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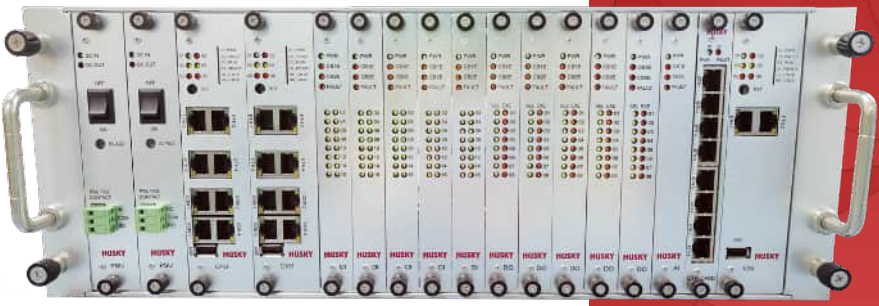
01.

HARDWARE PRODUCTS

SYNERGY
SYSTEMS & SOLUTIONS



HUSKY™ RTU 6049 - E70
REMOTE TERMINAL UNIT

IEC61850-3 COMPLIANT

SYSTEM DESIGN CAPACITY

Maximum Wired Tags	Digital Input	| 4096
	Digital Output	| 4096
	Analog Input	| 4096
	Analog Output	| 4096
	Counters	| 4096
Maximum CXM Modules		4
Maximum Devices	Devices per serial port	32
	Devices maximum	256
Maximum Wired Tags	Boolean	| 4096
	16-bit Integer	| 2048
	32-bit Integer	| 2048
	32-bit Float	| 2048
	Timers	| 128
Maximum I/O Racks	8 (Up to 16 I/O slots per rack)	
General Operating Parameters	Nominal Input voltage	| 24/48/110/220 VDC/230 VAC
	Relative Humidity	| 95%
	Operating Temperature	| -25 to +70 C

PROTOCOL SUPPORT

Slave Protocols	Secure IEC 60870-5-101 Secure IEC 60870-5-104 DNP 3.0 Serial/TCP (SAV5) Modbus RTU/TCP RP570 DLMS Server IEC 61850 MMS Server OPC UA Server MQTT Profinet Profibus
Master Protocols	Secure IEC 60870-5-101 Secure IEC 60870-5-104 IEC 60870-5-103 DNP 3.0 Serial/TCP (SAV5) Modbus RTU/TCP IEC 61850 MMS SPA Bus Interface Alstom Courier DLMS Client HDLC/TCP ABB LON

IEC61850

HUSKY RTU supports both client and server functions. As a client, RTU can acquire real-time data from IEDs and transfer them over control-centre protocols such as IEC 60870-5-104. Thus, it can function as a gateway to modern Substation Automation Systems. This implementation is certified by UCA as per IEC61850 Ed.2.

As a server, the RTU can function to provide access to "legacy" I/O over IEC 61850 station bus by higher order systems such as SAS.

HUSKY™ RTU 6049 - E70
REMOTE TERMINAL UNIT

LOGIC PROGRAMMING

RTU supports implementation of custom application logics via the IEC 61131 Programming Languages. The integrated editor supports ST, LD, FBD, IL, SFC languages, with support for online monitoring and debugging of logics.

Built-in function block libraries are available as building blocks to implement application-specific logics.

CONFIGURATION & DIAGNOSTICS

- Integrated Configuration & Diagnostics Tool
- Windows based RTU configuration software
- Web based configuration & diagnostics
- I/O Rack Configuration
- Communication Tasks Configuration
- Master (Host)/Slave Database Configuration
- Mapping across different protocols
- Import / Export via Excel
- IEC61850 SCL Import/Export
- Online configuration download / upload
- RTU memory view
- Fault Diagnostics
- Connect via Serial / Ethernet Link
- Protocol Trace Viewer
- Remote Programming Facility

CERTIFICATIONS & INTEGRATION EXPERIENCE

- Compliant to IEC61850-3 EMI/EMC standards
- IEC61850 Client certified by UCA
- Cyber Security as per IEC62351 by CPRI
- IEC60870-5-101/104 Slave certification
- Integration with all major IED vendors over IEC61850
- Integration with all major SCADA / EMS/DMS vendors over IEC 60870-5-104, IEC 60870-5-101, DNP3 protocols

ALL MODULES ARE CONFORMALLY COATED AS PER G3 CLASS FOR CORROSION RESISTANCE AND BURN-IN TEST PERFORMED AT +70°C

Processor Module

32-bit processor
Up to 2GB RAM
Up to 8GB FLASH
1PPM RTC
Up to 4 Ethernet ports
Up to 6 Serial ports
Multi-Master reporting
Up to 8 time sources
HSR/PRP option

