DATASHEET

- Monitor and control your remote assets securely via any web browser.

- Compatible with the Data2Desktop web service.

- ISaGRAF 61131-3 ready (order CC030A-URTT to activate)

- 4 hour integrated battery backup

- 8 software configurable inputs/outputs.

- 2 serial ports (1 x RS232/485 + 1 x RS485)

- 1 microLAN sensor bus

Data2Desktop
Everything communicates COMPATIBLE

FEATURES

- **85-264Vac or 9-30Vdc powered with battery backup**
- **microSD Memory Card slot for data-logging**
- **Up to 32 microLAN sensors**

- **Integral Real-Time Clock**
- **Wide temperature range for outdoor applications**
- **Standard 9 module DIN 43880 size**

Overview

The Teleterm D3 is a state-of-the-art programmable Remote Terminal Unit (RTU) designed for remote monitoring and control applications using the Data2Desktop web based service.

Communications options include GSM, 3G UMTS, CDMA, licence-free Radio in a number frequency bands, Conet Industrial LAN for use over existing plant cabling, and RS232 and RS485 serial.

Programmable

By integrating the optional ISaGRAF, IEC61131 PLC programming, local control can be implemented within the RTU, making cost effective remote monitoring and control solutions. Order CC030A-URTT to activate IEC61131 programming.

The Teleterm D3 comes with 8 universal Inputs/Outputs that can be configured to be analogue inputs, digital inputs or digital outputs.

Two Serial Ports

Two on board serial ports can be used to send and receive data from third party devices using the Modbus protocol. For example, one port can be used to interface to a local HMI (touch screen) for local control and monitoring, and the second port can be used to communicate with a pump controller or variable speed drive. By downloading a custom software protocol "plug-in" other third party devices can also be connected for remote monitoring or control.

microSD Card Slot

The Teleterm D3 also accepts a plugin microSD memory card to support local data logging.

Ethernet Port

The Teleterm D3 has a 10/100 Ethernet Port (RJ45) for further integration with other devices over Modbus/TCP.

microLAN (1-wire) sensor bus

A microLAN sensor bus is incorporated to directly access temperature and humidity sensors for cost effective refrigeration and environmental monitoring applications.

