to two measurement quantities can be supplied from the same transducer thus reducing the number of devices required.
Auto-range voltage and current inputs, up to 500 V and 5 A	Easy to specify the transducer for any application, including when full details are not available.
RS232, RS485, Ethernet and USB communications	Communications ports available increase system design options.
MODBUS RTU and TCP protocols	Multiple protocols allow connections to most remote energy management systems.
Digital inputs and alarm outputs	Digital I/O increases the range of applications that the transducers can be used for.
Two ranges of Universal Power Supply	Power supply option to suit all site requirements.
Configuration using QDSP software	Easy to use software allowing fast configuration of transducers.
Wide operating temperature range -30...70°C	Suitable for installation in many environments.
Two versions available with ring and pin terminations	The customer's preferred terminations can be met within the same transducer range.
Watchdog output option	The operational status of the transducer is always known via a hard-wired output.

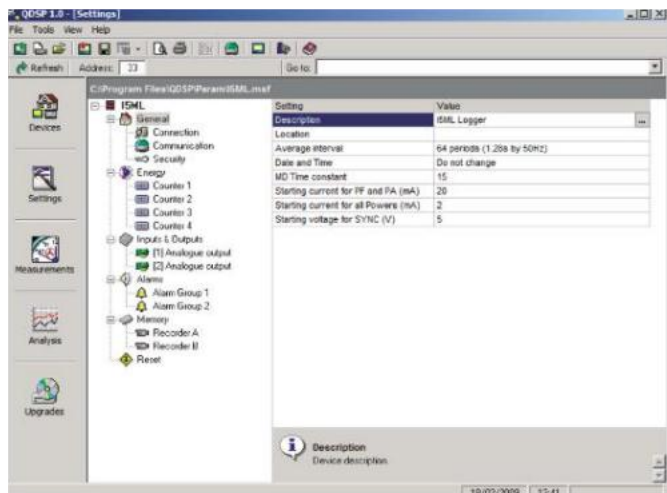


Figure 2: QDSP setting software.

QDSP Setting Software

The iSTAT i500 single phase transducers use the same QDSP setting software that is used across the range of programmable iSTAT measurement products supplied by Grid Solutions.

Simple to fit, set and connect  
 Advanced functionality  
 Economical

## Features

The iSTAT i500 single phase transducer includes the following:

- Power accuracy class 0.2
- Energy class 0.5S,
- 16 adjustable alarms,
- Wide frequency range from 16 Hz to 400 Hz that allows use in many applications: 16 2/3 Hz (Railway), 50/60 Hz (Electrical Networks) or 400 Hz (Marine/Airport).

## User-friendly Design

Connection is simplified by the use of auto-ranging on voltage and current input circuits and configuration using QDSP setting software. The CT and VT secondary values do not need to be specified at the time of order as these are configured within the i500 single phase transducers. The auto-ranging allows connection to any nominal secondary values up to 500 V. The i500 single phase transducer is rated for connection to either 5 A or 1 A CT secondaries.

To meet all of the AC or DC auxiliary voltage supplies that are found in substations, there is the option of 2 universal power supplies with different ranges.

<b>HIGH RANGE</b>	80 - 276 Vac, 70 - 300 Vdc
<b>LOW RANGE</b>	45 - 77 Vac, 19 - 70 Vdc



Basic Measurements	i5ML	i5MS	i5MV	i5MC
Voltage U1	•	•	•	
Current I1	•	•		•
Active power P1	•	•		
Reactive power Q1	•	•		
Apparent power S1	•	•		
Power factor PF1	•	•		
Power angle	•	•		
THD of phase voltage Uf1	•	•	•	
THD of phase current I1	•	•		•
Frequency	•	•	•	•
Date & Time	•			
MD	•	•	•	•
Energy counters	•	•		

### Energy Management

The i5MS and i5ML can operate as energy counters with four energy counters that can be selected from all four quadrants.

### Inputs and Outputs

The i500 single phase transducers can be fitted with two I/O modules, which are fully isolated from each other and all other circuits and can be fitted with various options.

I/O Options	Quantity	Position	Specification
Alarm output	2 outputs	either I/O	48 V AC/DC @ 200mA max.
Analog output	2 outputs	either I/O	Fully programmable ± 20mA, ± 10V
Watchdog output	2 outputs	either I/O	48 V AC/DC @ 200mA max
Pulse output	2 outputs	either I/O	40 V AC/DC 30mA
Digital input	2 inputs	either I/O	48 V AC/DC (+ 40% max.)