HARDWIRED I/O MODULES

Digital Input Module

Up to 32 channels per module
1ms SoE
24/48/110VDC input ranges
Pulse counter
Digital Measurands

Digital Output Module

Up to 16 channels per module
Potential free NO contact
Select-before-Execute hardware logic

DC Analog Input Module

Up to 16 channels per module
Voltage and Current Inputs (user selectable)
Bipolar, Differential Inputs
Resolution of 15-bits + sign
Accuracy of 0.1% (FS)
HART multiplexer support

AC Analog Input Module

Up to 16 channels per module
PT Voltage Measurement
Resolution of 15-bits + sign
Accuracy of 0.1% (FS)

DC Analog Output Module

Up to 4 channels per module
Voltage and Current Outputs (user selectable)
Resolution of 15-bits + sign
Accuracy of 0.1% (FS)
HART Support

HUSKY™ RTU 6049 - E70
REMOTE TERMINAL UNIT

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 OscillatoryMagnetic Field	IEC 61000-4-10
Voltage Range and Tolerance	
Ripple on DC power	IEC60870-2-1
DC Dip and Interruption Test	IEC61000- 4-17
AC Dip and Interruption Test	IEC61000- 4-29
Oscillatory Waves	IEC 61000-4-11
Immunity to Conducted	IEC 61000-4-18
Common Mode Disturbance	IEC 61000-4-16
Conducted Emission	CISPR 22
Radiated Emission	CISPR 32
Voltage Dips & Interruptions	IEC61000-4-29
Ripple Test	IEC61000-4-17

ELECTROMECHANICAL COMPLIANCE

Vibration	IEC60068-2-6
Shock & Bump	IEC60255-21-2

ENVIRONMENTAL

Dry Heat	IEC60068-2-2
Damp Heat	IEC60068-2-78,30
Cold Test	IEC60068-2-1
Temperature Cycle	IEC60068-2-14
Salt Mist	IEC60068-2-52
Mixed Gas (3C3 class)	IEC60068-2-60

SAFETY

Power Frequency Voltage Withstand	IEC60255-27
Impulse Voltage Withstand	IEC60255-27
Insulation Resistance	IEC60255-27

COMMUNICATIONS

RTU 6049-E70 supports both serial-based and Ethernet-based communications on a variety of protocols. Communications can be for either acquisition of data from subordinate devices or transfer of information to a higher level system like SCADA. Further, peer-to-peer or horizontal communications can be performed by the RTU in case of multi-node architectures. Both serial and Ethernet interfaces are available on the processor module itself. Additional interfaces can be added to the RTU through communicationextender modules (CXMs). These modules are installed along side the processor module in the processor rack and communicate with the processor over the backplane bus. CXMs are available in two variants–

- **Passive-provides physical interfaces only, no processing capability**
- **Active (Intelligent)-provides physical interfaces as well as protocol intelligencett**

RTU 6049-E70 supports traditional copper-based interfaces like RS232, RS485, 10/100/1000 Ethernet. Fiber-optic based Ethernet interface are also available on some CXM modules. The RTU can also interface with PSTN leased-line or dial-up modems using RS232 ports. GSM/4G/5G modems and router modules are available for wireless communications. Managed Ethernet switches as rack-modules are also available.

SYSTEM REDUNDANCY

RTU 6049-E70 supports redundancy of the following functions–

- **Rack power supplies – Supports installation of two power supplies in same rack for redundant operation**
- **Processor module (incl. communication extender modules)**
- **Communication channels towards master stations and IEDs**
- **I/O Scanner Module**

PROCESSOR REDUNDANCY

RTU 6049-E70 supports dual redundancy of the processor modules by having a active-standby or active-active mode of operation. Two options are available for implementing processor redundancy. First option allows installing of processor modules in separate racks, each with its own set of power supply and communication extender modules. In this scenario, I/O modules are installed in expansion racks only. The second option provides processor redundancy in the same rack, while sharing the power supply module, and allowing I/O modules to be installed along with the processor module. In this arrangement, passive communication extender modules cannot be installed valong with the processors.

Both the processors are interconnected through the expansion bus. One of the processor modules assumes the role of the master CPU, while the other assumes the standby role. The master CPU performs all RTU functions including I/O scanning, communications, logic execution, etc. The standby CPU monitors the master CPU, and assumes the master role, in case the master CPU fails, and performs a cold start of the communication channels towards subordinate devices. The online CPU also performs database and event synchronization with the standby CPU. Dedicated multi-ported RAM option is also available for this purpose. The soft-wired I/O states and sequence of events recorded by the master CPU are synchronized with the standby CPU, so that only unacknowledged/unsent events are transferred to OCC/BCC after a CPU switchover. This way the most recent process state is synchronized between the CPUs. This ensures that, in the event of a switchover of CPUs, the newly promoted active CPU has the most recent state, as was before the switchover.

