SCIENCE GATE
Your Automation Partner

PRODUCT GUIDE IX

www.scigate.com.sg

INDUSTRIES WE SERVED.....

Wide range solutions Satisfaction guaranteed

Advanced technology Cost effective

Free application consultation and demonstration

Endless automation systems

Well-trained and dedicated engineers

CONT

Research
Wastewater
Medical
Industrial Automation
HDD
Chemical
Aerospace
Industry 4.0
Precision Engineering
Marine
F&B
Building
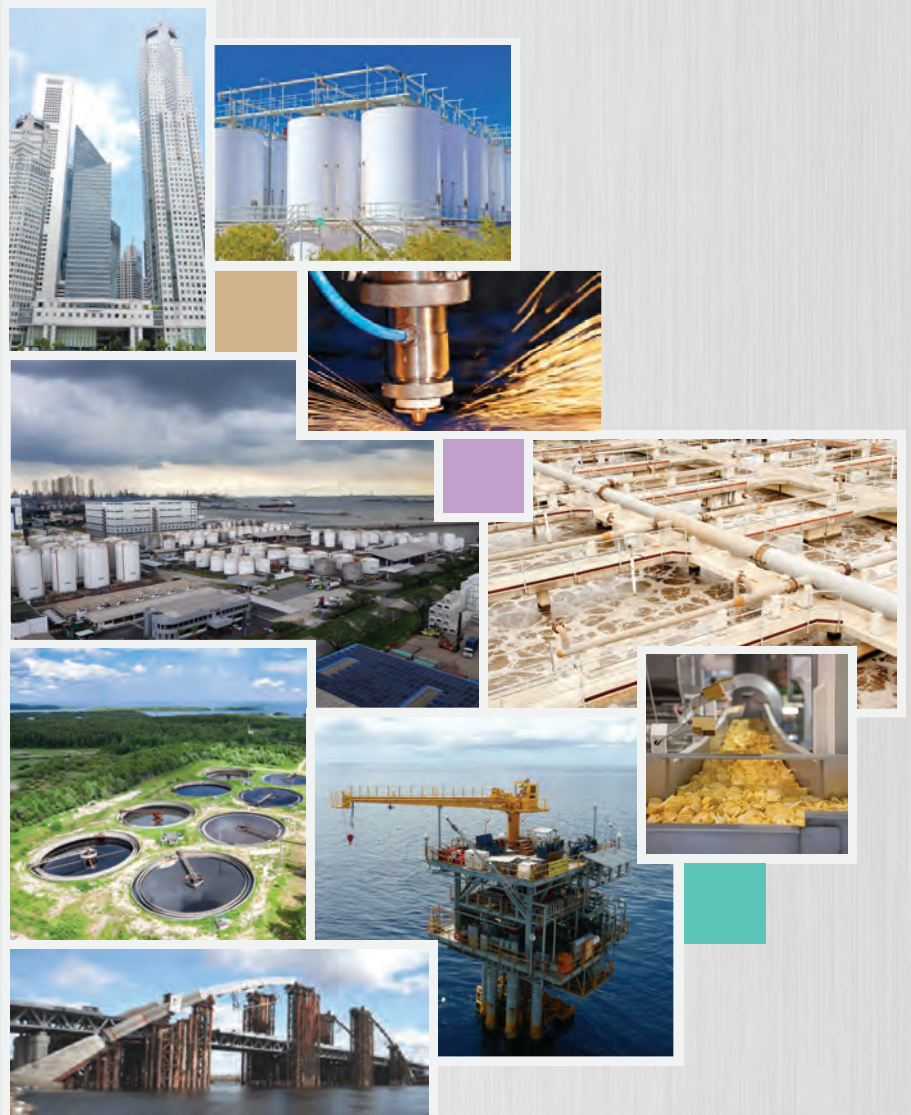Internet of Things
Automation
Semiconductor

TENTS

*For more information, please log on to http://www.scigate.com.sg

Pro-face
by Schneider Electric

SP5000 Series
Connecting information and people for optimal communication

Cloud Data Server
SCADA
ANDON System
OEE System

Production Line

STATION 1 PARTS	STATION 2 PARTS	STATION 3 PARTS
90	52	140

STATION 4 PARTS	9	STA 4-5
STATION 5 PARTS	48	37
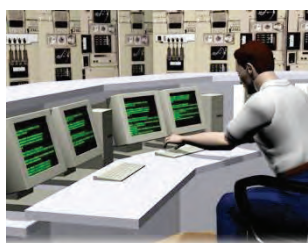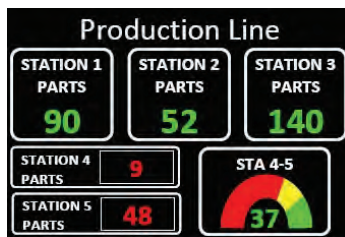
	Ideal	Normal
Availability	90%	79%
Performance	95%	80%
Quality	99.9%	95%
OEE	85%	60%

Enterprise Network

15" 19" 15" 12" wide
10" wide 7" wide

PLC

HMI   Pro-face IoT Gateway

Production Network
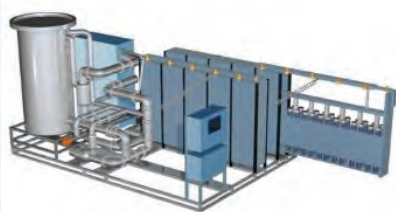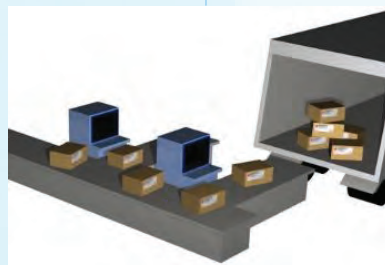
Facility
Production
Logistic
QA/QC

CPU computing power About 2x	Graphical engine About 3x	Start-up time About 1.5x	Free storage space About 3x	Data access speed (read/write) About 2x

Database Software
Logic Editor
Screen Editor
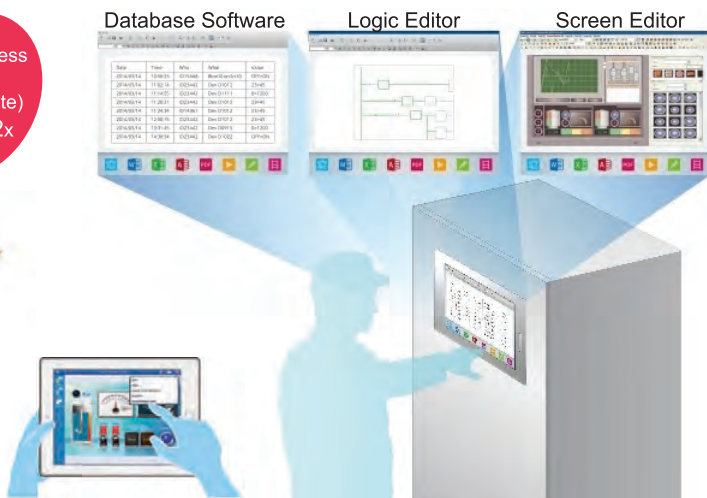
Use handwritten memos for task handover

Open Box
Run Windows OS
Third Parties application

Switch off power in the same way as the normal HMI even without executing shutdown processes like a computer

NVRAM

Open Box / Power Box

For more information, please log on to http://www.scigate.com.sg

Pro-face
by Schneider Electric

GP4000 Series
Varied and flexible line up satisfying customers' needs

1. Widest model and range line-up in the Pro-face brand

2. User friendly software and develop screen program in short time

GP-Pro EX

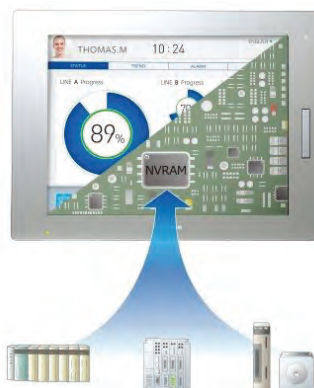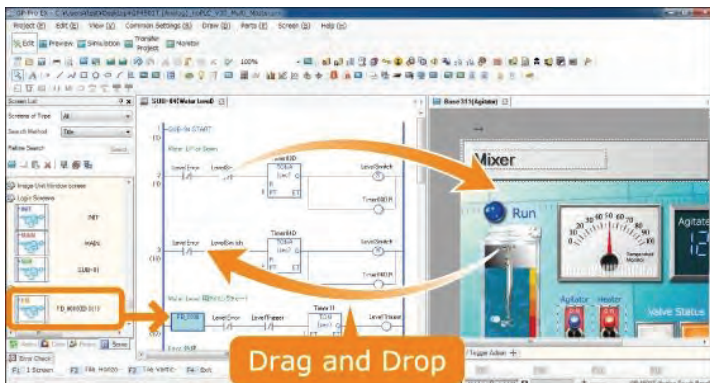Many pre-configured sample screen for immediate

Ladder Function
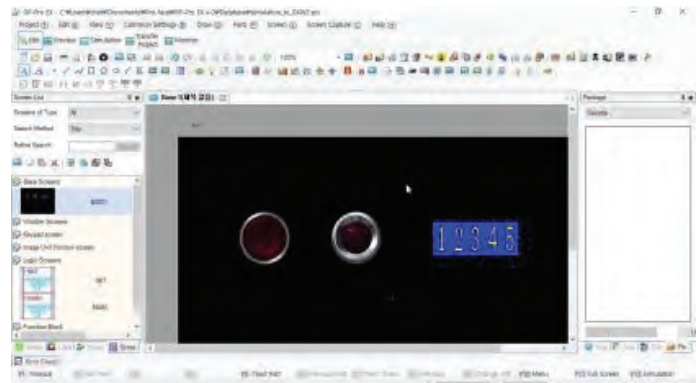
Screen Simulation Function

3. Lower maintenance cost due to long lasting and easy to replace, compatible with our legacy models

Backward compactable software

GP410   GP577R   GP2000   GP3000   GP4000

Data in GP-PRO/PBIII for Windows or later is convertible using project converter. Smooth transition to the latest models. Since the 80s, programed in DOS OS.

Same cut-out size

Panel cut-out dimensions compatibility for easy replacement

4. Easily connect multiple USB devices

Easily connect to HMI with a USB cable. Cabling labor time is reduced.

EZ Tower Light

EZ Illuminated Switch

EZ Numpad

EZ LAN Adapter

USB Cable

USB Hub
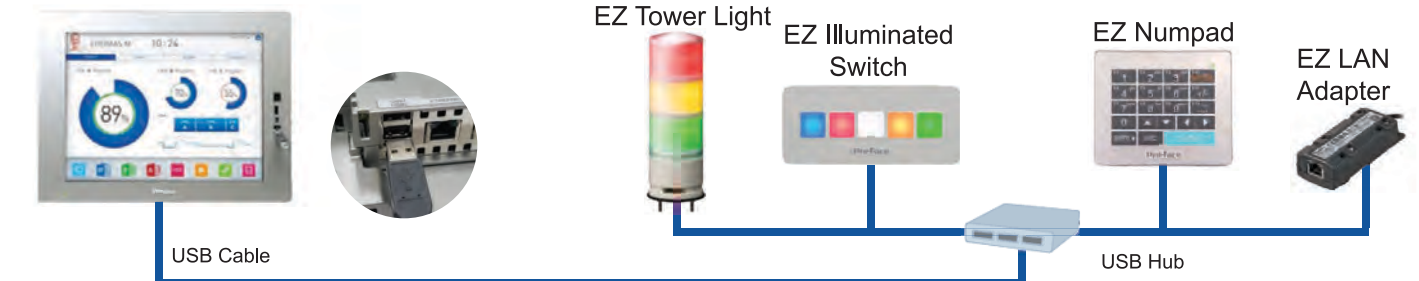
Compact all-in-one unit for easy installation in small spaces
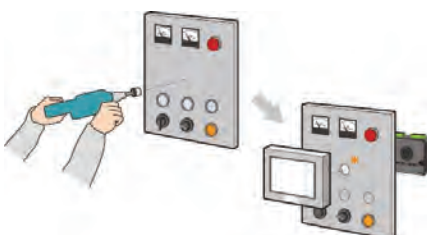
Flexible installation for integrated or separated
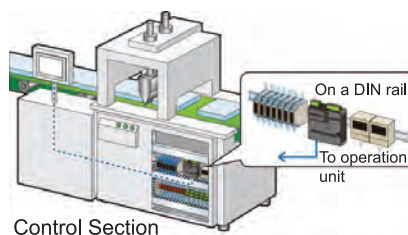
Ethernet Multi-Link function

On a DIN rail

To operation unit

Control Section

Master

Ethernet

Slave   Slave   Slave

Control Device

PS5000 Series - Industrial PC

Pro-face
by **Schneider** Electric

Excellent performance in a comfortable package

Variety of screen sizes and interface options

Solid quality with carefully-selected, reliable parts

Long-term supply of OS

Remote display

Compatible with encryption enabled by TPM, Windows BitLocker and MacAfee Embedded Control license

High-quality, attractive enclosure and integrated heat sink contrast

Design and maintenance-conscious interface layout

IP66 for harsh and dusty conditions

High pressure washing

Dust

Multi-touch display contrast

Low-reflectivity glass less glare and higher contrast

Full HD display contrast

Conventional Models   PS5000 Series

Hot-swappable HDD during operation conscious interface layout

Fan-less design prevent IPC stop functioning due to excessive heat, dust and oil

55°C

Compatible panel cut out of PL3000 Series (2003)

Many interface options

40% ultra-thin

VESA mounting

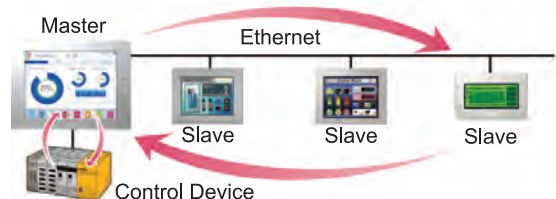**ST6000 Series -** Achieve a high level of visualization with the new basic HMI

BLUE Versatile Software

Revolution new software, BLUE will offer an alternative experience in hardware design. Anyone can easily create and change dynamic screens allowed for gesture operation. BLUE will provide a ground-breaking versatile design style.

