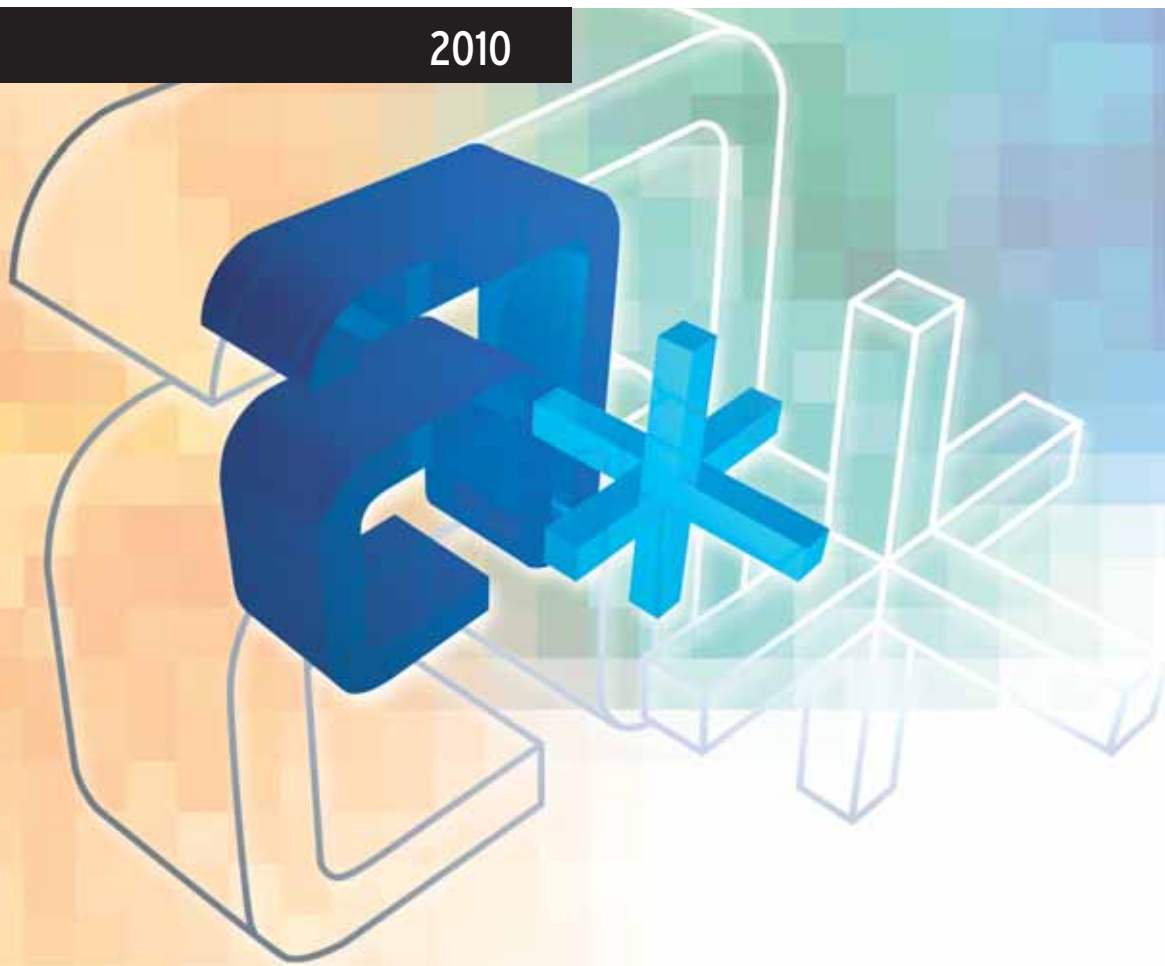


Automation Training

2010



Advanced Industrial Automation

OMRON

By **understanding** your needs we can offer you the best training for the **industrial applications** you are likely to encounter.



We offer a total of **13** training courses covering the complete range of Omron's industrial automation products. As new products are developed we are introducing new courses all the time.

All courses are run at our headquarters in **Milton Keynes**, at our **Regional Training Centres** or at **customer sites**.