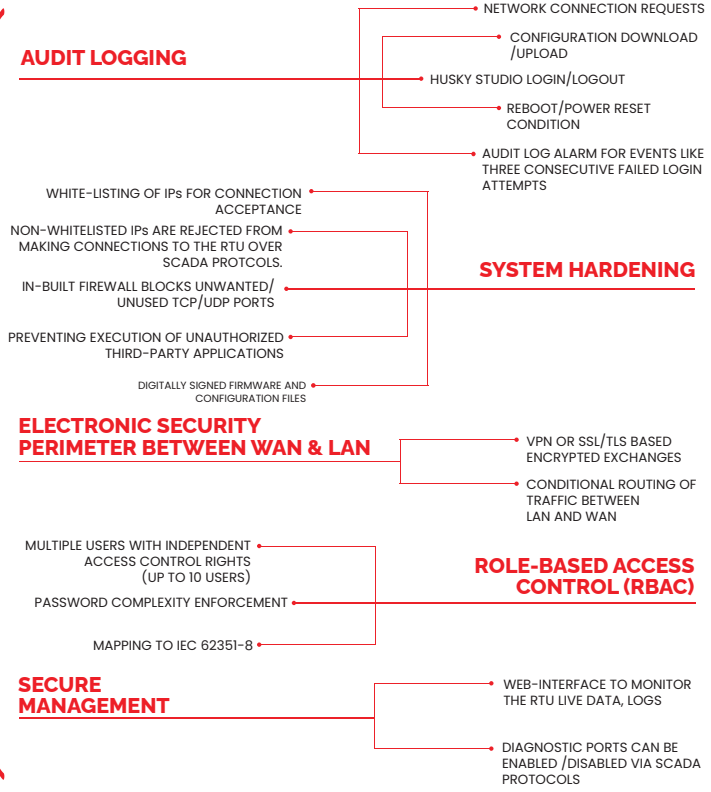
COMMUNICATIONS REDUNDANCY

Redundancy of communication channel between RTU and external world (IEDs and master stations) can be enabled in the RTU via Husky Studio. Redundancy of communication channels is based on active-passive concept, wherein one of the two channels is used for active communications, while the passive one is used for periodic health check of the link. When RTU detects failure of the active communication channel, it switches over to the passive channel making it active. Specific modules have support high-availability networks such as HSR/PRP for achieving zero-recovery time redundancy without external components.

CYBER SECURITY

SECURITY-AS-DEFAULT

The RTU has multiple features to enforce cyber security requirements for securing the RTU functions, and to meet IEC62443, IEEE 1686 & NERC/CIP recommendations. Security extensions as per IEC 62351 are also supported for IEC 60870-5-101/104 (certified by CPRI), DNP3 (SAv5).



HUSKY™ RTU 6049 – E70
REMOTE TERMINAL UNIT

केन्द्रीय विद्युत अनुसंधान संस्थान
CENTRAL POWER RESEARCH INSTITUTE

METERING AND UTILITY AUTOMATION DIVISION

No: CPRI/MUAD/SASL-SYNERGY/2021-22/01 Date: 04 March 2022

To,

M/s. Synergy Systems & Solutions,
A-1526, Green Fields Colony,
Faridabad, Haryana– 121010,
INDIA

Kind Attention: Shri Vidhu Aggarwal, President

Dear Sir,

Sub: Regarding testing of Remote Terminal Unit (RTU).
Ref: Your Customer Request Form (CRF) dated. 31.01.2022.

This is to inform you that one test sample described below submitted for testing as per IEC 60870-5-101 and IEC 60870-5-7 (including IEC 62351-100-1). Testing on the sample is completed based on the functionality supported as per PICS document submitted. From the test logs and results, it is found that the sample has not been shown to be non-conforming to the test cases conducted as per the test requested.

Remote Terminal Unit (RTU) Description:

Sl.No	Particulars	Description
01.	Manufacturer's name.	Synergy Systems & Solutions, Faridabad.
02.	Model No.	HUSKY RTU 6049-E70
03.	Serial No.	901000F800838
04.	Software Firmware Version	5.1
05.	CPRI Sample No.	MUAD/SASL/MISC/2250051

Detailed Test Report will be issued shortly.

