- 8 software configurable inputs/outputs.

- 85-264Vac or 9-30Vdc power with battery backup

- Integrated radio or GSM modem

- Local display of user selectable parameters

- Monitor and control from any web browser.

- Compatible with the Data2Desktop web service.

- ISaGRAF 61131-3 ready (add option)

- 4 hour integrated battery backup

- 1 microLAN sensor bus

Data2Desktop *Everything communicates* COMPATIBLE

Features
- 2 serial ports (RS232/485) + Ethernet
- Up to 32 microLAN (1-wire bus) sensors microSD
- Memory Card slot for data-logging

- 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.

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

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 engine, local control can be implemented within the RTU, making cost effective remote monitoring and control solutions. (Order CC030A-URTT separately to activate IEC61131 programming).

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.
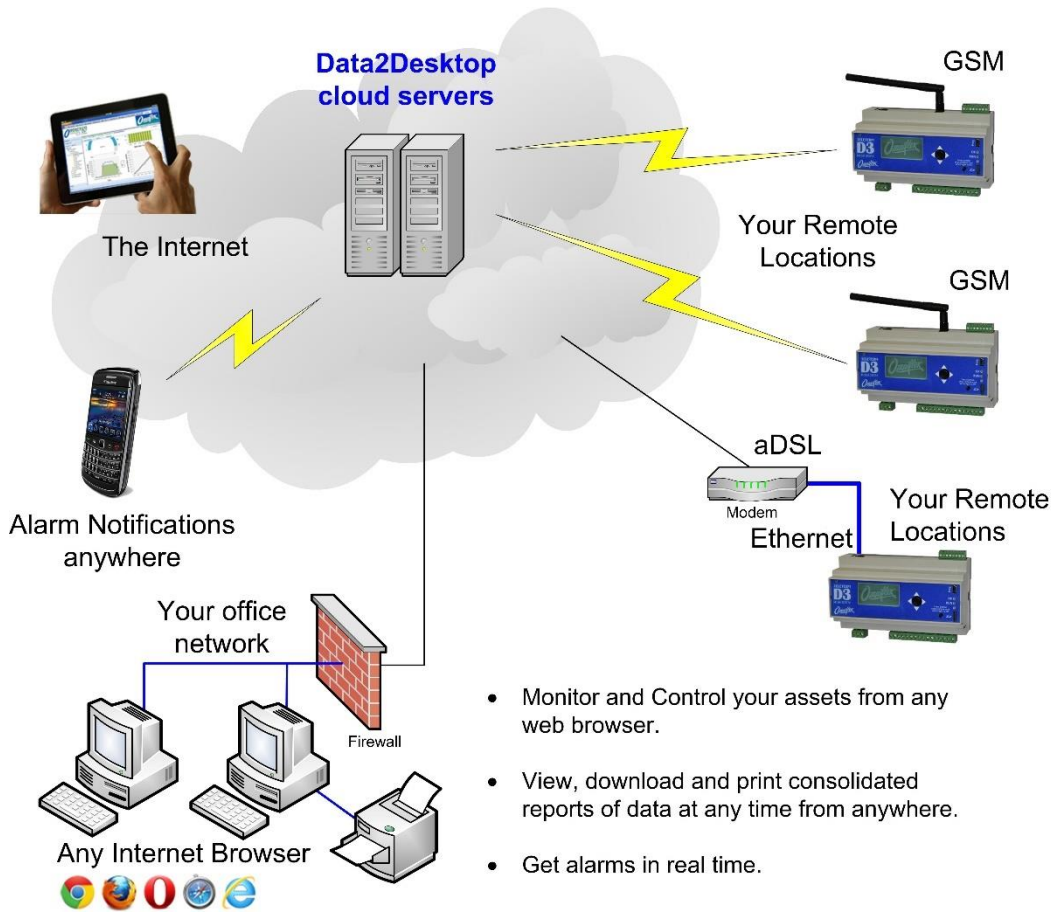
Typical Applications
- Remote Pump Start/Stop Control
- Environmental Monitoring
- Remote Tank Level Monitoring
- Remote Meter Reading
- Temperature Monitoring
- Water Flow and Quality monitoring
- Computer Room Monitoring
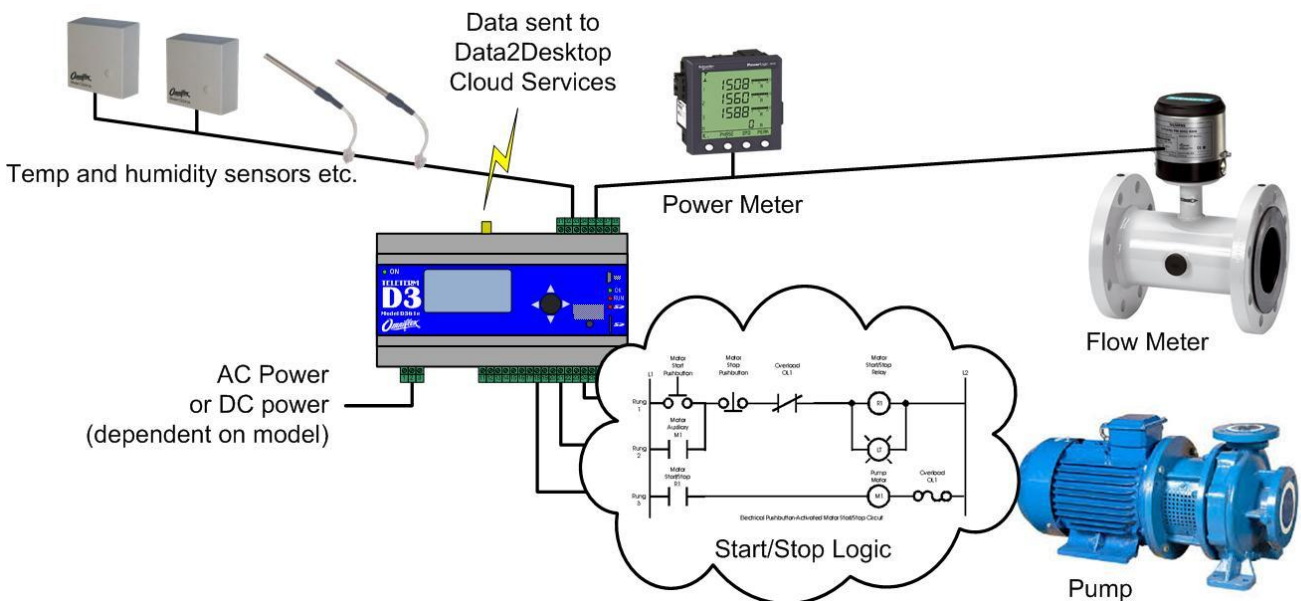- Cathodic Protection System Monitoring