If you would like to book a course or require further information, please contact us on **01908 258 258**

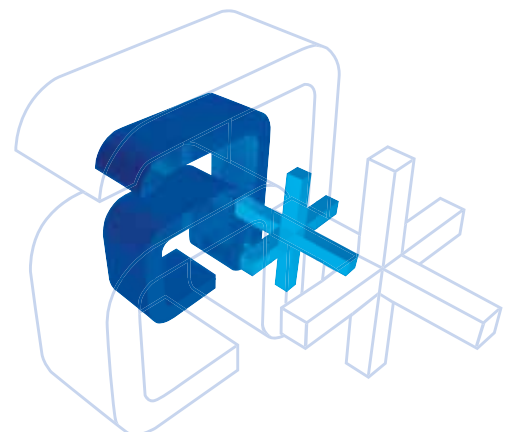
On-site training

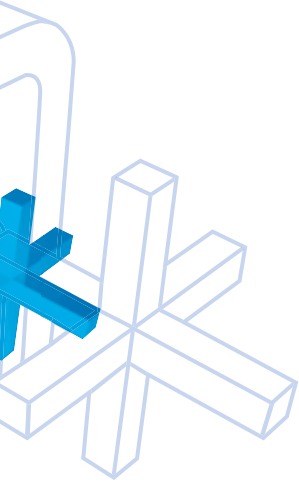
It is often inconvenient for a company to have members of staff away from site for training activities, especially if a large proportion of the staff require training. Omron recognises this and as well as providing training at our dedicated facilities in Milton Keynes and our Regional Training Centres, Omron are able to meet the training requirements of customers at their own sites. We have the ability to provide the standard course structures at a customer's premises and can also produce tailored courses to meet the customers more specific needs.

Please call our training team on 01908 258 258 for more details.