(Shailesh Kapoor)
Test Engineer

(V Shivakumar)
Joint Director

"Happiness is when what you think, what you say and what you do are in harmony." - Mahatma Gandhi

DNV·GL

ATTESTATION OF CONFORMITY

No. project 10050571-INC 17-2311

Issued to:
Synergy Systems & Solutions
A1526, Green Fields Colony,
Faridabad, Haryana,
India

For the product:
Husky RTU 6049-E70
Type: IEC 104 Controlled station,
Included software:
– IEC 104 Application software version: 5.1

with the implemented communication protocol:

IEC 60870-5-104 ed.2 (IS 2006)

Network Access for IEC 60870-5-104 using standard transport profiles in Standard direction and the Synergy Systems & Solutions default Protocol Implementation Document for IEC 60870-5-104 V[5.1].

The product has not been shown to be non-conforming to the specified protocol standard, including the interface requirements.

End-to-End data element tests for the informationobjectcontrol points as described in manufacturer Protocol Implementation Conformance Statement (PICS) have been performed on the product's protocol implementation. Functional tests in controlled mode are performed for the following levels:

Station initialization	Clock synchronization
Redundancy	Command transmission
Cyclic data transmission	Transmission of Integrated Totals
Data acquisition through read	Parameter Loading
Acquisition of events	Test procedure
General interrogation	File Transfer

The test campaign did not reveal any errors in the product's protocol implementation.

This Attestation is granted on account of tests most at location of DNV GL in Arnhem, The Netherlands and performed with DNV GLUnitTest Environment Simulator version 1.1.1 Beta 32. The results, including remarks and limitations, are laid down in DNV GL report no. 10050571 - INC 17-2312.

The tests have been carried out on one single specimen of the product, submitted by Synergy Systems & Solutions. The Attestation does not include an assessment of the manufacturer's production. Conformity of his production with the specimen tested by DNV GL is not the responsibility of DNV GL.

Arnhem, 13 June 2017

Issued by:

P. Cloot
Business Director
Intelligent Networks and Communication

N.de Bruijn
Test Consultant

केन्द्रीय विद्युत अनुसंधान संस्थान
CENTRAL POWER RESEARCH INSTITUTE

METERING AND UTILITY AUTOMATION DIVISION

No: CPRI/MUAD/SASL-Synergy/2021-22/02 Date: 04 March 2022

To,

M/s. Synergy Systems & Solutions,
A-1526, Green Fields Colony,
Faridabad, Haryana– 121010,
INDIA

Kind Attention: Shri Vidhu Aggarwal, President

Dear Sir,

Sub: Regarding testing of Remote Terminal Unit (RTU).
Ref: Your Customer Request Form (CRF) dated. 23.11.2021.

This is to inform that one test sample described below submitted for testing of security implementation as per IEC 60870-5-7 (including IEC 62351-100-3 & IEC 62351-100-1) for IEC 60870-5-104. Testing on the sample is completed based on the functionality supported as per the PICS document submitted. From the test logs and results, it is found that the sample has not been shown to be non-conforming to the test cases conducted as per the test requested.

Remote Terminal Unit (RTU) Description:

Sl.No	Particulars	Description
01.	Manufacturer's name.	Synergy Systems & Solutions, Faridabad.
02.	Model No.	HUSKY RTU 6049-E70
03.	Serial No.	901000F300748
04.	Software Firmware Version	5.1
05.	CPRI Sample No.	MUAD/SASL/MISC/2150019

Detailed Test Report will be issued shortly.

(Shailesh Kapoor)
Test Engineer

(V Shivakumar)
Joint Director

"Happiness is when what you think, what you say and what you do are in harmony." - Mahatma Gandhi

UCA International Users Group

IEC 61850 Certificate Level A¹

No. 10050571-INC 17-2311

Issued to:
Synergy Systems & Solutions
A 1526, Green Fields Colony
Faridabad, Haryana 121001
India

For the client system:
HUSKY RTU 6049-E70 Remote Terminal Unit
Firmware version 5.1
S/N: 901000300748

The client system has not been shown to be non-conforming to:

IEC 61850 Edition 2 Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1

Communication networks and systems for power utility automation

The conformance test has been performed according to IEC 61850-10 Edition 2, the UCA International Users Group Edition 2 Client Conformance Test Procedures version 1.0 with TICO 1.0_rev3 with protocol, model and technical issue implementation conformance statements: "HUSKY RTU 6049-E70 – Protocol Implementation Conformance Statement (PICS) for the IEC61850 Ed. 2 Client interface, Revision 1", "HUSKY RTU 6049-E70 – Model Implementation Conformance Statement for IEC 61850 Ed2 Client interface, Revision 1" and "HUSKY RTU 6049-E70 – TISE/IES Implementation Conformance Statement for IEC 61850 Ed2 Client Interface, Revision 1" and the extra information for testing: "HUSKY RTU 6049-E70 – Protocol Implementation extra Information for Testing (PIXIT) for IEC 61850 Ed2 Client interface, Revision 1".