TYPICAL APPLICATIONS

- ✓ Remote Pump Start/Stop Control
- ✓ Environmental Monitoring
- ✓ Remote Tank Level Monitoring
- ✓ Remote Meter Reading
- ✓ Temperature Monitoring
- ✓ Water Flow and Quality monitoring
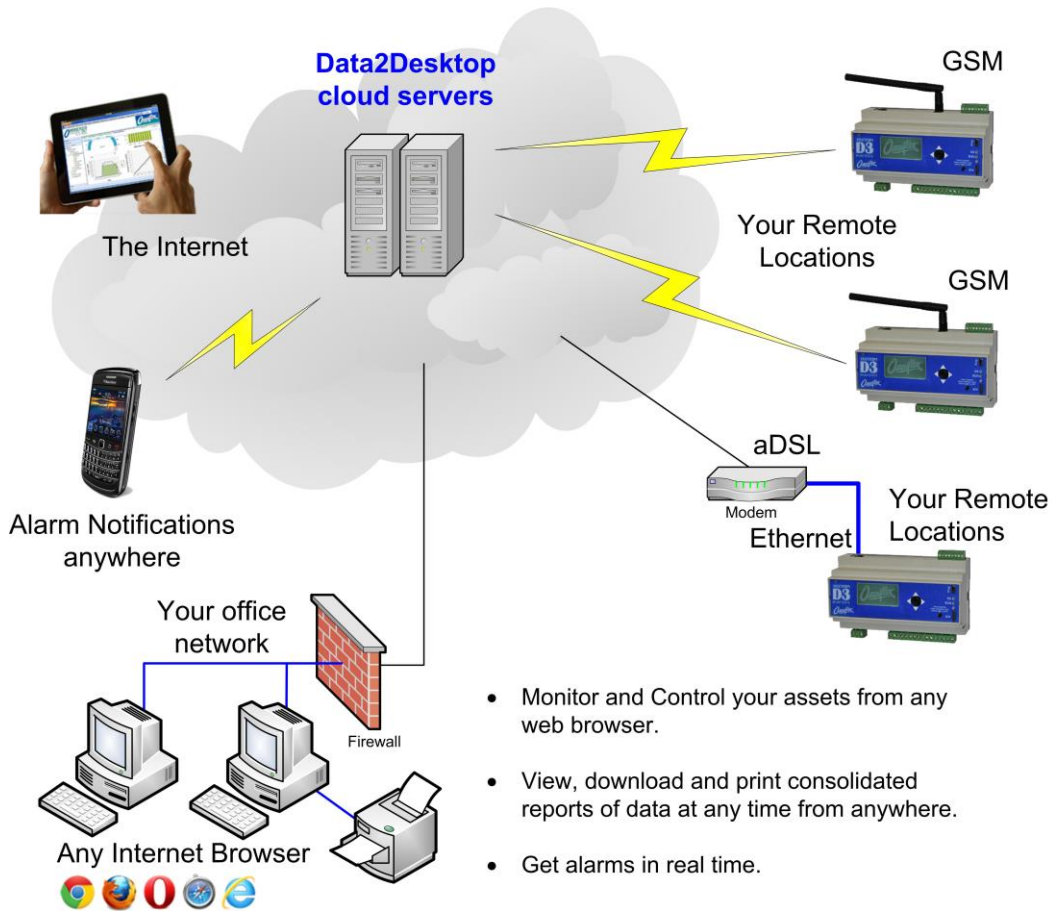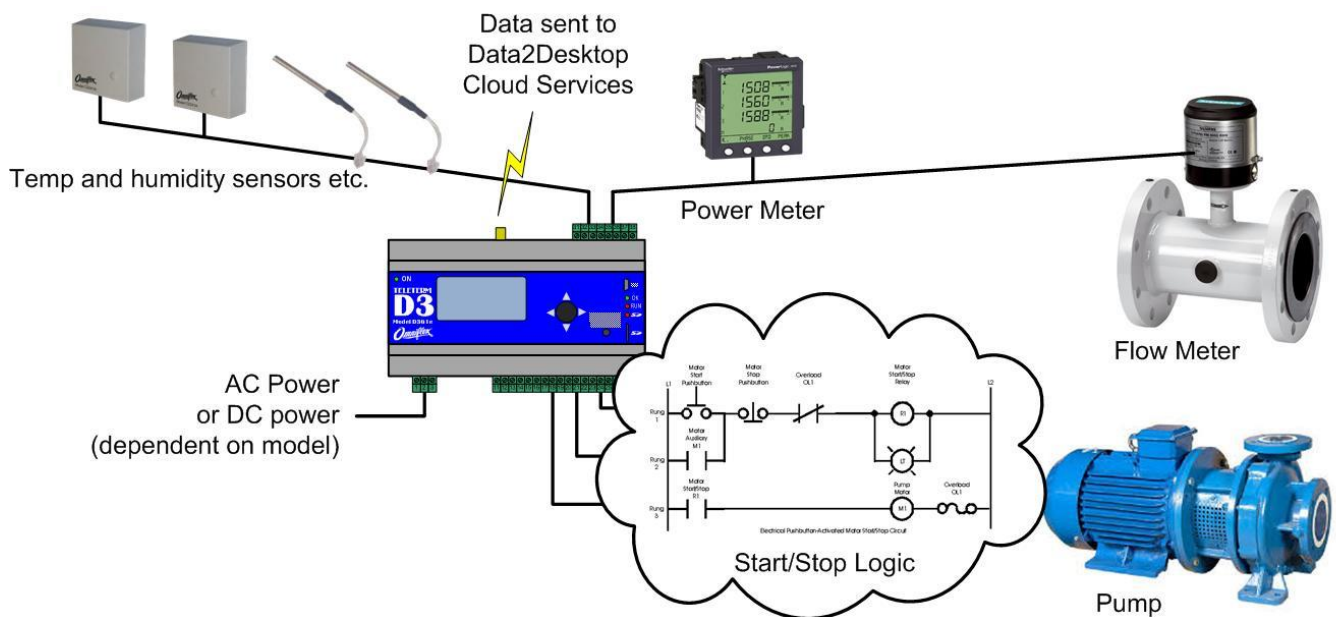- ✓ Computer Room Monitoring

