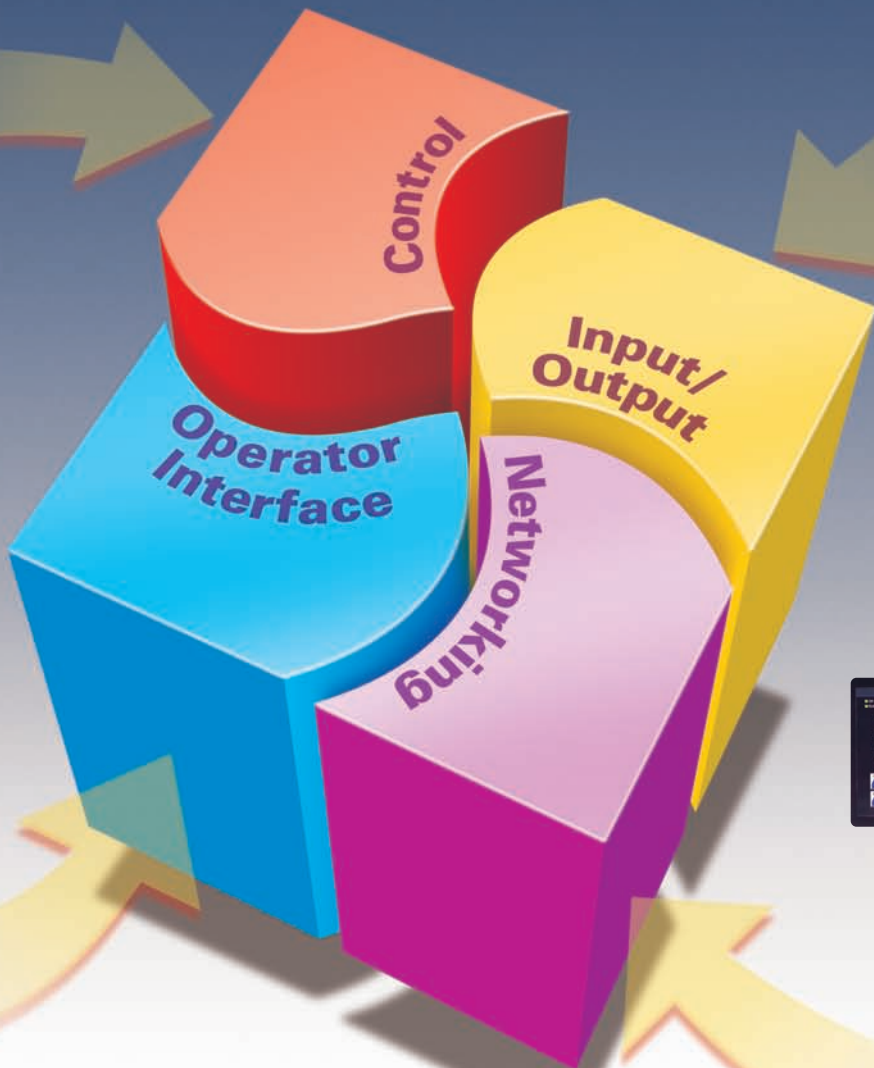


# OCS

## Operator Control Station

Summer 2009



*All-in-One  
Control Solution  
for Industrial  
Applications*



# Discover the Advantages of OCS... the Integrated, All-in-One Solution

By combining a controller, operator interface, I/O, and networking into a single compact unit, OCS (Operator Control Station) provides a better solution for original equipment manufacturers, integrators, and end-users alike. More and more, there is a move to all-in-one controllers because of ease-of-use, cost-savings, and flexibility. Since 1998, OCS has led the way in this emerging market with the largest installed base, and product selection. OCS has been used successfully in a variety of applications, including:

- Custom OEM products
- Power Management and Backup Generation
- Semiconductor Applications
- Packaging Machinery
- Water Treatment
- Compressor Control
- Pump Control
- Food Processing
- Motion Control
- Distributed Conveyor Control
- HVAC/Environmental Control
- Mobile Machinery
- Automotive Parts Manufacturing



## Lowest Costs, More Options, and Easy-to-Use

OCS applications are developed with a powerful and secure programming package called Cscape™. It supports ladder logic, operator interface development, I/O configuration, and network configuration—and also offers security features. Users can be required to enter passwords to access protected operations (such as upload, download, verify, and controller mode).