### Communications

The i500 single phase transducers are communicating transducers and are always supplied fitted with at least one communications port. The communications port is used for programming the transducer using QDSP software in addition to any connection required for the application. All measurements and calculated values are available for download.

A number of communications ports are available.

#### COM PORT

1	RS232/RS 485	Both options on one DB9 connector. In addition the RS485 connections are available via terminals. The 2 options cannot be connected at the same time.
1	Ethernet	RJ-45 connector
1	USB	USB-B connector

There are a number of communication configurations that can be defined to suit the application.

Configuration	COM1A	COM1B
1	RS232/485	/
2	USB	/
3	Ethernet	USB

There are a number of communication configurations that can be defined to suit the application.



Advanced communications options:  
Serial, Ethernet and USB, MODBUS  
RTU or TCP

## i500 Single Phase range of transducers

There are four products in the i500 single phase product range, as shown in the table below.

Applications	i5MV	i5MC	i5MS	i5ML
Voltage and/or current measurements	•	•	•	•
Power measurements			•	•
Energy metering			•	•
Programmable alarms	•	•	•	•
Measurement / Alarm recorder				•

### i5MV Voltage Transducer

The transducer is used for monitoring and measuring the voltage and frequency of single phase electrical power distribution systems. The meter is provided with 16 program adjustable alarms, 1 or 2 input or output modules and communications. With the RS232/ RS485, Ethernet or USB communications, the meter can be set and measurements can be checked.

### i5MC Current Transducer

The transducer is used for monitoring and measuring the current and frequency of single phase electrical power distribution systems. The meter is provided with 16 program adjustable alarms, 1 or 2 input or output modules and communications. With the RS232/ RS485, Ethernet or USB communications, the meter can be set and measurements can be checked.

### i5MS Multifunction Transducer

The transducer is used for monitoring and measuring electric quantities of single phase electrical power distribution systems. From the measured values quantities are calculated i.e. voltage, current, frequency, energy, power, power factor, THD phase angles, etc.

The meter is provided with 16 program adjustable alarms, 1 or 2 input or output modules and communications. With the RS232/RS485, Ethernet or USB communications, the meter can be set and measurements can be checked.

### i5ML Communicating Network Recorder

The transducer is used for monitoring, measuring and recording measurements of electric quantities of single phase electrical power distribution systems.

The i5ML measures all the same parameters as the i5MS and up to 16 measurements and up to 16 alarms can be recorded in the internal 8MB memory. The memory is separated into two sections for measurements (A and B) and one section for recording alarms. The memory division is defined by the user. The memory can be managed between the two data recorders via the QDSP professional software.

