MID DIRECTIVE EXPLAINED &
BUILDING REGULATIONS L2 A/B UPDATED

MID certified meters for billing purposes.....

Overview of Building Regulations

Overview of current Building Regulations part L2A/B

Sub-metering energy end-uses such as lighting, fans or pumps provides the means to identify where and when energy is being wasted. To reduce energy consumption and carbon emissions, building designers should incorporate sub-metering in new designs so that systems can be managed properly.

As a result of installing and using meters you can often save 5-10% of the energy being metered. Sometimes you can save more. For example, a meter that identifies pumps being left on for 24 hours per day, seven days a week, may save 60% of the energy passing through it.

Benefits of sub-metering

- Allows property managers to understand and manage their buildings better, resulting in greater energy savings.
- Establish the breakdown of energy use within a building, ie: 'Where does it all go?'
- Identify where energy use is greatest.
- Promote a detailed assessment of demand patterns and benchmarking to identify end-uses that are untypically high.
- Reveal useful trends between, say, day/night, summer/winter, weekday/weekend.
- Demonstrate compliance with building regulations

Part L of the Building Regulations for England and Wales cover energy efficiency requirements and since 2002 have recognised the valuable role of metering by including requirements for sub-metering in non-domestic buildings. In new buildings, installing sub-meters that enable at least 90% of the estimated annual energy consumption of each fuel to be accounted for is considered reasonable provision.
Allocation of energy consumption to the various end uses can be achieved using the following techniques:

- Direct metering
- Measuring the run-hours of a piece of equipment that operates at a constant known load
- Estimating non-constant small power loads

It is also considered that reasonable provision to install incoming meters in every building with more than 500m^2 gross floor area, Reasonable provision of sub-metering would be to provide additional meters such that the following consumptions can be directly measured or reliably estimated.

- electricity, natural gas, oil and LPG provided to each separately tenanted area that is greater than 500m^2
- energy consumed by plant items with input powers great or equal to that shown in Table 13 of Approved Document L2[3,4] (ADL2)
  (reproduced here as table 1)
- any heating or cooling supplied to separately tenanted spaces for larger tenancies, i.e those with floor area greater than 2500m^2, direct metering of the heating and cooling may be appropriate.

Table 1 Size of plant for which separate metering would be reasonable (ADL2[2] Table 13)

Plant Item	Rated power input / kW
Boiler installations comprising one or more boilers or CHP plant feeding a common distribution circuit	50
Chiller installations comprising of one or more chiller units feeding a common distribution circuit	20
Electric Humidifiers	10
Motor control centres providing power to fans and pumps	10
Final electrical distribution boards	50

Carlo Gavazzi can provide a wide selection of metering solutions to help you comply with the latest building regulations. We can provide meters with additional inputs for water/gas or hot/cold water and offer a selection of outputs including pulse, relay, Modbus, profibus and Ethernet to allow you to interface with data loggers, BMS/BEMS or stand alone energy management software such as PowerSoft, developed to interface directly with the CG meters (more info in this brochure). These unique meters offer both you and your client products that meet both the Part L2A/B building regulations and the MID certification, allowing you to use the same meter in billing applications.

Useful Links:

www.carlogavazzi.co.uk
Carlo Gavazzi Datasheets
www.cibse.org
Part L2A/B building regulations (TM-39)
www.planningportal.gov.uk
Complete Part L2 A/B regulations
www.nwml.gov.uk
General information on MID
www.est.org.uk
Energy Savings Trust
www.carbontrust.co.uk
The Carbon Trust
www..opsi.gov.uk/stat.htm
Electricity act 1989 schedule 7

& Measuring Instruments Directive

What is MID?

The MID (Measuring Instruments Directive) is a new European Union (EU) directive aimed at creating a single market for measuring instruments across the EU. MID took effect on October 30, 2006.

The scope of this Directive is to guarantee to the users a high level of safety and reliability of the measuring instruments, protected against data corruption, ensuring in the meantime the free circulation of certified measuring instruments within the EU.

Annexes define how the instruments can be declared as compliant to MID. Notified bodies are authorised to carry out testing, and the certification issued by one of the bodies shall be accepted within the EU within any limitations. This MID is a replacement for the old OFGEM approval in the UK.

Are you billing legally?