Cscape can be downloaded free: [www.hornerocs.com](http://www.hornerocs.com). Plus, it has no costly licensing fees so you don't have to pay for software upgrades. With fully integrated hardware and software, OCS offers easier programming, installation, development, and set-up. You can also save time and money with an OCS because less panel space is needed. It is designed as a modular system for easy selection and growth, and it has embedded CAN and Modbus RTU networking capabilities.

## Reliable as a Traditional Controller

OCS uses a dependable, proprietary, real-time operating system—not a Windows® operating system—so it runs the way a traditional controller works. This means you don't have to worry about losing control because of an operating system malfunction. You'll also benefit from:

- Ladder programming and screen configuration in one package
- No serial interconnects—which means faster response times
- Up to 256K logic and 8M screen memory
- 0.2–1.2 mS/K scan rate



# Customize the OCS to Your Specific Needs

OCS is designed to look like a “generic” operator station, fitting in with most cabinet and console designs and color schemes. But sometimes adding an individualized look can mean a world of difference in the overall usefulness of an operator station and the marketing of your machine or system.



You can customize an off-the-shelf OCS in many inexpensive ways to give you this advantage:

- Apply a label on the overlay to add your company logo.
- Substitute a custom keypad or overlay with your company's logo, colors, and industry terms.
- Program the OCS in several other languages, such as French, German, Spanish, and more. Display messages in any language.

We can also handle tough “under-the-hood” customizations, like:

- Modifying existing I/O modules.
- Designing new I/O configurations and control functions.
- Adding protocol or communication options.
- Designing a new control station from the ground up.

## Product Support Is As Important As the Product Itself

### Spare Parts Easily Available

Little time will be wasted trying to locate and order replacement parts. Because OCS is an off-the-shelf product, spare parts are just a phone call away. In fact, replacement parts are available from OCS resellers located all over the world.

### Technical Support and FREE Training

You can come to us for technical or product support for OCS. Whether it's a quick phone call or online information, many OCS services are available at no charge. We also provide engineering services such as programming assistance, packaged solutions and site surveys at low cost:

- Toll-free phone support: 877-665-5666
- Web site for comprehensive product information and manuals [www.hornerOCS.com](http://www.hornerOCS.com)
- Free OCS training classes
- 2 year warranty
- Network of worldwide Sales Associates for parts, service, or support





# Make the OCS Connection... the Best All-in-One Controller Hardware and Software!

## High-Performance Hardware

### Outstanding Control and Graphics Capabilities

A highly robust embedded real-time operating system ensures unparalleled performance on both the control and graphics side of the application.

### Brightest Screens Available

Offers more pixels, color, memory, and faster updates—which all add up to exceptional performance.

### Expansion I/O

Choose from several options: Built-in I/O, SmartStack™ modular I/O (stacked on OCS or via fiber optic expansion), SmartStix™ remote I/O, or distributed control (through multiple OCS/RCS units).



Pictured: QX751 15" XGA Color Touch Screen OCS

### High-Speed, Peer-to-Peer CsCAN™

Only OCS offers a built-in, high-speed, peer-to-peer networking port for remote I/O, programming, and peer-to-peer data transfer. CsCAN™ is standard on all models except miniOCS (optional).

### 10/100 Ethernet

Ethernet support (standard on many models) provides a connection to factory-level networks for programming, high-speed data transfer, and supervisory control and data acquisition (SCADA). NX and QX Series have Web server and FTP.

### Communication Ports

Up to 3 serial ports to support programming, Modbus/RTU master/slave, Modbus/TCP, ASCII read/write, and modems.

### Resistive Touch and Function Keys

With OCS, you don't have to choose between a resistive touchscreen and function keys—you get both.

### Removable Memory Media

XL, NX and QX Series OCS read and write application data directly to MicroSD™ or CompactFLASH® memory for virtually unlimited data logging and recipe handling. Other features include: FTP, application updates, screen capture, and video capture (optional).