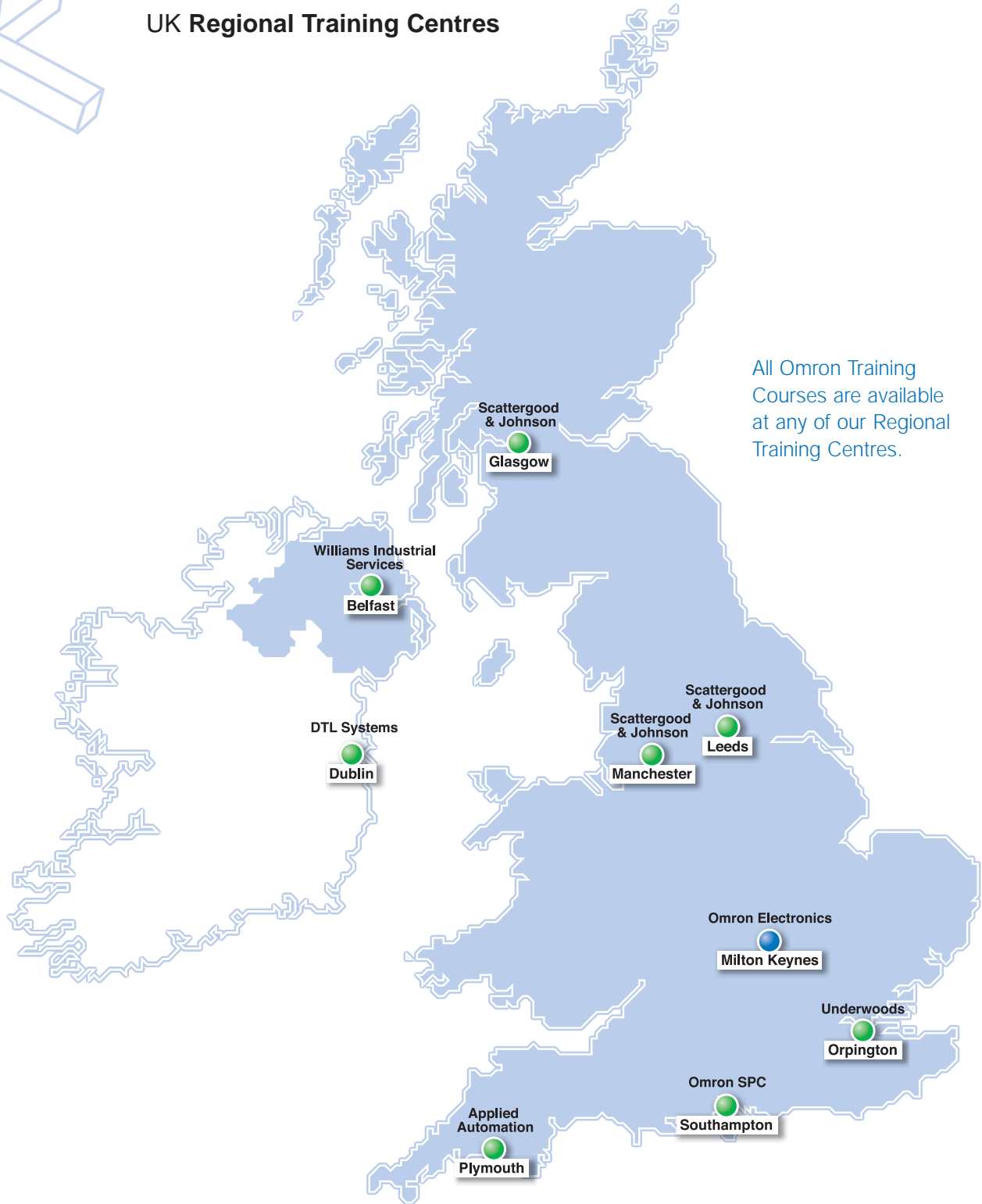
Customised courses

We recognise that you may have specific training needs based on your machines and operations. We will be glad to visit your site and after discussion with you develop the training course based on your requirements. The course can then be delivered on your premises, at our headquarters in Milton Keynes or one of our Regional Training Centres.





UK Regional Training Centres



All Omron Training Courses are available at any of our Regional Training Centres.

2010 courses and contents


BASIC 

INTERMEDIATE 


ADVANCED 

PLC


OC1: Basic PLC (2 days) 05

- Introduction to PLCs
- Addressing
- Simple programming
- Transfer to and from PLC 


OC2: Advanced PLC (3 days) 05

- In-depth understanding of all memory areas
- Advanced programming
- Debugging and troubleshooting exercises 

OC10: Compolet (2 days) 09


- Compolet management and database reporting 

OC15: SFC (Sequential Flow Chart) Programming (1 day) 10


- Introduction to SFC programming
- Use CX-Programmer's SFC editor
- Basic Concepts of SFC
- Write SFC programme 

HMI

OC3: Basic HMI (1 day) 06


- Introduction to NS Hardware range and CX-Designer software package
- NS Menu setting
- Bit buttons, Word buttons, Command buttons and lamps
- Numerical input/display
- Test tool
- Transfer to and from NS 

OC4: Advanced HMI (1 day) 05

- Alarm handling
- Datablock setting
- Image handling
- Ethernet communication
- NS Web interface 


NETWORK

OC7: Controller Link Network (1 day) 07

- System specification
- System wiring and configuration
- Network programming (CX Integrator)
- Routing table setting
- System status area
- Troubleshooting 


FIELDBUS

OC8: DeviceNet (1 day) 08


- System Specification
- System wiring
- DeviceNet Configurator (CX Integrator)
- System status area
- Troubleshooting 

DRIVE/MOTION CONTROLLER

OC5: Introduction to Variable Speed Drives (1 day) 07

- Overview of Variable Speed Drives and electric motors
- Location and installation
- Supply wiring
- Control wiring
- Using the digital operator
- Mode selection
- Parameter settings
- Troubleshooting 

OC9: Servos (2 days) 08

- Closed loop systems
- Pulse train vs. analogue
- Connecting to the MC402
- Project and file management
- Communicating with C200H Alpha PLCs 

CUSTOMISED TRAINING

OC11: One to One Training Course (tba day/s) 9

- Customised Training Course designed around customer need
- Content decided by customer

OC12: One to One + Training Course (tba day/s) 9

- Customised Training Course designed around customer need
- Content decided by customer

OC14: On-Site Training Course (tba day/s) 10

- Customised Training Course designed around customer need
- Content decided by customer

2010 Course Dates 11

Terms and Conditions 12

This course is designed to introduce engineers and technicians to PLCs. The trainee is shown how to use all the features of CX-Programmer whilst being introduced to basic PLC hardware and programming techniques. The course is primarily hands-on using dedicated training equipment incorporating Omron's CJ1 PLCs.