A Spokesperson at the National Weights and Measures Laboratory has provided the following response from OFGEM Legal Team:

We have been advised that all electricity meters must be approved if used in a billing situation. This is a requirement of Schedule 7 of the Electricity Act 1989 and this is equally applicable to landlord/tenant supplies. Prior to 30 October 2006 approval would be granted by Ofgem/NWML although approvals for meters where the supply is below 100KWh are now granted by a notified body under the Measuring Instruments Directive **(MID)**.

Meters approved under previous UK provisions need not be certified in exempt supply situations - such as landlord/tenant - if a written agreement exists between the relevant parties to dispense with the certification requirements. However the meter is still required to be of an approved design and the meter owner is obliged to keep the meter in good working order.

Which utility meters are covered by MID?

The new Directive is related to ten categories of measuring instruments, which are indicated in ten annexes, of which 4 relate to utility meters. For these, the MID defines categories of climatic conditions, mechanical environments and electromagnetic environments, these are shown below:

- MI-001: WATER METERS
- MI-002: GAS METERS AND VOLUME CONVERSION DEVICES
- **MI-003: ACTIVE ELECTRICAL ENERGY METERS**
- MI-004: HEAT METERS

A complete list is available on the NWML website

The MID applies to Carlo Gavazzi Energy Meters and Analysers

All the Energy Meters & Analyzers are certified under the MID MI-003 for Active Electrical Energy Meters. Where the accuracy requirements for active energy meters are defined in 3 classes. A.....C(). The following energy meters EM10/EM11/EM21/EM23/EM24/EM26 are meeting accuracy "class B" so 1% accuracy. The meters themselves carry Annex B **type certification**.

All Carlo Gavazzi MID meters carry Annex B type certification, in EU law Annex B certification is the minimum requirement in all commercial and industrial applications where electricity is being sub-billed and where an agreement exists between the relevant parties. For full billing compliance Annex B + Annex F is required, this additional certification can be provided upon request with an additional charge.

Carlo Gavazzi MID meters are tested and certified using the PTB laboratory in Germany. A copy of the MID certificate is available on request as a PDF file.

All our meters have been designed to be fully tamper proof when correctly fitted on site, this includes having not only password protection but also sealable/lockable covers to ensure they can't be accessed once sealed, as in accordance with the MID directive. We are able to offer a wide range of mounting options including DIN rail mounting, 72x72 panel mounting and also 96 x 96 panel mounting, giving you the ultimate in mounting options. We can also offer a special retro fit bracket that is pre-wired with special tariff terminals.

Accuracy Standards

EN61036 is no longer the latest standard.

The latest accuracy standard for electricty meters is now EN62053-21 for Class 1 or EN50470-3 MID MI003 Class B. If you are specifying Energy Meters the latest standards which generally stipulate 1% accuracy for Energy kWh, the meters will as a subseuence offer 0.5% accuracy on both Current and Voltage.

Remember to specify 0.5% accuracy on ALL current/voltage transformers, these are needed in order for the meters to meet Class 1 for Energy kWh.

Power Soft Energy Manager - Software Solution

PowerSoft is an analysis platform suitable for Win98, 98SE, 2000 and XP, which has been specifically developed to interface, by means of the Modbus protocol (RTU and TCP/IP), the Carlo Gavazzi products for Energy Management. Consisting of a main core and of a series of optional plug-in modules, it allows to correctly and efficiently manage an electrical distribution system, mainly considering the cost reduction point of view. This aim is achieved monitoring the consumptions, checking the demanded power peaks and adopting accurate analysis and data processing tools.

PowerSoft PWS - £900.00 includes the below features
Interactive Synoptics
The animated interactive synoptics allow users to:
- display the plant configuration with planimetric and functional diagrams and page links to other synoptic pages.
- display the real time values acquired from the instruments; monitor the digital inputs status acquired by the system;
- monitor any setpoint and communication alarm of the instruments;

Real Time Display
Consisting of 4 pages including all the real time information of the selected instrument.
- Indicators: it displays, through analogue indicators, the power and current values and the energy meters showing any alarm condition.
- Variables: it displays all the measurements of the selected instrument, with the indication of any alarm and of the minimum, average and maximum values took by the variables.
- Inputs/outputs: it displays the digital input and output status.
- Fresnell: it displays the Fresnell diagram of the line monitored by the instrument.

