

## OPTIDRIVE VTC

### Variable Torque Control

*Dedicated to control of fans and pumps requiring standard duty*

AC Variable Speed Drive 1.5 - 160kW

Optidrive VTC provides ease of use plus simple installation and commissioning, making it the lowest cost solution for virtually all variable torque applications.

Innovative and compact the Optidrive VTC range combines good looks with robustness, reliability and effortless performance.

Energy saving is maximised using the sleep mode and the automatic energy optimiser function, which reduces the motor voltage to match the load.

Coherent operation using a unified control interface across the entire range and with only 14 standard parameters to adjust, Optidrive's legendary ease of use could not be easier or quicker to get started with. For the more advanced user the extended parameter set gives access to powerful additional functionality.

OptidriveVTC's optical interface allows communication with other control equipment and also with the unique Optiwand CE Plus for fast and accurate product configuration.

### Key Benefits

- True evolution of range, maintaining same footprint and connector arrangement as original
- Fast and accurate parameter configuration using unique Optiwand CE Plus and Optistore Plus
- Small mechanical envelope
- Rugged industrial operation 50°C ambient rating
- Simple mechanical & electrical installation
- Simple operation, powerful features & easy to use
- Fast setup, 14 basic parameters
- Real time motor current, motor speed and kW indication
- Debugging using troubleshooting & P0
- Standard duty 110% overload for 60 secs
- Keypad control
- Spin start
- Built in PID controller for feedback control systems
- Automatic energy optimiser
- Sleep mode
- Intelligent fire mode
- Dual high speed serial communication interfaces
  - Optical (IrDA) interface for commissioning and low bandwidth control systems (115kbps)
  - RS485/ Modbus RTU interface for high bandwidth control (9k6 to 115kbps)



### Key Physical Features

- Pluggable control terminals
- Easy access key slots for simple installation
- Easy access contactor style power terminals for intuitive easy wiring
- Help card for basic parameter description and terminal layout
- Easy to use keypad with bright LED display
- IP20
- Integral rfi filter
- Integral braking transistor
- 3 phase line choke (size 4, 5 & 6)

### Key Control I/O Features

- Programmable I/O for flexible control
- 12 bit bipolar analogue input, 8ms sample time
- 2<sup>nd</sup> analogue input for PID feedback control systems
- Positive logic digital inputs (active high), 8ms sampling
- 24V/ 100mA user supply output
- 0..10V & 4..20mA analog output, 8ms update
- Galvanically isolated and short circuit proof

### Key Programming Features

- Silent motor running with 32kHz ultra-quiet switching
- 8 preset speeds
- Mains dip ride through
- Skip frequency
- Last 4 trips stored
- 120Hz output frequency
- Parameter lock
- Hours run & kWh meters
- Speed scaling factor for master- slave arrangements
- 2<sup>nd</sup> deceleration ramp for rapid stop
- Display scaling to show real values ie "temperature"



# ELECTRICAL DATA

## OPTIDRIVE VTC SIZE 2

Model	ODV-xxxxx-IN	22150	22220	24150	24220	24400
Motor output rating	kW	1.5	2.2	1.5	2.2	4
Model	ODV-xxxxx-USA	22020	22030	24020	24030	24050
Motor output rating	HP	2.0	3.0	2.0	3.0	5.0
Supply voltage/ phases	V +/- 10%	220-240/ 1Ø		380-480/ 3Ø		
Supply fuse or MCB rating	A	20	30	10	10	20
Output voltage/ phases	V	0-240/ 3Ø		0-480/ 3Ø		
Output current – 110% overload	A	7	10.5	4.1	5.8	9.5
Max motor cable length	m	100				
Min brake resistor	Ω	33	22	47	47	33

