HUSKY™ DCU-E70

DATA CONCENTRATOR UNIT

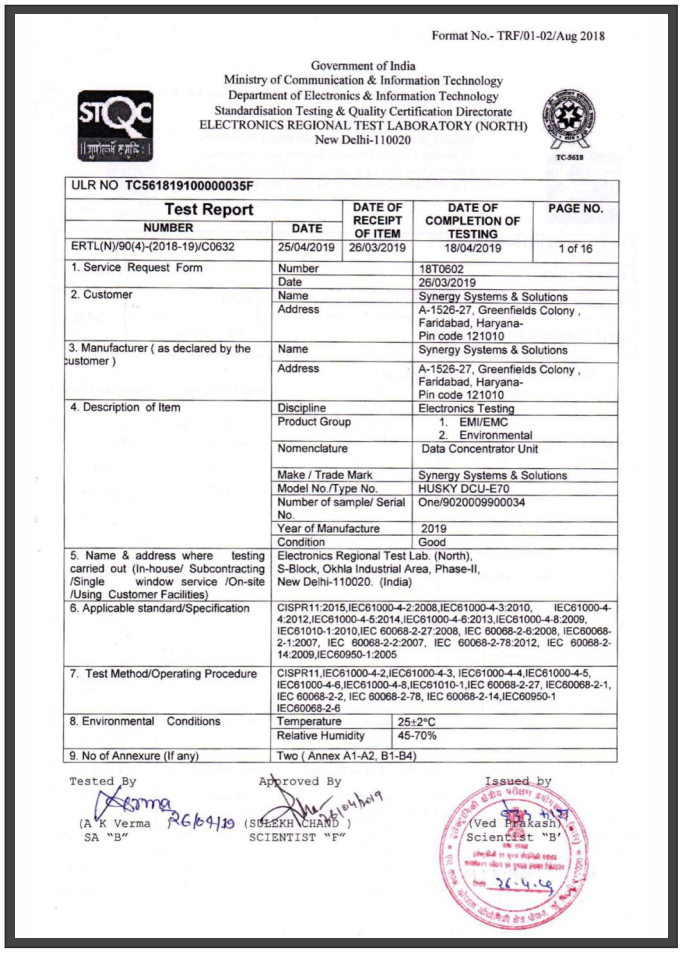
Model A

Model B

DCU-E70 is a multi-functional computing device suitable for Industrial Automation applications. DCU-E70 offers multiple serial and ethernet ports for connecting to SCADA/HMI systems and field devices (IEDs), along with a rich set of communication protocols.

DCU-E70 provides data concentrator function (aggregation of data from multiple sources) and protocol conversion function (converting data acquired on one protocol format and transfer of the same on another protocol). A single unit of DCU-E70 can handle multiple devices providing a common and consistent interface to SCADA/HMI centers.

IEC61850-3 Compliant



Format No.- TRF/01-02/Aug 2018

Government of India
Ministry of Communication & Information Technology
Department of Electronics & Information Technology
Standardisation Testing & Quality Certification Directorate
ELECTRONICS REGIONAL TEST LABORATORY (NORTH)
New Delhi-110020

TC-5618

ULR NO **TC561819100000035F**

Test Report NUMBER	DATE	DATE OF RECEIPT OF ITEM	DATE OF COMPLETION OF TESTING	PAGE NO.
ERTL(N)/90(4)-(2018-19)/C0632	25/04/2019	26/03/2019	18/04/2019	1 of 16