Omniflex ®

Easily monitor and control your remote assets

- Monitor and Control your assets from any web browser.

- View, download and print consolidated reports of data at any time from anywhere.

- Get alarms in real time.

Typical Application – Pump Control

General Layout

RJ45 Ethernet

Antenna

microLAN Sensor Bus
RS485 Serial Port
RS232/485 Serial Port

Graphic Display

ON

TELETERM
D3
Model D3G1e
Omniflex

Press button then remove card only when light is off

USB Program Port

OK
RUN

microSD Card

85-264Vac or 9-30Vdc
Power input
(dependent on model)

8 Inputs/Outputs
(Analogue/Digital)
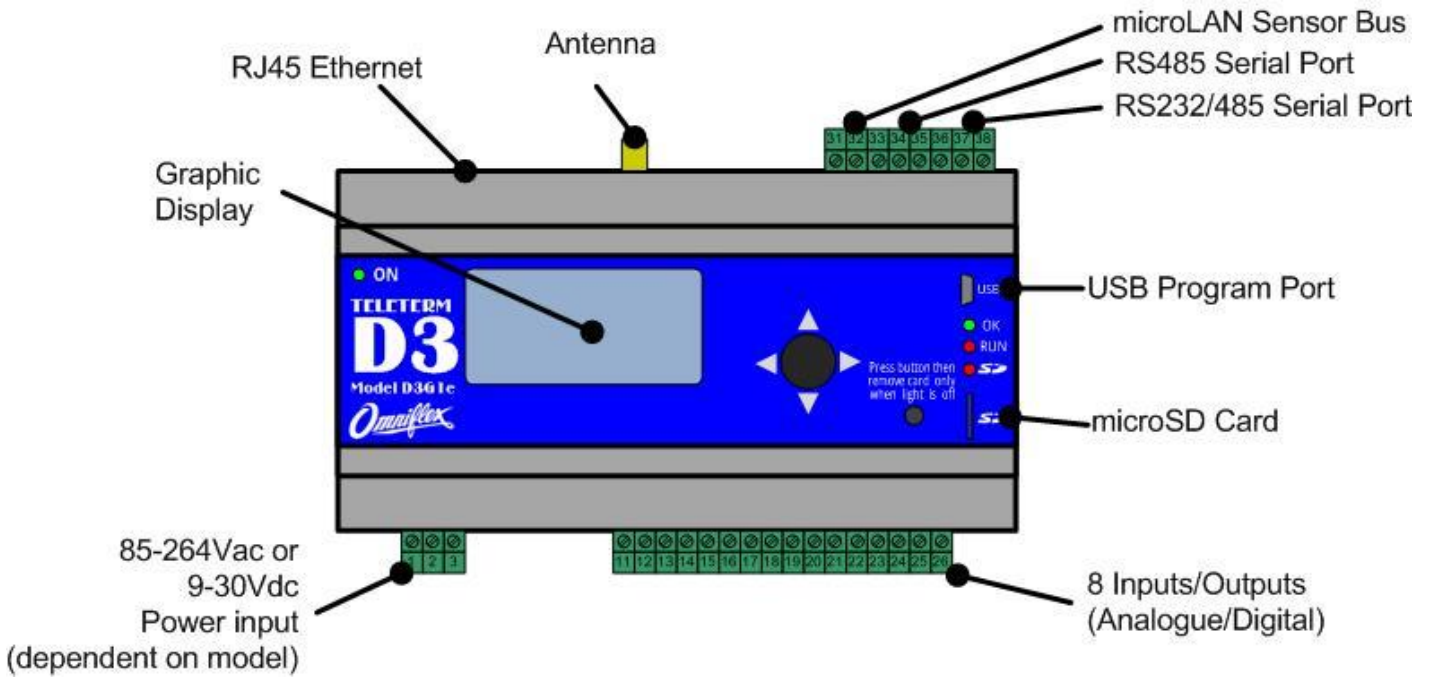
Mechanical Dimensions

Front cover

60
46,1

Top part

