Substation control and automation

Talus 2000-C20

Product overview

MERLIN GERIN

GROUPE SCHNEIDER

■ Merlin Gerin ■ Modicon ■ Square D ■ Telemecanique

Consumer Protection Act 1987

According to the provisions of the United Kingdom Consumer Protection Act 1987, Schneider Limited may be liable to consumers in respect of damage to the consumer's person or property caused by equipment manufactured by it or by products incorporating equipment manufactured by it, irrespective of whether it can be shown that Schneider Limited was in any way negligent.

Schneider Limited accept this responsibility for System configuration and System components as delivered, installed or commissioned by Schneider Limited personnel or its authorised agent(s).

In all cases where any detail of System configuration, or any hardware or software component of the equipment, is modified, replaced or changed by the Purchaser or his authorised representative, the Purchaser shall indemnify Schneider Limited in full against any liability incurred by reason of the above act, its equivalent in European Economic Community law or by the laws and/or regulations applicable in any other country. All cases of dispute shall be judged under English law irrespective of the country of origin.

Registered office: Stafford Park 5, Telford, Shropshire TF3 3BL. Registered in England 1641319.

Contents

1 Introduction

The Talus 2000-C20 is suited for applications such as substation control where high capacity with intelligent, multi-function control and monitoring is required. Designed as a modular structure, it provides maximum flexibility for customer specific plant configurations and is optimised for electrical distribution HV/MV substations.

Many of the configuration parameters required by the Talus 2000-C20 are loaded locally from a personal computer into a non-volatile area of memory. Long down loading of data at start up is therefore not required, enabling speedy commissioning times and rapid restoration after power recovery.

The main features are:

Integrated or co-ordinated solution

- integrates with other Schneider products to provide the total substation solution
- multi-protocol capability to host(s)
- capability to communicate and manage other manufacturers Intelligent Electronic Devices (IEDs)
- retrofit capability plus upgrade of functionality

Programmable automation functions

- supports a full range of mathematical and logical operations
- time based and event based derivation blocks
- application examples include:
  - data manipulation
  - automatic distribution network reconfiguration
  - interlocking of events/controls

Modular, extendible architecture

- capability for sixteen serial ports for external communications
- dual internal modem support with each modem catering for main and standby lines
- configurable via Personal Computer
- large discrete I/O capacity (absolute maximums listed)
  - 3072 digital inputs
  - 576 secure control outputs
  - 768 analogue inputs
  - 768 relay drive outputs
  - 1536 lamp drive outputs

Integration with network control systems

- assured compatibility with the Milenium 8000 range
- multiple host capability
- provides the network gateway to substation equipment
- data concentrator functionality
- repeater and regenerator functions

Investment for the future

- designed for adaptation to the emerging international standards
- designed for discrete retrofit and digital architectures

2 ..... Programming capability

[illegible] routines

- Support for a full range of mathematical and logical operations
- Time based and event based derivation blocks
- WHIRL compiler with built-in simulator for monitoring and debugging programs prior to downloading

3 ..... Enclosures

[illegible]

For further details, please contact Schneider Limited, PMS Division.

4 ..... Housing and backplane

[illegible]

- a power supply unit
- one RTUC
- up to four SIOCs
- up to two communication subsystems
- up to twelve discrete I/O plant subsystems

[illegible]

5 ..... RTUC and SIOC cards

5.1.....Communications

5.2.....Protocol/emulation

The standard Schneider WISP+ protocols used give high security of data transmission while maintaining compatibility with existing Schneider RTU's. The architecture of the Talus 2000-C20 enables international protocols and other proprietary protocols to be emulated when required. Protocols/emulation's available and proven include those required to communicate with Merlin Gerin SEPAM and other digital relays. Concurrent emulation of different protocols on adjacent I/O channels is also supported.

5.3.....Multiple host support

The Talus 2000-C20 has the ability to support up to 5 host systems with independent database.