## OPTIDRIVE VTC SIZE 3

Model	ODV-xxxxx-IN	32030	32040	32055	34055	34075	34110	34150
Motor output rating	kW	3.0	4.0	5.5	5.5	7.5	11.0	15.0
Model	ODV-xxxxx-USA	32040	32050	32075	34075	34100	34150	34200
Motor output rating	HP	4	5	7.5	7.5	10.0	15.0	20.0
Supply voltage/ phases	V +/- 10%	220-240/ 1 (50% derating) or 3Ø			380-480/ 3Ø			
Supply fuse or MCB rating	A	32	32	50	32	32	50	50
Output voltage/ phases	V	0-240/ 3Ø			0-480/ 3Ø			
Output Amps – 110% overload	A	14	18	25	14	18	25	30
Max motor cable length	m	100						
Min brake resistor	Ω	15			22			

## OPTIDRIVE VTC SIZE 4

Model	ODV-xxxxx-IN	42075	42110	42150	42185	42220
Motor output rating	kW	7.5	11	15	18.5	22
Model	ODV-xxxxx-USA	42100	42150	42200	42250	42300
Motor output rating	HP	10	15	20	25	30
Supply voltage/ phases	V +/- 10%	220-240/ 1 (50% derating) or 3Ø				
Supply fuse or MCB rating	A	80	80-100	100	100-125	160
Output voltage/ phases	V	0-240/ 3Ø				
Output Amps – 110% overload	A	39	46	61	72	90
Max motor cable length	m	100				
Min brake resistor	Ω	6				

Model	ODV-xxxxx-IN	44185	44220	44300	44370	44450
Motor output rating	kW	18.5	22	30	37	45
Model	ODV-xxxxx-USA	44250	44300	44400	44500	44600
Motor output rating	HP	25	30	40	50	60
Supply voltage/ phases	V +/- 10%	380-480/ 3Ø				
Supply fuse or MCB rating	A	80	80-100	100	100-125	160
Output voltage/ phases	V	0-480/ 3Ø				
Output Amps – 110% overload	A	39	46	61	72	90
Max motor cable length	m	100				
Min brake resistor	Ω	12				

## OPTIDRIVE VTC SIZE 5

Model	ODV-xxxxx-IN	52300	52370	52450	54550	54750	54900
Motor output rating	kW	30	37	45	55	75	90
Model	ODV-xxxxx-USA	52400	52500	52600	54750	54100	54120
Motor output rating	HP	40	50	60	75	100	120
Supply voltage/ phases	V +/- 10%	220-240/ 1 (50% derating) or 3Ø			380-480/ 3Ø		
Supply fuse or MCB rating	A	200	250-300	250-300	200	250-300	250-300
Output voltage/ phases	V	0-240/ 3Ø			0-480/ 3Ø		
Output Amps – 110% overload	A	110	150	180	110	150	180
Max motor cable length	m	100					
Min brake resistor	Ω	3			6		

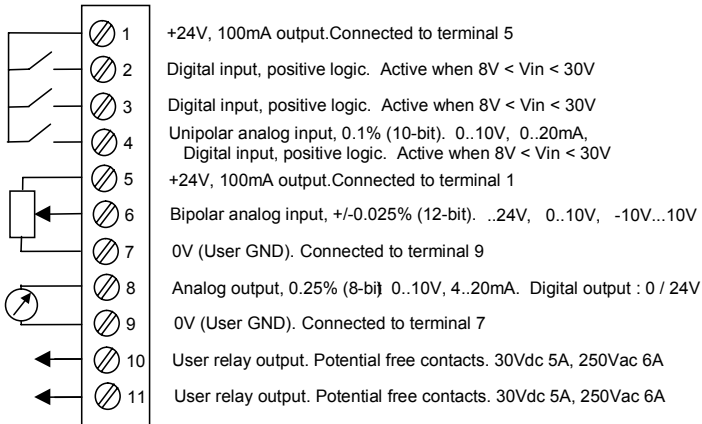
## OPTIDRIVE VTC SIZE 6 (EXTERNAL 3 PHASE LINE CHOKE)

Model	ODV-xxxxx-IN	64110	64132	64160
Motor output rating	kW	110	132	160
Model	ODV-xxxxx-USA	64150	64175	64210
Motor output rating	HP	150	175	250
Supply voltage/ phases	V +/- 10%	380-480/ 3Ø		
Supply fuse or MCB rating	A	315	350	400
Output voltage/ phases	V	0-480/ 3Ø		
Output Amps - 110% overload	A	202	240	300
Max motor cable length	m	100		
Min brake resistor	Ω	6		