Course details

Introduction to PLC technology: <ul style="list-style-type: none"> • Explanation of PLC terminology • System configuration • I/O addressing and memory map 	On-line monitoring of programs
	Modifying and forcing software elements
Interfacing with a PLC: <ul style="list-style-type: none"> • Uploading and downloading application Programs 	Application of timers, counters and basic PLC Instruction
Off-line programming: <ul style="list-style-type: none"> • Modifying, inserting and deleting programs 	Basic documentation

The primary objective of the course is to provide a comprehensive introduction to the Omron range of PLCs and the CX-Programmer software. The course is suitable for engineers and technicians who have no prior knowledge of PLCs and experienced programmers who wish to learn to use the features of CX-Programmer.

OC1

OC1 Basic PLC Training Course 2 Days

£425 per person
(excluding VAT)

This course is designed to provide an operational knowledge of more advanced software instructions and programming techniques. With a hands-on approach, the attendee is introduced to the concepts of data shifting, indirect addressing and program flow operations, in addition to special I/O module set-up and addressing. Software design and documentation are covered in detail, along with the diagnostic tools available in CX-Programmer, enabling the user to quickly diagnose and correct process faults on their PLC controlled installation.

Course details

In-depth understanding of all memory areas	Advanced diagnostic capabilities: <ul style="list-style-type: none"> • On-line editing • Real time data tracing
Understanding and implementation of advanced Software instructions: <ul style="list-style-type: none"> • Data shifting • Algebraic manipulation • Data movement 	Software design and documentation
Application and use of program flow instructions	Use and set-up of special I/O modules
	Debugging and trouble shooting exercises

This course is ideally suited to those who require advanced knowledge of the Omron PLCs. It is recommended that attendees have a good working knowledge of basic PLC concepts and CX Programmer, or have attended the OC1 course.

OC2

OC2 Advanced PLC Training Course 3 Days



£450 per person
(excluding VAT)

OC3

OC3 Basic HMI 1 Day



£210 per person
(excluding VAT)

This is an application course using NS Human-Machine Interface (HMI) and CX Designer software package. The course focuses on the integration of a PLC and HMI. The course is a mixture of theory and practical covering basic aspects of NS operations. Full training equipment is provided to allow the attendee to complete a number of examples and problems.

Course details

Introduction to NS hardware range	Numerical Input/Display
Introduction to CX Designer software Package	Test Tool
NS Menu setting	Transfer to and from NS
Bit Buttons, Word Buttons, Command Buttons, and lamps	

This course is aimed at those who have a basic knowledge of the PLC, and who now want to understand or modify an 'NS' range of displays application. It is ideally suited to those who have previously attended an OC1 training course, building on PLC knowledge to become proficient and confident in creating both PLC and NS software solutions.

OC4

OC4 Advanced HMI 1 Day



£210 per person
(excluding VAT)

This is an application course using an NS Human-Machine Interface (HMI) and CX Designer software package. The course focuses on the integration of a PLC and HMI. The course is a mixture of theory and practical covering advanced aspects of NS operations. Full training equipment is provided to allow the attendee to complete a number of examples and problems.

Course details

Setting Alarms	Ethernet Communication to NS and PLC
Setting DataBlock for Recipes	Networking NS
Customise Image handling	NS Web interface

This course is aimed at those who have a basic knowledge of the PLC and NS HMI, and who now want to design interfaces utilising the Omron 'NS' range of displays. It is ideally suited to those who have previously attended an OC1 and OC3 training course. The attendee will build on basic NS and PLC knowledge to become proficient and confident in creating both PLC and NS software solutions.

The course is hands-on with each delegate operating their own inverter drive training unit. The course will start by explaining in non-mathematical terms how an electric motor works and why varying the frequency causes speed change. By the end of the course, delegates will have gained an understanding of the application and operation of variable speed drives.