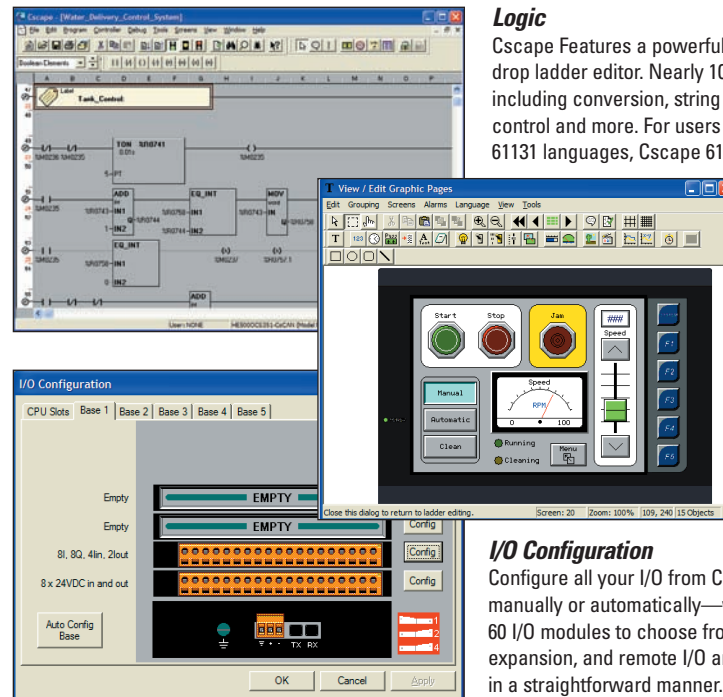
### Optional Video Inputs

One of the most powerful, easy-to-use video options available. Connects up to 4 video sources...from vision systems, cameras, and DVD/VCR players for total integration (QX models only).

## Cscape™...Exceptional Software

Cscape software combines graphical ladder diagram programming (based on IEC-1131) with operator interface development to completely integrate the control package. Its straightforward approach to programming combines logic with messaging and networking, and offers:

- Relay Ladder Logic
- Floating Point Math
- Motion Commands
- Serial Read and Write Functions
- Auto Tune PID
- Modem and Networking Functions



### Logic

Cscape Features a powerful IEC-1131 style free form, drag and drop ladder editor. Nearly 100 functions to choose from, including conversion, string handling, advanced math, flow control and more. For users who prefer to utilize all of the IEC-61131 languages, Cscape 61131 is available.

### Operator Interface

Designed to simplify development of your Operator Interface screens while you develop your control logic. Screens can be called up from ladder logic or operate independently. Use a single set of I/O references—no duplication of effort.

### I/O Configuration

Configure all your I/O from Cscape manually or automatically—with over 60 I/O modules to choose from. Built-in expansion, and remote I/O are all handled in a straightforward manner.



### Cscape Envision

Specifically designed for OCS, EnvisionRV enables you to view and access remote OCS controllers via your PC.

EnvisionFX enables you to transfer files between your PC and OCS via a graphical interface.



## Expansion and Remote I/O for Any Application



### SmartStack™ I/O

SmartStack I/O conserves panel space by "stacking" right on the back of many OCS models. SmartStack I/O also interfaces via fiber optic expansion (FOX) bases and CsCAN bases (RCS).



### SmartStix™ I/O

SmartStix I/O is a compact, remote I/O system for OCS and connects to the CsCAN port, available on nearly every OCS model



### FOX Base

The Fiber Optic Expansion (FOX) Base significantly increases the number of SmartStack I/O modules you can add to NX and QX Series controllers and it supports plastic or glass fiber optic cable.



### SmartMod I/O

SmartMod I/O is a great choice for expanding any OCS when you need one, two or a few more digital or analog I/O.

## All the Networking Options You Need



### Networks

You can set up all networking from one place. Transfer data or perform programming over Ethernet/Internet, modem, or peer-to-peer CsCAN networking. Also supports DeviceNet, PROFIBUS, and CANopen. No product in its class offers more options.