Snap-fit both sides
(push for releasing top part)

60
58
49
29

43

5

86

Base part

157
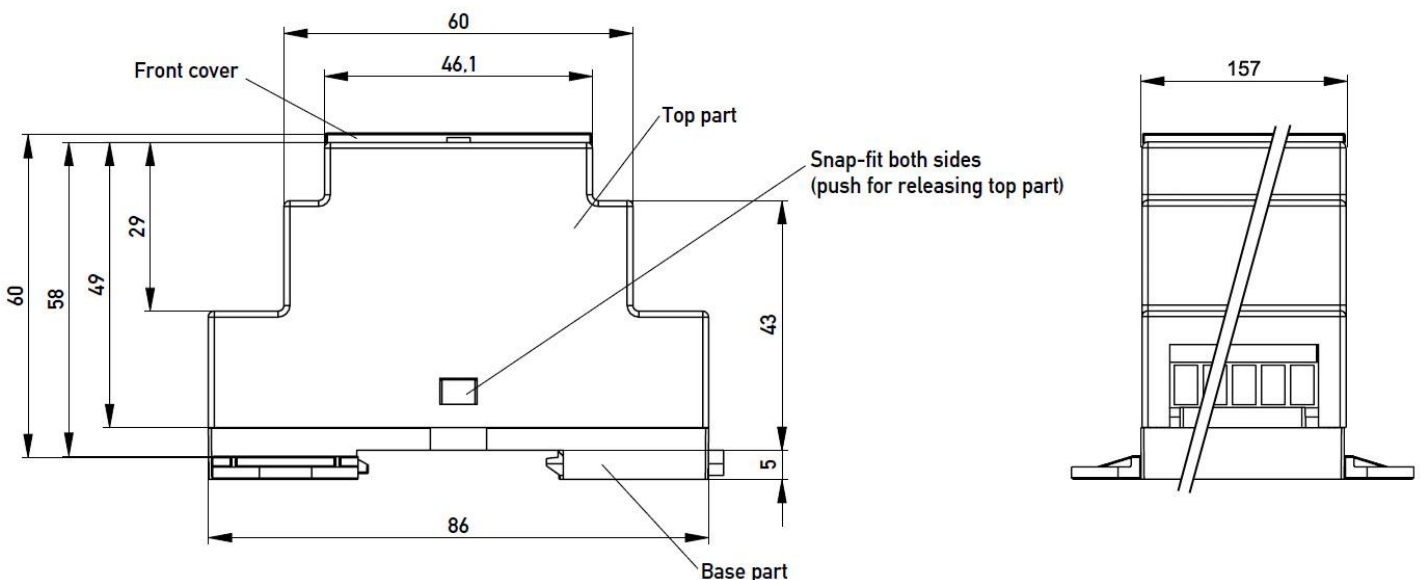
Communication Functions by Model

Product Name	Order Code	Notes	8 I/O	10/100 Ethernet	RS485 Port	RS232/ RS485 Port	3G UMTS Port	4G LTE Port (EU)	4G LTE Port (AU)	2.4.GHz 63mW Radio Port	868MHz 10mW Radio Port	868MHz 500mW Radio Port	920MHz 1W Radio Port
D3e	C2395A-X-0	8	✓	✓	✓	✓							
D3G2e	C2395A-X-12	1,3,8	✓	✓	✓	✓	✓						
D3G4e	C2395A-X-141	1,8	✓	✓	✓	✓		✓					
D3G4e	C2395A-X-142	1,8	✓	✓	✓	✓			✓				
D3R1e	C2395A-X-31	4,5,8	✓	✓	✓	✓				✓			
D3R2	C2395A-X-32	4,6,8	✓	✓	✓	✓					✓		
D3R4e	C2395A-X-34	4,7,8	✓	✓	✓	✓							✓
D3R6	C2395A-X-36	4,6,8	✓	✓	✓	✓						✓	