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www.omniflex.com/products/C2395A

Omniflex ® REMOTE MONITORING SPECIALISTS

Easily monitor and control your remote assets

Data2Desktop cloud servers

GSM

The Internet

Your Remote Locations

GSM

Alarm Notifications anywhere

aDSL

Modem

Your Remote Locations

Ethernet

Your office network

Firewall

- 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.

Any Internet Browser

Typical Application – Pump Control

Data sent to Data2Desktop Cloud Services

Power Meter

Temp and humidity sensors etc.

Flow Meter
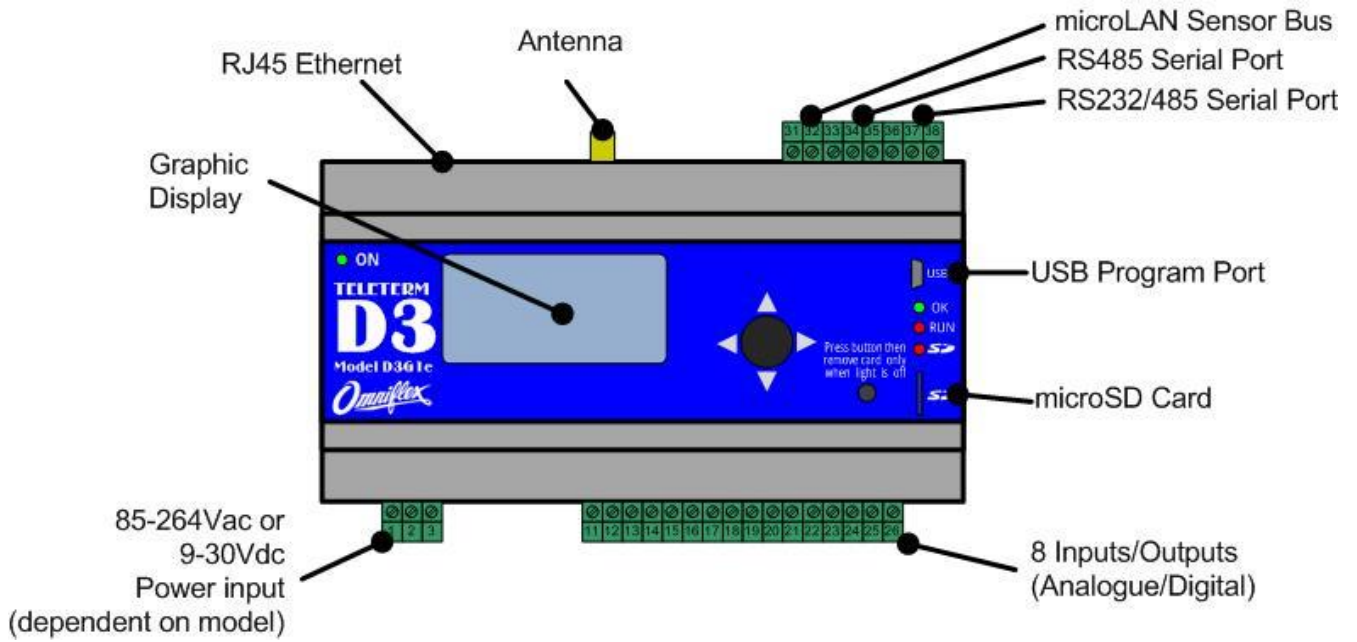
AC Power or DC power (dependent on model)