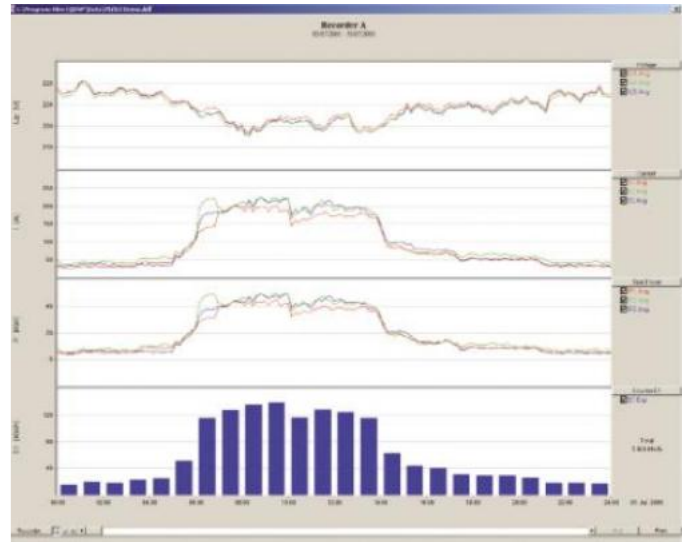
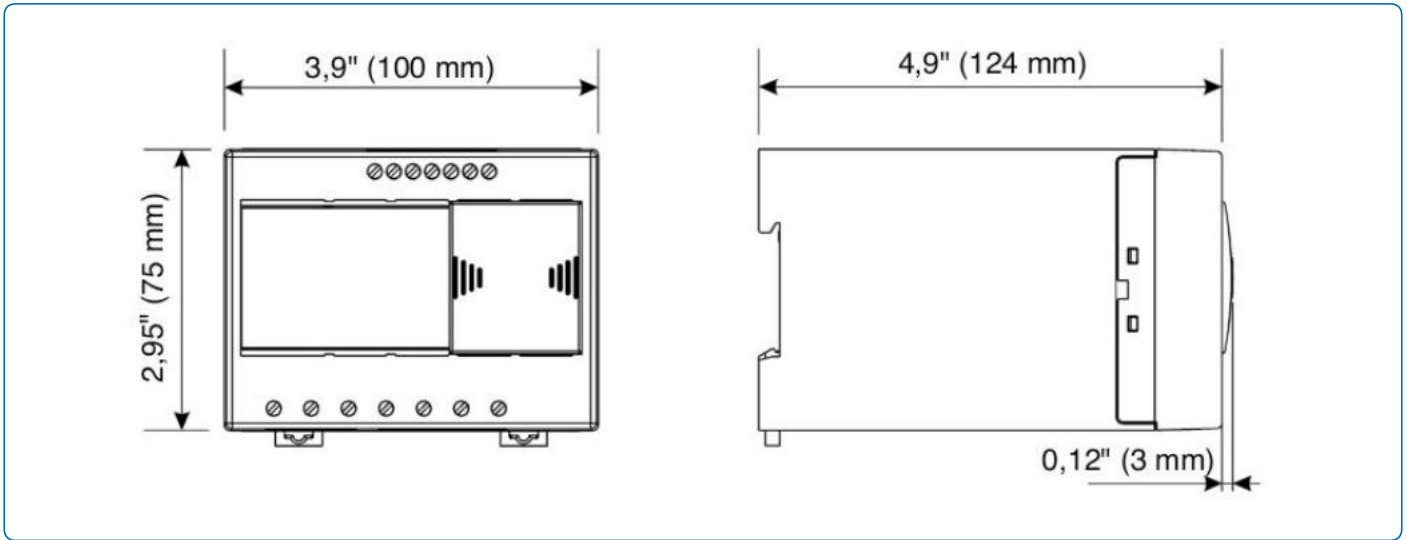


Figure 3 Network recorder trend data

**Order Guide - Single Phase - i500 Transducers**

<b>Model Type</b>	<b>i5M</b>	<b>?</b>	<b>X</b>	<b>2</b>	<b>?</b>	<b>?</b>	<b>N</b>	<b>C</b>	<b>?</b>	<b>?</b>	<b>N</b>	<b>N</b>	<b>?</b>	<b>X</b>
Single Phase Current Transducer		C												
Single Phase Voltage Transducer		V												
Single Phase Multifunction Transducer		S												
Single Phase Multifunction Transducer + Recorder		L												
<b>Electrical Network</b>														
Menu configurable			X											
<b>Accuracy</b>														
Class 0.2% Measured values (Class 0.5S Active Energy)				2										
<b>Universal Power Supply</b>														
Universal High Voltage (80-276 V ac, 70-300 V dc)								H						
Universal Low Voltage (45-77 V ac, 19-70 V dc)								L						
<b>Communications COM1</b>														
Serial (RS232/RS485) DB9, (RS485) Terminals													1	
USB (type B)													3	
Ethernet (RJ45) + USB (type B)													4	
<b>Protocol</b>														
MODBUS									C					
<b>Input/Output I/O 1</b>														
Not fitted													N	
Alarm Output (48 Vac/dc @ 200mA Max)													A	
Analog Output													L	
Watchdog (48 Vac/dc @ 200mA Max)													W	
Pulse Output (40 Vac/dc @ 30mA Max) [not i5MC/MV]													P	
Digital Input (48 Vac/dc)													D	
<b>Input/Output I/O 2</b>														
Not fitted													N	
Alarm Output (48 Vac/dc @ 200mA Max)													A	
Analog Output													L	
Watchdog (48 Vac/dc @ 200mA Max)													W	
Pulse Output (40 Vac/dc @ 30mA Max) [not i5MC/MV]													P	
Digital Input (48 Vac/dc)													D	
<b>Input Terminals</b>														
Ring Terminals														R
Pin Terminals														P
<b>Factory Allocated</b>														
														X
<b>QDSP Software</b>														
QDSP Professional Edition for data logging ENSO160					Q	S	D	P	-	P	R	0		

## Dimensions



i500 single phase transducers  
Flexible I/O options  
Analog, alarm and digital inputs  
Individually selectable and isolated

- iSTAT – the standard measurement platform
- Multifunction transducer measurement
- Simple to install, simple to set, simple to connect
- Advanced functionality
- Economical

For more information please contact  
GE  
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### **Worldwide Contact Center**

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