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

1 Basic Exchange (16/24)	12c Direct Control (5/8)
2 Data Sets (4/10)	12b SBO Control (7/11)
2+ Data Set Definition (5/9)	12c Enhanced Direct Control (5/9)
5 Unbuffered Reporting (21/23)	12c Enhanced SBO Control (7/11)
6 Buffered Reporting (26/28)	13 Time Synchronization (3/4)
	14 File Transfer (2/8)

This certificate includes a summary of the test results as carried out at DNV GL in the Netherlands with UNICA 61850 IED simulator 5.1 and UniCA 61850 Analyzer 5.32.32. This document has been issued for information purposes only, and the original paper copy of the DNV GL verification report No. 10050571-INC 17-2335 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by Synergy Systems & Solutions. The manufacturer's production process has not been assessed. This certificate does not imply that DNV GL has approved any product other than the specimen tested.

Arnhem, June 12, 2017

Issued by:

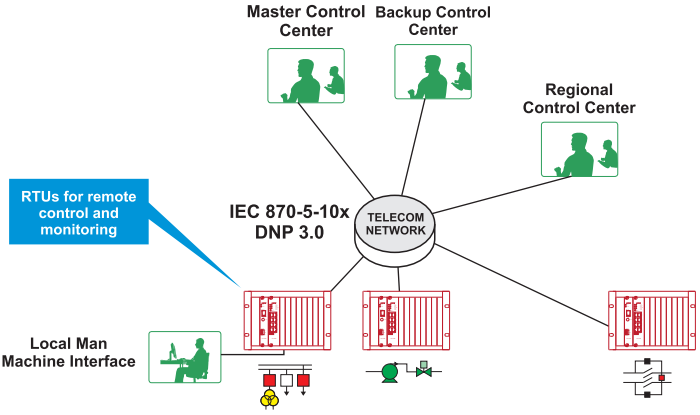
P. Cloot
Business Director
Intelligent Networks and Communication

K. Schimmel
Verification Manager

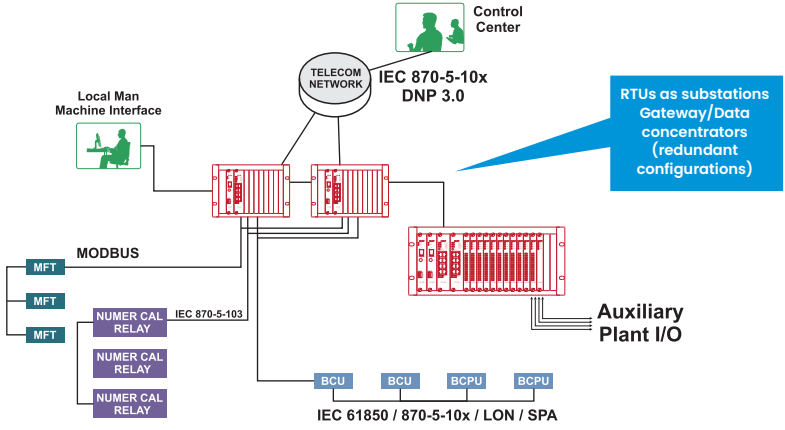
¹ Level A - Independent test lab with certified ISO 9001 Quality System
* TP.CL - Test procedures change list