Course details

Overview of variable speed drives and electric motors	Using the digital operator
Location and installation	Mode selection
Supply wiring	Parameter settings
Control wiring	Trouble shooting

This course is aimed at maintenance technicians and engineers who have no experience of inverter drives and system builders who are new to the application and control of variable speed drives.

OC5

OC5 Introduction to Variable Speed Drives Training Course 1 Day



£210 per person
(excluding VAT)

This is a one day training course covering the wiring, installation, commissioning and programming of a Controller Link networking system. The course is hands-on with a Controller Link network being built and programmed from scratch

Course details

System specification	Data Link setting
System wiring and configuration	System status area
Network programming (CX Integrator)	Troubleshooting
Routing table setting	

The course is aimed at engineers who are familiar with Omron PLCs and software and who would like to learn more about Controller Link Networks. It is ideally suited to those who have attended the OC1 and OC2 training courses.

OC7

OC7 Controller Link Network Training Course 1 Day



£210 per person
(excluding VAT)

OC8

OC8 DeviceNet Training Course 1 Day

£210 per person
(excluding VAT)

This is a one day training course covering the wiring, installation, commissioning and programming of a DeviceNet system. The course is hands-on with a DeviceNet system being built and programmed from scratch.

Course details

System specification	System status area
System wiring	Troubleshooting
DeviceNet Configurator (CX Integrator)	

The course is aimed at engineers who are familiar with Omron PLCs and software and who would like to learn more about DeviceNet remote I/O. It is ideally suited to those who have attended the OC1 and OC2 training courses.

OC9

OC9 Servos Training Course 2 Days

£425 per person
(excluding VAT)

This course aims to provide engineers working in motion control with a strong background of application related skills when integrating Omron mechatronic products. Focusing on the MC402 motion controller, the course is modular in format. Each module consists of a hands-on, practical workshop. Dedicated training equipment and PC based programming tools are used to assist attendees in developing new skills and to produce functionally correct and well-structured software solutions.

Course details

Introduction to servo systems: <ul style="list-style-type: none"> • Closed loop systems • Pulse train vs. analogue 	Advanced concepts: <ul style="list-style-type: none"> • Print registration • Using virtual axis
Introduction to Motion Perfect: <ul style="list-style-type: none"> • Connecting to the MC402 • Project and file management • Working off-line 	Multi-tasking: <ul style="list-style-type: none"> • Why use multi-tasking? • Communicating between tasks
Basic construction: <ul style="list-style-type: none"> • Programming structure • Standard BASIC programming operations 	Communicating with C200H Alpha PLCs
Simple linear motion: <ul style="list-style-type: none"> • Interpolation • Data storage and maths functions • Software gearboxes and cams 	

This course is ideally suited to those engineers who are becoming, or are already involved in complex motion systems. It is recommended that attendees have an understanding of programming in a structured high level language, prior to participating in the OC9 course.

This is a 2 day application training course using the Omron Compolet software. Using Active-X components the software enables standard Microsoft software packages to communicate with the PLC and produce management and data base reports. The training is based around practical application examples using MICROSOFT EXCEL spreadsheets.

Course details

Introduction to Fins Gateway	Basic report writing
Introduction to Compolet	Advanced document and report writing
Reading and writing of single word data	Error trapping and logging
Batch reading and writing of data	Forcing I/O
Techniques for date and time stamping data	

This course is for engineers and technicians who are experienced PLC users and have some knowledge of writing Visual Basic for applications code.

OC10

**OC10
Compolet
Training Course
2 Days**



£425.00 per person
(excluding VAT)

This is a customised training course designed to customer specific needs. We will develop the course based on the customer requirement. We can discuss the customer's own application during the course in order to assist them in understanding the functions used or even how to start developing it.

Course details

Content to be decided by Customer

OC11

**OC11
One-to-One
Training Course**

£380 per day
(excluding VAT)

This is a customised training course designed to customer specific needs. We will develop the course based on the customer requirement. We can discuss the customer's own application during the course to assist them in understanding the functions used or even how to start developing it.

Course details

Content to be decided by Customer

OC12

**OC12
One-to-One+
Training Course**

£330 per person per day
More than 3 persons £1,100 per day
(excluding VAT)

OC14

OC14 On-Site Training Course

£1,100 per day
(excluding VAT)

This is a customised training course designed to customer specific needs. We will develop the course based on the customer requirement. We can visit the customer's site and discuss their requirement. Because this course is taught at the customer's site, we can go to the customer's machine/ application and explain the hardware and use their program to understand the functions and familiarise them with their own application.