Multi Instrument Display
It displays the real time measurements of all the instruments connected to PowerSoft, grouped in three parts:
- voltages and currents;
- powers and power factors;
- temperatures, total harmonic distortions, imported and exported energies, gas and water consumptions.

Trending
The access to the measurements historical archive is allowed in:
- graphical format, exportable in ".wmf" format;
- analytical format, exportable in ".csv" and ".xls" format.

The different tariffs, if set in the relevant module, can be connected with the stored and displayed values. Up to 4 variables (from the same of from different instruments) can be contemporary displayed. With simple and intuitive procedures is also possible to zoom the graph, analyse it in detail with a cursor and modify the displayed time period.

Setpoint Configuration
It allows to set up and down setpoints on all the variable measured by all the instruments of the network, exceeding which an alarm is activated. The alarm can be:
- software, and it is displayed in the Active alarms windows and stored in the Alarms and events log;
- hardware, which is stored as above and switches the digital output of the instrument that are pointing out the anomaly.

Alarms and events – PWS-Alarm £475.00
Two manners are provided to display alarms and events.
- Active alarms window: it advises the user if a setpoint has been exceeded or if a communication error is present; it allows to acknowledge the selected alarms by the qualified users.
- Alarms and events log window: it allows to access the archive of the events (login, logout, startup, alarm acknowledgment, etc.) and of the alarms (setpoint alarm, communication errors, missing data storing, etc.) and to carry out filter based searches.

Analysis Support – PWS-Analysis – £750.00
It allows to carry out statistical analysis on the power trends and energy consumption by extrapolating:
- simple mean, median and standard deviation of the energy consumption, removing from the computation, if needed, the week-ends, holidays and days with anomalous consumption due to external reasons;
- week-based consumption trends;
- consumption trend of each day of the week;
- estimation of the ideal installed power for each tariff, calculated with a selectable confidence level.

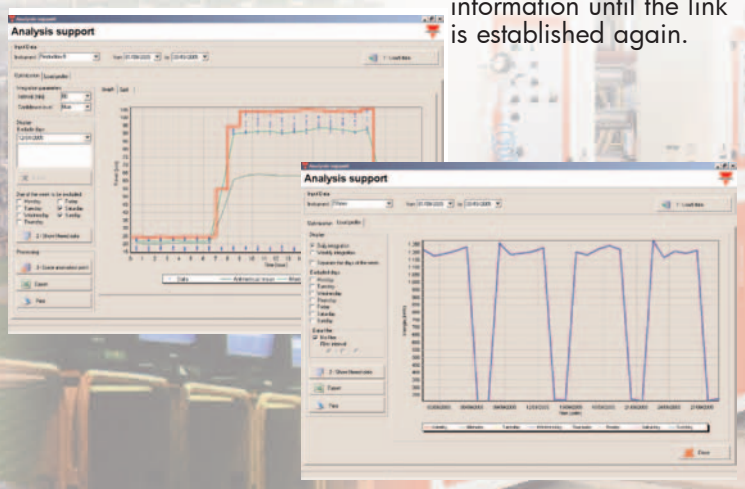
Tariff Management – PWS-Tariff £230.00
The different tariffs during the day and the distribution of the typical-days among the year can be set according to the supplier tariff regulations in a very easy and extremely flexible way. It can manage:
- up to 12 tariffs;
- up to 24 tariff change per day;
- up to 365 different typical-days per year.

Bill Calculator – PWS-Bill £575.00
According to the utility contract parameters, it allows to:
- estimate the costs, relevant to a selected month, due to the energy, water and gas consumption;
- perform the cost allocation among the monitored lines;
- display the daily trend of the consumption;
- identify the reason of any penalty.

E-Mail Manager – PWS-Mail £290.00
It manages the automatic e-mailing, able to notify the electrical system status to one or more e-mail addresses. The e-mailing can be carried out on regular basis and/or as a consequence of a defined alarm or event.

WebServer – PWS-Web £575.00
It allows to remotely access PowerSoft, using a standard browser. It allows to display:
- the synoptics;
- the single and multi-instrument real time data;
- the active alarms;
- the logged data in graphical & analytical format;

Remote Internet – PWS-Internet £575.00
Allows downloading via Ethernet the WM4-96 and PQT-90 memories and let the data be analysed with PowerSoft. The download is scheduled on regular basis (e.g. once a day), Up to 200 meters and/or IP addresses can be connected, therefore collecting information from remote locations all over the world. Up to 30 meters (RS485) can be read from the same IP address. With this solution any cabling problem or Internet/LAN connection failure won't lead to any loss of data, since the WM4-96/PQT-90 memory can store all the information until the link is established again.