APPLICATIONS

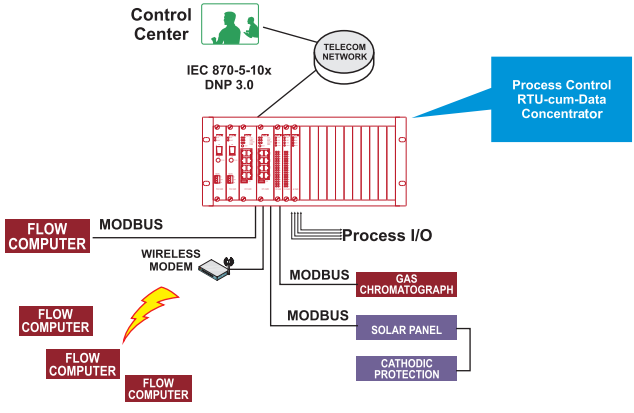
MULTIPLE MASTER STATIONS



SUBSTATION GATEWAY

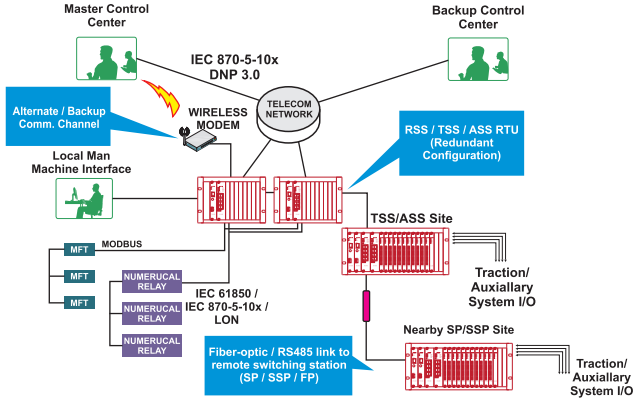


PIPELINE RTU

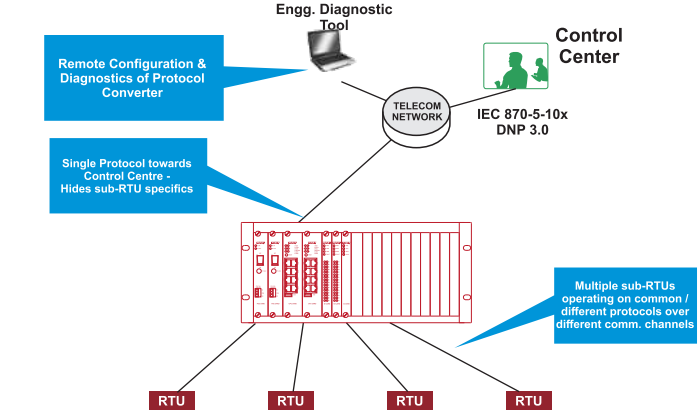


APPLICATIONS

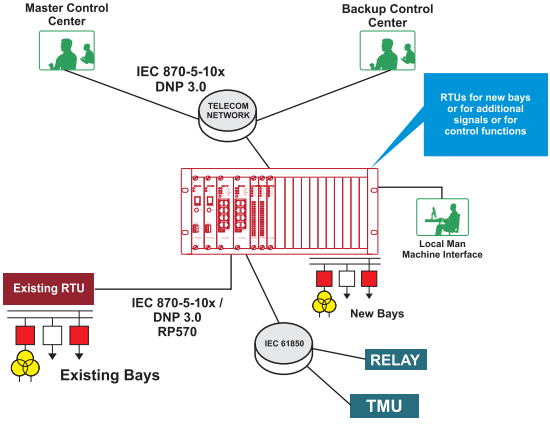
RAILWAY TRACTION



PROTOCOL CONVERTER



SUBSTATION MODERNIZATION



HUSKY™ RTU 6049 - E70m
MINI REMOTE TERMINAL UNIT

Features	32 Bit Fan-less Microprocessor Up to 6 nos. RS232/RS485 Ports Up to 2 nos. 10/100/1000 Ethernet Ports Built-in 4G/5G Modem Modular Isolated Digital, Analog I/O Industry Standard Protocols Multi-Master reporting Up to 8 time sources
Digital Input Module	Up to 32 channels per module 1ms SoE 24/48/110VDC input ranges Pulse counter Digital Measurands
Digital Output Module	Up to 16 channels per module Potential free NO contact Select-before-Execute hardware logic
Combo Modules	Combination of DI/DO/AI/AO in a single module
DC Analog Input Module	Upto 16 channels per module Voltage & Current Inputs (user selectable) Bipolar, Differential Inputs Resolution of 15-bits + sign Accuracy of 0.1% (FS) HART Support
DC Analog Output Module	Upto 4 channels per module Voltage & Current outputs (user selectable) Resolution of 15-bits + sign Accuracy of 0.1% (FS) HART Support
Application Areas	Feeder RTU City Gas Distribution Water Utilities Automated Meter Reading Data Concentrator Substations

RTU 6049-E70m

HUSKY RTU Mini is a compact Remote Terminal Unit (RTU) to cater to the needs of remote data collection automated monitoring/controlling systems, which typically have low I/O counts. Sharing the same technology platform as of RTU 6049-E70, the Mini- RTU offers a customized and cost-efficient solution for remote data collection applications. The Mini-RTU features an embedded 32-bit microprocessor and a real-time operating system that provide the computing power to effectively meet the requirements of data collection & aggregation from multiple devices, & to communicate the data to single or multiple central stations. When performing data collection, the RTU can be configured to operate in either “Store and Forward” or “Router” mode as per the site requirements.