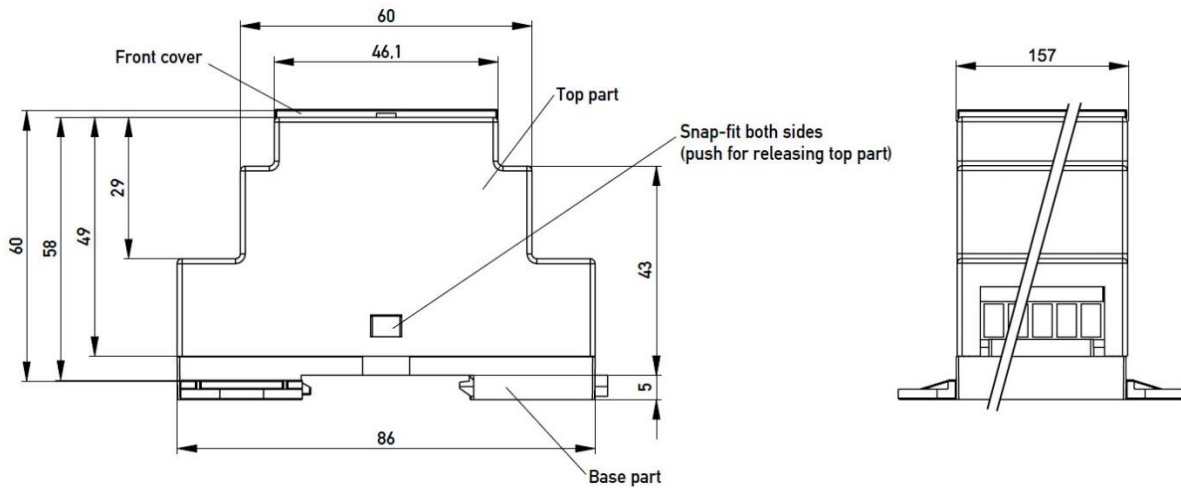Start/Stop Logic

Pump

General Layout

Mechanical Dimensions

Communication Functions by Model

Product Name	Order Code	10/100 Ethernet	RS485 Port	RS232/ RS485 Port	4G LTE Port	5G Cat M1 /NB2	2.4.GHz 63mW Radio	169MHz 500mW Radio	433MHz 500mW Radio	464MHz 500mW Radio	868MHz 8mW Radio	868MHz 500mW Radio	920MHz 20mW Radio	920MHz 1W Radio
D3e	C2395A-X-0	✓	✓	✓										
D3G4	C2395A-X-14x	✓	✓	✓	✓									
D3G5	C2395A-X-15x	✓	✓	✓		✓								
D3R1	C2395A-X-301	✓	✓	✓			✓							
D3R2	C2395A-X-302	✓	✓	✓							✓			
D3R5	C2395A-X-305	✓	✓	✓										✓
D3R6	C2395A-X-306	✓	✓	✓								✓		
D3R7	C2395A-X-307	✓	✓	✓				✓						
D3R8	C2395A-X-308	✓	✓	✓					✓					
D3R9	C2395A-X-309	✓	✓	✓						✓				
D3R10	C2395A-X-310	✓	✓	✓									✓	

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 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.*
3. *2.4GHz Band is suitable for all countries – short range only.*
4. *868MHz Band is suitable for use in Europe, Middle East and Africa (Check for specific country application).*
5. *920MHz Band is suitable for use in USA, Australia and New Zealand.*
6. *X indicates Power Supply Options: X=1 for 85-264Vac or X=2 for 9-30Vdc; see ordering options.*