BLUE

4"   7"   10"   12"   15"

Aluminum Front Panel
• 16 Million colors
• Better graphics and font
• Dual ethernet ports

COM1: RS-232C
COM2: RS-422/485

USB 2.0 (Type A)
USB 2.0 (Micro B)
Ethernet1: 10BASE-T/
100BASE-TX
Ethernet2: 10BASE-T/
100BASE-TX

![Schneider Electric logo]

Modicon Logic Controllers M221, M241, M251

M221 PLC: The best performance for its size!
- SD card and USB port
- 2 analog inputs and a broad choice of I/Os
- Run/stop switch and cartridge extension
- Ethernet and serial line ports
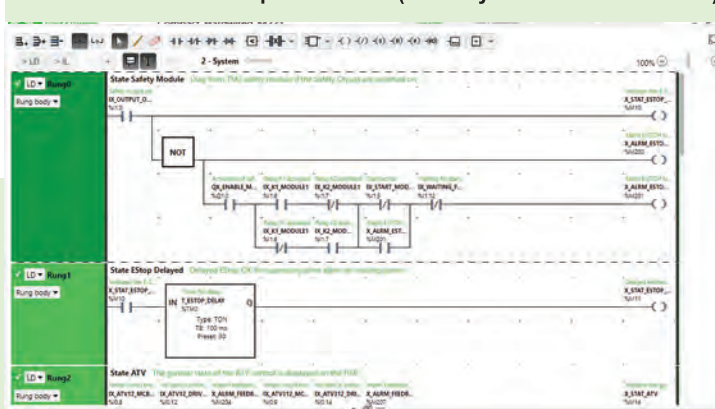- High degree of flexibility lets you add additional modules easily

M241 Logic Controller: The benchmark for compact machine controllers!
- 5 Ethernet ports, CANopen, 2 serial lines, USB port for programming
- High processing CPU and cartridge extensions
- Web Server and FTP server
- Pulse train outputs / high-speed counters
- SD card
- Fast and easy configuration

M251 Logic Controller- Your choice for modular and distributed architectures that connect everything!
- Expansion bus Modicon TM3
- Ultra compact format
- Up to 14 fast expansion modules
- Powerful data transfer via SD Card, embedded Web- & FTP Server
- 22µs by instruction
- 64MB Ram and 128MB Flash
- CANopen, Modbus TCP, and EtherNet/IP
- Embedded Ethernet switch with 2 ports
- Up to 3 communication modules

EcoStruxure Machine Expert – Basic" (formerly known as SoMachine)
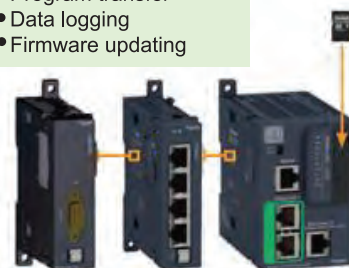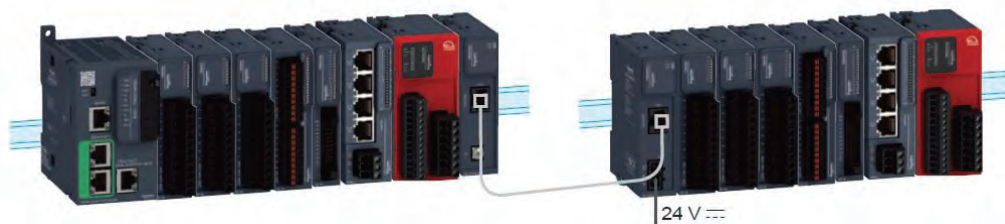
They can be programmed in:
- Instruction List (IL) language
- Ladder (LD) language
- Grafcet graphic language
- Structured Text (ST) operations
- User-defined functions
- User-defined function blocks

SD memory card
- Application backup
- Program transfer
- Data logging
- Firmware updating

24 V

	TM221CE16R	TM221CE24R	TM221CE40R	TM241CE24R	TM241CE40R	TM251MESE
Digital Inputs	9	14	24	14	24	-
Relay Outputs	7	10	16	4T/6R	4T/12R	-
Analog Inputs	2 x 0~10V			-		
Max. expansion modules	7 Modicon TM3 expansion modules / 14 bus expansion modules					
Ethernet link	1					Port 1: 2 x RJ45 Port 2: Fieldbus
Serial link	1			2		1
Process control	PID					-
Counting	4 x 100KHz			8 x 100KHz		-
Position control	2 Axes Pulse Direction 1 Axes CW/CCW			• Pulse train (PTO) P/D, CW and CCW, 100 kHz frequency • Pulse width modulation (PWM) • Frequency generator (FG)		-
Software programming	SoMachine Basic software			SoMachine software		
Processing power	-			• DualCore processor • Program size: 10 MB for application and symbols		
Execution speed	0.2 ms/Boolean instruction			22 ns/Boolean instruction		
Program	10 Boolean K instructions			128 Boolean K instructions		
Number of words	8,000			-		
Number of internal bits	1,024			-		
RAM	640 K (256 K for internal variables and 256 K for application and client data)			64 MB		
Flash memory	2 MB			28 MB		
Supply voltage	AC100~240V					DC24V

For more information, please log on to http://www.scigate.com.sg

Industrial Panel PCs

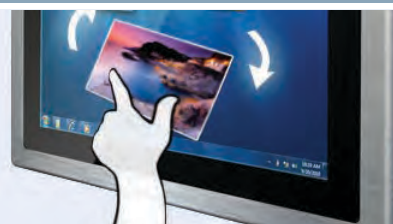Winmate is the Professional and Modularized Panel PC Provider

WINMATE

Front IP65 Water and Dust Proof

IP65 sealing, which means it is completely impervious to dust and is even protected against splash of waters (within certain limits).

P-Cap Touch

Projected capacitive touch for the ultimate convenience and ease of use, allowing users to feel pleasant experience when using the device.

Industrial panel pc is an all-in-one system designed around a highlight integrated Intel Core i3/i5/i7 (Kaby Lake) single board computers. It supports touch panel displays and offers multiple expansion and I/Os.

Chassis Display

Industrial chassis display comes in a sleek housing to perfectly fit in confined spaces. Display varies in color and size ranging from 6.5" up to 64.5".

Panel Mount Display

Panel mount display is perfect for space considerations and support panel, front mount and VESA mounting for different applications.

Front IP65 Display

Designed to be rugged, Front IP65 Display are ideal for use in wet and dusty environments, such as outdoor kiosks or SPA pool kiosks.

Full IP65 Display

Winmate multipurpose and waterproof fully sealed IP65 display is protected against outer dust and water splash and ideal for use in harsh environments such as food processing and packaging automation.

For more information, please log on to http://www.scigate.com.sg

Marine

Marine Grade Panel PCs with Various Display Interface Options with Various Display Interface Options
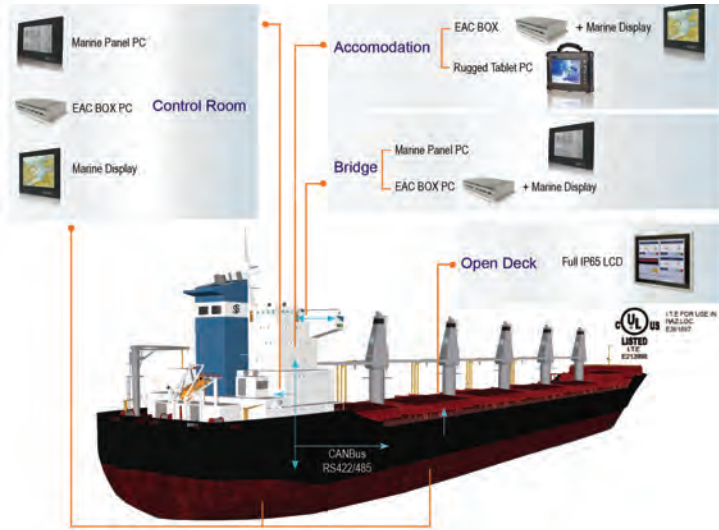
Marine Display
- 10.4/12.1/15/17/19/20.1/24"
- Front panel OSD control
- Dimming knob backlight brightness control

EAC/Marine IPCS
Processor   : Intel ® Core i7-3555LE 2.5GHz Turbo Max 3.2GHz
System Memory   : 1 x SODIMM, Max 8GB DDR3 1333 (2GB Default)
Ethernet Controller : Intel 82579-LM GbE PHY
                                +
                    Intel WG82574L GbE LAN

Oil & Gas
C1D2 and ATEX certified Products for Hazloc Deployment

- **Class I, Division 2, Groups A, B, C, and D certificates, ATEX II 3 G Ex ic nA IIC T4 Gc**
- **Full IP66 protection against dust and water, MIL-STD-810F certified**

15" ATEX-Certified Stainless Steel Panel PC
Resolution   : 1024x768
Brightness   : 550 (typ.)
Viewing Angle   : -80~80 (H); -70~70 (V)
Processor   : Intel® Atom Dual Core N2600 1.6GHz
System Memory   : 1 x DDR3 SO-DIMM 1333 MHz (default 4GB)

R19IHAT-66EX

Control Tower

Control Room
28" BarType PPC

E500RM8 / E430RM4
GPS verification for leak detection

R15IV3S-MRM2
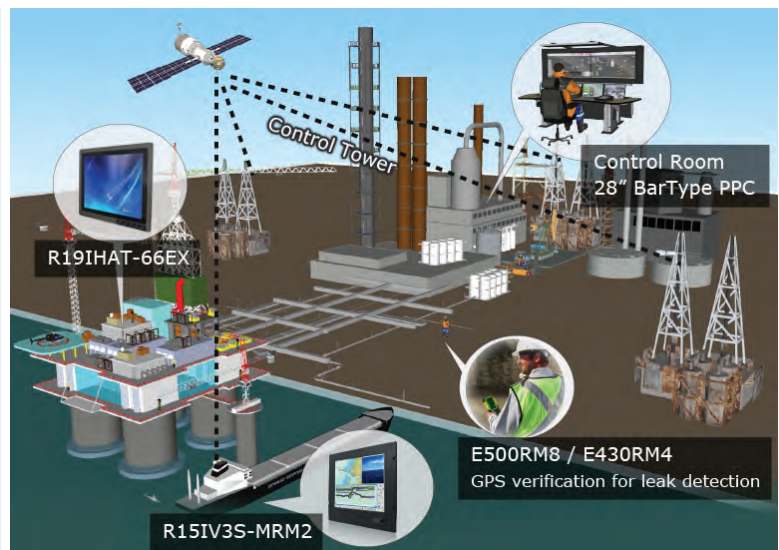
IP65F	Wide Temperature Solution	Marine HMI	IP69K Stainless Series	Sunlight Readable	Anti-Shock and Vibration

Delphin Technology

Your competent partner for Standalone data logger,..
Industry 4.0/Internet of Things

ProfiSignal Klicks | ProfiSignal Basic | ProfiSignal Go | ProfiSignal Web

Third Parties
- OPC Server
- Modbus TCP
- LabVIEW
- Diadem
- DASYLab Drivers

Data Service Configurator (LAN or USB)

WLAN — LTE
LAN — PRIVATE/PUBLIC cloud using Delphin Data Service — LAN / WLAN / LTE

Expert Logger | Expert Key | Loggito Logger | Loggito USB | Loggito Wireless | Loggito Gateway

	Expert Logger	Expert Key	Loggito Logger	Loggito USB	Loggito Wireless	Loggito Gateway
Universal Analog Inputs						
Voltage (Strain Gauge Excitation)	±156 mV ~ ±10 V	± 100 / 200 / 500 mV; ± 1 / 2 / 5 / 10 V	±78 mV ~ ±10 V			—
Current	0~20 mA, 4~20 mA		0~20 mA / 4~20 mA / ±20 mA			—
Resistance (Current reference)	0~10 kΩ (100 / 200µA / 1mA)	0~10 kΩ (200µA)	0~60 kΩ			—
Temperature(TC, RTD)	B, C, E, J, K, L, N, R, S, T, PT100, PT1000, NTC	R, K, J, E, PT100, PT1000	J, K, B, N, S PT100, PT1000			—
Analog Outputs	0~12 V / ±12V / 0~20 mA / 4~20 mA 16bits	0~10 V / ± 10 V / 0~20 mA / 4~20 mA / ±20 mA 16bits / 50Hz	4~20 mA / 12bits / 1Hz			—
High Frequency Digital Inputs	50Vdc / 3.5mA / 1 MHz / 64 bits	90Vdc / 3.5mA / 1 MHz / 64 bits	100Vdc / 3.5mA 30KHz / 64 bits			—
Digital Output	50 Vdc / 3A / 10 KHz	30 Vdc / 1A / 10Hz	50 Vdc / 250mA / 10 kHz			—
Input Resolution	24 Bit	18 Bit	24 Bit			—
Sum sampling rate	1KHz	100 KHz	1/3 Hz~680 Hz			—
Galvanic isolation	±400 VDC	500 VDC	±400 VDC			—
Data Memory - Internal (30 million values per GB)	2~14 GB	—	4 / 8 /16 GB	—	—	4 / 8 /16 GB
- External (Backup)	USB, NFS, CIFS, (S)FTP	—	USB, NFS, CIFS, (S)FTP	—	—	USB, NFS, CIFS, (S)FTP
Communication						
Data Service Configurator	LAN / USB / WLAN	LAN / USB	LAN / USB	USB	WLAN	LAN / USB
LAN	✓	✓	✓	—	—	✓
USB Device 2.0				✓		
USB Host 2.0	✓	—	✓	—	—	✓
CANbus 2.0	2	—	—	—	—	—
RS232/485	3	—	via USB extension	—	—	via USB extension
Modbus TCP	✓	—	✓	—	—	✓
Modbus RTU	✓	—	✓	—	—	✓
OPC UA	✓	—	✓	—	—	✓
OPC DA	—	—	✓	—	—	✓
Sensor bus SDI12	✓	—	—	—	—	—
Power Supply	12~24Vdc	9~24Vdc	12~24Vdc 5Vdc (USB mini) Battery 3.7V, 2Ah	5Vdc (USB mini)	12~24Vdc Battery 3.7V, 2Ah	12~24Vdc 5Vdc (USB mini) Battery 3.7V, 2Ah

For more information, please log on to http://www.scigate.com.sg

Your competent partner for measurement systems ranging from standard through to customised complete solutions!

Delphin Technology

Stand alone and secure data logger!
- Work standalone without computer
- Strong networking capability, remote & wireless viewing
- Universal inputs suitable for any type of sensor (e.g. mA, mV, RTD, thermocouples)
- Quality & high speed input (24 Bits ADC & 1KHz Sampling)

Applications:-
- Traffic census data loggers
- Solar panel data loggers
- Aircraft data loggers
- Temperature data loggers
- Meteorological data loggers
- High-speed data loggers
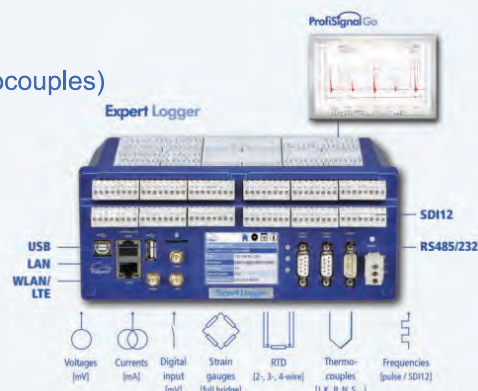
Monitoring and fault analysis!
- Synchronous acquisition of high-speed analog and digital signals
- Condition monitoring and fault diagnostics within a single device
- No requirement for an on-site PC and easy data read-outs using a USB stick
- Flexible data transmission via Ethernet, USB, Serial and WLAN
- Fast and easy data evaluation using logic analyses and trends

Message Series

Applications:-
- Fault analysis in industrial cranes
- Monitoring of wear in crane systems
- Development of crane maintenance-plans using data analysis
- Monitoring of system symmetries
- Monitoring crane travel and range distances
- Error detection in control and power components
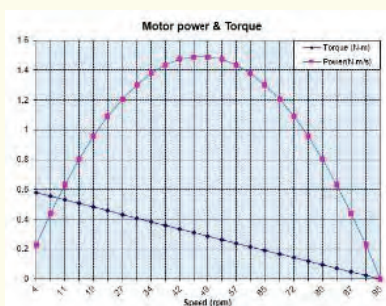- Maintenance planning for container cranes

Precision measurement!
- Easy-to-use, automated testing procedures
- Test sample conditioning management, voltage supply, frequency converters and switch matrixes
- Time-synchronised temperatures, pressures, rotations, electrical measurements and torques
- Precision electrical measurement via power measurement units
- Monitoring of threshold values online during the testing procedure

Applications:-
- Cold resistance measurement and extrapolation of winding resistances
- Non-load & rated load testing
- Load curves testing
- Overload trials & locked rotor testing
- Torque-speed characteristic curve
- Testing of voltage series
- Determination of efficiency
- Heat testing

BeanAir 2.4 GHz

Rethinking Sensing Technology

BeanScape® Supervision Software — BeanGateway® Wireless Coordinator — BeanDevice® Wireless Sensors

Ethernet LAN

ModBus IP

Modbus

Programmable Logic Controller

ModBus RS232/RS485

The BeanScape® is a real time WSN supervision and control monitor. It allows the users to monitor and operate in real time BeanAir® WSN. The BeanScape® is also equipped with a smart expert system that allows users to interpret elements such as data acquisition or alarms related to the sensor network.