The Mini-RTU is an ideal choice for the applications that require interfacing with intelligent devices and with a limited number of hardwired I/O. The built-in wireless RF modem provides the RTU with RF communication capabilities. This allows use of public wireless infrastructure like 4G/5G to connect the RTU with central SCADA stations. The compact arrangement of the Mini-RTU allows it to be deployed in wall-mounted enclosures also. The Mini-RTU supports both DIN rail as well as flush mounting.

HUSKY™ RTU 6049 - E70m

MINI REMOTE TERMINAL UNIT

The RTU supports a rich set of communication interfaces to cater varied demands of industry. It is equipped with up to 6 nos. of RS232/RS485 ports, 2 nos. 10/100/1000 Mbps Ethernet ports and a built in 4G/5G modem. The availability of protocols like IEC60870-5-101/103/104, DNP3, MODBUS, IEC 61850 MQTT allows for integration with multi-vendor devices. The RF modem enables the RTU to be used in M2M (Machine-2-Machine) applications. When used in conjunction with our M2M gateway (part of HUSKY WinDCU & HUSKY DCU-E70), a full-featured remote telemetry/data collection solution can be implemented, that is both secure and scalable.

The RTU has built-in analog and digital I/O for interfacing with local hardwired signals. All the I/O channels are isolated and surge-protected, for use in electrically harsh environments. The digital inputs support 1ms Sequence of Events recording, and the digital outputs support Select-Before-Operate function. The analog input channels support DC voltage and current inputs. Analog output option is also available that supports both voltage and current outputs.

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
• Conducted RFI Test	IEC 61000-4-6
• Power Frequency Test	IEC 61000-4-8
• Damped Oscillatory Magnetic Field	IEC 61000-4-10
• Oscillatory Waves	IEC 61000-4-18
• Conducted Emission	CISPR 22
• Voltage Range & Tolerance	IEC60870-2-1
• Ripple Test	IEC61000-4-17

Electromechanical Compliance

• Vibration	IEC60068-2-6

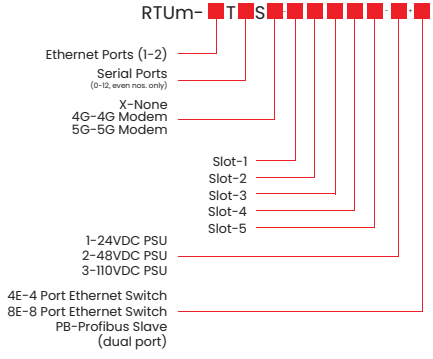
Environmental

• Dry Heat	IEC60068-2-2
• Damp Heat	IEC60068-2-78,30
• Cold Test	IEC60068-2-1
• Temperature Cycle	IEC60068-2-14

Safety

• Power Frequency Voltage Withstand	IEC60255-27
• Impulse Voltage Withstand	IEC60255-27
• Insulation Resistance	IEC60255-27

ORDERING CODE



TECHNICAL SPECIFICATIONS

I/O SLOTS	5
I/O CONNECTIONS	PLUGGABLE MOLEX CONNECTOR
ETHERNET INTERFACE	RJ 45
SERIAL INTERFACE	RJ 45
RF MODEM	GSM/4G/5G RADIO MODEM
SIM INTERFACE	DUAL MICRO-SIM
INPUT POWER	18~36VDC / 36~72VDC
POWER CONSUMPTION	25W MAX.
OPERATING TEMP.	-25 TO +70 C
RELATIVE HUMIDITY	95% NON-CONDENSING
DIMENSIONS	(L)210 (D)190 (H)185MM
WEIGHT (MAX.)	3.0 KG

MODEL DESCRIPTION

MODULE TYPE	DESCRIPTION
1	COMBO MODULE (8 DI, 6 DO, 4 AI)
3	COMBO MODULE (8 DI, 6 DO, 4 AI, 2AO)
4	COMBO MODULE (16 DI, 8 DO)
6	32 DI MODULE
7	16 DO MODULE
8	8 AI MODULE
9	COMBO MODULE (4 DI, 4 DO, 12 AI)
10	COMBO MODULE (8 AI, 4 AO)
11	COMBO MODULE (8 DI, 4 DO)
12	8 DO MODULE
13	12 AI MODULE

**OTHER IO COMBINATIONS ARE AVAILABLE ON REQUEST.

HUSKY™ SBRTU
SINGLE BOARD RTU

HUSKY SBRTU

It is a high-performance single board RTU powered by fanless ARM microprocessor. The RTU provides communication interfaces as well as process I/O in a compact form factor. The RTU can be equipped with 2 nos. of Ethernet ports and 2 nos. of RS232/RS485 serial ports and various process I/O options (DI, DO, AI, AO & RTD) are available. Additionally, 4G/5G and Wi-Fi wireless interfaces are also supported as an option.