NOTES:

1. The D3G versions are available in multiple options to conform to different GSM based country networks. Please ensure that the correct unit is specified for your application.
2. The EGSM/GPRS port is a quad band device operating on 900/1800/850/1900MHz. This is suitable for use on most countries' GSM networks. Consult the factory for specific compatibility with your network.
3. The UMTS/HSPA port is a penta band device operating on 850/900/950/1900/2100MHz. This interface is approved for use on GCF-CC, R&TTE (CE), FCC/IC, A-Tick, Telstra & NTT DoCoMo networks. It is also 3G HSPA compliant.
4. The D3R versions are available in several radio band options to comply with different country regulations. Please ensure that the correct unit is specified for your application.
5. 2.4GHz Band is suitable for all countries – short range only.
6. 868MHz Band is suitable for use in Europe, and South Africa.
7. 920MHz Band is suitable for use in USA, Australia and New Zealand.
8. X indicates Power Supply Options: X=1 for 85-264Vac or X=2 for 9-30Vdc; see ordering options.

Inputs and Outputs

The Teleterm D3 is equipped with 8 versatile discrete input/output points (I/O points or IOP's).

Each I/O point can be individually configured to one of the following types:

TYPE	DESCRIPTION
Digital Input	On/Off signals from other equipment
Counter Input	Pulses from pulse meters
Hours Counter Input	Counts hours that the input contact is closed
Digital Output	Drives an external relay for remote control
Analogue Input	Voltage input signals in the range 0-30Vdc
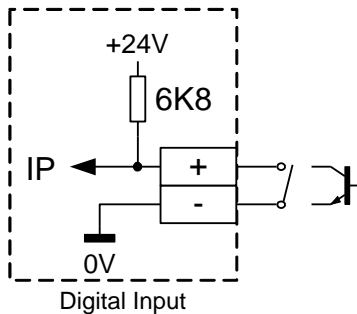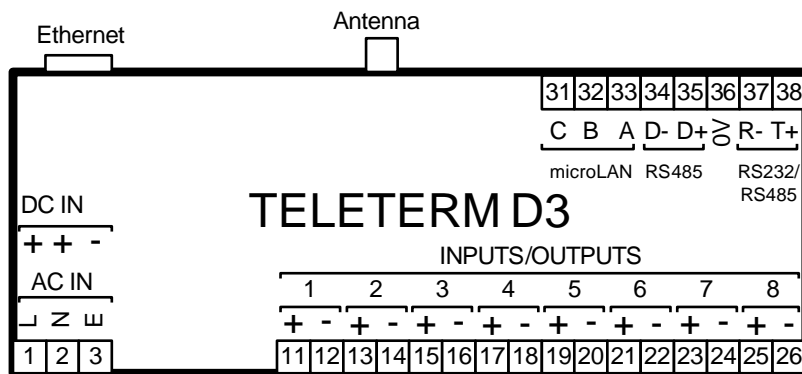
DIGITAL/PULSE INPUTS
(Volt-free Contact or NPN Transistor)
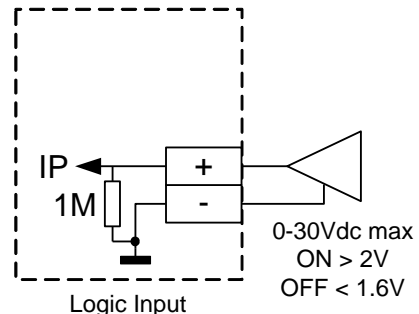
DIGITAL/PULSE INPUTS
(Logic Voltage Input)
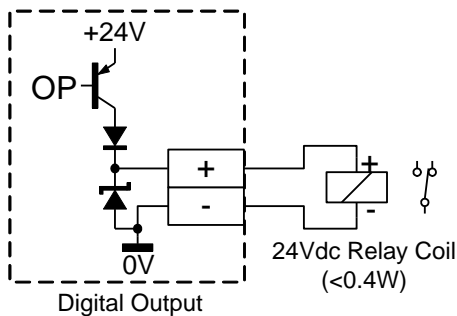
DIGITAL OUTPUTS
(With external relay)