MID Meter Price Guide

This is a small selection of our MID certified meters to see our full Energy Management product offering, please request a catalogue.

MID Certified Energy Analyzers

Ultra Compact 32A 1-phase Energy Meter
How to order **EM10 DIN**

Application:

Part Number	Description	Price
EM10-DIN.AV8.1.X.01.P	1-Ph Energy Meter, 32A,230VLN, self power supply, 1 open collector output, MID Certified Annex B	70.00

Ultra Compact 1-phase Energy Analyzer
How to order **EM11 DIN**

Application:

Part Number	Description	Price
EM11-DIN.AV8.1.X.01.P	1-Ph Energy Analyzer, 32A,230VLN, self power supply, 1 open collector output, MID Certified Annex B	95.00

New

3-phase Energy Analyzer/Multifunction meter, Dual Housing DIN Rail/72x72 Panel mount with detachable display
How to order **EM21-72D**

Part Number	Description	Price
EM21-72D.AV5.3.X.0.XP	Energy Meter, self power supply 18-260VAC, 45-65Hz, 400VL-L, 1 or 5A input, Pulse Output	120.00
EM21-72D.AV5.3.X.0.SP	Energy Meter, self power supply 18-260VAC, 45-65Hz, 400VL-L, 1 or 5A input, Pulse and Modbus RS485 Output	185.00

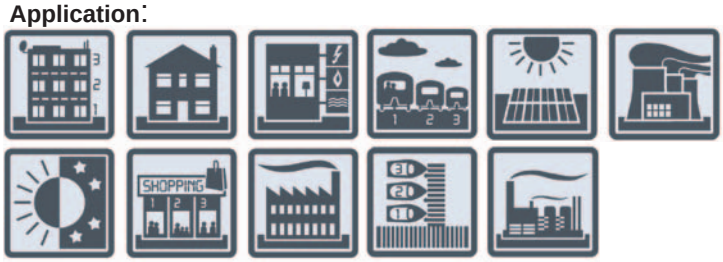
MID Meter Price Guide

3-Phase Balanced/Unbalanced Energy Analyzer
How to order **EM23-DIN**
No Programming required

Part Number	Description	Price
EM23-DIN.AV93.X.01.P	Energy Analyzer, self power supply, 45-65Hz, 400VL-L, 65A Direct Connection, Pulse Output, MID Certified Annex B	150.00

Ultra Compact 1-2-3 phase Energy Analyzer
How to order **EM24 DIN**

Application:



Part Number	Description	Price
EM24-DIN.AV5.3.D.IS.P	Energy Analyzer, 115-230VAC PS, 400V/5A input, 3 Digital inputs and RS485 outputs, MID Certified Annex B	220.00
EM24-DIN.AV5.3.D.O2.P	Energy Analyzer, 115-230VAC PS, 400V/5A input, 2 Open Collector outputs, MID Certified Annex B	190.00
EM24-DIN.AV9.3.X.IS.P	Energy Analyzer, Self PS, 64A input, 3 Digital inputs and RS485 outputs, MID Certified Annex B	210.00
EM24-DIN.AV9.3.X.O2.P	Energy Analyzer, Self PS, 64A input, 2 Open Collector outputs, MID Certified Annex B	170.00
4DIN96ADAPTER	EM24-DIN panel mount adapter kit for 96 x 96 cutout	20.00

Prices are subject to change without prior notice

1-2-3-phase Energy Analyzer
How to order **EM26-96**

Application:

Part Number	Description	Price
EM26-96.AV5.3.H.01.X.X.P.X	Energy Analyzer, 90-260VAC/DC PS, 1/5AA 400/690VLL 1-3Phase, 1 Open Collector output, MID Certified Annex B	240.00
EM26-96.AV5.3.H.03.X.X.P.X	Energy Analyzer, 90-260VAC/DC PS, 1/5AA 400/690VLL 1-3Phase, 3 Open Collector outputs, MID Certified Annex B	250.00
EM26-96.AV5.3.H.01.S1.P.X	Energy Analyzer, 90-260VAC/DC PS, 1/5AA 400/690VLL 1-3Phase, 1 Open Collector output & Modbus RS485, MID Certified Annex B	270.00
EM26-96.AV5.3.H.03.S1.P.X	Energy Analyzer, 90-260VAC/DC PS, 1/5AA 400/690VLL 1-3Phase, 3 Open Collector outputs & Modbus RS485, MID Certified Annex B	285.00
EM26-96.AV5.3.H.I3.S1.P.X	Energy Analyzer, 90-260VAC/DC PS, 1/5AA 400/690VLL 1-3Phase, 3 Digital Inputs and Modbus RS485, MID Certified Annex B	285.00