General Technical Description

The core of the RTU is an embedded, low power ARM microprocessor providing all the computing power required for the RTU operations.

NAND flash is used for storage of configuration and other information. Optionally, a battery backed RAM is provided for storage of events and RTC time in the CPU.

Ethernet Communications

The RTU can be equipped with up to 2 nos. of 10/100 Ethernet ports.

The Ethernet ports can be used to communicate with IEDs, master stations, GPS receivers, etc. RTU diagnostics and configuration can also be performed via any of the ports. Multiple protocols can be simultaneously used on a single port.

Serial Communication

The RTU has serial ports that are selectable between RS232 and RS485. All ports on the CPU are surge protected and isolated. In case of RS485, up to 32 devices can be multi-dropped on a single port.

Time Synchronization

The RTU can be time synchronized by means of time synchronization protocols like SNTP , NMEA 0183 (serial) or via master station. Multiple time sources can be configured for backup. A battery backed RTC maintains the time with resolution of 1ms. RTC is synchronized automatically when time is received from any of the configured time sources.

Features

32 Bit Fan-less Microprocessor
32MB RAM
32MB FLASH
Up to 2 nos. RS232/RS485 Ports
Up to 2 nos. 10/100 Ethernet Ports
Optional integrated 4G/5G modem
Isolated Digital, Analog I/O
Industry Standard Protocols
Multi-Master reporting
Up to 8 time sources
Optional Wi-Fi Interface

HUSKY™ SBRTU
SINGLE BOARD RTU

WIRELESS COMMUNICATION

The RTU has option for wireless modem interface for communicating over radio networks. Different radio technologies can be used based on the chosen modem. Currently, 4G/5G networks are supported. The use of the modem does not consume any of the serial ports available to the user. Certain models have option for dual SIM interface for providing redundancy of network provider.

Additionally, an optional Wi-Fi interface can be provided, which makes the RTU function as a Wi-Fi hotspot or Wi-Fi station. The Wi-Fi hotspot feature allows laptops/tablets to connect to the RTU over Wi-Fi for diagnostics and configuration purposes. This feature is useful to access the RTUs mounted in pole-top enclosures without having physical access. The interface is secured and can be enabled only by issuing a command from SCADA.

Digital Input Module	8 channels 1ms SoE 24/48/110VDC input ranges Pulse counter Digital Measurands
Digital Output Module	6 channels Potential free NO contact Select-before-Execute hardware logic
DC Analog Input Module	4 channels Voltage and Current Inputs (user selectable) Bipolar, Differential Inputs Resolution of 15-bits + sign Accuracy of 0.1% (FS) RTD Support (1 channel)
DC Analog Output Module	2 channels Current Outputs Resolution of 15-bits + sign Accuracy of 0.1% (FS)

ORDERING CODE

SBRTU- □□ - □□ - □ □ □

- Base model (400MHz) - B
  Enhanced Model 528MHz) - E
- Serial Ports - (1-2)
- Ethernet Ports - (1-2)
- 12VDC Input Power - L
  24VDC Input Power - M
  48VDC Input Power - H
- 8DI / 6DO / 4AI / 2AO / RTD - A00
  8DI / 6DO / 4AI / 2AO - A01
  8DI / 6DO / 4AI - A02
  8DI / 6DO - A03
  8DI - A04
- Wireless modem 4G - 4G
  5G - 5G
- None - 00
  Wi-Fi Interface - WI

TECHNICAL SPECIFICATIONS

PROCESSOR	ARM CORTEX MICROPROCESSOR
SPEED	300MHZ
RAM	32 MB / 64MB
NVRAM	128KB
FLASH	32/128 MB NAND FLASH
SERIAL	UP TO 2 SERIAL PORTS RS232/RS485 SOFTWARE SELECTABLE BIT RATE <= 115200 SURGE PROTECTED ISOLATION = 3 KV
ETHERNET	UP TO 2 RJ45 PORTS 10/100 MBPS WITH AUTO MDI-X SURGE PROTECTED ISOLATION = 1KV
SERIAL INTERFACE	RJ45
POWER INPUT VOLTAGE ISOLATION PROTECTION	20W 12/24/48 VDC OPTIONS AVAILABLE 1.5KV ISOLATED SHORT CIRCUIT REVERSE POLARITY
OPERATING TEMP.	-5 TO +70˚C
RELATIVE HUMIDITY	95% NON-CONDENSING