ANALOG INPUTS
(Voltage)

http://www.omniflex.com

Omniflex
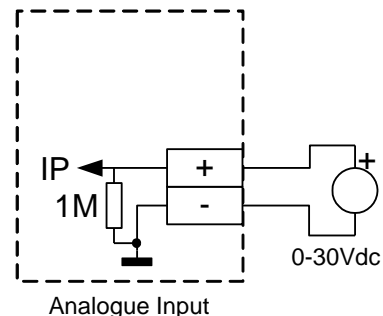
Specifications

Input/Outputs

The D3 module has 8 Input/Output Points (IOP) configurable in software as digital inputs, digital outputs or analogue inputs.

As a Digital/Pulse Input for volt-free contact or NPN transistor

Type	Volt free Switch (Switch to 0V to operate)
Input Impedance	6.8 kohms nominal.
Open circuit voltage	28Vdc maximum
Closed circuit current	3.5mA nominal
Input OFF Condition	Input < 1.6Vdc
Input ON Condition	Input > 2Vdc
Functions (Software Selectable)	ON/OFF Input Counter (counts rising/falling edge pulses) Hours (counts hours while input is on to resolution of 0.01 hours).

As a Digital/Pulse Input for logic or voltage source inputs

|	
Type	Externally applied voltage
Input Impedance	1Megaohm nominal.
Input OFF Condition	Input < 1.6Vdc
Input ON Condition	Input > 2Vdc (30V max).
Functions (Software Selectable)	ON/OFF Input Counter (counts rising/falling edge pulses) Hours (counts hours while input is on to resolution of 0.01 hours).

As a Digital Output (IO Points 1 to 10)

Type	Voltage Source (Solid State Switch to +V)
ON State Rated Current	< 50mA continuous maximum per output < 100mA peak (<10ms) max, per output < 115mA total for all outputs simultaneously (e.g. drives 8 x Finder 34-series 24V relays)
ON State Voltage	20.4V < Vout < 27.6V
OFF State Rated Leakage Current	< 0.1mA at maximum supply voltage
Functions	Software selectable as: ON/OFF ON Pulse (configurable 10ms – 300s) OFF Pulse (configurable 10ms = 300s)

As an Analogue Input

Type	Voltage Input referenced to 0V supply.
Range	0-30Vdc (software configurable to smaller ranges such as 1-5Volts)
Accuracy	< 0.15% of reading +8mV
Resolution	8mV (12 bits)

General Specifications

Power Requirements AC Version (C2395A-1-X)

AC input voltage range	85-264Vac
AC input frequency	47-63 Hz
Input current at full load	<0.1A rms
Switch-on inrush current	2A for <10ms (10A for < 1ms)
Surge withstand	2kV 1.2/50 us pulse (line to earth)

Power Requirements DC Version (C2395A-2-X)

DC input voltage range	9-30Vdc
Input current at full load	<0.33A

IEC61131-3 Programming (Optional)

Six graphical Languages	SFC – Structured Flow Chart FC – Flow Chart FBD – Function Block LD – Ladder Diagram ST – Structured Text IL – Instruction List
Programming Environment	Windows PC based "Omniflex ISaGRAF Application Workbench"

Battery Back-up

Type	Internal Rechargeable Battery keeps unit fully functional during power failures.
Battery operating time	12 hrs typical