1. Service Request Form	Number	18T0602
	Date	26/03/2019
2. Customer	Name	Synergy Systems & Solutions
	Address	A-1526-27, Greenfields Colony , Faridabad, Haryana- Pin code 121010
3. Manufacturer (as declared by the customer)	Name	Synergy Systems & Solutions
	Address	A-1526-27, Greenfields Colony , Faridabad, Haryana- Pin code 121010
4. Description of Item	Discipline	Electronics Testing
	Product Group	1. EMI/EMC 2. Environmental
	Nomenclature	Data Concentrator Unit
	Make / Trade Mark	Synergy Systems & Solutions
	Model No./Type No.	HUSKY DCU-E70
	Number of sample/ Serial No.	One/9020009900034
	Year of Manufacture	2019
	Condition	Good
5. Name & address where testing carried out (In-house/ Subcontracting /Single window service /On-site /Using Customer Facilities)	Electronics Regional Test Lab. (North), S-Block, Okhla Industrial Area, Phase-II, New Delhi-110020. (India)	
6. Applicable standard/Specification	CISPR11:2015,IEC61000-4-2:2008,IEC61000-4-3:2010, IEC61000-4-4:2012,IEC61000-4-5:2014,IEC61000-4-6:2013,IEC61000-4-8:2009, IEC61010-1:2010,IEC 60068-2-27:2008, IEC 60068-2-6:2008, IEC60068-2-1:2007, IEC 60068-2-2:2007, IEC 60068-2-78:2012, IEC 60068-2-14:2009,IEC60950-1:2005	
7. Test Method/Operating Procedure	CISPR11,IEC61000-4-2,IEC61000-4-3, IEC61000-4-4,IEC61000-4-5, IEC61000-4-6,IEC61000-4-8,IEC61010-1,IEC 60068-2-27, IEC60068-2-1, IEC 60068-2-2, IEC 60068-2-78, IEC 60068-2-14,IEC60950-1 IEC60068-2-6	
8. Environmental Conditions	Temperature	25±2°C
	Relative Humidity	45-70%
9. No of Annexure (If any)	Two (Annex A1-A2, B1-B4)	

Tested By — (A K Verma, SA "B") — 26/04/19

Approved By — (SUKHCHAND, SCIENTIST "F") — 26/04/2019

Issued by — (Ved Prakash, Scientist "B") — 26.4.19

Apart from these functions, the DCU can also be deployed as a substation gateway, SCADA communications front-end, terminal server (serial device server), metering gateway and M2M gateway.

- Substation Automation System Gateway
- Protocol Converter / Data Concentrator
- IEC 101 / IEC 104 Router
- M2M Gateway
- Metering Gateway
- Serial Device Server
- SCADA Communications Front-End
- Remote Access Gateway

SYNERGY
SYSTEMS & SOLUTIONS

HUSKY™ DCU-E70

DATA CONCENTRATOR UNIT

Product Highlights (Model-A)

Core
Dual Core @ 500MHz each
1GB RAM (up to 2GB)
1GB Flash (up to 4GB)
512kB NVRAM
Solid State Drive (Optional)

Communications
6x/12x RS232/RS485 Ports
Surge Protected, Isolated
Up to 6x 10/100/1000Mbps Ethernet Ports
Surge Protected, Isolated
2x 10/100/1000Mbps Copper/Fiber HSR/PRP
Ethernet Ports (Optional)
Optional Wi-Fi module

Redundancy
Two individual DCUs can be interconnected in hot-standby configuration

Power
220VAC/220VDC/110VDC Input Power
48VDC Input Power (Optional)
Redundant Power Supplies (Optional)
Last gasp support and event reporting

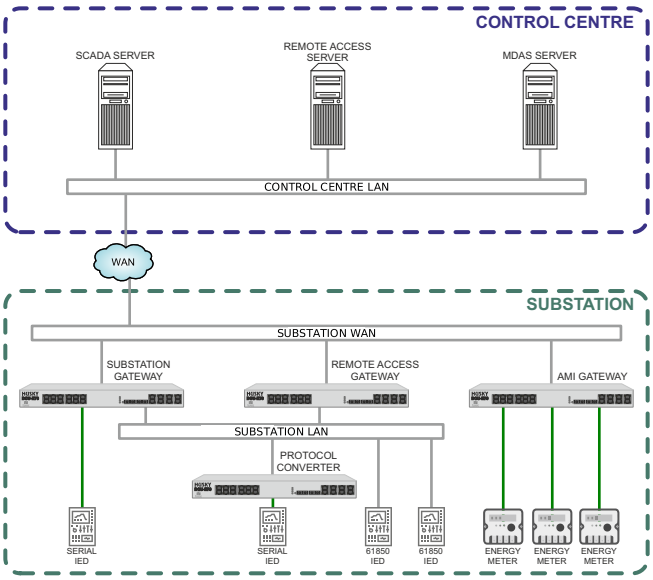
Communications Co-Processor
(Optional Module)
Dual Core @ 500MHz each
1GB RAM (up to 2GB)
1GB Flash (up to 4GB)
4x 10/100/1000Mbps HSR/PRP Ethernet Ports
Surge Protected, Isolated