Course details

Content to be decided by Customer

OC15

OC15 SFC (Sequential Flow Chart) Programming Training Course 1 Day

£210 per person
(excluding VAT)



This course is designed to introduce engineers to the advantages of using SFC programming. The trainee is shown how to implement an application in SFC Programming.

Course details

Introduction to SFC Programming	Coding Transitions (ladder)
Be able to use Cx-Programmer's SFC editor	Parallel flow
Understand the BASIC concepts of SFC	Variable names - Global/Local
Be able to write a SFC program	Validating Symbols
Using Flow to describe the 'Process'	Variable Declarations (Auto allocation)
Coding Actions (ladder)	

The course is suitable for those who have a good knowledge of PLC programming.

Course	OC1	OC2	OC3	OC4	OC5	OC7	OC8	OC9	OC10	OC11	OC12	OC14	OC15
days	2	3	1	1	1	1	1	2	2	tba	tba	tba	1
Price	£425	£450	£210	£210	£210	£210	£210	£425	£425	£380	£330*	£1,100*	£210
												per day	
Jan	4 - 5	6 - 8	Dates available on request.										
Feb	1 - 2	3 - 5	Dates available on request.										
Mar	1 - 2	3 - 5	Dates available on request.										
Apr	12 - 13	14 - 16	Dates available on request.										
May	10 - 11	12 - 14	Dates available on request.										
Jun	7 - 8	9 - 11	Dates available on request.										
Jul	5 - 6	7 - 9	Dates available on request.										
Aug	2 - 3	4 - 6	Dates available on request.										
Sep	6 - 7	8 - 10	Dates available on request.										
Oct	4 - 5	6 - 8	Dates available on request.										
Nov	1 - 2	3 - 5	Dates available on request.										
Dec	6 - 7	8 - 10	Dates available on request.										

Dates can change due to demand, so please call us before booking. All prices are per person. Prices exclude VAT.

* OC12 is a one to one session for more than one person and is at a cost of £330 per person per day, however if there are more than three delegates attending cost is £1,100 per day. OC14 is an On-site training course and the cost is £1,100 per day, rather than per person.

Reservations and bookings are accepted subject to the following terms and conditions

1. Telephone Reservations and Bookings

Telephone reservations are accepted subject to a purchase order being received by Omron for the full amount no later than 2 weeks prior to course commencement.

2. Payment

A purchase order should be presented to Omron for the full amount of the course being attended no later than two working weeks before the start date of the required course.

3. Confirmation

Once a purchase order has been received confirmation of course booking(s) will also be sent. The terms of payment will depend on the account held with Omron and will be made clear on the documentation.

4. Acknowledgment

Once full payment is received, acknowledgement will be sent along with a receipted invoice for the amount submitted for VAT purposes.

5. Attendee Cancellation

Cancellations must be made in writing to Omron. Cancellations must be received by Omron more than 10 working days before the commencement date of the training to receive a full refund of payments made. Thereafter the course fees are forfeit.

6. Omron Course Cancellations

When a course cannot be held or completed through reasons beyond Omron's control, Omron will endeavour to reschedule the course within a reasonable period of time, or offer confirmed attendees alternative dates on existing courses. Written confirmation of this decision will be given to all confirmed attendees.

7. Pricing

Omron reserves the right to amend prices without notice at any time, up to confirmation of the course. This price includes all documentation, lunch and refreshments. It does not include accommodation, breakfast or evening meal.

8. Health and Safety

The customer must ensure that their participants are aware of the responsibilities under the Health and Safety at Work Act.

9. Copyright

Participants receiving training by or on behalf of Omron must not disclose or make available to any person outside of their employment any Omron training materials without prior consent of Omron. Furthermore they are not to copy in whole or in part any training materials or other Omron documentation manuals. The customer will be liable for any breach of copyright by any of their participants.

All documentation issued on courses is the sole Copyright of Omron unless otherwise stated.

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Authorised Distributor

Automation Training

2010

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