# Choose the Level of Functionality You Need



Features		XLe	XLt	XL6	XL6e	NX220	NX250	OX351	OX451	OX551	OX651	OX751	
<b>Display</b>	Graphic/Text graphics	graphics		graphics		graphics		graphics		color graphics		color graphics	
	Characters/Pixels	128 x 64	160 x 128	320 x 240		128 x 64	240 x 128	320 x 240		800 x 600		800 x 600	
	Display Technology	backlit LCD	transflective LCD	5.7" TFT, 32000 colors				5.7" TFT, 32000 colors		8.4" TFT, 32000 colors		10.4" TFT, 32000 colors	
	Character Height (mm)	selectable fonts		selectable fonts		selectable fonts		selectable fonts		selectable fonts		selectable fonts	
	Number of Pages	1023		1023		1023		1023		1023		1023	
	Fields or Objects per Page	50		50		50		50		300		300	
<b>Keypad/ Touchscreen</b>	Total Keys	20	5	6		20	24	6		8		8	
	Function Keys	10	4	5		10		5		7		7	
	Numeric Keys	shared	pop-up keypad	pop-up keypad		shared		pop-up keypad		pop-up keypad		pop-up keypad	
	Touchscreen Support	n/a	1024 x 1024 res.	1024 x 1024 res.		n/a		1024 x 1024 res.		1024 x 1024 res.		1024 x 1024 res.	
	OEM Faceplate Available	yes		yes		yes		yes		yes		yes	
	Programmable LEDs	no		no		10		no		no		no	
<b>Controller</b>	Ladder Logic Memory	256KB		256KB		256KB		256KB		256KB		256KB	
	Register Memory	32KB		32KB		32KB		32KB		32KB		32KB	
	Logic Scan Rate	1.2mS/K		0.2mS/K		0.2mS/K		0.2mS/K		0.2mS/K		0.2mS/K	
	Removable Memory	microSD (Transflash)		microSD (Transflash)		CompactFLASH		microSD (Transflash)		CompactFLASH		CompactFLASH	
	Local Comment Storage	yes		yes		yes		yes		yes		yes	
	Floating Point Support	yes		yes		yes		yes		yes		yes	
	AutoTune PID Capable	yes		yes		yes		yes		yes		yes	
	Motion Commands	yes		yes		yes		yes		yes		yes	
Removable Flash Drive Support	no		yes		no		yes		no		no		
<b>I/O Support</b>	Built-in I/O	yes		yes		optional HSC/PWM		no					
	SmartStack I/O Support	yes – using the RCS116		yes – using the RCS116		yes		yes		optional Backpack BP41 adds SmartStack (2), FOX & SmartStix support	optional Backpack BP43 adds HSC/PWM SmartStack (4), FOX & SmartStix support	optional Backpack BP41 adds SmartStack (2), FOX & SmartStix support	optional Backpack BP43 adds HSC/PWM SmartStack (4), FOX & SmartStix support
	Metal/Plastic	metal		metal		plastic		metal					
	SmartStix I/O Support	yes		yes		yes		yes					
	FOX Expansion I/O Support	no		no		yes		yes					
	Total SmartStack Modules	4 per RCS116		4 per RCS116		24		26					
Digital Inputs/Outputs	2048/2048		2048/2048		2048/2048		2048/2048						
<b>I/O Memory Table</b>	Analog Inputs/Outputs	512/512		512/512		512/512		512/512		512/512		512/512	
	General Purpose Registers	9999		9999		9999		9999		9999		9999	
	General Purpose Internal Bits	4096		4096		4096		4096		4096		4096	
<b>Serial Communications</b>	Total Active Ports	2		3		2		3		3		3	
	RS-232 Ports/RS-485 Ports	each port RS-232 or RS-485		each port RS-232 or RS-485		each port RS-232 or RS-485		each port RS-232 or RS-485		3		3	
	PLC/Drive Protocols	yes		yes		yes		yes		yes		yes	
	RTU/Modbus Master/Slave	yes		yes		yes		yes		yes		yes	
	Serial ASCII In/Out	yes		yes		yes		yes		yes		yes	
	USB Communications Port	no		yes		no		yes		no		no	
<b>Networking</b>	Integrated CsCAN Network	standard		standard		standard		standard		optional with BP41 or BP43 Backpack		optional with BP41 or BP43 Backpack	
	Maximum CsCAN Distance	6000 feet		6000 feet		6000 feet		6000 feet		6000 feet		6000 feet	
	Programming Over Network	yes		yes		yes		yes		yes		yes	
	Peer-to-Peer Messaging	yes		yes		yes		yes		yes		yes	
	DeviceNet/PROFIBUS Master	no		no		optional		optional		optional with BP41 or BP43 Backpack		optional with BP41 or BP43 Backpack	
<b>Ethernet/ Internet</b>	Ethernet Support	HE-XEC		HE-XEC	Standard	optional		yes		yes		yes	
	Remote Access	via EnvisionRV		via EnvisionRV	HTTP or EnvisionRV	HTTP or EnvisionRV		HTTP or EnvisionRV		HTTP or EnvisionRV		HTTP or EnvisionRV	
	Remote File Access	via EnvisionFX		via EnvisionFX	FTP or EnvisionFX	FTP or EnvisionFX		FTP or EnvisionFX		FTP or EnvisionFX		FTP or EnvisionFX	
<b>Physical Specifications</b>	Height, inches (mm)	3.780" (96.0)		5.65" (143.6)		6.5" (165.1)		5.65" (143.6)		7.0" (178)		9.09" (231)	
	Width, inches (mm)	3.780" (96.0)		7.33" (186.1)		9.0" (228.6)		7.33" (186.4)		9.17" (233)		11.96" (303.8)	
	Depth, inches (mm)	2.264" (57.5)		2.813" (71.45)		2.5" (63.5)		2.2" (55.88)		3.7" (94) w/BP		3.7" (94) w/BP	
	I/O Module Depth	Communications Option adds 0.5" (13mm) depth		Communications Option adds 0.5" (13mm) depth		each Smartstack I/O adds adds 0.8" (20mm) depth		each Smartstack I/O adds adds 0.8" (20mm) depth		0.8"/module if BP installed		0.8"/module if BP installed	
<b>Operating Specifications and Standards</b>	Operating Temperature	0 to 50°C	-10 to 60°C	-10 to 60°C		0 to 50°C		-10 to 60°C		0 to 50°C		0 to 50°C	
	Humidity (non-condensing)	5 to 95% non-condensing											
	Product Certifications	XLe and XLt: American Bureau of Shipping (ABS) Product Design Assessed (PDA). All OCS Controllers are CE marked and most are UL Class 1, Division II ABCD & C-UL Listed (or equivalent).											
	Equivalent Wash Down Rating	All OCS Controllers are suitable for IP65 and NEMA12 Applications. Most OCS Controllers are also suitable for NEMA4 and NEMA4X applications. Contact the Horner APG Factory for recommendations in Wash Down applications.											
<b>Horner APG continues to sell and support these Classic OCS controllers: miniOCS, OCS100/110, OCS200/210, OCS300 Series, OCS451, OCS551, OCS651, and RCS210.</b>													