Ethernet IEEE802.15.4

Modbus

SmartSensor

AX 3D
Accelerometer

Hi-Inc
Tiltmeter

AX 3DS
Shock Sensor

Inc
Low Cost Tiltmeter

AX 3D Xrange
High Performance Accelerometer

Hi-Inc Xrange
High Performance Tiltmeter

ProcessSensor

AN 420
Analog Current Loop (4-20mA)

AN V
Analog Voltage (+/- 0V or +/- 10V)

AN mV
Analog Voltage (+/- 20mV)

EcoSensor

One Tir
IR Temperature

One T
Temperature

One TH
Temperature and Humidity

Solar Panel   **X-Solar**

Power Supply output 4V
Charging
Batter full
Solar Panel input

CONDITION MONITORING

STRUCTURAL HEALTH MONITORING

CONDITION MONITORING

TEST AND MEASUREMENT

Environmental Monitoring

Structural Health Monitoring

Structural Health Monitoring

Test and Measurement

Land Surveying

For more information, please log on to   http://www.scigate.com.sg

Solar Panel (50W Monocrystalline Technology)

Wifi ANTENNA

IOT Gateway 4G

4G Antenna

Or

Mains power supply (94-264VAC)

AX-3D
Ultra Low Power
Wifi Accelerometer with
built-in data logger

AX-3DS
Ultra Low Power
Wifi Shock Sensor with
built-in data logger

Hi-Inc
Ultra Low Power
Wifi Accelerometer with
built-in data logger

X-Inc
Ultra Low Power
Wifi Combo Sensors (accelerometer,
inclinometer and shock) with built-in
data logger

ULP (Ultra Low Power)
Wifi Technology - IEEE 802.11 b/g/n
(2.4 Ghz frequency band)

Rugged aluminum casing
Waterproof IP67 | NEMA 6

Embedded Data Logger:
up to 5 million data points (with events
dating)

USB 2.0 for device configuration
(including firmware update)

Smart and flexible power supply,
compatible with USB and Solar power
sources

Store and Forward+:
Lossless data transmission with hard
real-time

SSD (Smart Shock Detection),
WILOW® sensor can wakeup on
shock detection (software configurable)

IIOT Ready: Integrated MQTT data
exchange,lightwheight and open-source
Industrial Internet of Things (IIOT)
protocol

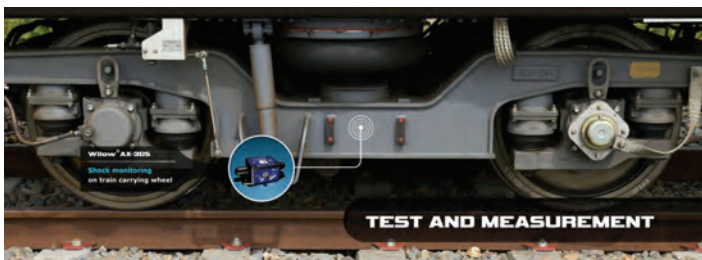Industrial temperature range
-40°C to +65°C

Onboard SNTP (Simple Net Time
Protocol) Client

Precision Time Protocol
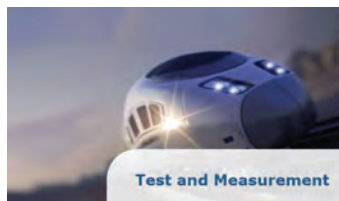over Wifi Network (±30ms of precision)

**DIN 4150-3
Standard thru FFT**

TEST AND MEASUREMENT

STRUCTURAL HEALTH MONITORING

CONDITION MONITORING

STRUCTURAL HEALTH MONITORING

Environmental
Monitoring

Condition Monitoring

Ground Vibration
Monitoring

Test and Measurement

Ground Vibration Monitoring

For more information, please log on to *http://www.scigate.com.sg*

 exemys
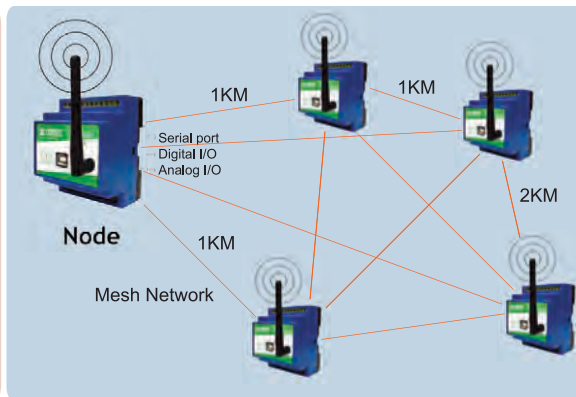
Telemetry and Connectivity

wRemote is a new concept of Wireless Telemetry, based on mesh networking technology. The system was designed for industrial and open field network, where you need to collect remote and disperse information in a reliable and low cost networking solution.

2.4GHz Telemetry • ZigBee Wireless Telemetry

wRemote

ZigBee Wireless Telemetry System 2.4GHz

RS232/485
Modbus

-SCADA
-PLC
-Controls

Concentrator

1KM
1KM
2KM
1KM

Node

Serial port
Digital I/O
Analog I/O

Mesh Network

Industrial
Connectivity of the control panels of wind turbines through fiber optic rings.

Water and Sanitation
Wireless acquisition of basic variables measurement from the injection of current rectifiers for the cathodic protection of pipelines.

Advantages of Mesh Network
- It is possible to carry messages from one node to another by different paths.
- Each node has its own communications with the others.
- Each node extends the scope of communications.
- It is much safer. If a node fails, another will take over the traffic.

Wireless Radio 2.4GHz Mesh Network Technology wSerial

HMI

SCADA software
PLC
HMI

RS485

wSerial - N
Remote Node

Power Meter   RS485

RS232
RS485
USB
Ethernet

Mesh Network
RS232/RS485/USB

wSerial
Concentrator

wSerial - N
Remote Node

wSerial - N
Remote Node

Inverter   RS485

Remote Weather Monitoring Station
Wireless acquisition of environmental data, temperaturre, raindrop and partical counter.

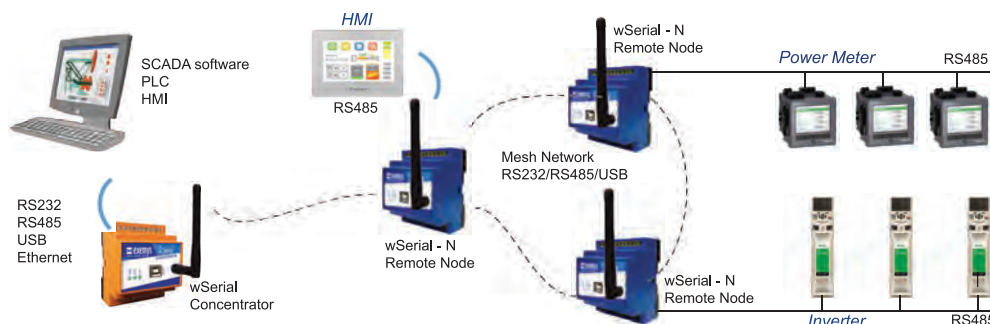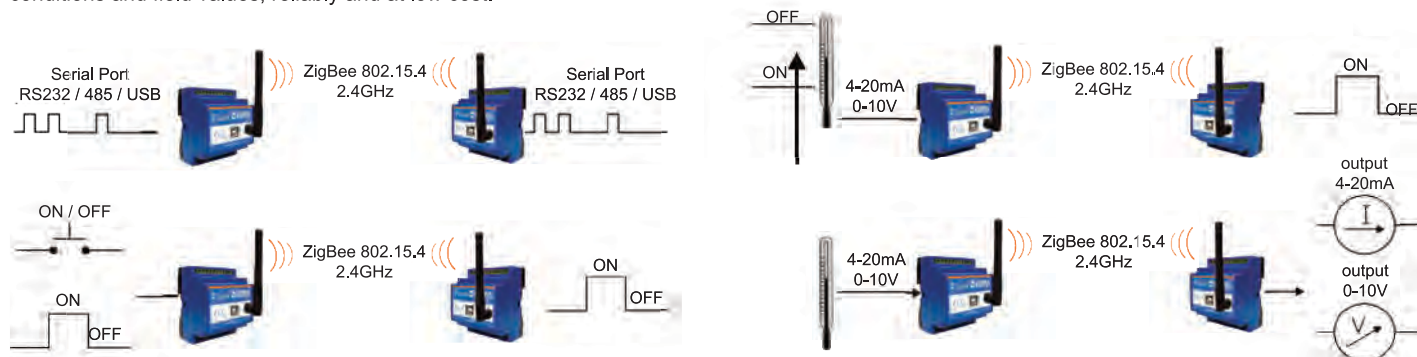**wSerial** is a new concept in Serial Radio, which introduces Mesh Networks technology to achieve not only point to point, but also multiple connections. The system was designed to be a real network of serial ports to industrial facilities where there is a need to gather information from remote and dispersed devices, reliably and inexpensively.

Remote Tank Farm Level Monitoring
Inventory monitoring and control wirelessly.

Wireless Radio 2.4GHz Mesh Network Technology wTunnel

wTunnel
The system was designed to be a true Point to Point Tunnel to reflect conditions and field values, reliably and at low cost.

Serial Port
RS232 / 485 / USB

ZigBee 802.15.4
2.4GHz

Serial Port
RS232 / 485 / USB

OFF
ON
4-20mA
0-10V

ZigBee 802.15.4
2.4GHz

ON
OFF

output
4-20mA

ON / OFF

ON
OFF

ZigBee 802.15.4
2.4GHz

ON
OFF

4-20mA
0-10V

ZigBee 802.15.4
2.4GHz

output
0-10V

For more information, please log on to http://www.scigate.com.sg

Telemetry and Connectivity

exemys

Telemetry Device with 3G+2G Cellular/Satellite Communication

GRD

Device for monitoring and controlling with 3G Cellular/Satellite communication and Programmable Logic

The GRD family of products helps control and supervise any kind of equipment from a distance, be it a control system or process system facilitating and implementation of the remote telemetry system. Additionally it includes the possibility to load test script to perform internal logic
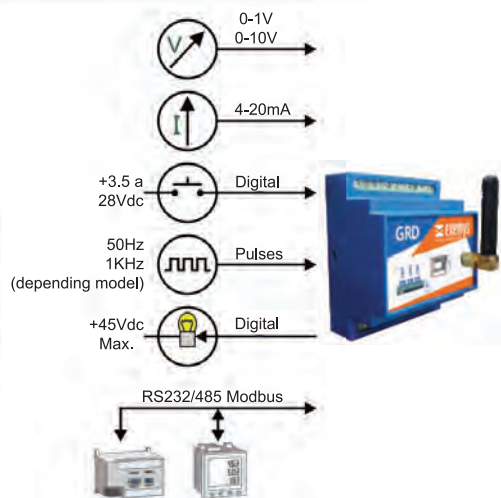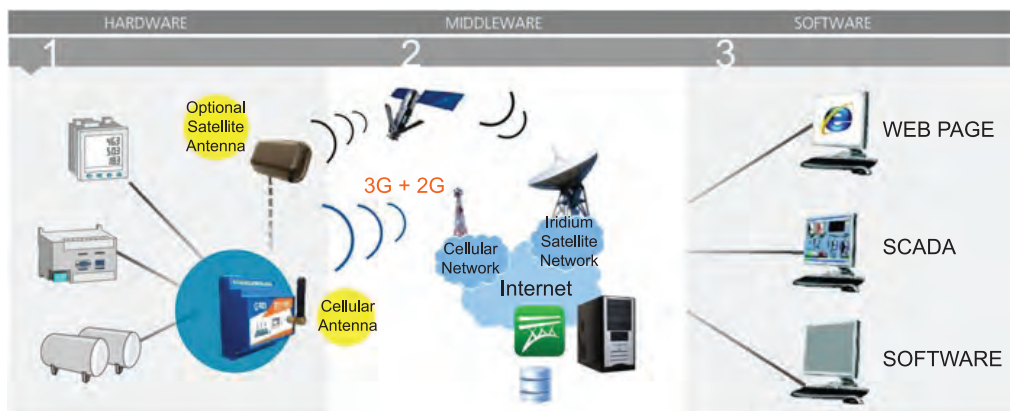
HARDWARE   MIDDLEWARE   SOFTWARE

1   2   3

Optional Satellite Antenna

3G + 2G

Cellular Network

Iridium Satellite Network

Internet

Cellular Antenna

WEB PAGE

SCADA

SOFTWARE

Electric Power
Remote monitoring and control of large size generations.
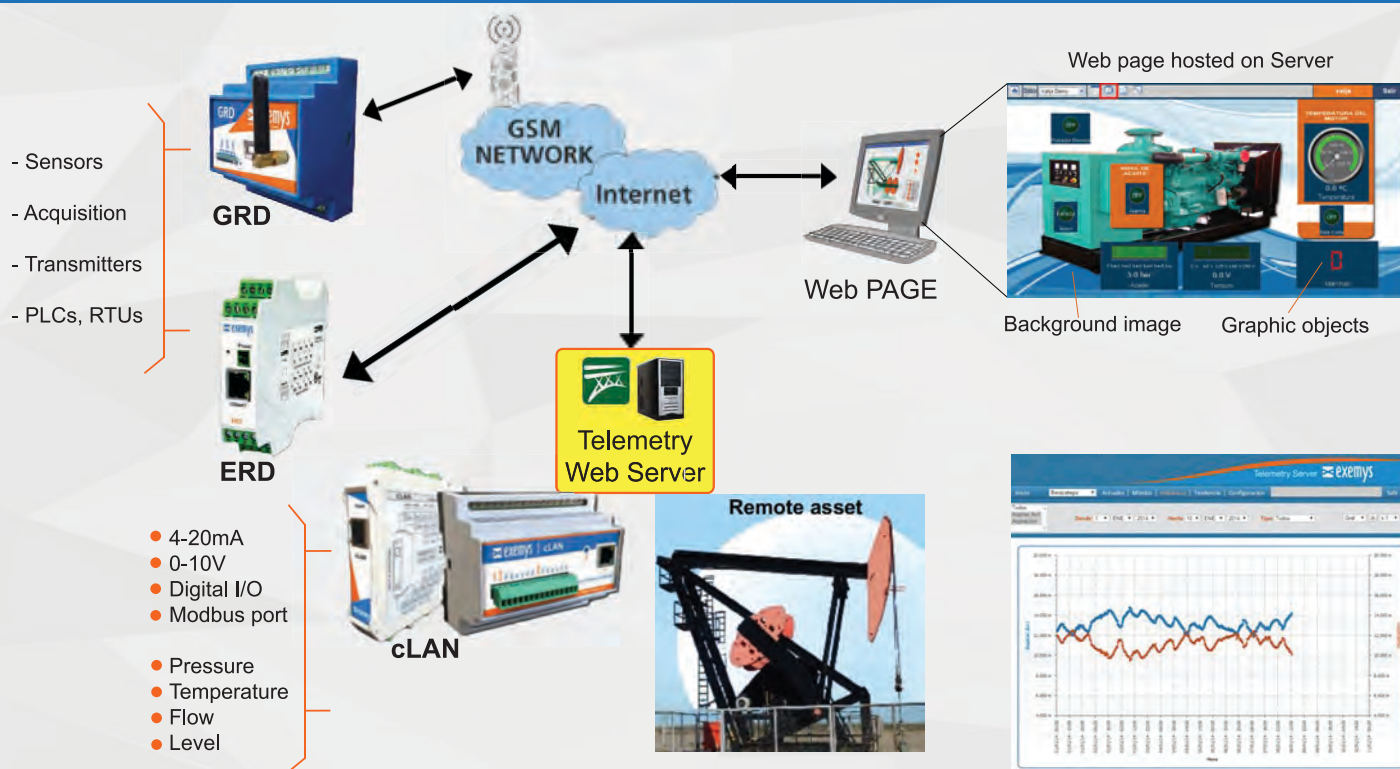
Oil and Gas
The gas compressors in the wellhead installed and dispersed in remote sites. The telesupervision of the functioning compressors permits improved performance of the machine, increasing its productivity.

