

About Sumitomo Drive Technologies

Sumitomo Drive Technologies has been trusted for over 130 years to provide quality products and innovative solutions to help our customers solve their complex challenges. This rich history has made us a leading manufacturer of power transmission and control products in a wide variety of applications for leading brands around the globe.

Since 1966, Sumitomo Machinery Corporation of America has served the United States by providing local sales and support to a variety of customers spanning the many industries that are unique to our region, such as food and beverage, parcel handling, automotive, and mining.



OPTIDRIVE™ CP²

AC Variable Speed Drive

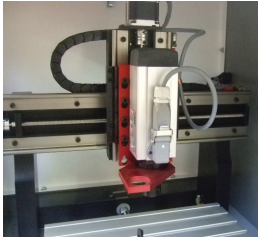
Powerful Performance
Advanced motor control

Global Drive Solutions

Invertek Drives operate at the heart of automated systems around the world



Crane Control
Demanding application at South African mine



Machine Tool OEM
UK machine tool supplier specifies Optidrive



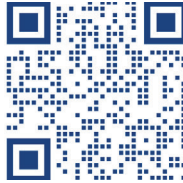
Film Manufacturing
Optimum tension control in Australia



Food Processing
Precision conveyor control in Spain



Amusement Parks
Reliable control of difficult loads in Spain



www.sumitomodrive.com

For worldwide locations, please visit www.sumitomodrive.com/worldwide
Contact your local representative at www.sumitomodrive.com/representative
Tel: 1-800-SM-CYCLO (762-9256)



2019/2023 Invertek P2 Brochure



0.75kW–250kW / 1HP–350HP
200–600V Single & 3 Phase Input



Powerful Performance

World leading control for the latest generation of permanent magnet and standard induction motors

Manufacturing Pumping Conveyor Systems Machine Tools Processing Plants Plastics Rubber Chemical Elevators Cranes



IP20

Up to 350HP, 450A



IP55 / NEMA 12

Up to 250HP, 302A



IP66 / NEMA 4X

Up to 10HP, 18A

World Leading Motor Control

The Optidrive P2 offers the perfect combination of high performance together with ease of use to allow even the most demanding applications to be tackled easily.

Designed for fast installation and commissioning, Optidrive P2 provides the most cost effective solution for industry.

All Optidrive P2 units provide 200% overload for 4 seconds as standard, ensuring each drive is suitable for Heavy Duty applications, whilst the IP55 enclosed versions ensure the drive is tough enough to survive in industrial environments.

Extensive I/O and communications interface capabilities ensure the drive can be integrated quickly and efficiently into a wide variety of control systems with the minimum commissioning time, ensuring rapid start up. Invertek's simple parameter structure, and carefully selected factory parameter settings ensure that commissioning time is kept to a minimum.



Compliant with international standards. Manufactured in the UK.

200% overload for 4 seconds

Advanced Motor Control

Optidrive P2 has been uniquely developed to allow a wide range of different motor types to be used, with only parameter changes being required. This technology allows the same drive to be used in a wide range of applications, allowing OEMs and end user alike to take advantage of the energy saving provided by using the latest motor technologies.

AC Induction Motors

The majority of AC motors in use today around the world are standard induction motors. These motors are relatively low cost, readily available and provide good performance with long service life. With the ever increasing focus on energy efficiency, motor manufacturers have refined and improved their designs in recent years.

Optidrive P2 has been developed to provide optimum control and maximum efficiency when operating with older motors designs, or newer high efficiency designs.

Operation can be in simple V/F control mode or in High Performance Third Generation Vector Mode, which provides up to 200% torque from zero speed without requiring an encoder.

Permanent Magnet AC Motors

Permanent magnet AC motors provide improved efficiency compared to standard induction motors. Using permanent magnets in the motor construction eliminates the need for any magnetising current, reducing electrical losses. PM motors have been used for many years in high performance applications, however this has always required the use of a feedback device, such as a resolver or encoder.

Optidrive P2 has been designed to operate with AC PM motors without requiring any feedback device, allowing them to be used for their energy efficiency benefits without incurring extra cost and complexity in applications which do not require position feedback.