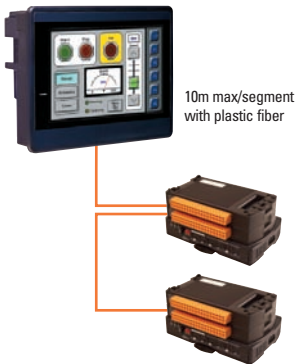


# I/O & Communications Selection Guide



## OCS I/O Options

Select SmartStack I/O that snaps-on, SmartStix Remote I/O or use both. Also consider SmartMod or XLe as cost effective expansion I/O.



10m max/segment with plastic fiber

## SmartStack Fiber Optic Expansion (FOX)

The Fiber Optic Expansion I/O System (FOX) adds up to 20 additional SmartStack modules, using plastic or glass fiber.



**Horner APG, LLC**  
**Indianapolis, USA**  
**877-665-5666 (toll-free)**  
**or 317-916-4274**  
**www.hornerOCS.com**

- Europe
- Australia
- Brazil
- India
- China

## SmartStix Digital & Analog I/O

	DC In	DC Out Pos	DC Out Neg	Relay Out	mA/V In	mA/V Out
DIM610	16					
DIM710	32					
DQM606		16				
DQM706		32				
DQM601			16			
DQM701			32			
DQM602				16		
DIQ811	16		16*			
DIQ816	16	16				
ADC970					12	
MIX577					4	2
MIX977					8	4

\*0.1A, No ESCP for fixed terminals only

## SmartStack Digital I/O

	DC In	DC Out Pos	DC Out Neg	AC In	AC Out	Relay Out
DIM210	8					
DIM310	16					
DIM410	32					
DQM306		16				
DQM406		32				
DQM202						8
DQM902						20
DIQ611	8		8			
DIQ612	8					6
DIQ616	8	8				
DIQ622				8		6
DIQ624				8	8	
DIQ627				8	8*	
DIQ711	16		12			
DIQ712	14					10
DIQ716	16	12				
DIQ722				14		10
DIQ935	32		40**			
DIQ937	32		40**			