I/O
1x General Purpose Digital Input
1x General Purpose Digital Output
2x USB 2.0 Host Ports
1x IRIG-B Input (AM/TTL) (Optional)

Mounting Arrangement
19"-wide, 1U-high rack mount chassis

Physical Dimensions
(W)425 x (H)50 x (D)205mm

Operating Environment
Operating Temperature : -10 to 70°C
Humidity : 95% RH



Product Highlights (Model-B&C)

Core
Model-B
Single Core @400MHz
128MB RAM
128MB Flash
512kB NVRAM
Model-C
Dual Core @500MHz each
1GB RAM
1GB Flash
512KB NVRAM

Communications
Up to 4x RS232/RS485 Ports
Surge Protected, Isolated
Up to 4x Ethernet Ports
OR
1x 100BaseFX Fiber Ethernet
GSM / 4G / 5G Wireless Modem (Optional)

Mounting Arrangement
19" wide, 1U high rack mount chassis
DIN Rail mounting (optional)

Physical Dimensions
(W)220 x (H)50 x (D)160mm

Operating Environment
Operating Temperature : -10 to 70°C
Humidity : 95% RH

Power
220VAC/220VDC/110VDC Input Power
48VDC Input Power (Optional)

Product Highlights (Model-GX)

Core
G0 = Dual-Core Processor, 1.2GHz
G1 = Quad-Core Processor, 1.2GHz
(other processor options on request)
8GB / 16GB RAM
4GB, 8GB, 32GB, 64GB, 128GB Solid State Storage

Communications
4x RS232/RS485 Ports (Optional)
Surge Protected, Isolated
4x 10/100/1000Mbps Ethernet Ports (Optional)
Surge Protected, Isolated
8x 10/100Mbps Ethernet Ports (Optional)
Surge Protected, Isolated
2x 10/100/1000Mbps Copper/Fiber HSR Ethernet Ports (Optional)
Wi-Fi module (Optional)

Redundancy
Two individual DCUs can be interconnected in hot-standby configuration

Power
220VAC/220VDC/110VDC Input Power
48VDC Input Power (Optional)
Redundant Power Supplies (Optional)
Last gasp support and event reporting

I/O
1x General Purpose Digital Input
1x General Purpose Digital Output
2x USB 2.0 Host Ports
1x USB 3.0 Host Ports
1x IRIG-B Input (TTL) (Optional)

Software Functions

Gateway / Protocol Converter / Data Concentrator Function

Typically in an existing application, a variety of devices exist that operate on different and possibly proprietary protocols. In such cases, there is a general need to collate data from these devices and convert them to a standard protocol that a higher order system supports.

The DCU provides this function using the wide array of protocols that it supports for interfacing with different devices for data acquisition and control requirements.

DCU supports acquisition and transfer of disturbance records and real-time status and measurements, protection events from protection devices. The DCU can act as a remote access gateway for protection devices.

Remote Access Gateway

The DCU can function as transparent remote access gateway for substation IEDs, for remote configuration and diagnostics of the IEDs. This is achieved through a secure authenticated VPN between the gateway and the control center. Access can be done to specific IEDs only for which the system operator has enabled the remote access. This function operates in parallel to the data acquisition functions of the gateway.

Serial Device Server Function

For applications where multiple serial devices are required to be connected to a host system, the DCU can provide such connectivity with serial devices over Ethernet. The DCU supports TCP server mode where each serial port on the unit is assigned a unique IP:Port combination.

Metering Gateway

The DCU supports MODBUS and DLMS/COSEM (IEC 62056) protocols for data acquisition from Energy Meters. In addition to this, for electricity meters, the DCU is compliant to the specifications of India-specific recommendations for DLMS/COSEM IS:15959. The DCU supports both the 3-layer HDLC protocol, as well as the TCP/UDP profiles for the DLMS/COSEM protocol.

Cyber Security

With the proliferation of public communication networks like Internet, GPRS, etc. in SCADA applications, many IEDs are now directly connected to these networks. Therefore securing these devices is a major requirement in order to prevent cyber attacks which compromise the entire application being controlled by the SCADA system.

DCU can be deployed as an electronic security perimeter (ESP) that acts like a firewall between the public networks and the IEDs.