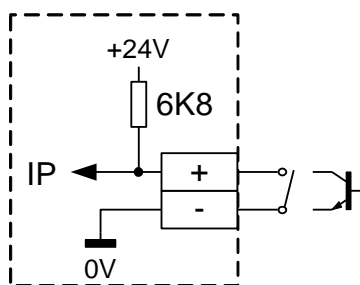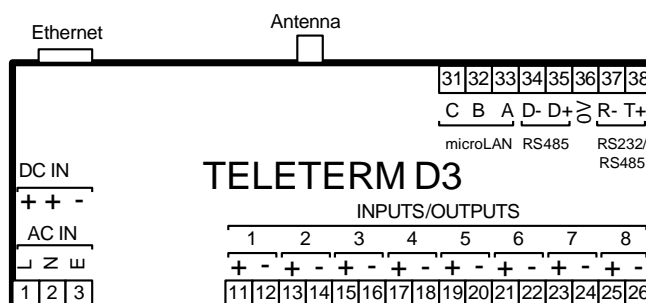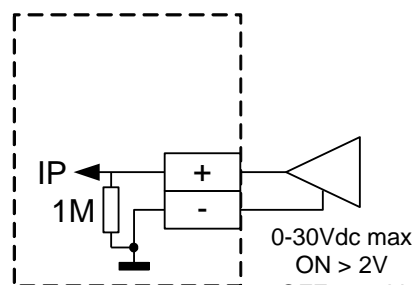
Inputs and Outputs

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

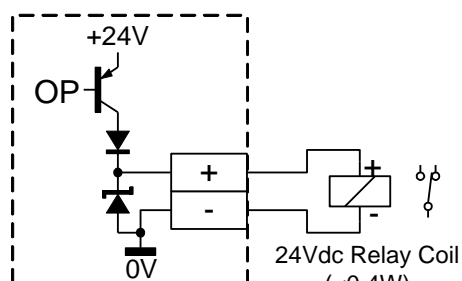Each I/O point can be individually configured to one of the following types:

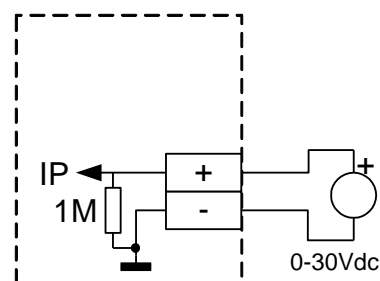| TYPE	DESCRIPTION
Digital Input	On/Off signals from other equipment
Counter Input	Pulses from pulse meters
Hours Counter Input	Counts hours when the input contact is closed
Digital Output	Drives an external relay for remote control
Analogue Input	Voltage input signals in the range 0-30Vdc

DIGITAL/PULSE INPUTS
(Volt-free Contact or NPN Transistor)

DIGITAL/PULSE INPUTS
(Logic Voltage Input)

DIGITAL OUTPUTS
(With external relay)

ANALOG INPUTS
(Voltage)

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Specifications

Inputs and Outputs

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

As Digital/Pulse Input for volt free contacts or NPN

Type	Volt free Switch (Switch to 0V to operate)
Input Impedance	6.8 kohms nominal.
Open cct. voltage	28Vdc maximum
Closed cct. current	3.5mA nominal
I/P 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 on (0.01 hrs).