0-1V
0-10V

4-20mA

+3.5 a 28Vdc   Digital

50Hz 1KHz (depending model)   Pulses

+45Vdc Max.   Digital

RS232/485 Modbus

Module Antenna Satellite (optional)

Cellular 3G + 2G

GRD-3534-XF-3G

GRD-1620-XF-3G
GRD-3625-XF-3G

Telemetry Web Server

- Sensors

- Acquisition

- Transmitters

- PLCs, RTUs

GRD

GSM NETWORK

Internet

Web PAGE

Web page hosted on Server

Background image   Graphic objects

ERD

- 4-20mA
- 0-10V
- Digital I/O
- Modbus port

- Pressure
- Temperature
- Flow
- Level

cLAN

Telemetry Web Server

Remote asset

CHEMICAL   WATER   WASTEWATER   OIL

FLOWLINE™
LEVEL BEST

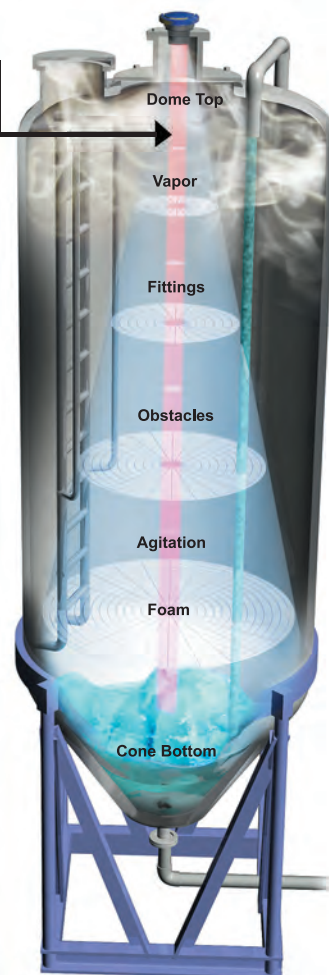## Reflective Technology™   +   DSP Technology

Condensation is the most common variable in liquid level applications. Condensation attenuates the acoustic signal of ultrasonic sensors with horizontal transducers, weakening their signal strength and signal to noise ratio by up to 50% and substantially reducing their measurement reliability. At the core of Reflective Technology™ is a simple fact. Unlike flat horizontal surfaces, significant water droplets cannot adhere to smooth vertical surfaces. By orienting the transducer vertically, condensation runs off the transducer and does not affect sensor performance.The unimpeded transmit and receive signals are redirected to and from the liquid off a 45º reflector, delivering reliable level measurement.
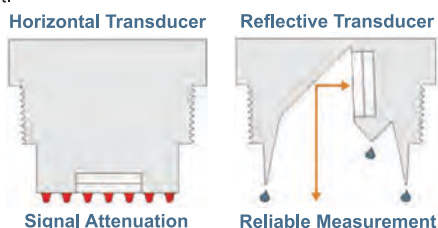
Flowline ultrasonic level sensors feature our patented digital signal processing technology that delivers the Flowline advantage, accurate and reliable, non-contact measurement of chemical, oil, water and wastewater from 0.25m-10m. This adaptive technology creates a living map of your tank process and continuously optimizes sensor power, obstacle recognition, signal output filtering, environmental noise rejection and fail-safe diagnostics.

Horizontal Transducer   **Reflective Transducer**

Signal Attenuation   **Reliable Measurement**

Beam Width (RED)—
This intelligent sensor is taking measurment based on a 3" (7.6cm) invisible beam width, it enable the sensor to works in narrow restricted space that where never available before by any other ultrasonic transmitters.

Dome Top
Vapor
Fittings
Obstacles
Agitation
Foam
Cone Bottom

Reflective Ultrasonic

	UG01-03	UG06-12	US01-03	US06-12
Application	Chemical feed, skid/machine, cooling tower, IBC/drum, mini bulk, day tank, waste sump	Bulk storage, day tank, waste sump, clarifier, neutralization	Chemical feed, skid/machine, cooling tower, IBC/drum, mini bulk, day tank, waste sump	Bulk storage, day tank, waste sump, clarifier, neutralization
Classification	General Purpose		Intrinsically Safe	
Measuring Range	1.5m and 3.0m	6.0m and 12.0m	1.5m and 3.0m	6.0m and 12.0m
Output	4-20 mA + (4) SPST relays	4-20 mA	4-20 mA	4-20 mA + HART
Transducer Type	Reflective Technology™			
Transducer Material	PVDF			
Configuration	WebCal Software	Push-Button + WebCal Software	WebCal Software	Push-Button + WebCal Software + HART

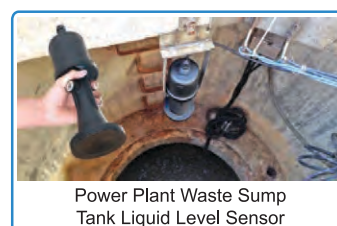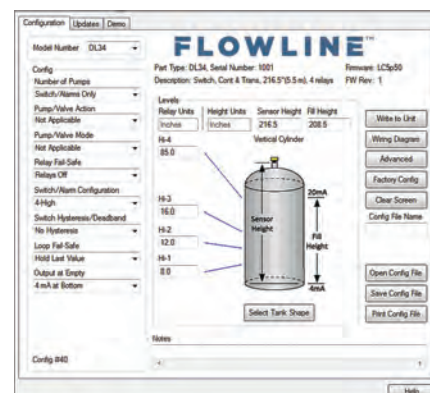## General Purpose Ultrasonic   ## Explosion-Proof   ## Guided Wave Radar

DL14	DL24	LU2x	LU8x	XP88
1.25m	3.0m	10.0m	10.0m	8.0m

Instruments

LI40	LI25-2	LI55	LM92

LG10-0	LG10-1	LG10-2
Rod	Coaxial	Cable

Vaporous Resin Storage Tank Liquid Level Sensor

Ferric Chloride Storage Tank Liquid Level Sensor

Cardboard Wastewater Sump Tank Liquid Level Sensor

Power Plant Waste Sump Tank Liquid Level Sensor

For more information, please log on to http://www.scigate.com.sg

CHEMICAL	WATER	WASTEWATER	OIL

FLOWLINE
LEVEL BEST

Pulse Radar

	LR10	LR15	LR20	LR25	LR30
Application	Storage	Storage	Storage	Process	Lift Station
Classification	General Purpose				
Measuring Range	10m	30m	20m	35m	30m
Output	4-20 mA				
Antenna Material	PTFE	316L	316L & PTFE		Nylon
Configuration	Push-Button				

Intrinsically Safe Version

LR11	LR16	LR21	LR26	LR31
EchoPro Liquid Level Transmitter	EchoPro Liquid Level Transmitter	EchoPro Liquid Level Transmitter	EchoPro Liquid Level Transmitter	EchoPro Liquid Level Transmitter

Level Switch Monitoring

AXXX	AX23	AX1X	AX13

Smart-Trak Multi-Point Adjustable Switching position (Max 4), up to 3m height, PP material, 2" NPT or G thread process mounting.

Switch-Pak Single-Point Level Switch, up to 3m height, PVC, PP & PVDF material, 2" NPT or G thread process mounting.

Liquid Level Switch

LU10	LZ12	LV10	LO10	LP16
Ultrasonic Switch	Turning Fork Switch	Vertical Float Switch	Optic Leak Switch	Capacitance Switch

WebCal® Configuration Software
Best for FAST and EASY Level Sensor Setup

FLOWLINE

Mounting Accessories

Municipal Chemical Feed Tank
Tank Liquid Level Sensor

Municipal Diesel Generator
Tank Liquid Level Sensor

HVAC Cooling Water Sump
Tank Liquid Level Sensor

Highly Vaporous Chemical
Liquid Level Sensor

For more information, please log on to http://www.scigate.com.sg

KANSAI Automation

Level Switches

Diaphragm Switch KF-500

Detect pressure change
- No power source
- Viscous liquids
- Corrosive liquids
- High-temperature 150°C
- No moving part

Vertical Float Switch KF-300

- Corrosion resistant
- Max pressure 460KPa
- Max temperature 100°C
- Specific gravity >0.63
- Moisture, gas, dust
- Explosion-proof

Electrode Level Switch KF-600

- For conductive liquid
- Electrode Ø6, 8, 10, 12, 15, 20
- Up to 9 electrode
- Electrode material SUS
- Titanium, Hastelloy

Cable Float Switch KARI

- Specific gravity >0.8
- Single and multi-points
- Viscous liquids
- Scum is surely detected

SUS Float Switch RFS-6

- Corrosion resistant
- Max pressure 1MPa
- Max temperature 200°C
- Specific gravity >0.65
- Moisture, gas, dust
- Explosion-proof

Small Float Switch MFS17-C

- Heat resistant 80°C
- Vertical-mounting
- PP material

Small Float Switch MFS9-N1

- Heat resistant 80°C
- L-shape
- Horizontal-mounting
- PP material

Horizontal Float Switch KF-200

- No power source needed!
- High temperature 250°C
- Specific gravity >0.83
- Explosion-proof

Level Transmitters for Liquid and Powder

Capacitance Level Transmitter KLI / KLT / KLG

- No moving parts
- All conductive media
- Corrosion resistant
- Max Length 50M
- Max Pressure 10 bar
- Max Temperature -200~500°C
- Explosion-proof
- Liquid & Powder

Float Transmitter KF-100

- Specific gravity 0.5~1.0
- Max pressure 4.9 Bar
- Max temperature 100°C
- Explosion-proof
- SUS, PVC, Teflon
- Liquid

Sounding Bob Level Transmitter KSL

- Max length 40m
- Max temperature 100°C
- Explosion-proof
- Suitable for powder

Level / Flow Switch for Powder/Granules

Vibration Level Switch KVX

- Specific gravity >0.03
- No moving parts
- Corrosion resistant
- Max length 6m
- Max pressure 10 bar
- Max temperature -25~150°C
- Explosion-proof
- Powder

Rotary Paddle Level Switch LS

- Specific gravity >0.83
- Max length 300mm
- Max pressure 10 bar
- Max temperature 120°C
- Powder

Capacitance Level Switch ALN / SL

- No moving parts
- All conductive media
- Corrosion resistant
- Max length 2m
- Max pressure 10 bar
- Max temperature -25~80°C
- Explosion-proof
- Liquid and powder
- Teflon coating
- Wire electrode

Microwave Level Switch MWS2

- No moving parts
- Corrosion resistant
- Max distance 35m
- Max temperature -20~900°C
- Powder

Microwave Flow Switch KFD-1

- No moving parts
- Corrosion resistant
- Max distance 1.5m
- Max temperature -10~80°C
- Powder

For more information, please log on to http://www.scigate.com.sg

SWISS MADE

STS global.sensor.excellence

The STS strengths are:
● Available in standard and customized solutions
● High quality and durable products
● Accurate, reliable and long term consistent quality due to in house produced transducer
● Small orders without extra charge
● 10-15 days (Ex-Factory) delivery time for customized products
● Country of Origin - Switzerland

Pressure Transmitter

Temperature Transmitter

Pressure &Temperature Transmitter

Liquid Level Transmitter

Level & Temperature Transmitter

Pressure Switch

Machine and Plant Construction

Oil and Subsea

Water and Shipbuilding

Water Treatment

Desalination
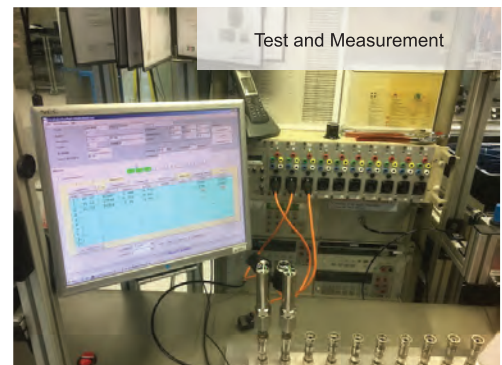
Test and Measurement

Type	Pressure Transmitter	Hydrostatic Pressure Transmitter
Pressure Range Unit: Bar, mWC, PSI	0 … 100 mbar −1 … 1000 bar	0 … 100 mbar −1 … 1000 bar
Description	Electronics packed in gel Lightning Surge Protection Special Oil Filling: ASEOL food, Halocarbon Combined Pressure and Temperature version	
	17.5mm body diameter	10mm & 19mm body diameter SDI-12 Protocol Ballast weight
Pressure Type	Gauge, Absolute(Vacuum), Sealed Gauge(>25Bar)	Gauge, Absolute
Accuracy	≤ ±0.05/0.1/0.25/0.5/1.0/2.0% FS	
Process Connection	¼" NPT M, ½" NPT M, G ¼"M, G ½"M, G ¼"M Gauge Din 16288, G ½"M Gauge Din 16288, G ½"M frontal diaphragm, G ½"M flush diaphragm	Open / Closed G ¼" M, G ½" M
Output Signal	4~20mA, 0~20mA, 0~10V, 0~5V, mV, RS485 Modbus RTU, Surge Protection (Opt)	
Electrical Connection	Cable Gland, DIN, Binder, MIL	
Cable Material	PUR, PE, FEP	
Housing Material	SUS316L, Titanium, Hastelloy, Inconel, PVDF jacket	
Process Temperature	–40~150˚C	-5~80˚C
Approval	ATEX, IEC Ex, FM, FMC+, GL, GOST, RTN	
Sealing	Viton, EPDM, Kalrez	

IECEx ⚡ Ex SGS FM APPROVED ABS CSA

FUTEK
ADVANCED SENSOR TECHNOLOGY, INC.