Brushless DC Motors

BLDC motors are similar to AC PM motors, however the design requires a slightly different control method to optimise the performance. Optidrive P2 has the flexibility to control this type of motor, requiring only simple parameter changes. This provides much greater flexibility for OEMs, allowing Optidrive P2 to be used in a variety of applications, with various motor types.

Synchronous Reluctance Motors

Synchronous Reluctance Motors (SynRM), not to be confused with Switched Reluctance Motors, share a similar stator construction to standard induction motors, however the rotor is substantially different, in order to improve the overall efficiency of the motor. SynRM motors are ideally suited to variable torque applications.

Optidrive P2 can control synchronous reluctance motors, allowing the energy saving benefits to be realised.

At a Glance...

High performance, excellent usability and flexible to meet the needs of your application

Keyhole Mounts for fast installation

IP55 / NEMA 12

High Quality Long-life Fans

Integral Brake Transistor

Integrated Cable Management

Integrated EMC Filter

Integrated Keypad & Display

Modbus RTU and CANopen on board as standard

Pluggable Control Terminals

Pluggable Modules for I/O, Encoder, Alternative Fieldbus

Modbus CANopen

Keyhole Mounts for fast installation

DIN Rail Mount

Contactor-style Power Wiring Arrangement

The image shows a large, industrial-grade inverter with a purple and black finish. It features a digital display and keypad on the front. Various callouts point to specific features: 'Keyhole Mounts for fast installation' (top left), 'IP55 / NEMA 12' (middle left), 'High Quality Long-life Fans' (bottom left), 'Integral Brake Transistor' (bottom left), 'Integrated Cable Management' (bottom center), 'Integrated EMC Filter' (bottom center), 'Integrated Keypad & Display' (top center), 'Modbus RTU and CANopen on board as standard' (middle right), 'Pluggable Control Terminals' (bottom right), 'Pluggable Modules for I/O, Encoder, Alternative Fieldbus' (middle right), 'Modbus CANopen' (bottom right), 'Keyhole Mounts for fast installation' (top right), 'DIN Rail Mount' (middle right), and 'Contactor-style Power Wiring Arrangement' (top right).

Safe Torque Off (provided as standard)	With	Without
Optidrive P2 features a safe torque off function to allow simple integration into machine critical safety circuits. - Simple machine design reduces component costs, saves panel space and minimises installation time - Faster shut down and reset procedures reduce system maintenance time - Better safety standard compared to mechanical solution - Better motor connection. Single cable with no interruption.		

Functional Safety Type Approved

FS

Applications

High performance, accurate motor control for even the most demanding of applications



Mining & Quarrying

- Feed conveyers
- Crushers
- Cranes

Metals & Processing

- Grinding
- Cutting
- Polishing
- Drilling
- Rolling

Rubber & Plastics

- Extruders
- Moulding
- Mixers
- Winding

Food & Beverage

- Conveyers
- Pumps
- Mixers
- Palletizers

Cranes



Requirements:

- High starting torque
- Smooth motor operation throughout starting and stopping phases
- Motor holding brake control
- Avoidance of load droop and sag
- Regeneration and braking capability during load lowering

Optidrive P2 provides:

- Dedicated Hoist Mode Operation with motor holding brake control algorithm
- Up to 200% torque from zero speed in vector operation without encoder feedback
- Multiple Preset Speed or variable speed operation
- Built in dynamic braking transistor, requires only an external resistor

Compressors



Requirements:

- Precise regulation of speed to ensure a consistent end product
- High starting torque demand in many applications
- Maximum efficiency under all conditions
- Safe operation to prevent accidents and injuries

Optidrive P2 Provides:

- PM Motor control mode to allows open loop operation with Permanent Magnet motors for maximum efficiency
- Maximum starting torque with standard AC motors
- Better than 0.5% speed holding accuracy in Open Loop Vector Operation
- Dedicated Safe Torque Off input complies with EN62061 SIL Level 2 for safe operation

Winding



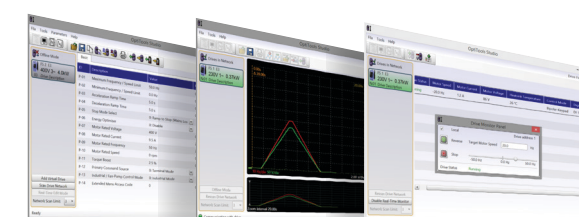
Requirements:

- Precise control of motor torque over a broad speed range
- Accurate control of material tension under all conditions
- Open or closed loop control capability, based on tension feedback or winding diameter
- Web break protection in case of material breakage

Optidrive P2 Provides:

- PID Closed Loop Tension Control with feedback from a load cell or dancer arm
- Open Loop Vector control provides optimum control of the output torque level
- Encoder feedback option allows for a very wide speed range, even down to zero speed
- Safe Torque Off input immediately disables the drive in Emergency conditions

OptiTools Studio



Powerful PC Software

Drive commissioning and parameter backup

- Real-time parameter editing
- Drive network communication
- Parameter upload, download and storage
- Simple PLC function programming
- Real-time scope function and data logging
- Real-time data monitoring

Compatible with:

Windows XP
Windows Vista
Windows 7
Windows 8
Windows 8.1
Windows 10

Powerful, versatile and easy to use

Options & Accessories

Installation options, plug-in modules and commissioning tools



Installation & Peripheral Options

A range of external EMC Filters, Brake Resistors, Input Chokes and Output Filters are available, to suit all installation requirements

Fieldbus Interfaces



Profibus DP
OPT-2-PROFB-IN



DeviceNet
OPT-2-DEVNT-IN



Ethernet IP
OPT-2-ETHNT-IN



Modbus TCP
OPT-2-MODIP-IN



Profinet
OPT-2-PFNET-IN



EtherCat
OPT-2-ETCAT-IN



Plug-in Options



Encoder Feedback
OPT-2-ENCOD-IN (5 Volt)
OPT-2-ENCHT-IN (15 – 30 Volt)

Closed loop encoder feedback, compatible with a wide range of incremental encoders

Extended I/O
OPT-2-EXTIO-IN

- Additional 3 Digital Inputs
- Additional Relay Output

Extended Relay
OPT-2-CASCD-IN

Additional 3 Relay Outputs:

- Relay 3 – Drive Healthy Indication
- Relay 4 – Drive Fault Indication
- Relay 5 – Drive Running Indication

Functions are programmable / adjustable

Optistick Smart



Rapid Commissioning Tool

- Allows copying, backup and restore of drive parameters
- Provides Bluetooth interface to a PC running OptiTools Studio or the OptiTools Mobile app on a smartphone
- Onboard NFC (Near Field Communication) for rapid data transfer

- OPT-3-STICK-IN
- OPT-3-WLKIT-IN
- OptiStick Smart + Bluetooth Dongle
- OPT-3-PCKIT-IN
- Optistick Smart + Bluetooth Dongle + NFC Pad

PC Connection Kit



OPT-2-USB-OBUS is a dedicated PC connection kit for all Optidrive models, allowing direct connection from the PC USB port to the drive RJ45 communication connection for use with Optitools studio software.

OPT-2-USB485-OBUS

Optipad



Remote Keypad
TFT Display

Optipad Language Support

- English
- German
- Spanish
- Italian
- French
- Swedish
- Russian
- Polish
- Portuguese
- Finnish

OPT-3-OPPAD-IN

Through Hole Mount Kit



Through Hole
Mounting

Through hole mount kits allow optidrive to be mounted through panel, ensuring that the heat from the drives heat sink is kept spate from the control electronics. This allows the optimum panel cooling arrangement to be used, with best possible separation of hot and cold air.

- OPT-2-TMHT04
- OPT-2-TMHT05
- OPT-2-TMHT06
- OPT-2-TMHT07

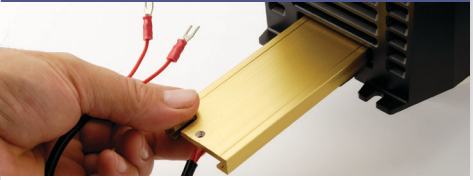
Local Isolator



Local isolator option allows complete disconnection of the incoming AC power to the drive. The isolator mounts directly to the drive, and provides a local disconnect option. The handle can be padlocked in the off position for safe maintenance.