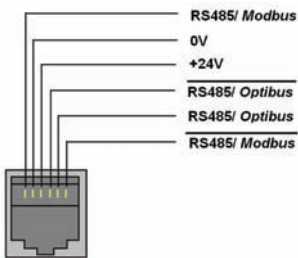
## SPECIFICATION

- Supply frequency 48 to 62 Hz
- Max. permissible 3-phase supply imbalance 3%
- Max. ambient temperature 50 °C
- Max. altitude 2000 m
- Derate above 1000 m, 1% / 100 m
- For higher switching frequencies, derate output current 5%/°C above max. ambient up to 50°C
- I x t protection above 100% output current
- 110% overload protection for 60 sec
- 125% overload allowable for 2 sec
- Storage temperature -40 to +60 °C
- Options:
  - Optiwand CE Plus & Optistore Plus
  - Optiport Plus
  - RS485 data cables and accessories
  - Optilink
  - Gateway options
  - 3ROUT (3 Relay Output)
  - Isolated USB to RS485 adaptor
  - Optifilter
  - Optibrake
  - Input Chokes
  - Output Filters

## CONTROL TERMINAL ARRANGEMENT



## COMMUNICATION INTERFACE



## OPTIDRIVE DIMENSIONS

	Size 2	Size 3	Size 4	Size 5 *	Size 5**	Size 6
Length / mm	260	260	520	1045	1100	1100
Width / mm	100	171	340	340	340	340
Depth / mm	175	175	220	220	330	330
Weight/ kg	2.6	5.3	28	67	68	55 ***
Fixings	2 * M4	4 * M4	4 * M8			
Power Terminal torque settings	1 Nm		4 Nm	8 Nm		

- \* Size 5 – 90A and 110A ratings
- \*\* Size 5 – 150A and 180A ratings
- \*\*\* Size 6 has external line choke weighing 27kg

## ENCLOSURE - NON VENTED DIMENSIONS (mm)

DRIVE POWER RATING	SEALED UNIT		
	W	H	D
Size 2 1.5kW 200V/ 2.2kW 400V	300	400	300
Size 2 2.2kW 200V / 4kW 400V	450	600	300

## ENCLOSURE – VENTED DIMENSIONS (mm)

DRIVE POWER RATING	VENTED UNIT			FORCE VENTED (WITH FAN)			
	W	H	D	W	H	D	Air Flow
Size 2 (4kW)	400	600	250	300	400	250	> 45m <sup>3</sup> / h
Size 3 (15kW)	600	800	300	400	600	250	> 80m <sup>3</sup> / h
Size 4 (22kW)	600	1000	300	600	800	300	> 300m <sup>3</sup> / h
Size 4 (45kW)	N/A	N/A	N/A	600	800	300	> 300m <sup>3</sup> / h
Size 5 (90kW)	N/A	N/A	N/A	800	1600	400	> 900m <sup>3</sup> / h
Size 6 (160kW)	N/A	N/A	N/A	800	2000	400	> 1000m <sup>3</sup> / h