As Digital/Pulse Input for logic or voltage source

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).
Type	Externally applied voltage
Input Impedance	1Megaohm nominal.
I/P OFF Condition	Input < 1.6Vdc

Input ON Condition	Input > 2Vdc (30V max).

As Digital Output

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	$20.4V < V_{out} < 27.6V$
OFF State Current	< 0.1mA at maximum supply voltage
Functions	Software selectable as: ON/OFF ON Pulse (configurable 10ms – 300s) OFF Pulse (configurable 10ms = 300s)

As 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 Backup

Type	Internal Li-Ion battery
Behaviour	Keeps unit fully functional during power failures while battery lasts.
Operating time	4 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)

Plugin Memory Card

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

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 DSC2395AR18 sheet 6 of 10   www.omniflex.com/products/C2395A

Teleterm D3 Remote Terminal Unit
Teleterm D3 RTU with Ethernet/Radio/GSM and 8 universal I/O

Model Number
C2395A

Communication Ports - General (on all variations)

Serial Ports (S1 and S2)

Type	2-wire RS485 or RS232 (Port 1) 2-wire RS485 (Port 2)
Baud Rate	300 − 38,400 baud.
Maximum Cable length	1200m (4000ft) in RS485 mode 15m (50ft) in RS232 mode (Port 1)
Connection	screw terminals
Protocols Supported	• Modbus ASCII (master or slave) • Modbus RTU (master or slave). • Modbus/TCP (master or slave). • Conet/s • Other protocols may be downloaded. Consult the factory for available protocols

Ethernet Port

Type	10/100 UTP Ethernet (RJ45)
Network Protocols	UDP/IP, TCP/IP
IP Addressing	Fixed IP set during configuration
Data Protocols	Modbus/TCP Class 0 Conet/e HTTP Client for D2D server access

microLAN Network Port

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

Communication Ports − Internal Licence Free Radio (on D3R versions only)

2.4GHz 63mW Radio (Model C2395A-X-301)

Operating Band	ISM 2.4GHz
Regions	International Use
Licence Requirement	None (licence-free ISM band)
Transmit Power	63mW (+18dBm)
Receiver Sensitivity	-100dBm typical
Modulation	DSSS FSK
Data Rate	9600 bits per second 10% duty cycle
Number of Channels	12 Direct Sequence Channels
Outdoor Range	Urban: 90m Line -of-Sight:1km
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

868MHz 10mW Radio (Model C2395A-X-302)

Operating Band	869.4 − 869.65 MHz
Regions	Europe, Middle East, Africa (EMEA)
Licence Requirement	None (licence-free ISM band)
Transmit Power	10mW (+10dBm)
Receiver Sensitivity	-109dBm typical
Modulation	FSK
Data Rate	1,200 to 19,200 bits per second 10% duty cycle (Listen Before Talk)
Number of Channels	3 Channels
Outdoor Range	Up to 3 km with dipole Up to 6 km with 6dB gain antenna
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

920MHz 1mW-1W Radio (Model C2395A-X-304)

Not recommended for new designs (use -305)

Operating Band	ISM 915 − 928 MHz
Regions	USA, Australia and New Zealand
Licence Requirement	None (licence-free ISM band)
Transmit Power	500mW (+27dBm)
Receiver Sensitivity	-100dBm typical
Modulation	DSSS FSK
Data Rate	9600 bits per second 10% duty cycle
Number of Channels	12 Direct Sequence Channels
Outdoor Range	Urban: 90m Line -of-Sight:1km
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

920MHz 1mW-1W Radio (Model C2395A-X-305)