OPT-2-ISOLO-S4
OPT-2-ISOLO-S5

Brake Resistors



Optibrake dynamic braking resistors are designed specifically for the Optidrive range. For use with high inertia loads which need to be stopped rapidly. Optibrake dynamic braking resistors assist the Optidrive in managing the electrical energy returned from the motor during braking by converting it to heat energy.

OD-BR100-IN
OD-BRES4-IN

Modbus RTU and CANopen on board as standard

For additional communication interfaces or functionality a range of plug-in modules is available:

Replace # in model code with enclosure/display option

				kW	HP	Amps	Frame Size	IP Model Code										IP20 Cabinet Mount	IP55/ NEMA12 JFT Display	Outdoor IP66/ NEMA4X Non Switched	Outdoor IP66/ NEMA4X Switched
								Product Family	Generation	Frame Size	Voltage Code	Power Rating Code	Supply Phases	EMC Filter	Brake Transistor						
200–240V ±10% 1 Phase Input	0.75	1	4.3	2	ODP	- 2	- 2	2	010	- 1	H	F	4	#	2-MN		A-MN	B-MN			
	1.5	2	7	2	ODP	- 2	- 2	2	020	- 1	H	F	4	#	2-MN		A-MN	B-MN			
	2.2	3	10.5	2	ODP	- 2	- 2	2	030	- 1	H	F	4	#	2-MN		A-MN	B-MN			
200–240V ±10% 3 Phase Input	0.75	1	4.3	2	ODP	- 2	- 2	2	010	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	1.5	2	7	2	ODP	- 2	- 2	2	020	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	2.2	3	10.5	2	ODP	- 2	- 2	2	030	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	4	5	18	3	ODP	- 2	- 3	2	050	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	5.5	7.5	24	3	ODP	- 2	- 3	2	075	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	5.5	7.5	24	4	ODP	- 2	- 4	2	075	- 3	H	F	4	#		N-MN					
	7.5	10	30	4	ODP	- 2	- 4	2	100	- 3	H	F	4	#	2-MN	N-MN	A-MN	B-MN			
	11	15	46	4	ODP	- 2	- 4	2	150	- 3	H	F	4	#	2-MN	N-MN	A-MN	B-MN			
	15	20	60	5	ODP	- 2	- 5	2	020	- 3	H	F	4	#	2-MN	N-MN					
	18.5	25	72	5	ODP	- 2	- 5	2	025	- 3	H	F	4	#	2-MN	N-MN					
	22	30	90	6	ODP	- 2	- 6	2	030	- 3	H	F	4	#		N-MN					
	22	30	90	6A	ODP	- 2	- 6	2	030	- 3	H	F	4	#	2-MN						
	30	40	110	6	ODP	- 2	- 6	2	040	- 3	H	F	4	#		N-MN					
	30	40	110	6A	ODP	- 2	- 6	2	040	- 3	H	F	4	#	2-MN						
	37	50	150	6	ODP	- 2	- 6	2	050	- 3	H	F	4	#		N-MN					
	37	50	150	6B	ODP	- 2	- 6	2	050	- 3	H	F	4	#	2-MN						
	45	60	180	6	ODP	- 2	- 6	2	060	- 3	H	F	4	#		N-MN					
	45	60	180	6B	ODP	- 2	- 6	2	060	- 3	H	F	4	#	2-MN						
	55	75	202	7	ODP	- 2	- 7	2	075	- 3	H	F	4	#		N-MN					
	75	100	248	7	ODP	- 2	- 7	2	100	- 3	H	F	4	#		N-MN					
380–480V ±10% 3 Phase Input	0.75	1	2.2	2	ODP	- 2	- 2	4	010	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	1.5	2	4.1	2	ODP	- 2	- 2	4	020	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	2.2	3	5.8	2	ODP	- 2	- 2	4	030	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	4	5	9.5	2	ODP	- 2	- 2	4	050	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	5.5	7.5	14	3	ODP	- 2	- 3	4	075	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	7.5	10	18	3	ODP	- 2	- 3	4	100	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	11	15	24	3	ODP	- 2	- 3	4	150	- 3	H	F	4	#	2-MN		A-MN	B-MN			