Application by Load Cell
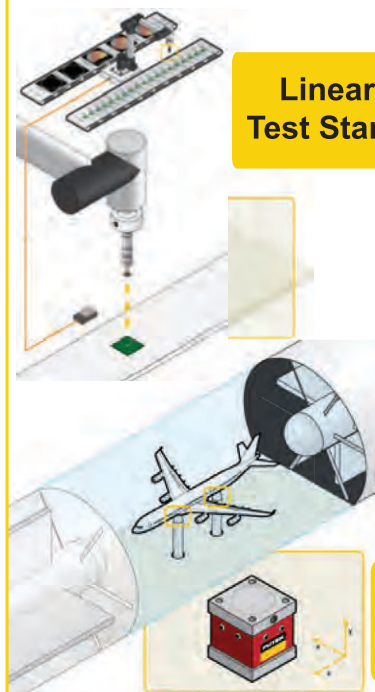
Linear Test Stand

Robotic Leg Rehabilitation Device

Wind Tunnel Testing

Rotary Shaft Thrust Force

Bolt Fastening

Spring Testing System

Miniature S-Beam Jr. Load Cell 2.0 (LSB205)

Introducing the new LSB205 Miniature S-Beam Jr. Load Cell with TEDS. Capable of measuring both tension and compression froces from 1 to 100 lbs. This impressive load cell features an improved fatigue life and off center loading capabilities due to its construction with heat-treated stainless steel. The miniature frame includes an integrated TEDSchip and PT-1000 temperature sensor. With exceptional overload protection, this model is very adaptable for various industry applications.

LOAD CELLS • TORQUE SENSORS • MULTI-AXIS SENSORS

LOAD CELLS

| Miniature Series | Jr. S-Beam Series | Load Button Series | Thru-Hole Series |

| In-line Series | S-Beam Series | Canister Series | OEM Solutions |

SENSIT test and measurement software

Working with USB Output
Working with Handheld
Working with Panel Mount

Data logging
Live graphing
16 channels
Math (fx)

*For more information, please log on to http://www.scigate.com.sg

FUTEK
ADVANCED SENSOR TECHNOLOGY, INC.

Application by Torque Sensor

Agricultural Poultry Feeder
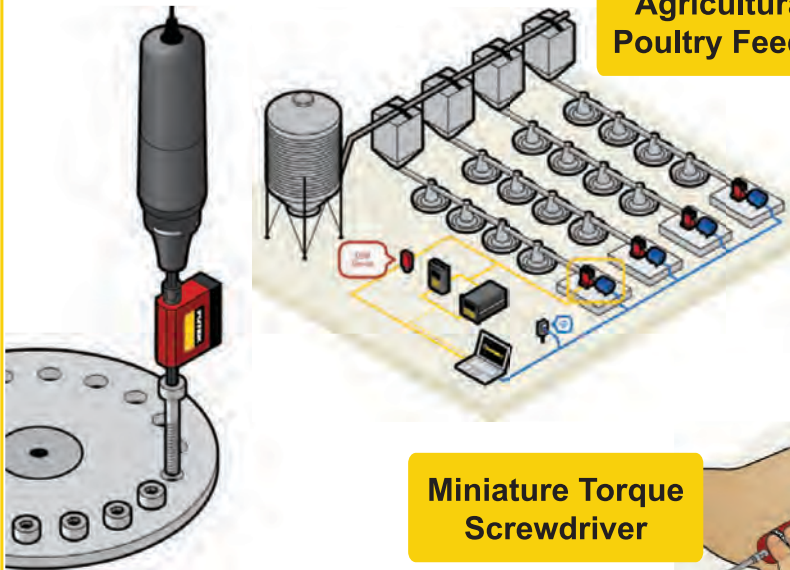
Motor Test Stand
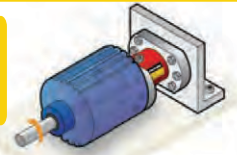
Torque/Motor Test Stand
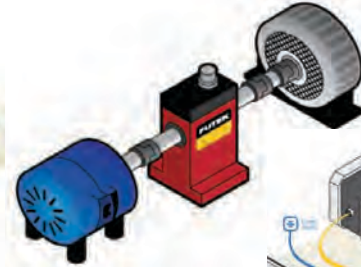
Miniature Torque Screwdriver

Servo Motor Torque Control

Power Tool Measurement
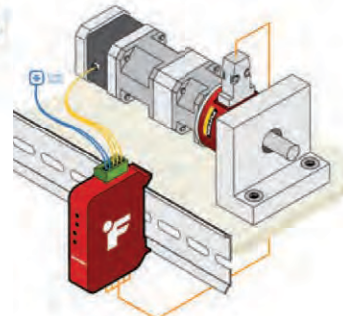
TORQUE SENSORS

Reaction Series

Rotary Shaft-to-shaft

Rotary Drive

Rotary Hex

Rotary Series

MULTI-AXIS SENSORS

Stick Shift Load Cell

Low Profile Thrust and Moment Load cell

Triaxial Load Cell

Biaxial Load Cell

INSTRUMENTS

IAA Series Amplifier

High Resolution USB Solution

Amplifier with Digital and Analog Output

IHH500

IPM650

High Resolution Display

For more information, please log on to http://www.scigate.com.sg

PAVONESISTEMI

Founded in 1963 our company went through all levels of technological developments.Today we provide integrated solutions for weighing, process control and measurement. Our wide range of products and systems, including those developed internally and worldwide traded, guarantees every kind of weighing and measurement project for all industrial applications: steel mill, metallurgy, paints, tanneries, concrete mill, paper mill,glass industry, pharmaceutical, chemical, petrochemical, food & beverage and packaging.

DAT 1400

- Resolution: 24Bits ADC
- Acquisition Frequency: 1KHz
- Data Logger (Option)
- Fieldbus: Profinet, EtherCAT, Ethernet IP, Ethernet.

MCT 1302

- Touch screen weight indicator
- Perfect for static weighing and loading-unloading and multi-component dosage
- Programmable function

UWT 6008

- Support 8 Load Cells
- Monitor all load cells and generate alarms due to excessive load cell signal drift, loss of connections, failure of load cells, unbalanced weight distribution.
- Emulative control allows the continuity of work of the weighing system even in case of failure on one of the load cells, until the replacement of the same.
- Compensation algorithm to equalize legs angles.

TESTER 1008

- Four Channels Weighing Indicator
- Calibrator / Simulator Load Cells

CGS4-C

Junction Box

MH

- Adjustable radial and tangential mounting
- Allow normal expansion and contraction tank
- Replace load cell without external jack

MKX

- Adjustable radial and tangential mounting
- Allow normal expansion and contraction of tank
- Replace load cell without external jack
- Height adjustment

Load Foot

- Rubber base
- Swivelling
- Height adjustment

DH

- Anti-tilting Load Foot
- Replace load cell without external jack

Levermount

- Height adjustment
- Anti-tilting

*For more information, please log on to http://www.scigate.com.sg

PAVONESISTEMI
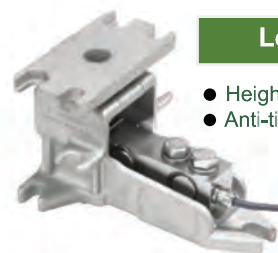
PKD 2000 Weigh Indicators
- 24-key waterproof alphanumeric keypad
- Support 4 weighing scales
- ABS waterproof IP65 enclosure
- Power up to 8 load cells
- CE-M approvable (OIML R-76 / EN 45501)
- Supply AC100~240

PQ Platform Scale
Four Load Cell 3000~6000kg

PM Platform
Single Off-Centre Load Cell 300kg
Support 800x800mm

Off-Centre Load Cell

Low Profile Off-Center Load Cell is high performance single point load cell.
There are insensitive to off-center loads or moments, ideal for bench platforms.

PS019
Capacity: 15~400kg
Size: 800x800mm max.

PS014
Capacity: 300~3000g
Size: 200x200mm max.

PSZL
Capacity: 1&2 tonne
Size: 1200x1200mm

PSTA2
Capacity: 6~40kg

Weighing
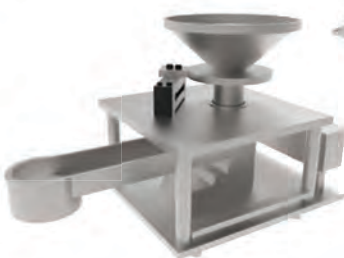
Filling

Belt Weighing and Feeding
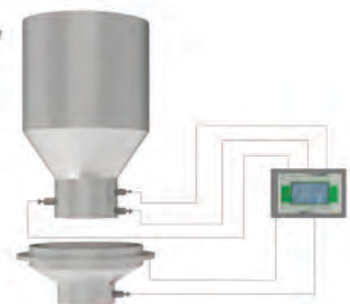
Dosing and Filling

ATEX Solutions

Wall Mount MCT S 400

Floor Standing MCT S 1302

Load Cell DDR

EXD E 70/2

OLCM SYSTEMS
Solutions in Load Cell Technology

Compression Load Cell

CDIT4
Low profile pancake load cell
- Small physical size
- Stainless steel
- 500kg to 30te
- IP68
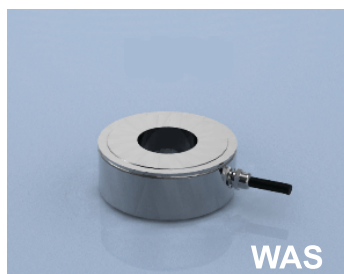
WAS
Through-hole load cell
- Force washer
- Stainless steel
- 12.5kN to 540kN
- IP66

CDIT
Low profile pancake load cell
- Small physical size
- Stainless steel
- 100kg to 5te
- IP67

CPA
Column type load cell
- High capacity
- Stainless steel
- 2te to 1000te
- IP67

Tension and Compression Load Cell

DCE
Stud type load cell
- Compact design
- Stainless steel
- 100N to 50kN
- IP65

STA-2
S type load cell
- Fully welded construction
- Stainless steel
- 250kg to 20te
- IP68

STA-4
S type load cell
- High accuracy
- Alloy Steel
- 1500kg to 5000kg
- IP67
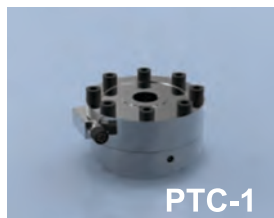
PTC-1
Low profile pancake load cell
- Stainless steel
- 5kN to 2000kN
- IP66

TCA
Column type load cell
- Female end threads
- Stainless steel
- 500kg to 100te
- IP66

Beam Load Cells

BBL-1
Stud type load cell
- Compact design
- Stainless steel
- 100N to 50kN
- IP65

SBL-3
Shear beam load cell
- 200lb to 5000lb
- Stainless steel
- Unique blind loading hole
- IP67
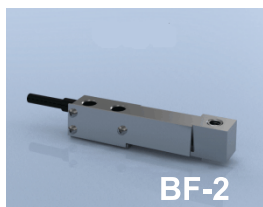
BF-2
Beam load cell
- Low range
- Stainless steel
- 2kg to 50kg
- IP65

SBL-4
Shear beam load cell
- 500lb to 10,000lb
- Stainless steel
- Unique blind loading hole
- IP68

Various Custom Load Cell Solutions

*For more information, please log on to http://www.scigate.com.sg

ATEX load cells, load pins and load shackles

Tension Load Cell

LMP

WLL

RILL

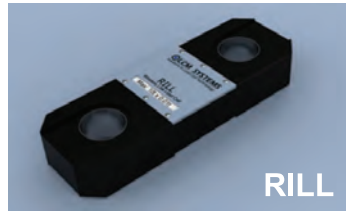**LPC**
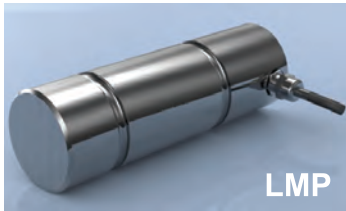
Standard Load Pins
- 500kg to 1500te
- Stainless steel
- IP67
- Simple to install
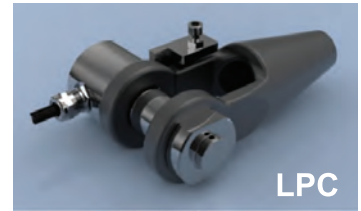
Telemetry load link
- Stainless steel
- 5te to 100te
- IP67 sealed
- Supplied with transit case

Telemetry load link
- Lightweight aluminum
- 1te to 300te
- IP67 sealed
- Supplied with carry case

Shackle/Clevis Load Pins
- 1te to 1500te
- Stainless steel
- IP67
- Special versions available

Wire and wireless shackle load cell
- 1te to 1000te
- High tensile carbon steel
- IP67
- Submersible versions available

Wireless Large Format Display

56.14

Wireless Tablet Display

Wireless HandHeld Display

Wireless Range Extender to 1.6KM

Wireless Modbus Gateway

Wireless Shackle
Wireless Load Link

Instrumentation

ICA – 4-20mA, ±10V, 0-10V, 0-5V

DCELL – RS485 Modbus

DSCUSB – USB

SGA – 4-20mA or 0-20mA, ±10V, ±5V, 0-10V, 0-5V

PMD – Display: Analog Output, Alarm Output, Serial Output

TR150 – Display

T24 – Display

Various Custom Load Cell Solutions

MICRO-EPSILON

More Precision. Precise . Reliable

Triangulation Laser sensors for displacement, distance and position
- Worldwide largest range of sensors from low cost to high end with blue laser
- Measuring range from 2 to 1000mm
- Fast measurements up to 49kHz
- Compact design with integrated controller
- Non-contact and wear-free
- Large distance from the measurement object
- Small light spot for smallest parts
- Precise measurement results with high dynamics
- Almost independent of surface properties

Roundness Measurement

Bend Lead Detection
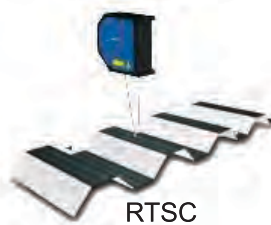
RTSC

Thickness Measurement

	Measuring ranges (mm)	Linearity ± % FSO	Repeatability µm	Measuring rate (kHz)	Output	Functions
optoNCDT 1220 optoNCDT 1320	10, 25, 50, 100	0.10	1	2	4~20 mA RS422	Compact, high speed
optoNCDT 1420 optoNCDT 1420 CL1	10, 25, 50, 100, 200, 500	0.08	0.5	4	4~20 mA RS422	Smart, fast and precise
optoNCDT 1750	2, 10, 20, 50, 100, 200, 500, 750	0.06	0.1	7.5	4~20 mA; 0~5V/ 0~10V RS422	Universal sensor for industrial applications
optoNCDT 1700BL optoNCDT 2300BL optoNCDT 2300-2DR	2, 5, 20, 50, 200, 500, 750, 1000	0.03	0.0015	49	4~20 mA; 0~5V/ 0~10V RS422	Blue Laser, good for metal and organic materials
optoNCDT 2300	2, 5, 10, 20, 50, 100, 200, 300	0.02	0.0015	49	Ethernet/ EtherCAT/ RS422	High speed for dynamic application, 49KHz sampling
optoNCDT 1750LL optoNCDT 2300LL	2, 10, 20, 50	0.02	0.0015	49	4~20 mA; 0~5V/ 0~10V RS422	Shiny metallic object
optoNCDT 1710 optoNCDT 2310	10, 20, 40, 50, 1000	0.03	0.005	49	Ethernet/ EtherCAT/ RS422	Long-range distances
thicknessSENSOR	10, 25	10µm-40µm	-	4	0~5 V, 0~10 V, ± 5 V, ±10 V, 4~20 mA, Ethernet	Non-contact thickness measurements of strip and plate material