\*3A prior to derating \*\*50mA no ESCP

## SmartStack Communications

	Description
ETN300	Ethernet Communications Module
DNM650	Enhanced DeviceNet Master Module*
PBM650	PROFIBUS Master Module*
COM650	CANopen Master Module*
JCM205	SAE J1939 CAN-based Communications Module*



\*Requires RCS116/250 or OCS110/210/250, NX, or Color-Touch OCS

## SmartStack Specialty Modules

	Description
HSC600	1MHz Hi-speed Counter + PWM & I/O Neg*
HSC601	1MHz Hi-speed Counter + PWM & I/O Pos*
ACM530	CsCAN AC PWR Monitor (6 CTs, 6 PTs) True RMS
STP100	Single-axis Stepper Indexer Module, 245KHz
ASC100	ASCII BASIC Module, 3 serial ports

\*8 DC In / 8 DC Out total

## Stand-Alone Wireless & Communications

WCM910	900MHz Wireless Radio Modem, 1 watt
	<b>SmartLnx™ Radio Modem</b> This stand-alone 1 watt Modem uses 900MHz spread-spectrum technology for superior range.
CGM750	Industrial Telephone Modem (14.4 kbaud), 12/24 vdc
	<b>SmartLnx™ Industrial Modem</b> This rugged, DIN-rail mounted industrial modem can be used for dial-in and dial-out.

## XLe as Remote Expansion I/O

	DC In	DC Out Pos	Relay Out	HSC In	PWM Out	mAV In	mA/V RTD/TC	mA/V Out
XE102	12		6	4		4		
XE103	12	12		4	2	2		
XE104	24	16		4	2	2		
XE105	12	12		4	2		2	2

## XL Series Communications

	Description
XEC	Ethernet Communications option card (field installable)
XMC	57.6K Telephone Modem option card (field installable)
XRC9	900MHz, 1W Radio Modem option card (field installable)
GSM	Cellular Modem option card (field installable)
GPS183	GPS Satellite Receiver

## Signal Conditioners

	Description
HE-XDIA	8 channel 120/240 Vac input to 8 channel, 24 Vdc inputs (positive logic)
HE-XDQA	4 channel 120/240 Vac 2 A (positive logic) adapted from 4 channel, 24 Vdc 0.5 A (positive logic)
HE-XDQR	4 channel relay output (120/250 Vac 10 A, 24/30 Vdc 10 A) adapted from 4 channel, 24 Vdc 0.5 A (positive logic)
HE-XDQD	4 channel solid state output (24 Vac/Vdc, 3 A) adapted from 4 channel, 24 Vdc 0.5 A (positive logic)
HE-XPC	Dual channel PWM to 20 mA analog converter
HE-XPV	Dual channel PWM to 10V analog converter

## SmartStack Analog I/O

	Volt In	mA In	Volt Out	mA Out	Tcpl / mV	RTD In
ADC120		4				
ADC110	4					
ADC920		12*				
ADC140		4**				
DAC001			2			
DAC101			4			
DAC102				4 Neg		
DAC106				4 Pos		
DAC202				8 ch 10V/20mA		
THM100					4	
THM200					8	
RTD100						4
MIX126		2		2 Pos		
MIX211	4 iso		2 iso			

\*5V/20mA/thermister \*\*16-bit

## SmartStack Mixed Digital/Analog I/O

	DC In	DC Out Pos	Rly Out	mA In	Volt In	mA Out	Volt Out
MIX901	8	8			4		2
MIX902	8	8		4		2 Neg	
MIX905	8		6		4*		2**
MIX906	8	8		4		2 Pos	
MIX912	8	8		4 iso		2 iso	
MIX963							(4)Tcpl/RTD, (2)20mA out, 2 rly, 2 SS out

\*5V/20mA/thermister \*\*10V/20mA

## SmartMod Digital & Analog I/O

	DC In	Relay Out	mA In	V In	mA/V Out	V Out	T/C In	RTD In
DIM610	12							
DIQ512	4	4						
ADC120/220			4/8					
ADC107/207				4/8				
DAC107/207					4/8			
DAC201						8		
THM100/200							4/8	
RTD100								4