	11	15	24	4	ODP	- 2	- 4	4	150	- 3	H	F	4	#		N-MN					
	15	20	30	4	ODP	- 2	- 4	4	200	- 3	H	F	4	#	2-MN	N-MN	A-MN	B-MN			
	18.5	25	39	4	ODP	- 2	- 4	4	250	- 3	H	F	4	#	2-MN	N-MN	A-MN	B-MN			
	22	30	46	4	ODP	- 2	- 4	4	300	- 3	H	F	4	#	2-MN	N-MN	A-MN	B-MN			
	30	40	61	5	ODP	- 2	- 5	4	040	- 3	H	F	4	#	2-MN	N-MN					
	37	50	72	5	ODP	- 2	- 5	4	050	- 3	H	F	4	#	2-MN	N-MN					
	45	60	90	6	ODP	- 2	- 6	4	060	- 3	H	F	4	#		N-MN					
	45	60	90	6A	ODP	- 2	- 6	4	060	- 3	H	F	4	#	2-MN						
	55	75	110	6	ODP	- 2	- 6	4	075	- 3	H	F	4	#		N-MN					
	55	75	110	6A	ODP	- 2	- 6	4	075	- 3	H	F	4	#	2-MN						
	75	120	150	6	ODP	- 2	- 6	4	120	- 3	H	F	4	#		N-MN					
	75	120	150	6B	ODP	- 2	- 6	4	120	- 3	H	F	4	#	2-MN						
	90	150	180	6	ODP	- 2	- 6	4	150	- 3	H	F	4	#		N-MN					
90	150	180	6B	ODP	- 2	- 6	4	150	- 3	H	F	4	#	2-MN							
110	175	202	6B	ODP	- 2	- 6	4	175	- 3	H	F	4	#	2-MN							
110	175	202	7	ODP	- 2	- 7	4	175	- 3	H	F	4	#		N-MN						
132	200	240	7	ODP	- 2	- 7	4	200	- 3	H	F	4	#		N-MN						
160	250	302	7	ODP	- 2	- 7	4	250	- 3	H	F	4	#		N-MN						
200	300	370	8	ODP	- 2	- 8	4	300	- 3	H	F	4	#	2-MN							
250	350	450	8	ODP	- 2	- 8	4	350	- 3	H	F	4	#	2-MN							
500–600V ±10% 3 Phase Input	0.75	1	2.1	2	ODP	- 2	- 2	6	010	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	1.5	2	3.1	2	ODP	- 2	- 2	6	020	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	2.2	3	4.1	2	ODP	- 2	- 2	6	030	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	4	5	6.5	3	ODP	- 2	- 2	6	050	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	5.5	7.5	9	2	ODP	- 2	- 2	6	075	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	7.5	10	12	3	ODP	- 2	- 3	6	100	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	11	15	17	3	ODP	- 2	- 3	6	150	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	15	20	22	3	ODP	- 2	- 3	6	200	- 3	H	0	4	#	2-MN		A-MN	B-MN			
	15	20	22	4	ODP	- 2	- 4	6	200	- 3	H	0	4	#		N-MN					
	18.5	25	28	4	ODP	- 2	- 4	6	250	- 3	H	0	4	#	2-MN	N-MN	A-MN	B-MN			
	22	30	34	4	ODP	- 2	- 4	6	300	- 3	H	0	4	#	2-MN	N-MN	A-MN	B-MN			
	30	40	41	4	ODP	- 2	- 4	6	400	- 3	H	0	4	#	2-MN	N-MN	A-MN	B-MN			
	37	50	54	5	ODP	- 2	- 5	6	050	- 3	H	0	4	#	2-MN	N-MN					
	45	60	65	5	ODP	- 2	- 5	6	060	- 3	H	0	4	#	2-MN	N-MN					
	55	75	78	6	ODP	- 2	- 6	6	075	- 3	H	0	4	#		N-MN					
	75	100	105	6	ODP	- 2	- 6	6	100	- 3	H	0	4	#		N-MN					
	90	125	130	6	ODP	- 2	- 6	6	125	- 3	H	0	4	#		N-MN					
	110	150	150	6	ODP	- 2	- 6	6	150	- 3	H	0	4	#		N-MN					