5.4.....RTUC

- Manages all C20 activities.
- Processing of derived data.
- Communicates with SIOCs via a high-speed bus.
- RS423 ports for local user interface, e.g. a personal computer or video terminal.
- High accuracy clock for precision sequence of event recording and message time stamping.
- Extensive database monitoring facilities accessed via a local video terminal.
- Memory for program (up to 1Mbytes) and database storage (up to 0.5Mbytes)
- Non-volatile memory (up to 128kbytes) for storage of configuration data and derived data algorithms.

5.5.....SIOC

- Supports serial communications to hosts, slave RTUs, and intelligent devices with protocols dependent on application.
- Retrieves and pre-processes data from discrete I/O plant subsystems.
- Transfers data to and from RTUC using high-speed bus.
- Memory for program (up to 512kbytes), database storage and configuration data (up to 256kbytes).

6 ..... Power supplies

7 ..... Discrete I/O subsystems

The

7.1.....Analogue input subsystem

- Versions available for 8, 16 or 32 optically isolated analogue inputs per subsystem.
- Solid state multiplexing.
- DC voltage or current inputs.
- Input ranges:
  - ±1V, ±2V, ±5V ±10V bipolar and 0.4 to 2V unipolar
  - ±10mA, ±20mA, 4 to 20mA
- Resolution: 12-bits plus sign and overrange detection.
- ADC accuracy: 0.1% full scale at 25°C.

7.2.....Digital input subsystem

- 32, 64 or 128 inputs per subsystem depending on version and configurations.
- Typical uses: alarm, event, sequence of events, momentary change detect, pulse count or encoded inputs.
- Sequence of event resolution up to 1mS.
- Counter rate up to 100Hz.
- Input filter delay: 5mS nominal.

7.3.....Secure control output subsystem

- Each secure control output subsystem provides up to twenty-four, 2-state secure drives.
- Only one output per subsystem can be energised at a time.
- Secure variable pulse width in multiples of 100mS or variable pulse train with mark/space ratio in units of 100mS.
- Output rating: 1A maximum at control supply voltage.

7.4 Relay drive subsystem

- 32 single-pole form A drives per subsystem via optically isolated FETs.
- Each relay drive may be individually configured to Latched, Pulse Train or Pulse width (single pulse) output.

7.5.....Lamp drive subsystem

- 64 single wire lamp drives per subsystem via optically isolated FETs.
- General purpose outputs for driving indicators such as mimic lamps.
- Each output may be driven on, off, slow flash or fast flash.
- Plant supply, 21 - 63V DC.
- Separate control supply required to power indicators, 21 - 63V DC.

8 ..... Communications

8.1.....Inter-module

The link between plant sub-systems and SIOC is via an optically isolated serial data stream, operating at speeds up to 19,200 bits per second.

8.2.....External

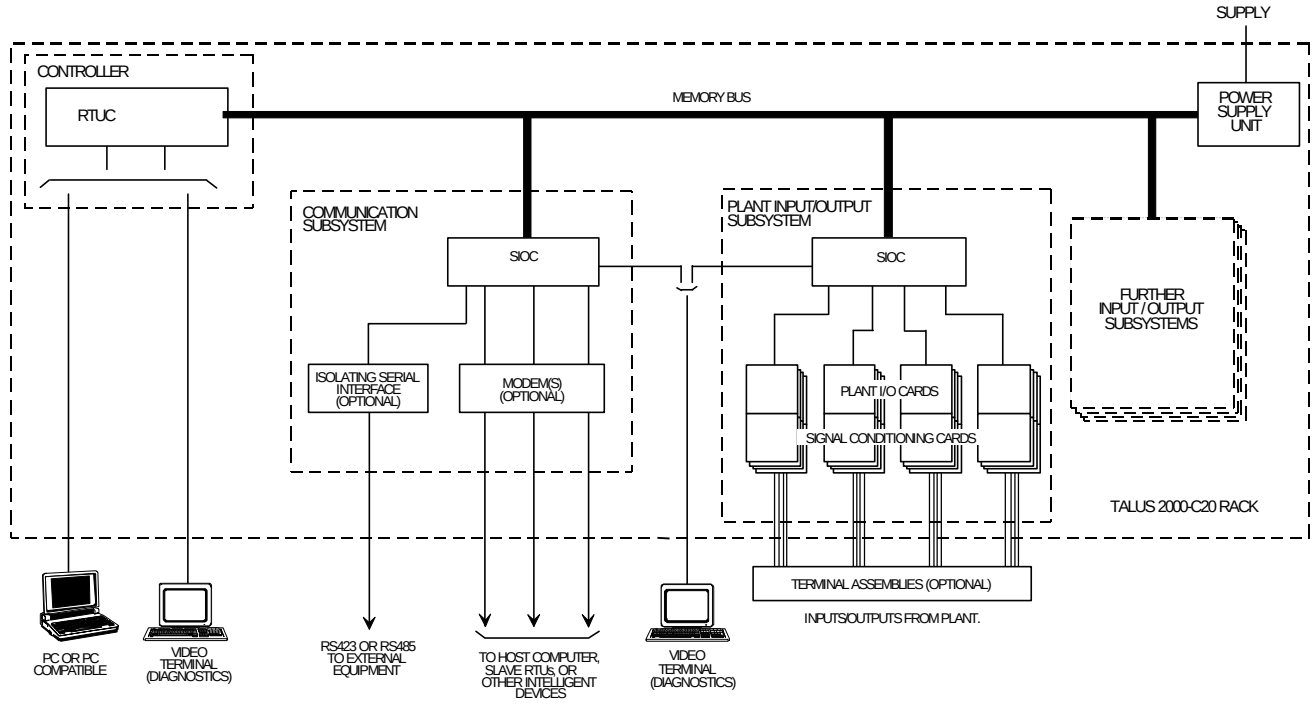
The main controller communicates with:

- Host devices utilising WISP+ as standard
- Devices conforming to the standardised IEC 870-5-101 protocol*
- Slave RTU's utilising WISP+
- IEDs using MODBUS* (such as Merlin Gerin SEPAM)
- Courier (GEC K Series) relays*
- Spabus (such as ABB)*
- Schweitzer*
- Other devices/protocols available on request*

* Please contact Schneider Limited, PMS Division for further information.

8.3.....Modem

- Bit or byte orientated data formats.
- User selectable baud rate to 9600 baud FSK, up to 2 modems on one module.
- Main/standby line support.
- Radio switch output.
- 2/4 wire communications.
- High impedance capability
- Built-in diagnostics
- BABT approved



Talus 2000-C20 Architecture

8.4.....Isolating serial interface

- Enables serial communications to external devices while maintaining EMC standards.
- RS232/RS423 and RS485 ports.
- Mounts in plant I/O area of C20.

8.5.....Bit serial interface

- Enables communication to host(s) requiring bit stream protocol(s).
- Converts byte orientated message formats to bit stream, and vice versa.

9 Environmental

Talus 2000-C20	
Plant cabling	o.5 to 2.5mm^2 (screw terminals)
Operating temperature range	-0 °C to +70 °C
Storage temperature range	-40 °C to +70 °C
Relative humidity	Up to 90% at 40 °C non-condensing (standard) Up to 95% at 40 °C non-condensing (tropicalised)
EMC immunity	Complies with EC EMC directive 89/336/EEC BS EN 50082-2 (industrial generic standard) IEC 255-22-1 Class III IEC 255-4 Class III (5KV impulse)
EMC emissions	BS EN 55022 Class A
Additional approval	Version available designed to comply with NGTS 2.13 Class Z.

10 Configuration, test and maintenance

A full range of tools is provided to configure and testing the Talus 2000-C20. These include:

- A configurator, which generates a file from a personal computer for downloading information to the controller
- A modem configurator
- A local Video Terminal (VT) facility that allows the database to be examined or diagnostics to be run
- A Talus master terminal unit utility (TMTU), used to test devices employing the WISP+ message set
- A TLINE utility which runs on a personal computer enabling WISP+ messages, to and from the devices, to be interpreted and displayed

Schneider Limited
PMS Division

PO Box 41, Langley Road,
Chippenham, Wiltshire
SN15 1JJ.
Tel: 44 (0) 1249 456 000
Fax: 44 (0) 1249 659 635
E-mail:
pms@schneider.co.uk

Registered office:
Stafford Park 5, Telford, Shropshire TF3 3BL.

Registered in England 1407228