The DCU provides the following functions to achieve a cyber-secure network –

- Firewall that allows only specific hosts to connect with the gateway
- Audit Logs for user actions, connection attempts, connection denials, etc.
- SSL/TLS or IPSec VPN support
- Secure Execution Environment which prevents execution of malware or third-party applications
- Authenticated pass-through channels
- Role-based Access Control

Time Synchronization

DCU supports time synchronization of its own RTC from multiple sources like SNTP, IRIG-B, PTP, SCADA Master. The DCU can also synchronize other devices over their communication protocols.

Configuration & Diagnostics

The DCU is configured using a Windows™-based configuration tool. The tool supports configuration of protocol parameters, mapping of variables between protocols, and DCU hardware parameters.

The same tool can also be used to check the status of the DCU, as well to monitor status of different hardware elements.

Web-based interface is also available for diagnostics and monitoring purpose.

EMI/EMC Compliance

ESD Test	IEC 61000-4-2
EFT Test	IEC 61000-4-4
Radiated RFI Test	IEC 61000-4-3
Surge Test	IEC 61000-4-5
HV Impulse Test	IEC 60255-5
Conducted RFI Test	IEC 61000-4-6
Power Frequency Test	IEC 61000-4-8
Damped Oscillatory Magnetic Field	IEC 61000-4-10
Voltage Range and Tolerance	IEC60870-2-1
Ripple on DC Power	IEC61000- 4-17
DC Dip and Interruption Test	IEC61000- 4-29
AC Dip and Interruption Test	IEC 61000-4-11
Oscillatory Waves	IEC 61000-4-18
Immunity to Conducted common Mode Disturbance	IEC 61000-4-16
Emission Test	
Conducted	CISPR 22
Radiated	CISPR 22

Electromechanical Compliance

Vibration	IEC60870-2-2
Shock	IEC60870-2-2
Barometric Pressure	IEC60870-2-2

DATA CONCENTRATOR UNIT

Ordering Code

DCU-E70 - □□ - □□ - □□ - □ - □ - □

Base Model-A (512MB RAM, 1GB Flash) - A
Enhanced Model-A (2GB RAM, 4GB Flash) - E
Base Model-B - B
Model-GX - Gx

No Serial Ports - 00
Two RS232/RS485 Serial Ports (Model-B and Model-GX only) - 02
Four RS232/RS485 Serial Ports (Model-B and Model-GX only) - 04
Six RS232/RS485 Serial Ports (Model-A only) - 06
Twelve RS232/RS485 Serial Ports (Model-A only) - 12

PSU1 - 220VAC/DC Input Power - U
PSU1 - 20-60V DC Input Power - D

PSU2 - 220VAC/DC Input Power (Model-A only) - U
PSU2 - 20-60V DC Input Power (Model-A only) - D
PSU2 - None - X

None - A00
2-port 100FX Fiber-optic Ethernet - A01
4-port 10/100 Ethernet Switch (Model-A only) - A02
2-port 10/100 HSR/PRP Ethernet (Model-A only) - A03
3-port Fiber-optic serial ports (Rx/Tx) (Model-A only) - A04
Mass Storage Interface (Model-A only) - A05
Time Input (GPS/IRIG-B) (Model-A only) - A06
*****Following modules are applicable for model GX only*****
4x 10/100/1000Mbps Ethernet Ports - G00
8x 10/100Mbps Ethernet Ports - G01
2x 10/100/1000Mbps Copper HSR Ports - G02
2x 10/100/1000Mbps MMF HSR Ports - G03
2x 10/100/1000Mbps SMF HSR Ports - G04

Protocol Converter / Data Concentrator - +DCU
IEC104<->IEC101 Router - +IECR
M2M Gateway (Model-A only) - +M2MG
Serial Device Server - +SDS
Remote Access Gateway - +RAS

IEC 870-5-101 Master - +101M
IEC 870-5-101 Slave - +101S
IEC 870-5-103 Master - +101M
IEC 870-5-104 Client - +104M
IEC 870-5-104 Server - +104S
IEC 61850-8-1 Client - +850C
DNP 3.0 Master/Client - +DNPM
DNP 3.0 Slave/Server - +DNPS
SPA Bus Master - +SPAM
RP-570 Master - +570M
RP-570 Slave - +570S
Alstom Courier Master - +COUM
SPORT Slave - +SPRT
DLMS Master - +DLMSM
DLMS Slave - +DLMSS
MQTT - +MQTT