Size 5 & 6



Size 4



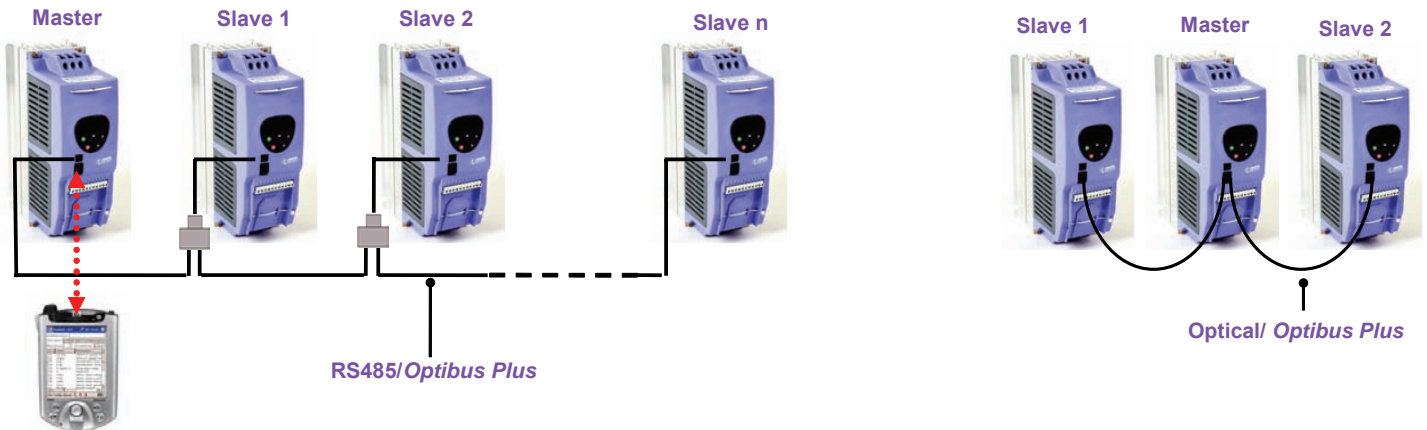
## Communication Interfaces



	Interface	Protocol	Baud (bps)	Purpose	Connections
RS485	RS485	Modbus RTU	9k6 – 115k	High bandwidth control systems	<ul style="list-style-type: none"> <li>• Drive to plc</li> <li>• Drive to fieldbus gateway</li> </ul>
		Optibus Plus	115k	Low bandwidth control systems	<ul style="list-style-type: none"> <li>• Drive to pc (Optistore)</li> <li>• Drive to drive (unlimited slaves)</li> </ul>
Optical	IrdA	Optibus Plus	115k	Small, low bandwidth control systems	Drive to drive (max. 2 slaves)
				Commissioning	Commissioning

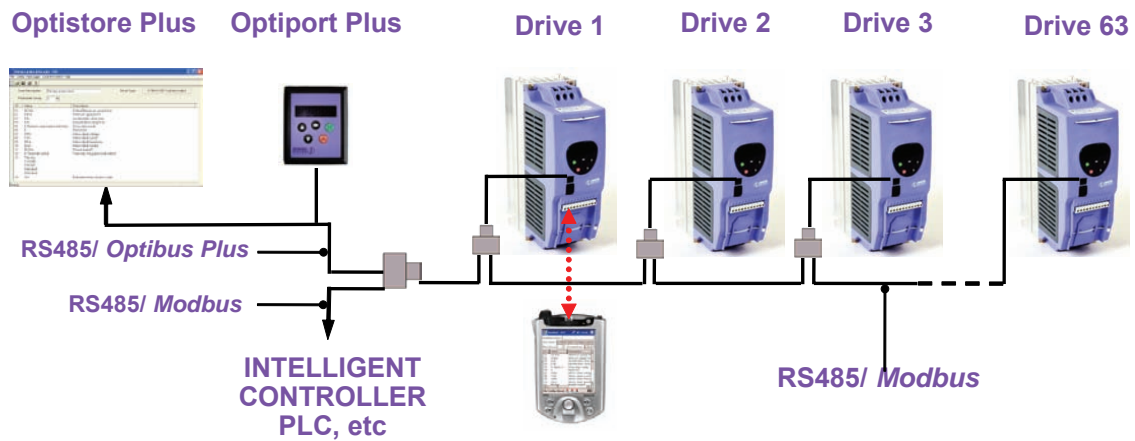
## Master – Slave/ Drive to Drive Communication

Master – slave networks can be easily created by connecting the communication ports. Optiwand CE Plus can be used for commissioning individual drives through the optical port even when the drives are connected in an RS485 network.



## Drive Networks to Intelligent Controllers

High bandwidth control systems can be created for up to 63 drives connected to an intelligent network with RS485/ Modbus RTU. Optiport Plus and/ or Optistore Plus can run on the same network using an RS485/ Optibus Plus connection for monitoring purposes, but not for control.



## Fieldbus Communication

Optidrive Plus 3<sup>GV</sup> connects to high speed communication networks via a gateway.

1 DeviceNet gateway can connect with up to 4 Optidrive.

1 Profibus gateway can connect with up to 8 Optidrive.