Real Time Clock

Resolution	10ms
Accuracy	1 min per month
Clock Battery Life	> 12h (using D3 internal battery)
Clock backup	>1h (when servicing battery)

Environmental Conditions

Storage Temperature	-25°C – 60 °C (-13°F – 140°F)
Operating Temperature	-10°C – 50 °C (+14°F – 122°F)

Compliance with Standards

Safety	EN 60950:2000
Emissions	EN 55011 Group I, Class A
Immunity – ESD	IEC 61000-4-2:2001, level 3
Immunity – RF Fields	IEC 61000-4-3:2003, level 3
Immunity – Fast Transients	IEC 61000-4-4:2004 1 kV – input/output lines

Weight

Unpacked	350g approx.
Packed	550g approx.

DATASHEET

Serial Port (1 and 2)

Type	2 wire RS485 or RS232 (Port 1) 2 wire RS485 (Port 2)	Protocols Supported	• Conet/s • Modbus ASCII (Master or Slave) • Modbus RTU (Master or Slave). • Other protocols may be downloaded. Consult the factory for available protocols
Baud Rate	300 – 38,400 baud.		
Maximum cable length	1200m (4000ft) in RS485 mode 30m (100ft) in RS232 mode (Port 1)		
Connection	screw terminals		

Plug-in Memory Card

Type	microSD Memory Card (11mm x 15mm x 1mm)	Card Format	PC Compatible FAT32 File Format
Storage Capacity	SD Memory Card dependent: 2 to 32Gb supported	Data Format	CSV File Format compatible with Microsoft Excel etc.

microLAN Network Port

Type	1-wire Dallas bus	Output capacity	12 microLAN sensors max.
Operating voltage	5V (with short circuit protection)	Connections	A,B,C see microLAN Installation Guide

GSM Network Port (Model C2395A-X-11 only)

Type	GSM/GPRS mobile network	GPRS Capability	GPRS Class 10, PBCCH support Coding schemes: CS1 to CS4
GSM Capability	Quad Band EGSM/GPRS (900/1800/850/1900MHz) designed for SMS and data applications Fully compliant with ETSI GSM Phase 2	SIM Card	3Volt only
		Antenna	Remote mounted antenna connected via SMA connector.

3G/UMTS Network Port (Model C2395A-X-12 only)

Type	HSDPA (UMTS) mobile network	Approvals	GCF-CC, PTCRB-Planned, R&TTE (CE), FCC/IC, A-Tick, JPA-Planned, Telstra, NTT DoCoMo, AT&T-Planned
Network Bands	850/900/1800/1900 MHz GSM/GPRS/EDGE 800/850/900/1900/2100 MHz UMTS/HSPA (WCDMA/FDD) (3G HSPA Compliant)	Antenna	Remote mounted antenna connected via SMA connector.
SIM Card	3Volt only		

GSM/3G Network Capability (Models C2395A-X-11 and -12 only)

Remote Programming and Configuration

Method	The Teleterm D3 allows access by password protected SMS for the purpose of configuration changes remotely.

Data2Desktop Service Compatibility

Secure Access to data from the M2U is made possible from a standard Web Browser using the Omniflex "Data2Desktop" Web Service. This service is available by monthly subscription.

Data2Desktop is a web based service for gathering, storing alarming and reporting of utilities metering data over wide areas. See separate datasheet for features

2.4GHz 63mW Radio Capability (Model C2395A-X-31 only)

Operating Band	ISM 2.4GHz	Throughput Data Rate	9600 bits per second 10% duty cycle
Special Radio Licence Requirements	None. (operates in licence-free ISM band)	Number of Channels	12 Direct Sequence Channels
Transmit Power	63mW (+18dBm)	Outdoor Range (Urban) (Line of Sight)	90m 1.6km
Receiver Sensitivity	-100dBm typical	Antenna	RPSMA Connector for external antenna
Modulation	DSSS FSK	Approvals	Approved for international use

868MHz 10mW Radio Capability (Model C2395A-X-32 only)