MID certified pre-assembled meter (Prices do not include EM24 Meters)

Part Number	Description	Net Price
4DIN96ADAPTER-PWTT	EM24-DIN panel mount adapter kit for 96 x 96 cutout, pre-wired with tariff terminals	65.00
MMU1T-EM24-P	3-Phase, 1 Meter pre wired, 3-Phase and neutral fused voltage disconnect links, with CT connection and shorting terminals	156.60
MMU1TP-EM24-P	3-Phase, Meter pre wired, 3-Phase and neutral fused voltage disconnect links, with CT connection and shorting terminals with external colour coded test sockets for L1 L2 L3 N, cap protected voltage test sockets for 4mm test plugs	189.00
MMU2T-EM24-P	3-Phase, 2 Meters pre wired, 3-Phase and neutral fused voltage disconnect links, with CT connection and shorting terminals	194.40
MMU2TP-EM24-P	3-Phase, 2 Meters pre wired, 3-Phase and neutral fused voltage disconnect links, with CT connection and shorting terminals with external colour coded test sockets for L1 L2 L3 N, cap protected voltage test sockets for 4mm test plugs	232.20

All the above prices for pre-assembled meter solutions are nett and the cost of the EM24-DIN must be added.

OUR SPECIALIST ENERGY DISTRIBUTORS

Apex Engineers
Park Heath
Cheswardine
Market Drayton
Shropshire TF9 2NP
Tel: 01630 661313
Fax: 01630 661582
sales@apexengineers.co.uk
www.apexengineers.co.uk

Camax UK Ltd
Spa Lodge
2 Spa Lodge
Harrogate
Yorkshire HG2 7LE
Tel: 01423 880440
Fax: 01423 880990
sales@camax.co.uk
www.camax.co.uk

SHM Communications Ltd
Valley House
6 Winnall Valley Road
Winchester
Hampshire SO23 0LD
Tel: 01962 865 142
Fax: 01962 862 451
sales@shmcomms.co.uk
www.shmcomms.co.uk

OUR FIRST CHOICE DISTRIBUTION NETWORK

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Unit 4 Wessex Road
Bourne End
Bucks SL8 5DT
Tel: 01628 529448
Fax: 01628 810093
rob.y@cse-distributors.co.uk
www.cse-distributors.co.uk

Greenbrook Electrical plc
West Road
Harlow
Essex CM20 2BG
Tel: 01279 772710
Fax: 01279 415481
mh@greenbrook.co.uk
www.greenbrook.co.uk

G & R Electrical Wholesalers
Unit 26 Faraday Mill Business Park
Plymouth
Devon PL4 0ST
Tel: 01752 601108
Fax: 01752 601109
sales@grelectrical.co.uk

Halcyon Electrical Components Ltd
Butler Way
Stanningley
Leeds
Yorks LS28 6EA
Tel: 0113 236 1509
Fax: 0113 239 3090
sales@halcyon-drives.co.uk
www.halcyon-drives.co.uk

HE Controls Ltd
1 Southport Business Park
Wight Moss Way
Kew
Southport PR8 4HQ
Te: 01704 516526
Fax: 01772 516501
roy@hecontrols.co.uk
www.hecontrols.co.uk

HTE (UK Electric Ltd)
Unit 4 Cala Trading Estate
Ashton Vale Road
Bristol
Avon BS3 2HA
Tel: 0117 966 5925
Fax: 0117 966 1940
neil.sandifer@uk-electric.net

Laplace Electrical Ltd
Unit 26
42 Dalsetter Avenue
Glasgow
G15 8TE
Tel: 0114 949 0099
Fax: 0114 949 1154
sales@laplace-online.co.uk
www.laplace-online.co.uk