2D/3D Laser scanners for profile measurement
- High accuracy and profile frequency
- High performance signal processor
- Compact design with integrated controller
- Interfaces for integration on customer side
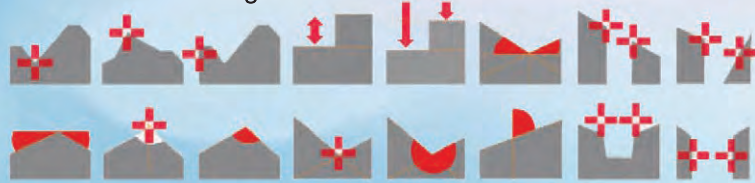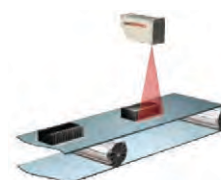
Weld Seam Position

Width Control

Windshield Profile

Alignment of Phone Cover

IC Coplanarity

For more information, please log on to http://www.scigate.com.sg

Sensors for displacement, distance, position, dimension, colour and temperature

MICRO-EPSILON

Confocal chromatic sensors for displacement, position and thickness
- Tiny, constant measuring spot
- Manometer resolution
- One-sided thickness measurement
- High-speed measurements with sub-micrometer accuracy
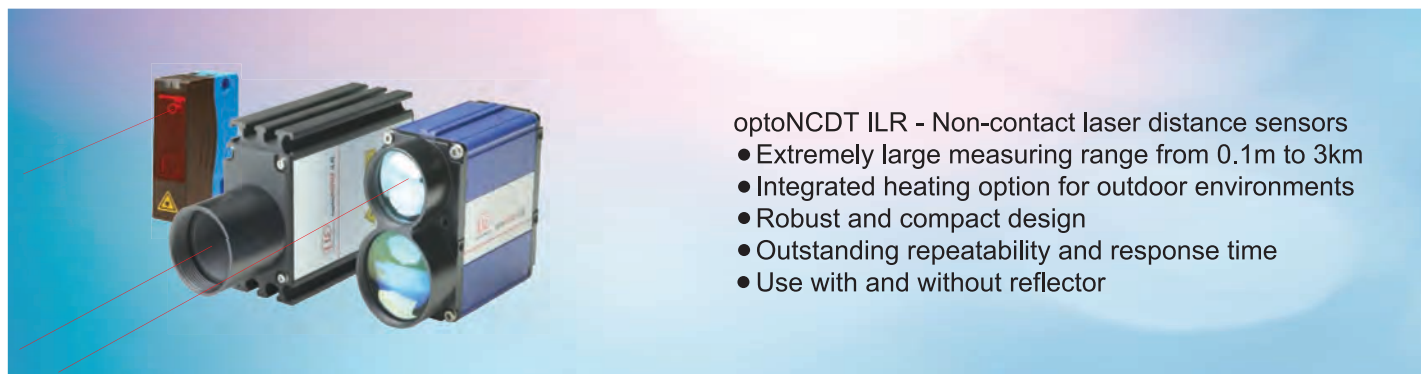- Measuring range from 0.1~30mm
- Resolution down to 0.016µm

Multi-Peak Software | Glass Thickness | Glass Thickness | Parallelism of Lapping

optoNCDT ILR - Non-contact laser distance sensors
- Extremely large measuring range from 0.1m to 3km
- Integrated heating option for outdoor environments
- Robust and compact design
- Outstanding repeatability and response time
- Use with and without reflector

	Measuring ranges (m)	Linearity (± mm)	Repeatability (mm)	Response time (ms)	Output	Functions
optoNCDT ILR 1030/1031	No reflector 0.2-15 with reflector 0.2–50	20	5	10	4~20mA	Compact laser distance sensors
optoNCDT ILR 1181/1182/1183	Measuring range 0.1 – 150	2	0.5	20	4~20mA RS232/ RS422/ SSI/ Profibus	Precise laser distance sensors
optoNCDT ILR 1191	Measuring range 0.5 - 3000	20	20	0.5	4~20mA RS232/ RS422/ SSI/ Profibus	Laser distance sensors
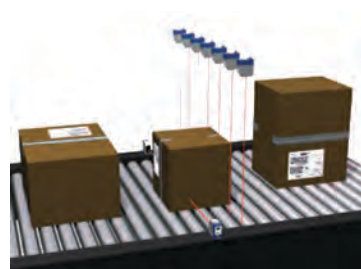
Classification and sorting | Robot Car | Storage Rack Positioning | Container Positioning
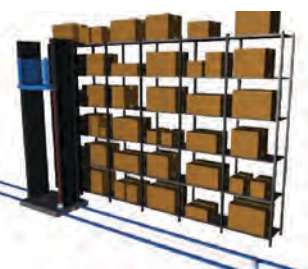
For more information, please log on to http://www.scigate.com.sg

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MICRO-EPSILON

Miniature USB thermal imagers
- Non-contact measurement
- Temperature range from -20°C to 2450°C
- Real-time thermography
- Excellent thermal sensitivity and resolution
- Compact design with USB interface

Model	Description	Temperature	System accuracy
TIM 8	Intelligent Spotfinder Pyrometer	-20°C to 900°C	±2°C or ±2 %
TIM 40	Compact OEM Thermal Imaging Camera	-20°C to 900°C	±2°C or ±2 %
TIM QVGA/QVGA-HD	Thermal Imaging Camera with high resolution and sensitivity	-20°C to 900°C	±2°C or ±2 %
TIM 640	Worldwide smallest VGA thermal imaging camera	-20°C to 900°C	±2°C or ±2 %
TIM QVGA-G7/VGA-G7	Thermal imaging camera with line scan feature for the glass industry	200°C to 1500°C	±2°C or ±2 %
TIM M1	Thermal imaging camera for hot metal surfaces	450°C to 1800°C	±1 % of reading
TIM M05	Thermal imaging camera for molten metal and metal surfaces	900°C to 2450°C	±1.5 % of reading

Non-contact IR temperature sensors
- Temperature ranges from -50°C to 2200°C
- Sensors for the metal industry
- Sensors for the glass industry
- High-speed model
- Also suitable for the Ex area

thermoMETER CS / CSmicro / CSLaser
- Compact, miniature and low cost
- Temperature ranges from -40 °C to 1600 °C
- Robust, silicon-coated lens
- Integral controller
- Scalable analog output: 0-10 V / 0-5 V
- Ideal for OEMs, also available as two-wire model and high-resolution version

thermoMETER CTlaser/FAST
- Extremely precise IR sensor with laser sighting
- Temperature ranges from -50 °C to +975 °C
- Infrared sensors with up to 75:1 optical resolution from 0.9 mm measurement spot
- Double laser marks the exact spot location from a spot size of 1mm
- Response time from 9 ms

thermoMETER CT
- Extremely low cost and high accuracy
- Temperature ranges from -50 °C to +975 °C
- One of the smallest infrared sensors worldwide with 22:1 optical resolution
- Up to 180 °C ambient temperature without cooling

thermoMETER CTP7 / CTP3
- For thin plastic films from 0 °C to 710 °C

thermoMETER CTRatioM1/M2
- Glass fiber ratio thermometer
- Temperature ranges from 250 °C to 3000 °C
- Up to 200 °C ambient temperature without cooling
- Measurement depends only on the emissivity ratio but not on the absolute emissivity
- Extremely short response time of 1 ms
- Resistant to disturbance such as smoke, fog and partially concealed or moving objects
- The measurement object can be smaller than measurement spot

thermoMETER CTlaser M1/M2/M3
- For metal production with reduced wavelength:
- 50 °C to 2200 °C

thermoMETER CTlaser M5 (525 nm)
- For liquid metals: 1000 °C - 2000 °C

thermoMETER CTlaserGLASS
- For glass measurement: 100 °C to 1650 °C

thermoMETER CTlaserCOMBUSTION
- For measurement of flames: 200 °C to 1450 °C

thermoMETER CTM1/M2/M3
- For metal processing
- Temperature ranges from 50 °C to 2200 °C

thermoMETER CThot
- For difficult ambient conditions up to 250 °C
- Ambient temperature without cooling

thermoMETER CTM-3XL
- For laser welding processes from 100 °C to 1800 °C

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Sensors for displacement, distance, position, dimension, colour and temperature

MICRO-EPSILON

Eddy current displacement sensors for displacement and position

- High resolution and accuracy
- Fast measurements up to 100kHz (-3dB)
- Insensitive to dirt, pressure and oil
- Ideal alternative to inductive displacement sensors
- Customized sensor design

Capacitive sensors for displacement and position

- Non-contact, wear-free measurement
- Unmatched accuracy and stability
- High bandwidth for fast measurements
- Temperature range -270°C to +200°C
- Modern controller technology

Colour sensors & LED analysers

- Colour recognition, colour testing and colour measurement
- Simple quality control
- Easy and fast commissioning
- Sensors for numerous fields of applications
- Measurement accuracies ΔE to 0.08

Optical micrometer and fibre optic sensors

- Highest resolution and accuracy
- Wear-free
- Ideal for process control
- Measurement of edge/position, diameter, gap segment
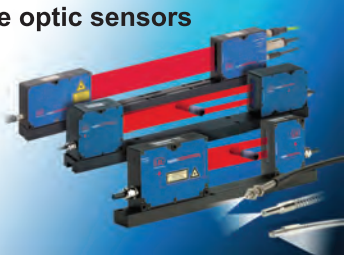
Draw-wire displacement Sensors

- Measuring ranges up to 50,000mm
- Resolution towards infinity
- Easy, fast and flexible mounting
- High operational safety & long service life
- Analog and digital outputs

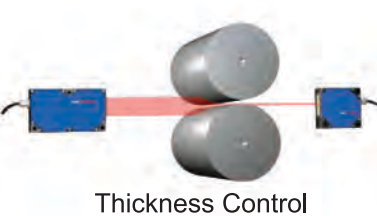### Magneto-inductive displacement sensors

- Large measuring range
- Analogue, digital, PWM outputs
- High measuring rate
- High resolution
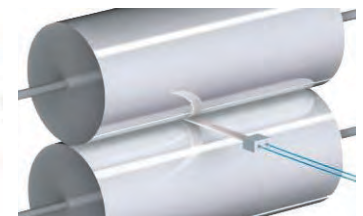- Compact sensor design
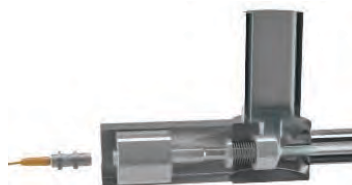- High volume OEM custom solutions
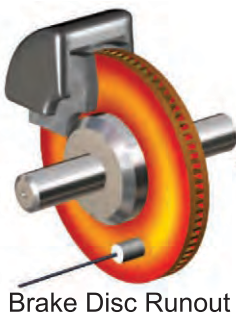
Brake Disc Runout
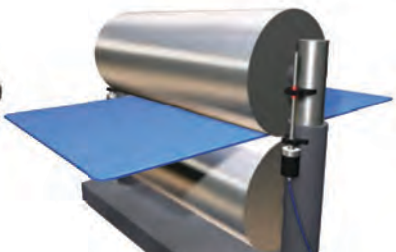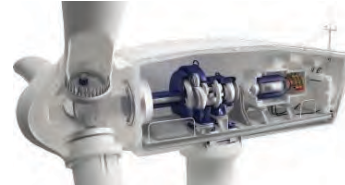
Roller Gap

Thickness Control

Roller Gap

Position of Bus Lift
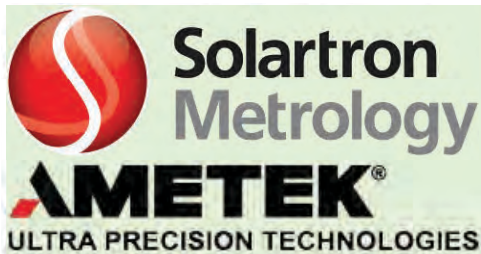
Valve Positioning

Wind Turbine

Crane Outrigger Position

Train Door Position

Wire Forklift

Lift Position

For more information, please log on to http://www.scigate.com.sg

Solartron Metrology
AMETEK®
ULTRA PRECISION TECHNOLOGIES

DIGITAL ORBIT NETWORK

DP/S, DP/P	Body Diameter
DT/S, DT/P	Ø3, Ø6, Ø8, Ø9, Ø12
DZ/S	
DW/S, DW/P	Actuation
DP/V	Spring Push
DJ/P	Pneumatic Push
D6J/S, D6J/P	Vacuum Retract
D6S/D6T	
DT/30	Contact Force
D12P/S, D12P/P	0.03N, 0.18N, 0.5N, 0.7N
D3P/S	

A multi-chambered coil helps improve efficiency by increasing the gain as the core moves along the coil

Titanium core carrier insert and able to withstand lateral shock

Tight tolerance cartridge type bearing with carbon/chrome balls provides good non repeat and long life

Machined from solid hardened stainless steel 400 series

Anti-rotation device designed to be a strong yet give good non repeat with probe tip off center

Conventional Solution

Analog Probe

Amplifier

Analog Input Module

PLC

Compromising:
Accuracy
Repeatability
Resolution
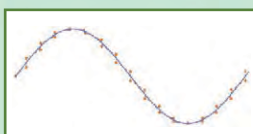
Digital Reading Output

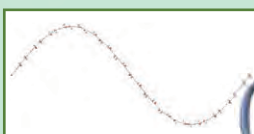10101101010010111011000011

17866.99 µm

Higher Accuracy 0.05%

Benefit of Digital Probes
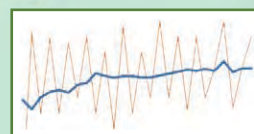(Orbit® Technology)

0.15um Better Repeatability

Improved Resolution

Better Repeatability

Reduce Calibration Error

Eliminate Electrical Noise

Better Stability

Improved Linearity

Remove interfacing error due to ADC of input devices

(Including effective noise free measured value into PLC and instruments)

*For more information, please log on to http://www.scigate.com.sg

DIGITAL ORBIT NETWORK

Orbit® ACS - Automation and Control System

Orbit ACS

Go / No Go / Limit   **Modbus**

- Support all Solartron Digital Probe
- DC24V Power
- Din Rail mounting
- Programmable discrete I/O (4 inputs, 3 outputs)

1ch   2ch   4ch

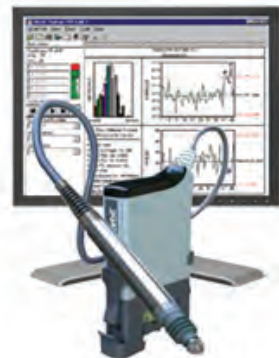## Orbit Modules and Gateways - Modbus RTU, ProfiNet, EtherNet/IP & EtherCat

PLC

PLC

- Support all Solartron Digital Probe
- DC24V Power
- Din Rail mounting
- Support 150 Orbit Modules
- Cyclic and Explicit Data

Orbit Digital Measurement Network

PC

- Support all Solartron Digital Probe
- Support 150 Orbit Modules
- Interface to 3rd party sensors
- High speed measurements
- Din Rail mounting
- Cyclic and explicit data

- Interfaces to Excel®
- Orbit® Library – based on Microsoft .NET Framework
- Windows® 10, 8.1, 7 and XP in both 64 bit and 32 bit

USB   **Ethernet**   **Bluetooth**   **RS232**   **Modbus RTU**

Orbit Digital Display Meter

Stand-alone

SI1500	**SI3500**	**SI5500**	**WiGauge 2**
• Support all Solartron Digital Probe	• Support all Solartron Digital Probe	• Support all Solartron Digital Probe	• With LCD readout
• Support 1 Orbit	• Support 2 Orbit Modules	• Support 31 Orbit Modules	• Bluetooth capable
			• <0.1 µm resolution
			• Display tolerances on the screen

VLT® Automation Drive FC 301 /FC 302
LOW VOLTAGE AC DRIVES - 0.25 kW to 1400 kW

Versatile, reliable and consistently awesome

VLT® AutomationDrive takes full advantage of all that the new digital age has to offer to ensure it completely fulfils the requirements of your applications and optimizes your our processes throughout the entire lifecycle.