Operating Band	SRD g3 Band (869.525 MHz)	Throughput Data Rate	1,200 to 19,200 bits per second 10% duty cycle LBT (Listen Before Talk)
Special Radio Licence Requirements	None. (operates in licence-free ISM band)	Number of Channels	Three Channels
Transmit Power	10mW (+10dBm)	Outdoor Range (Urban) (Line of Sight)	Up to 3 km with dipole Up to 6 km with hi-gain antenna
Receiver Sensitivity	-109dBm typical	Antenna	RPSMA Connector for external antenna
Modulation	FSK	Approvals	Approved for use in Europe and S.Africa

DATASHEET

920MHz 1mW-1W Radio Capability (Model C2395A-X-34 only)

Operating Band	915-928 MHz	Throughput Data Rate	9,600 bits per second
Special Radio Licence Requirements	None. (operates in licence-free ISM band)	Number of Channels	10 Frequency Hopping Sequences
Transmit Power	Settable 1mW (0dBm) to 1W(+30dBm)	Outdoor Range (Line of Sight)	Up to 10 km with dipole / Up to 30 km with hi-gain antenna
Receiver Sensitivity	-110dBm typical	Antenna	RPSMA Connector for external antenna
Modulation	FHSS FSK	Approvals	Approved for use in USA and Australia

868MHz 500mW Radio Capability (Model C2395A-X-36 only)

Operating Band	SRD g3 Band (869.525 MHz)	Throughput Data Rate	1,200 to 19,200 bits per second 10% duty cycle LBT (Listen Before Talk)
Special Radio Licence Requirements	None. (operates in licence-free ISM band)	Number of Channels	Up to 10 channel (depending on baud rate)
Transmit Power	500mW (+27dBm)	Outdoor Range (Urban) (Line of Sight)	Up to 20 km with dipole / Up to 40 km with hi-gain antenna
Receiver Sensitivity	-109dBm typical	Antenna	RPSMA Connector for external antenna
Modulation	FSK	Approvals	Approved for use in Europe and S.Africa

Ethernet Port

Network Port		Protocols	Modbus/TCP Class 0 Conet/e for remote programming and network routing. HTTP Client for Omnergy server access
Type	10/100 UTP Ethernet		
Specifications			
Network Protocol Support	UDP/IP and TCP/IP	IP Addressing	Fixed IP set during configuration.

Ordering Information

ORDER CODE	PRODUCT NAME	DESCRIPTION
C2395A-X-0*	Teleterm D3e	Teleterm D3e Remote Terminal Unit with Modbus and Ethernet Port
C2395A-X-11*	Teleterm D3G1e	Teleterm D3G1e Remote Terminal Unit with Modbus, GSM modem and Ethernet Port
C2395A-X-12*	Teleterm D3G2e	Teleterm D3G2e Remote Terminal Unit with Modbus, GSM/GPRS/EDGE/HSPA (3G HSPA compliant) modem and Ethernet Port
C2395A-X-31*	Teleterm D3R1e	Teleterm D3R1e Remote Terminal Unit with Modbus, 2.4GHz 63mW Radio and Ethernet Port
C2395A-X-32*	Teleterm D3R2	Teleterm D3R2 Remote Terminal Unit with Modbus, 10mW 868Mhz Radio and Ethernet Port
C2395A-X-34*	Teleterm D3R4e	Teleterm D3R3e Remote Terminal Unit with Modbus, 920MHz 1mW-1W Radio and Ethernet Port
C2395A-X-36*	Teleterm D3R6	Teleterm D3R6 Remote Terminal Unit with Modbus, 500mW 868Mhz Radio and Ethernet Port
CC030A-URTT	ISaGRAF Initiation Code	*Order to activate ISaGRAF programming which conforms to IEC61131-3

Note: Two power supply options are available. X= 1 for 85 -264Vac or X = 2 for 9-30Vdc e.g. Order Code is C2395A-2-11 for the Teleterm D3G1e RTU with 9-30Vdc Power Supply option