Operating Band	ISM 915 − 928 MHz
Regions	USA, Australia and New Zealand
Licence Requirement	None (licence-free ISM band)
Transmit Power	Selectable up to 1W (+30dBm)
Receiver Sensitivity	Low data rate: -113dBm Med data rate: -106dBm High data rate: -103 dBm
Modulation	FHSS GFSK
RF Data Rate	Low data rate: 10 kb/s Middle data rate: 110 kb/s High data rate: 250 kb/s
Data throughput	120kb/s on high data rate
Number of Channels	10 hopping sequences share 50 freq.'s
Outdoor Range (line-of-sight)	Rural: 100km (low data rate) Urban: 15km (low data rate) indoor:300m (low data rate)

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Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

868MHz 500mW Radio (Model C2395A-X-306)

Operating Band	868 - 870 MHz
Regions	Europe, Middle East, Africa (EMEA), India
Licence Requirement	None (licence-free ISM band)
Transmit Power	500mW (+27dBm)
Receiver Sensitivity	-109dBm typical
Modulation	FSK
Data Rate	1,200 to 19,200 bits per second 10% duty cycle (Listen Before Talk)
Number of Channels	Up to 10 Channels (depending upon baud rate)
Outdoor Range	Up to 20 km with dipole Up to 40 km with 6dB gain antenna
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

464MHz 500mW Radio (Model C2395A-X-307)

Operating Band	463.975-464.375MHz
Regions	UK/IRL/ZA
Licence Requirement	None (licence-free ISM band)
Transmit Power	500mW (+27dBm)
Receiver Sensitivity	-109dBm typical
Modulation	FSK
Data Rate	1,200 to 19,200 bits per second
Number of Channels	5 Channels
Outdoor Range	Up to 20 km with dipole Up to 40 km with 6dB gain antenna
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

433MHz 500mW Radio (Model C2395A-X-308)

Operating Band	433-434MHz
Regions	NORDIC/EU/CE
Licence Requirement	None (licence-free ISM band)
Transmit Power	500mW (+27dBm)
Receiver Sensitivity	-109dBm typical
Modulation	FSK
Data Rate	1,200 to 19,200 bits per second

Number of Channels	Up to 10 Channels (depending upon baud rate)
Outdoor Range	Up to 20 km with dipole Up to 40 km with 6dB gain antenna
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

169MHz 500mW Radio (Model C2395A-X-309)

Operating Band	169 MHz
Regions	Europe, CE
Licence Requirement	None (licence-free ISM band)
Transmit Power	500mW (+27dBm)
Receiver Sensitivity	-109dBm typical
Modulation	FSK
Data Rate	1,200 to 19,200 bits per second
Number of Channels	Up to 10 Channels (depending upon baud rate)
Outdoor Range	Up to 20 km with dipole Up to 40 km with 6dB gain antenna
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

920MHz 1mW-1W Radio (Model C2395A-X-310)

Operating Band	ISM 915 – 928 MHz
Regions	USA, Australia and New Zealand
Licence Requirement	None (licence-free ISM band)
Transmit Power	Selectable up to 20mW (+13dBm)
Receiver Sensitivity	Low data rate: -113dBm Med data rate: -106dBm High data rate: -103 dBm
Modulation	FHSS GFSK
RF Data Rate	Low data rate: 10 kb/s Middle data rate: 110 kb/s High data rate: 250 kb/s
Data Rate	120kb/s on high data rate
Number of Channels	10 hopping sequences share 50 freq.'s
Outdoor Range (line-of-sight)	Rural: 10km (low data rate) Urban: 2.5km (low data rate) indoor:100m (low data rate)
Network topologies	Master/slave Peer-to-peer point-to-point (all with repeater capability)
Antenna	External via RPSMA Connector

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Communication Ports – Internal GSM Modem (on D3G versions only)

4G/LTE Network Port EU (Model C2395A-X-141)

Region/Operator	EMEA/Thailand
Type	LTE Cat 1 mobile network
Network Bands	LTE-FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8 GSM/EDGE: B3/B8
Regulatory Approvals	Global: GCF Europe: CE Taiwan (China): NCC Australia/New Zealand: RCM
SIM Card	3Volt Standard SIM
Antenna	External via SMA connector.