Features and benefits
- Built in PLC capability thanks to Smart Logic Control
- High-precision position and synchronization with Integrated Motion Controller
- Features such as intelligent heat management, Safe stop and Safe Torque Off ensure safe and energy-efficient operation of the drive

98%
Energy efficiency
Save energy and money

Supply voltages and power range
- 3 x 200-240 V...0.25-37 kW
- 3 x 380-500 V...0.37 kW – 1.1 MW
- 3 x 525-600 V...0.75-75 kW
- 3 x 525-690 V...1.1 kW – 1.4 MW

Low harmonic drive
- 3 x 380-480 V...132-450 kW

12-pulse drive
- 3 x 380-500 V...250 kW – 1 MW
- 3 x 525-690 V...250 kW – 1.4 MW

Breakthrough Technology

Predictive/condition-based maintenance functions
- for **maximum availability** of your application

FC 302 is now embedded with predictive and condition-based maintenance functionality.

It monitors the condition of motor to detect early issues like a smart sensors and alert owner to find solutions before they have an impact on the process.
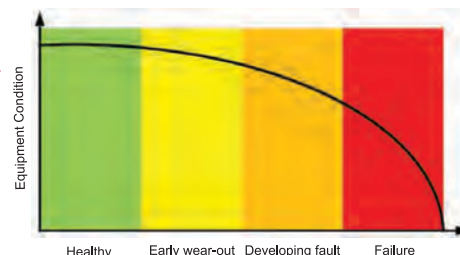
| Baseline Computation | → | Threshold Calculation | → | Monitoring | → |

Condition-based monitoring stages

Based on standards and guidelines ISO 13373 standard for Condition Monitoring and Diagnostics of Machines or the VDMA 24582 guideline for condition monitoring.

Equipment Condition

Healthy   Early wear-out   Developing fault   Failure

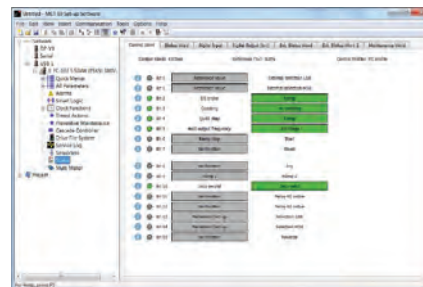| Feature	Benefit
Condition-based monitoring function embedded in the drive	• Reduced total cost of installation • Can be performed online & off-line. • Without additional components, such as PLCs or SCADA systems
Motor-stator-winding monitoring	• Ability to detect and react to early faults in the motor stator winding before the fault develops into a crippling failure • Inter-turn short circuit or unbalance in the motor winding is detected in advance
Vibration monitoring	• Ability to quickly detect and react to signs of mechanical misalignment, wear-out and looseness (Require external Vibration Sensor (4~20mA))
Load envelope monitoring	• Process optimization/maximized efficiency thanks to ability to compare actual system performance with baseline data and trigger maintenance actions

For more information, please log on to http://www.scigate.com.sg

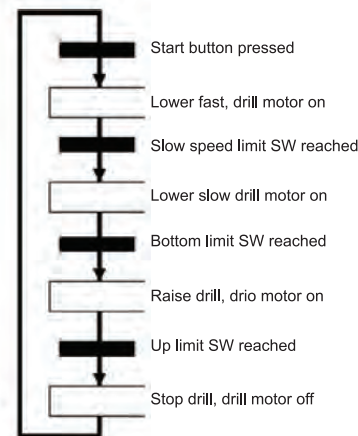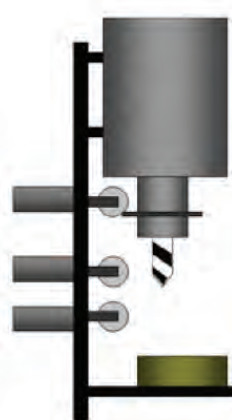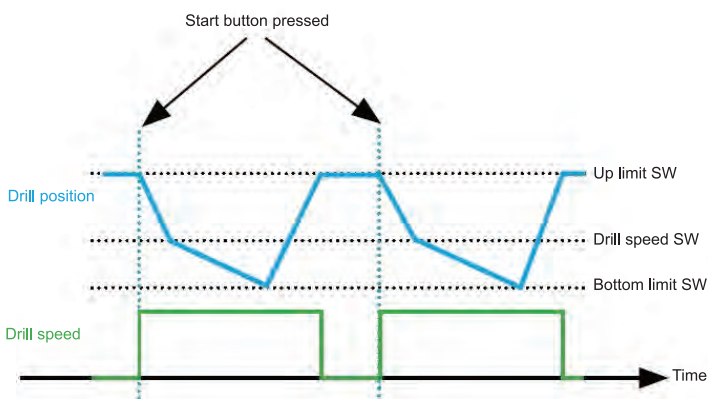**Intuitive setup with graphical interface**

AutomationDrive features a user-friendly, hot pluggable local control panel (LCP) for easy setup and parameter configuration.
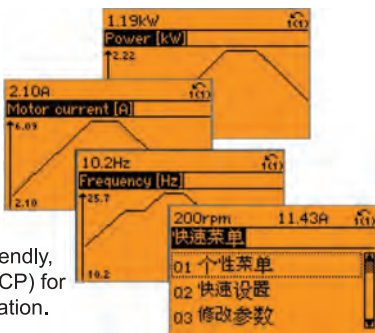
Easy engineering and setup with VLT Motion Control Tool MCT 10

Built-in Smart Logic Controller – Program it from the keypad

Start button pressed

Drill position
- Up limit SW
- Drill speed SW
- Bottom limit SW

Drill speed

Time

Start button pressed
Lower fast, drill motor on
Slow speed limit SW reached
Lower slow drill motor on
Bottom limit SW reached
Raise drill, drio motor on
Up limit SW reached
Stop drill, drill motor off

Communicates wirelessly with MyDrive

Making it easier for drive commission, operation, monitoring and maintenance
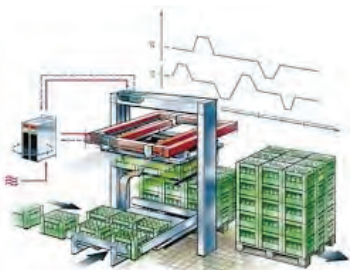
Remote Access, monitoring and diagnostic

Integrating web server in all Ethernet communication options

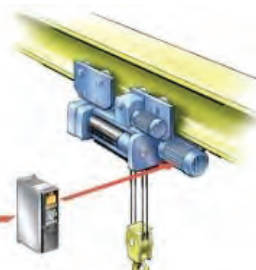• Modbus TCP   • ProfiNet   • EtherNet/IP   • EtherCAT

Marine Winches

Palletizer System

Bottling Machine

Overhead Crane

Vacon NXP & NXC ac drives – The high-performance series
LOW VOLTAGE AC DRIVES - 0.55 kW to 3250 kW, 208~690Vac

| Key Features	Benefits
Full power and voltage range from 0.55 kW to 2.0 MW for both induction and permanent magnet motors	Same software tools, same control and option boards allowing the maximum utilisation of NXP features over a wide power range
Extensive range of ready-to-use applications for basic to demanding needs	No additional software engineering required, saving time and money
Create your own applications with VACON® Programming tool (licensed software tool)	Customized applications provide added flexibility to meet process requirements
Five built-in expansion slots for additional I/O, fieldbus and functional safety boards	No additional external modules required. Options boards are compact and easy to install at any time

User-friendly Keypad
Vacon well-structured menu system that allows for fast commissioning and trouble-free operation
• Removable panel with plug-in connection
• Graphical and text keypad with multiple language support
• Text display multi-monitoring function
• Parameter backup and copy function with the panel's internal memory
• Vacon's Startup Wizard ensures a hassle-free set up
• Choose the language, application type and main parameters during the first power-up

### All-in-one Application Package
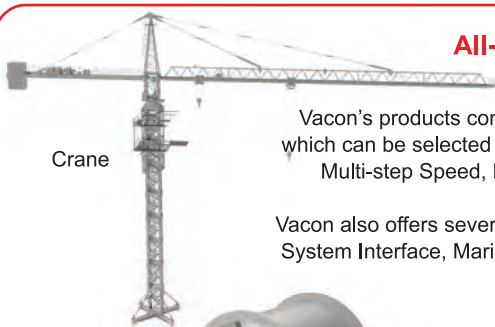
Crane

Vacon's products comes with seven handy software application packages which can be selected with one parameter. (Basic, Standard, Local / Remote, Multi-step Speed, PID Control, Multi-purpose, Pump and Fan Control.
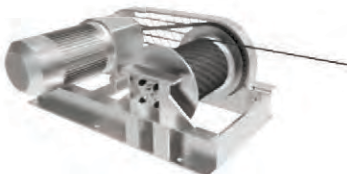
Vacon also offers several segment specific and advanced applications such as System Interface, Marine, Lift and Shaft Synchronisation for more demanding application.

Pump
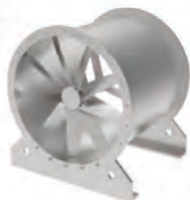
Fan

Winch

Conveyer

For more information, please log on to http://www.scigate.com.sg

Voltages and power range
- 3 x 208-240 V...0.55-90 kW
- 3 x 380-500 V...1.5-1200 kW with DriveSynch 1.5-4000 kW
- 3 x 525-690 V...2.0-2000 kW with DriveSynch 2.0-4500 kW

NXP Air-Cooled Wall-Mounted	NXP Air-Cooled Wall-Mounted	NXP Standalone Air-Cooled	NXC Air-Cooled	NXC Air-Cooled Low Harmonic
0.55~200KW IP21 or IP54	0.55~200KW IP21 or IP54	200KW~560KW IP21 or IP54	132KW~2MW IP21 or IP54	32KW~2MW IP21 or IP54 THDi <5%

NXP - Features
- Complete voltage range 230...690 V AC
- Removable panel with parameter back-up function
- Common control board
- I/0 expandability, 5 slots and option boards in all frame sizes
- Marine type approvals and functional safety features
- Integrated brake chopper as standard in FR4-6, 380-500 V units

NXP Drive Module - Features
- Easy cabinet integration with additional assembly kits
- One of the smallest on the market
- Extensive marine type approvals
- VACON DriveSynch features for high power or/and redundancy

NXP Standalone - Features
- Extremely compact cabinet enclosure
- Delivered with ultra-rapid AC fuses
- Optional built-in brake chopper and
- DC-link connectors

NXC - Features
- Robust and type-tested design
- Wide range of standard options
- One of the most compact on the market
- Welded Rittal TS8 frame
- EMC approved (EN61800-3, 2nd env.)
- Service concept with pull-out jig
- No additional fans in IP54 enclosure

NXC Low Harmonic - Features
- Clean power with total current harmonics THDi < 5 %
- Over-dimensioning of power transformer or input cables is not required
- Regenerative function available
- Reducing system complexity
- No need for special 12-pulse transformers
- Well-suited for retrofit projects
- Increased flexibility with a wide range of standard options

Vacon NCDrive PC Tools for setting, copying, storing, printing, monitoring and controlling parameters.
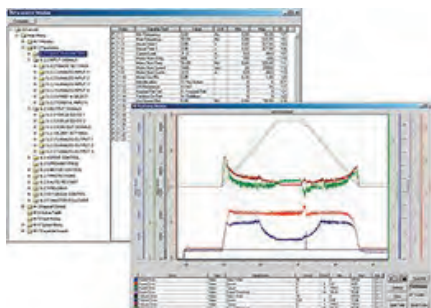
Vacon NC61131-3 Engineering PC Tools is for making tailor-made software using PLC functionality built in the drive. A license key and training are required.

CONTROL TECHNIQUES™

COMMANDER C
LOW VOLTAGE AC DRIVES - 0.25 kW to 132 kW
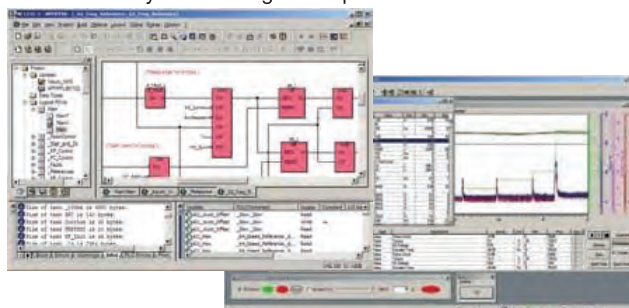
The General Purpose Drive

Commander C200
0.25 kW to 132 kW, 100V | 200V | 400V

The drive for a broad range of general applications.

Key Highlights
Simple, reliable motor control

• Straightforward installation and commissioning
• Set just 4 parameters to get your drive started
• Up to 180% overload for high torque applications
• Equipped with the latest energy saving features

Commander C300

Commander C300
0.25 kW to 132 kW, 100V | 200V | 400V

The drive for a broad range of general applications requiring STO, certified to SIL3/PLe safety rating and compliant with EN/IEC 61800-5-2.

• Dual Safe Torque Off (STO)
• Plug-in options for advanced control
• On board PLC
• Wide availability and outstanding service

QR Code for Easy Access to Support Documents

Drive-Setup.com
Drive-Setup.com
Commander C How to Videos
Manuals
Step by Step Guide

Easy motor pairing and performance control
• V/Hz for advanced performance
  • 100% torque available to 1 Hz
  • Slip compensation
  • Square law V/F mode
  • Dynamic V/F mode
  • Auto tune
    (stationary and rotating)
• Open loop vector
• Fixed boost by default for easy set-up
  • Multi-motor control
• Enhanced open loop RFC
  • Closed current loop for greater stability
  • Auto tuning (stationary and rotating)

Robust and reliable design
• PCBs conformal coated for resilience to harsh environments
• Patented air flow system cools and protects components
• Voltage tolerance for smooth operation during variable supply
• Intelligent 3 speed replaceable fan with failure detection
• Trip avoidance features take action instead of tripping out:
    • Load shedding reduces speed at current limits
    • Ride-Through momentary power interruptions and voltage sags prevent trips out
• High overload capability - 180% for 3s (RFC-A mode) or 150% for 60s (Open loop mode)
• Ingress protection: IP21-UL open class (NEMA 1)

More control, less cost
• On board PLC
• Built-in independent PID control

Energy saving
• Dynamic V/Hz - improves efficiency by reducing motor voltage during low demand
• 98% efficient - only 2% of energy is lost during the conversion process
• Low power standby mode - drives can be idle for significant periods, saving energy
• Automatic 3-speed cooling fan - keeps energy usage & acoustics to a minimum by intelligently responding to load and the environment
• Square Law V/F mode - optimized for quadratic loads like pumps & fans to reduce motor losses

Onboard I/O
• 3 x Analog I/O
• 5 x Digital I/O
• 1 x Relay
• 2 X STO (C300 only)

SI-I/O Module
• 4 x Digital I/O
• 3 x Analog inputs (default) / Digital inputs
• 1 x Digital input
• 2 x Relays

Fixed LED

Remote Keypad RTC

IP66 Remote Keypad (LCD)

RS485 Cable

Operator Interface

AI-Backup Adaptor

AI-Smart Adaptor

AI-485 24V Adaptor

Communications Modules

AI-485   SI-CANopen   SI-DeviceNet   SI-PROFINET   SI-PROFIBUS   SI-EtherCAT   SI-Ethernet

For more information, please log on to http://www.scigate.com.sg

UNIDRIVE M700
0.75 kW - 2.8 MW Heavy Duty - 200 V | 400 V | 575 V | 690 V

CONTROL™ TECHNIQUES

SINGAPORE GREEN BUILDING PRODUCT
SGBC ✓✓✓ EXCELLENT

Typical applications
Speed & position control for gearing & ratio control, winding, web handling, cutting, test stands, printing, packaging machines, textiles, woodworking, tire manufacturing and hoists.