MCC Controls
6/7 Robinhood Business Park
Robinhood Road
Dublin 22
Ireland
Tel: 00353 1450 6450
Fax: 00353 1450 6104
sales@mcc-controls.com
www.mcc-controls.com

Park Electrical Services
Belfast Harbour Industrial Estate
Dargan Road
Belfast
N. Ireland BT3 9JU
Tel: 028 907 70799
Fax: 028 907 79853
jimmcconachie@parkelect.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit 6 Trevanth Road
Off Barkby Road
Leicester
LE4 9LS
Tel: 0116 246 4480
Fax: 0116 246 4515
phil.king@pes-group.co.uk
www.pes-group.co.uk

Park Electrical Services
3 Hertford House
Farm Close
Hayes
Shenley
Herts WD7 9AB
Tel: 0208 8135889
Fax:0208 8135946
kevin.mcdermot@pes-group.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit 10 Navigation Way
Union Park
West Bromwich
West Midlands B70 9DF
Tel: 0121 553 3888
Fax: 0121 553 0777
tony.green@pes-group.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit 2 Lakeside
Rother Valley Way
Holbrook Industrial Estate
Sheffield
Yorkshire S20 3RW
Tel: 0114 248 2700
Fax: 0114 248 2766
darren.riley@pes-group.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit C Davy Way
Llay Industrial Estate
Wrexham
Clwyd LL12 0PG
Tel: 01978 856661
Fax: 01978 856606
stevemontgomery@parknw.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit 22 Cloverlay Industrial Park
Canterbury Lane
Rainham
Essex ME8 8GL
Tel: 01634 364006
Fax 01634 364106
trevor.mcdermot@pes-group.co.uk
www.pes-group.co.uk

Park Electrical Services
Unit 5 Venture Court
Edison Road
St Ives
Cambridgeshire PE27 3JX
Tel: 01480 462600
Fax 01480 462610
robert.garrick@pes-group.co.uk
www.pes-group.co.uk

Park QED
Unit 7 Kingfisher Park
Gundrymoor Trading Estate
West Moors
Poole
Dorset BH21 6US
Tel: 01202 855554
Fax: 01202 870022
sales.parkqed@googlemail.com
www.pes-group.co.uk

QED Industrial Controls PLC
Radnalls Road
Leatherhead
Surrey KT22 7LB
Tel: 01372 378666
Fax: 01372 379667
sales@qedindustrial.co.uk

Sinelco Ltd
6 Carlyle Avenue
Hillington Industrial Estate
Glasgow
G52 4XX
Tel: 0141 810 1441
Fax: 0141 810 1711
sales@parkelect.co.uk
www.pes-group.co.uk

Stellar Controls Ltd
Unit 13 Steel Close
Eaton Socon
St Neots
Cambridgeshire PE19 8TT
Tel: 01480 217 717
Fax: 01480 217 789
sales@stellarcontrols.co.uk
www.stellarcontrols.co.uk

TLA Distributors Ltd
Unit 16 Manvers Bus Park
High Hazells Road
Cotgrave
Nottingham NG12 3GZ
Tel: 0115 989 3999
Fax: 0115 989 4999
sales@tlauk.net
www.tlauk.net

Total Electrical Distributors
Crawford Street
East Usk
Newport
Gwent NP9 7AY
Tel: 01633 214348
Fax: 01633 254328
steve.harris@totalelectrical.co.uk
www.totalelectrical.co.uk

TS Industrial Products
75 Somers Road Industrial Estate
Rugby
Warks CV22 7DG
Tel: 01788 543387
Fax: 01788 541311
sales@tsindustrial.co.uk
www.tsindustrial.co.uk

Pendec Electrical Distributors
Clifton Street
Colne
Lancashire
BB8 9AE
Tel: 01282 863636
Fax: 01282 861100
info@pendec.co.uk
www.pendec.co.uk

Wilts Wholesale Electrical Co.
Unit 21 Acorn Industrial Park
Crayford Road
Crayford
Kent DA1 4AL
Tel: 01322 523222
Fax: 01322 534442
peter.gibbs@wilts.co.uk
www.wilts.co.uk

CARLO GAVAZZI
Automation Components

Springlakes Industrial Estate, Deadbrook Lane,
Aldershot, Hants, GU12 4UH.
Tel: 01252 339600 Fax: 01252 326799
sales@carlogavazzi.co.uk **www.carlogavazzi.com/ac**

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