4G/LTE Network Port AU (Model C2395A-X-142)

Region/Operator	Latin America/Australia/New Zealand
Type	LTE Cat 1 mobile network
Network Bands	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B5/B8 GSM/EDGE: B2/B3/B5/B8
Regulatory Approvals	North America: FCC Canada: IC Brazil: Anatel Taiwan (China): NCC Japan: JATE/TELEC Australia/New Zealand: RCM
SIM Card	3Volt Standard SIM
Antenna	External via SMA connector.

4G/LTE Network Port EU (Model C2395A-X-143)

Region/Operator	North America: AT&T/T-Mobile/ U.S. Cellular Canada: Rogers/Telus
Type	LTE Cat 1 mobile network
Network Bands	LTE-FDD: B2/B4/B12 WCDMA: B2/B4/B5
Regulatory Approvals	North America: FCC/PTCRB Canada: IC
SIM Card	3Volt Standard SIM
Antenna	External via SMA connector.

4G/LTE Network Port EU (Model C2395A-X-144)

Region/Operator	North America: Verizon
Type	LTE Cat 1 mobile network
Network Bands	LTE-FDD: B4/B13
Regulatory Approvals	Global: GCF North America: FCC
SIM Card	3Volt Standard SIM
Antenna	External via SMA connector.

5G/LTE-M Network Port (Model C2395A-X-151)

Region/Operator	Multi-Region
Type	LTE Cat M1/NB2 mobile network
Network Bands	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66, B71, B85
SIM Card	3Volt nano SIM
Approvals	FCC, ISED, GCF, PTCRB, Verizon, AT&T, US Cell, T-Mobile, Telus, Rogers 3, RED, Vodafone 3, Deutsche Telekom 3, KCC 3, SKT 3, Giteki, Softbank 3, KDDI 3, RCM, Telstra, ICASA 3, NCC
Antenna	External via SMA connector.

Ordering Information

ORDER CODE	PRODUCT NAME	DESCRIPTION
C2395A-X[1]-0	Teleterm D3	Teleterm D3 Remote Terminal Unit
C2395A-X[1]-141	Teleterm D3G41	Teleterm D3G Remote Terminal Unit with LTE (EMEA) Port
C2395A-X[1]-142	Teleterm D3G42	Teleterm D3G Remote Terminal Unit with LTE (AU/NZ) Port
C2395A-X[1]-151	Teleterm D3G51	Teleterm D3G Remote Terminal Unit with LTE-M/NB2 Port
C2395A-X[1]-301	Teleterm D3R1	Teleterm D3R Remote Terminal Unit with 2.4GHz 63mW Radio Port
C2395A-X[1]-302	Teleterm D3R2	Teleterm D3R Remote Terminal Unit with 868Mhz 10mW Radio Port
C2395A-X[1]-304[3]	Teleterm D3R4	Teleterm D3R Remote Terminal Unit with 920MHz 1mW-1W Radio Port
C2395A-X[1]-305	Teleterm D3R5	Teleterm D3R Remote Terminal Unit with 920MHz 1W Radio Port
C2395A-X[1]-306	Teleterm D3R6	Teleterm D3R Remote Terminal Unit with 868MHz 500mW Radio Port
C2395A-X[1]-307	Teleterm D3R7	Teleterm D3R Remote Terminal Unit with 464MHz 500mW Radio Port
C2395A-X[1]-308	Teleterm D3R8	Teleterm D3R Remote Terminal Unit with 433MHz 500mW Radio Port
C2395A-X[1]-309	Teleterm D3R9	Teleterm D3R Remote Terminal Unit with 169MHz 500mW Radio Port
C2395A-X[1]-310	Teleterm D3R10	Teleterm D3R Remote Terminal Unit with 920MHz 20mW Radio Port
CC030A-URTT[2]	ISaGRAF Activation Code	[2]Order separately to activate ISaGRAF programming

Notes:
1. Two power supply options are available:
   X = 1 for 85 -264Vac
   X = 2 for 9-30Vdc
2. For ISaGRAF programming option, order ISaGRAF Activation Code separately
3. Not recommended for new installations. Use -305 or -310 instead.

e.g. Order Code is C2395A-2-141 for the Teleterm D3G RTU with 4G LTE (EMEA) Port and 9 30Vdc Power Supply
    Add CC030A-URTT to your order for ISaGRAF programming option