Key Highlights
Class leading performance with onboard real-time Ethernet

Optimize system performance
- High bandwidth motor control 3Khz
- Flexible speed & position feedback
- Maximize throughput
- Onboard Advanced Motion Controller
- 1.5 axes control
- Flexible control systems
- Integrate directly with safety systems
- Onboard STO
- SI-Safety for safe motion

Flexible communications
- Synchronized RTMoE comms
- Fieldbus communications: PROFINET, Ethernet/IP, Modbus TCP/IP & EtherCAT
- Onboard IT & HTTP web page comms
- Conform to safety standards
- Ideal for centralized & decentralized control
- MCi module advanced system control capability
- Onboard PLC for logic programs
- IEC61131-3 programming
- Onboard real-time Ethernet (IEEE 1588 V2 PTP)

More Advanced Control Mode
- Open loop permanent magnet motor control (RFC-S)
- Closed loop Rotor Flux Control for induction motors (RFC-A)

Motor Position Feedback Modules:
- SI-Encoder
- SI-Universal Encoder

"Engineers can connect to the drive from any web-enabled device"

Industrial Internet of Things
1. Operational efficiency
2. Smart machine optimisation
3. Mass customization
4. Quality control
5. Remote diagnostics and monitoring
6. Predictive maintenance

Applications Modules
SI-Applications (M700)
- 2nd processor module, allows SyPTPro programs to be re-compiled for M700

MCi200 (M600/M700, E200/E300)
- 2nd processor provides advanced machine control via Machine Control Studio
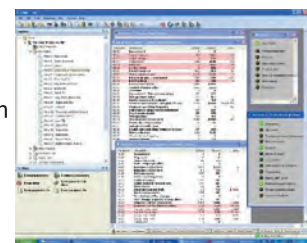
MCi210 (M600/M700, E200/E300)
- MCi200 + dual port Ethernet interface on processor and additional I/O

Commissioning and monitoring software
Unidrive M Connect - Commissioning tool
Based on Control Techniques' 25 years' experience, Unidrive M Connect is our latest drive configuration tool for commissioning, optimizing and monitoring drive/system performance.

Automation and motion programming software
Machine Control Studio - Programming tool
IEC 61131-3 motion and automation programming
- Structured Text (ST)
- Function Block Diagram (FBD)
- Structured Function Chart (SFC)
- Ladder Diagram (LD)
- Instruction List (IL)
- Continuous Function Chart (CFC)

IntelliSense:
- Consistent & robust programs
- Speed up software development

Access to open-source community function blocks
Support for customers' libraries:
- On-line monitoring of program variables

Onboard I/O
- 5 x Analog I/O
- 8 x Digital I/O (including 2 x high speed I/O [250 µs])
- 1 x Relay Output
- 1 X STO

SI-I/O Module
- 4 x Digital I/O
- 3 x Analog inputs (default) / Digital inputs
- 1 x Digital input
- 2 x Relays

Remote I/O

DRIVE - CONTROL TECHNIQUE

Harmonic and Energy Saving Solutions
Advanced Universal Harmonic Filter - Lineator AUHF

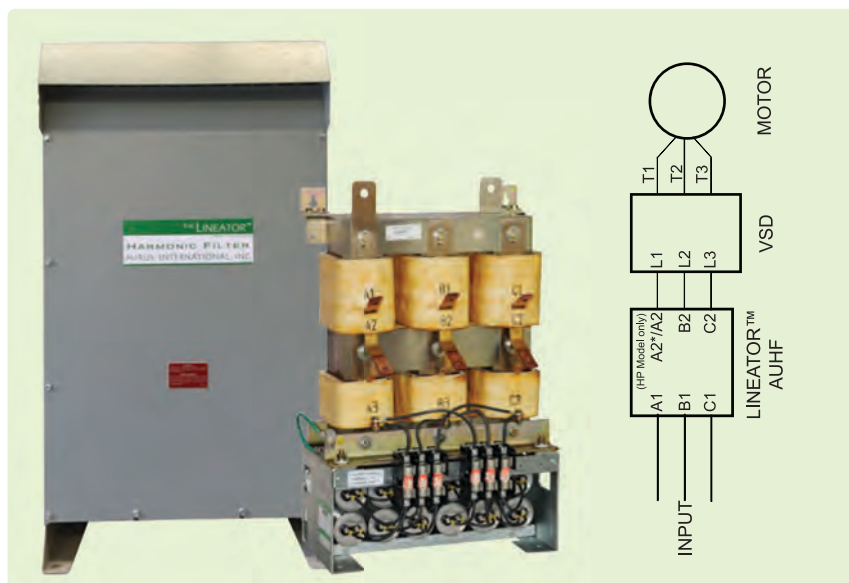**MIRUS International Inc.**

Oil and Gas

Marine

HVAC

Wastewater

Data Center

Issues caused by harmonics may include:
• Transformer and distribution equipment overheating
• Random breaker tripping
• Sensitive equipment failure
• Poor power factor

Remote Monitoring
InSight™ provide remote web-based monitoring of the harmonic condition in real time, allowing easy remote access via any web browser or by adding a touchscreen display at the equipment.

MOS Lineator™
Marine and Offshore
Specific Lineator

Lineator ED
Extreme Duty
LINEATOR™

Revolutionary Reactor Design
• Will meet IEEE 519 Standard for both current and voltage distortion
• Up to 3% more energy efficient than Active Front-end solutions
• ABS / DNV or Lloyds Type Approved for marine applications
• "Wide Spectrum Harmonic Filter" that treats all harmonics generated by 3-phase diode or thyristor bridge rectifiers

| RATING	For motor/drive system sizes 4kW-2600kW
VOLTAGE	Up to 690V
FREQUENCY	50 Hz or 60Hz
OVERLOAD CAPABILITY	150% for 60 sec
HARMONICS TREATED	All harmonics 5th and higher
K-FACTOR SUITABILITY	Up to 20 (Reduced to <1.5 on input of AUHF)
Max. CAPACITIVE REACTIVE CURRENT @ N.L. (kVAR as % of rated kW)	4 - 55KW: < 20% 75 - 2600KW: 10~15%
INPUT CURRENT DISTORTION	< 8% @ Full Load < 5% @ Full Load for HP version
EFFICIENCY	4 to 450KW: > 99.0% 500 to 1350KW: > 99.2% 1450 to 2600KW: > 99.4%
VENTILATION	Convection air cooled Forced air cooled (Option) Water cooled (Option)
AMBIENT TEMPERATURE	≤ 40°C Up to 55°C for ED version
ENCLOSURE	Type: NEMA-3R (IP23) Colour: ANSI 61 Grey Paint: Polyester powder coated Wall Mtg Capability: 4-150 KW
OPTIONS	NEMA-3R (IP23) Outdoor Ventilated Enclosure against rain and snow, Fan Cooling (110-2600KW), Hinged Doors (110-2600KW), IP rated

Lineator HP
High Performance
LINEATOR™

Lineator ATL
Low Voltage Auto
Transformer with
LINEATOR™
Harmonic Filter

GENLINK™ DPNL
Dissimilar Pitch
Neutral Limiter
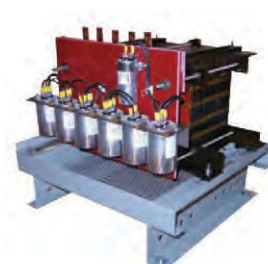
Lineator 1Q3
Passive Harmonic Filter
for 3-phase VFD's
Operating on a 1-phase
supply

For more information, please log on to http://www.scigate.com.sg

Product Training Facility

Costs reduction and improved system designs through training

In-depth hands-on interaction with products in training class

Training available at training centers across Malaysia and Singapore
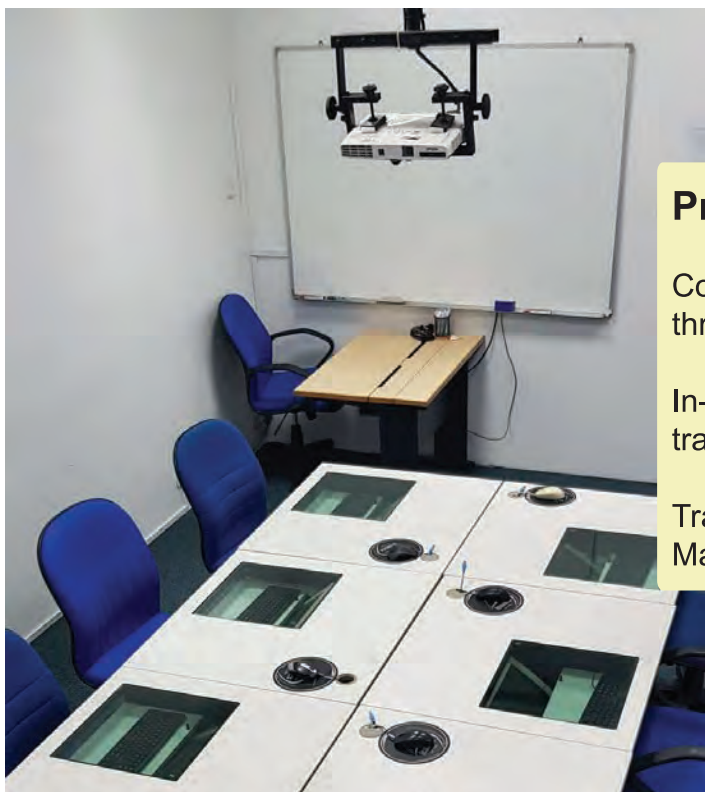
Factory Calibration Service

To ensure sensor continuously performs to its specification, all new sensor are supplied with factory calibration and we also offer annual re-calibration service.

We offer full system calibration for sensors with digital displays, amplifiers, and/or USB Solutions and use calibration procedures in compliance with ISO 17025 standards.
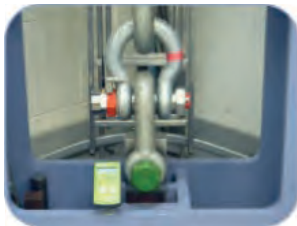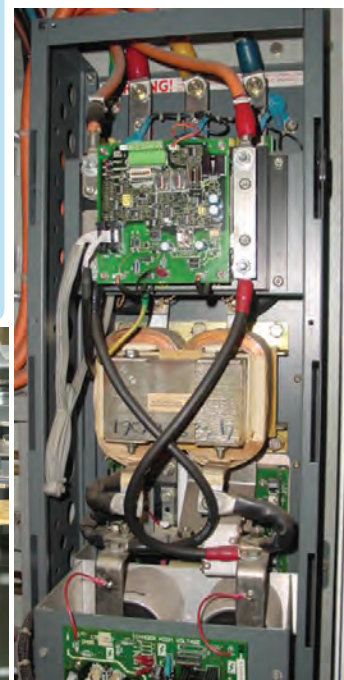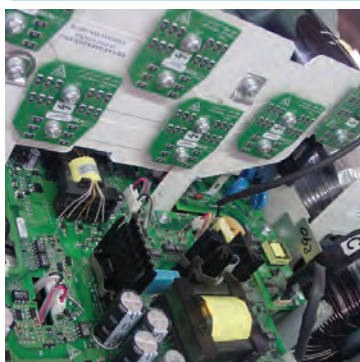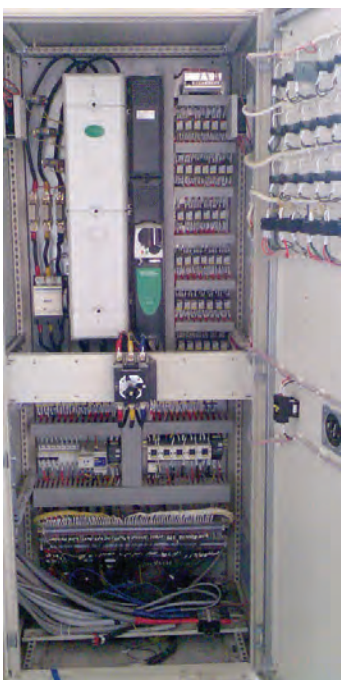
Product Repair and Service

Provide local repairs and servicing for our customers

Help customers to reduce cost and machine down time

Works are carried out by trained and experienced technicians

Quick services and affordable price!

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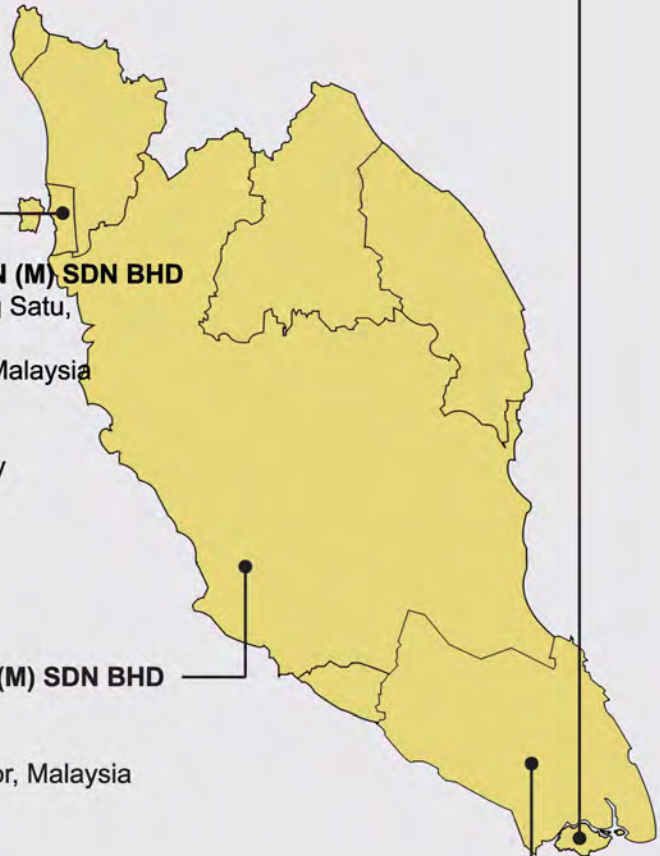
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